

West Des Moines, IA

PROJECT: Hamilton Co,FY25-27 On-Call Support,IA 27224356.00 DATE: 3/31/2025

SUBJECT: Hamilton County Sanitary Landfill - 40-SDP-02-75C - Leachate Collection System Shut-Off Review TRANSMITTAL ID: 00001

PURPOSE: For your approval VIA: Info Exchange

FROM

NAME	COMPANY	EMAIL	PHONE
Nathan Ohrt West Des Moines, IA	SCS Engineers	NOhrt@scsengineers.com	+1-515-415-9220

TO

NAME	COMPANY	EMAIL	PHONE
Geoffrey Spain United States		geoffrey.spain@dnr.iowa.gov	

REMARKS: Good afternoon Geoff-

SCS Engineers, on behalf of the Hamilton County Solid Waste Commission, is submitting a Leachate Collection System Shut-Off Review for the Hamilton County Sanitary Landfill. If you have any questions regarding this review, please contact myself at the number below or Tim Buelow at (515) 681-5455.

Nathan Ohrt
Senior Project Professional

SCS ENGINEERS

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DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NOTES
1	3/31/2025	Hamilton County Sanitary Landfill - 40-SDP-02-75C - Leachate Collection System Shut-Off Review.pdf	

Transmittal

DATE: 3/31/2025
TRANSMITTAL ID: 00001

COPIES:

Terry Klaver	(Hamilton County Solid Waste Commission)
Ben Madson	(SCS Engineers)
Nathan Ohrt	(SCS Engineers)
Mike Smith	(Iowa, State of)
Becky Jolly	

March 31, 2025
Project No. 27224356.00

Mr. Geoff Spain
Iowa Department of Natural Resources
Land Quality Bureau
6200 Park Avenue
Des Moines, Iowa 50321

Subject: Leachate Collection System Shut-Off Review
Hamilton County Sanitary Landfill
Permit No. 40-SDP-02-75C

Dear Geoff:

In correspondence dated January 23, 2024 (Doc #109093), the Iowa Department of Natural Resources (DNR) required an evaluation of the impact of shutting off the leachate collection system as part of the process to potentially allow continuing with the current cessation of leachate collection at the Hamilton County Sanitary Landfill (Landfill). A plan and schedule for completing this evaluation were submitted in correspondence dated May 31, 2024 (Doc #110183) and approved in correspondence dated June 14, 2024 (Doc #110254).

Since approval of the plan and schedule, additional conversations with the DNR have taken place with regard to the content requirements and findings necessary to evaluate, and if appropriate, justify the permanent cessation of leachate collection at a landfill in Iowa. Specific to this Landfill's evaluation, the additional conversations resulted in a further review of site history with regard to the reason leachate collection was initiated at the Landfill and how effective or impactful the collection of leachate was when active collection was occurring. This last item was expanded to include a further review of leachate level stability in the measurement points and leachate quality using existing data in support of the permanent cessation of leachate collection at the Landfill. The findings of this review are discussed herein. A map of the leachate collection system for the Landfill is attached as **Figure 1**.

Background

The leachate collection system at the Landfill consists of eight extraction wells and two lateral extraction drains installed in the 1990s. Permit Amendment #6, dated April 24, 2018 (Doc #92155), approved correspondence regarding progress toward ending post-closure dated April 12, 2018 (Doc #92096), which made recommendations related to landfill gas and groundwater compliance requirements and leachate management. The leachate collection system was turned off in December 2018 in accordance with Permit Amendment #6.

An in-person meeting was held at the DNR offices on October 11, 2022, to further discuss progress toward ending post-closure for the Landfill. During the meeting, it was concluded that the Landfill did not pose a significant environmental concern necessitating ongoing groundwater and methane monitoring; however, leachate levels since the shut-off of the leachate collection system were not considered conclusively stable. As a result of the meeting discussions, a permit amendment request dated October 12, 2022 (Doc #104306) was submitted that requested the removal of groundwater sampling and reporting requirements, removal of quarterly methane monitoring, and ongoing



quarterly leachate level measurements with annual reporting. The permit amendment request was approved in correspondence dated February 2, 2023 (Doc #105735). A revised closure permit was issued on February 2, 2023 (Doc #105734), documenting the approved compliance requirement changes.

Reason for Leachate Collection

It is apparent from references to numerous correspondences, reports, etc. that are not contained in the DNR's Electronic Document Retrieval system (Doc DNA) that the available early public record for Permit No. 40-SDP-02-75 is not complete. However, the available documents do provide sufficient information to derive a likely reason for the initiation of leachate collection at the Landfill. The following is a general chronological progression toward the implementation of leachate collection at the Landfill.

1. On September 1, 1987 (Doc #28177), a renewed sanitary disposal project permit to operate the Hamilton County Sanitary Landfill was issued. There were no requirements regarding leachate measurement or collection contained in the renewed permit. The permit expiration date was July 31, 1990.
2. The September 20, 1989 Iowa Administrative Code (IAC)103.2(12)a. states, "All existing landfills must submit a leachate control plan, as described in paragraph "b" below when any of the following occur:"

Subparagraph (1) of paragraph "a", which is the first of the conditions requiring submittal of a leachate control plan, states, "At the time of permit renewal;"

3. In correspondence dated January 18, 1991 (Doc #28169), from the Hamilton County Solid Waste Commission to the DNR, the following is stated:

We have received your December 31, 1990 correspondence regarding a "good faith effort" by the Hamilton County Solid Waste Commission to satisfy all permit renewal requirements in a timely manner. As your letter indicated, the Commission was responsive in the submittal of the Permit Renewal Application, a Hydrogeologic Study and Hydrologic Monitoring System Plan, a Closure/Postclosure Plan, a Leachate Control System Plan, and the Part I Comprehensive Plan as prerequisites for the renewal of the solid waste disposal operation permit. The submittal deadline for this information was April 30, 1990 and the transmittal to the Department was during the week of April 16, 1990.

As indicated above, it appears that the leachate collection system was not installed to address a specific environmental concern, such as to control leachate seeps or address groundwater contamination, but rather as part of the requirements for renewal of the sanitary disposal project permit.

Leachate Collection Cessation Review

The review of the cessation of leachate collection at the Landfill included the following three items:

- Leachate levels and inspection observations since cessation.
- Leachate collection efficiency.
- Leachate quality.

These three items are discussed individually below.

Leachate Levels and Inspection Observations

As indicated above, the remaining concern noted during the October 11, 2022 meeting was the stability of leachate levels in the Landfill. The liquid levels in the eight extraction wells (LMEW-1R, LMEW-2, LMEW-3R, LMEW-4R, LMEW-5R, LMEW-6, LMEW-7, and LMEW-8) and two leachate piezometers (LPZ-1 and LP-5) were reviewed since the cessation of leachate collection. Graphs of the leachate levels since December 2018 are included in **Attachment A**. The graphs indicate generally stable leachate levels with the possible exception of leachate piezometer LP-5, which appears to exhibit an inconsistent but slightly increasing trend. Overall, leachate levels appear to have reached a stable state at the Landfill.

The first landfill inspection following cessation of leachate collection, as reported in the 2019 Annual Engineer Report dated July 22, 2019 (Doc #95593), indicated two leachate seeps: one observed prior to the cessation of leachate collection and another observed in early summer 2019. The 2019 Annual Engineer Report noted that the seep observed before leachate collection cessation was repaired in August 2018 and in good condition and also documented the repair of the second seep. The inspection reports following the 2019 Annual Engineer Report noted that no new seeps were located and that the previously repaired seeps were in good condition.

Leachate Collection Efficiency

The review of the effectiveness or impact of the previous leachate collection included a comparison of the reported annual leachate collection rates compared to an estimated leachate generation rate. The sources and information used to estimate the average annual leachate collection and generation rates were as follows:

- **Attachment B** of the 2017 Leachate Control System Performance Evaluation Report included as Appendix G of the 2017 Annual Water Quality Report dated November 8, 2017 (Doc #90768).

This document contained a summary of annual totals of leachate collected from the eight extraction wells and manhole MH#3 for the 20-year period from December 1997 through 2017. It should be noted that, based on the table, it appears that leachate collection from manhole MH#3 began in November 1998. Based on the information in the summary table and using a period from 1999 through 2017, the following volumes were calculated:

- The aggregated average annual extraction well collection rate was 5,236 gallons/year.
 - The average annual manhole MH#3 collection rate was 58,267 gallons/year.
 - The total average annual Landfill collection rate was 63,503 gallons/year.
- HELP Model output for the closure scenario consisting of two model runs (1998 to 2018 and 2018 to 2028) contained in Appendix B of the Leachate Control Plan, Hamilton County Sanitary Landfill dated June 13, 1994 (Doc #50013).

The 2018 to 2028 Help Model output indicated an annual average percolation rate through the final cover of 0.6771 inches/year. The specifications for the final cover at the Landfill as documented in the Closure/Post Closure Plan dated June 13, 1994 (Doc #50019)

appear to have been intended to meet the requirements of the then current version of Iowa Administrative Code (IAC) 567-103.2(13)b., which consisted of a minimum of 2 feet of compacted soil having a permeability of 1×10^{-7} cm/sec or less overlain by a minimum of 2 feet of uncompacted soil containing sufficient organic matter to support vegetation.

Based on the modeled final cover configuration and research studies of the actual performance of compacted clay covers, the modeled percolation rate contained in the file is likely an underestimate of the actual percolation through the final cover for the reasons discussed below.

- The HELP model run that resulted in the final cover percolation rate of 0.6771 inches/year utilized a final cover consisting of three layers: an 18-inch vertical percolation layer, underlain by a 6-inch lateral drainage layer, underlain by a 24-inch barrier soil layer, totaling a 48-inch soil only final cover. The 6-inch lateral drainage layer (Layer 2 in the model) directly above the barrier soil layer was assigned a saturated hydraulic conductivity value of 1.4×10^{-3} cm/sec. This value is near the average value for loamy sand (HELP Texture No. 4) and loamy fine sand (HELP Texture No. 5). The modeled average annual drainage from this layer was 3.9081 inches per year, which is likely higher than actual values as a 6-inch layer of loamy sand was not installed above the soil barrier layer. Less drainage above the barrier soil layer would likely translate into more percolation through the barrier soil layer and into the waste.
- A research paper entitled Field Performance of Three Compacted Clay Landfill Covers, C.H. Benson et al., November 20, 2006 (Vadose Zone Journal 5:1157-1171 (2006)), studied the hydraulic performance of compacted clay covers at three different landfill sites in the United States, with one of the sites being in Cedar Rapids, Iowa. The final cover at the Cedar Rapids, Iowa site was the typical 4-foot clay cover consisting of a 2-foot infiltration layer having a saturated hydraulic conductivity of 1×10^{-7} cm/sec or less overlain by a 2-foot erosion layer. The study was conducted over a four-year period from October 2000 through October 2004. The study found that drainage through the final cover during the first 9 months (October 2000 through June 2001) of the study was 1.4 mm, representing <1% of the precipitation during the period. However, this value increased to 171 mm for the period from July 2003 through June 2004, representing 14% of the precipitation during the period. The increase in drainage rates with time was suspected to be the result of wet-dry or freeze-thaw cycling and biotic activity.

Based on the above discussion, it is possible that the percolation rate through the final cover is greater than the modeled 0.6771 inches/year. However, to create a conservative comparison of leachate collected to leachate generated, the modeled 0.6771 inches/year value was used for the calculations discussed below.

Using the average annual leachate collection rates above and the modeled leachate generation rate, an estimated 9.8% of the leachate generated was removed annually by the collection system on average, with approximately 0.8% removed by the eight extraction wells and approximately 9.0% removed by the two lateral extraction drains. As noted, the actual percentage removed by the leachate collection system could be considerably less based on the likely underestimation of the infiltration rate.

Leachate Quality

In correspondence regarding progress toward ending post closure dated April 12, 2018 (Doc #92096), collecting composite leachate samples from the following locations was recommended:

- LMEW-6, LMEW-7, and LMEW-8 in the western portion of the Landfill.
- LMEW-1R, LMEW-3R, and LMEW-4R in the eastern portion of the Landfill.
- Manhole MH-3, which collected leachate from the north and south lateral extraction drains.

The leachate samples were collected on August 30, 2018, and submitted for laboratory analysis of ammonia, total suspended solids, biochemical oxygen demand, chemical oxygen demand, and pH. An evaluation and discussion of the leachate analytical results were included as Section 1.3 of the 2021 Leachate Control System Performance Evaluation Report included as Appendix F of the 2021 Annual Water Quality Report dated May 20, 2021 (Doc #100535). The leachate analytical data was compared to literature values for typical leachate analyte concentrations in acid phase or young leachate and methanogenic phase or mature leachate and found to be on the weak side of mature leachate, indicating the waste mass has likely undergone significant stabilization. The concentration comparison was summarized in Table F-2 in the 2021 Leachate Control System Performance Evaluation Report. A copy of Table F-2 is attached hereto in **Attachment B** for ease of reference. The laboratory analytical report for the composite leachate samples is also included in **Attachment B**.

Conclusions and Recommendations

The review information discussed herein indicates the following specific to leachate collection at the Landfill:

1. Leachate collection at the Landfill was implemented as part of a permit renewal requirement and not specifically to address leachate seeps or groundwater impact.
2. The volume of leachate collected while the system was operating was not of significant consequence compared to the anticipated volume of leachate generated to warrant restarting the system.
3. Leachate levels as measured in the leachate piezometers and former extraction wells have generally stabilized since the cessation of leachate collection in December 2018.
4. The general chemistry parameters of the leachate as represented by samples collected in August 2018 indicated a relatively weak mature leachate with concentrations of the analyzed parameters on the lower end of or below the range of typical concentrations in mature leachate.
5. Groundwater and landfill gas are no longer considered environmental concerns with regard to the Landfill.

Based on this review, it is recommended that the December 2018 cessation of leachate collection be allowed to continue and pursuit of an environmental covenant followed by a recission of the closure permit be initiated.

If you have any questions regarding this review and recommendation, please contact Tim Buelow at (515) 681-5455.

Sincerely,

for 

Brett Hazen
Staff Professional
SCS Engineers



Nathan Ohrt
Senior Project Professional
SCS Engineers

TCB/BH/NPO

Copies: Mr. Terry Klaver, Hamilton County Sanitary Landfill
Mr. Mike Smith, Iowa Department of Natural Resources



Site Map

Legend

-  Approximate Monitoring Well Location
 Approximate LFGW Location
 Approximate Leachate Well Location
 Approximate Location of Manhole
 Leachate Line
 Approximate Waste Boundary
 Approximate Location of Fence Line
 Approximate Property Boundary

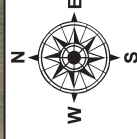
Hamilton County Sanitary

Landfill

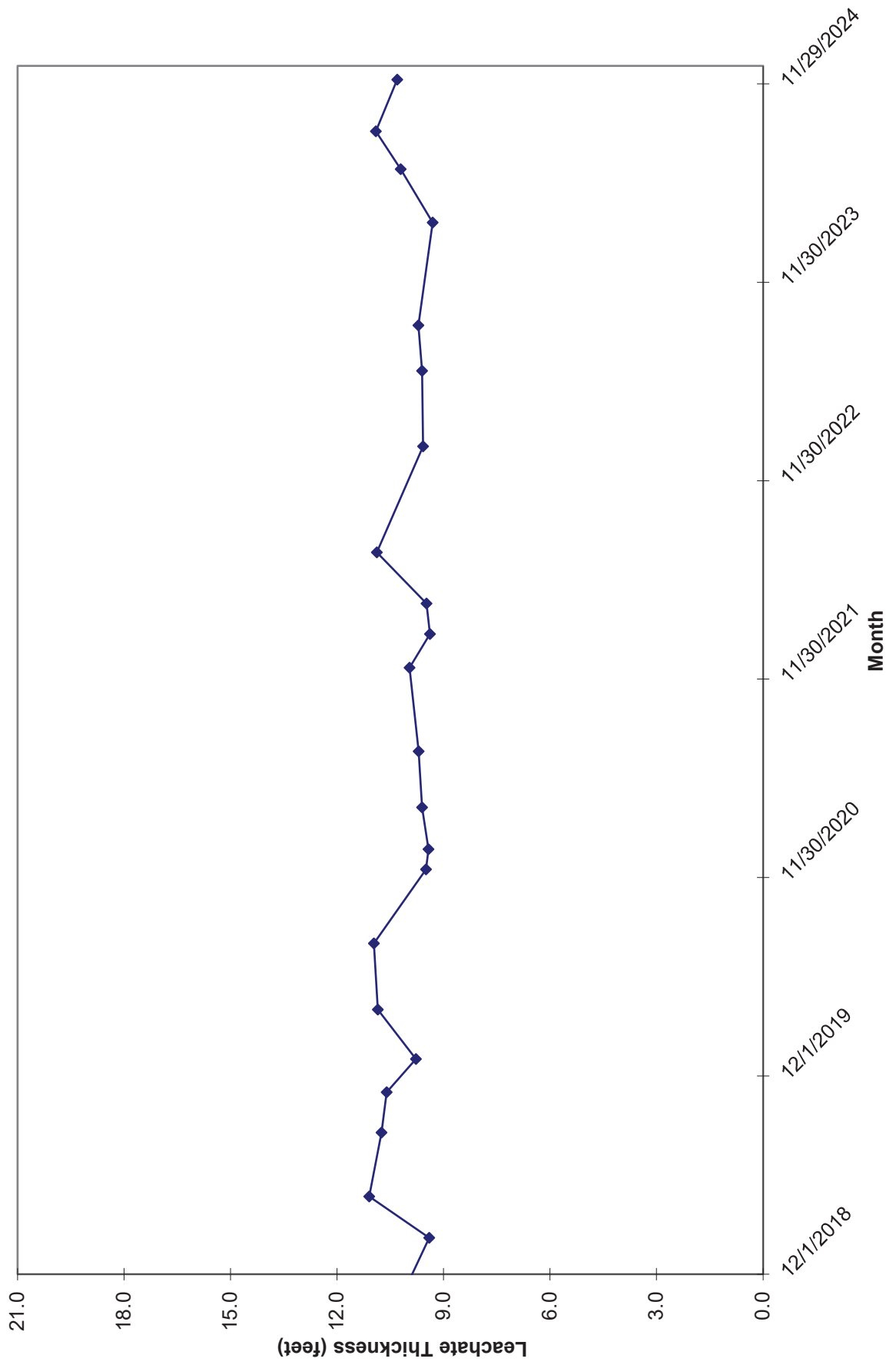
Kamrar, IA

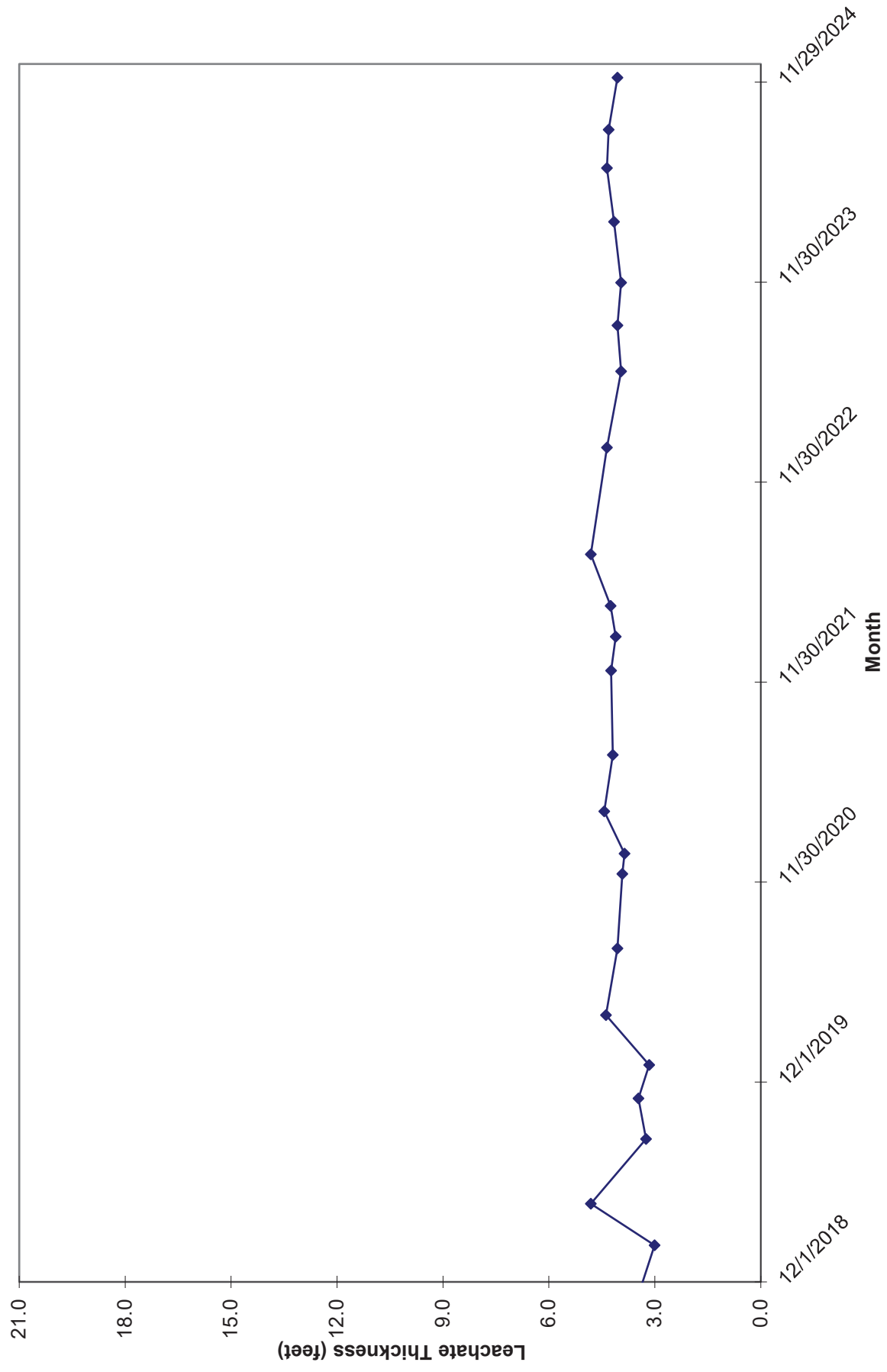
Project No: 27224356.00

Drawing Date: March 2025

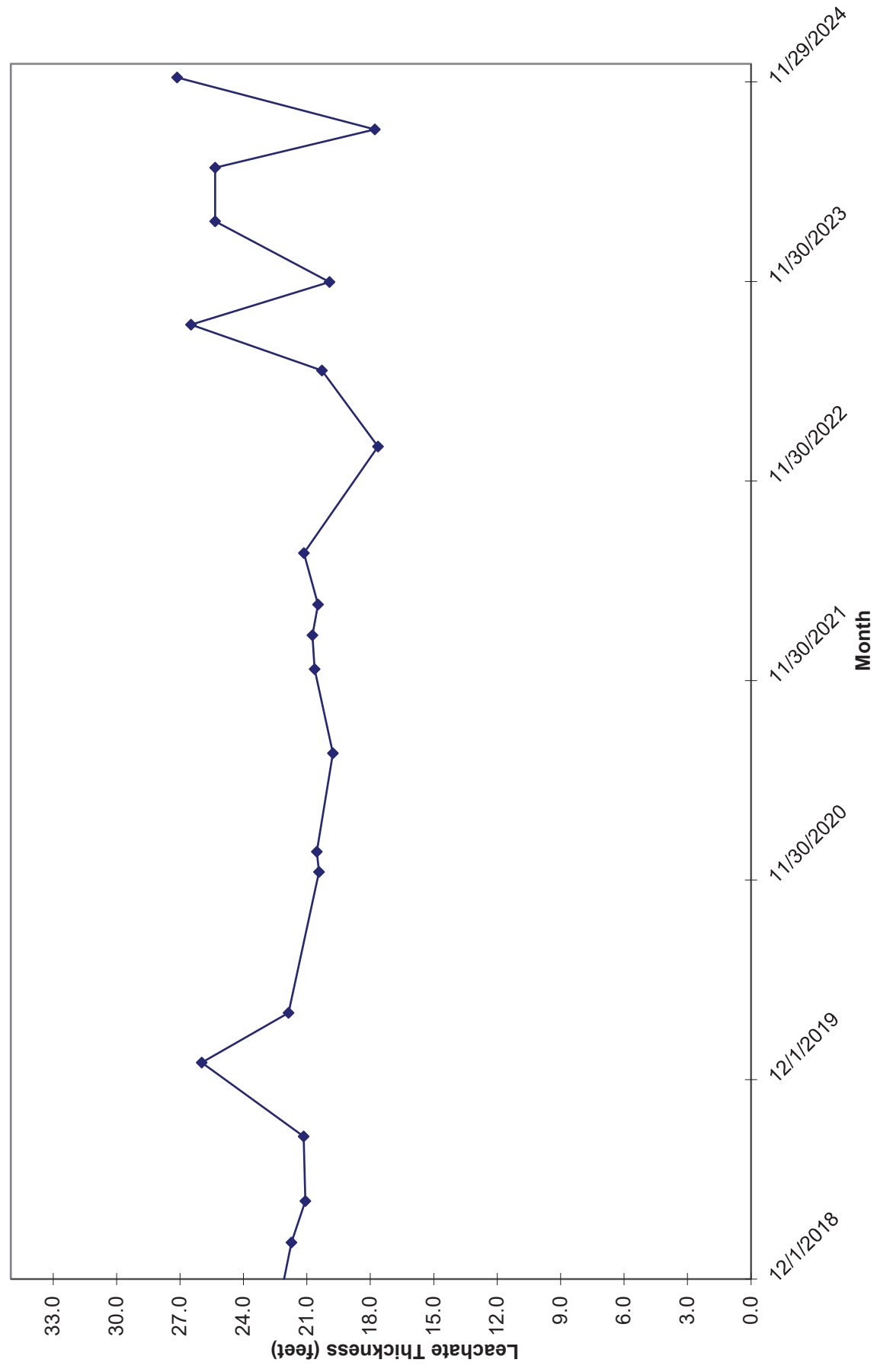


ATTACHMENT A
Leachate Level Graphs

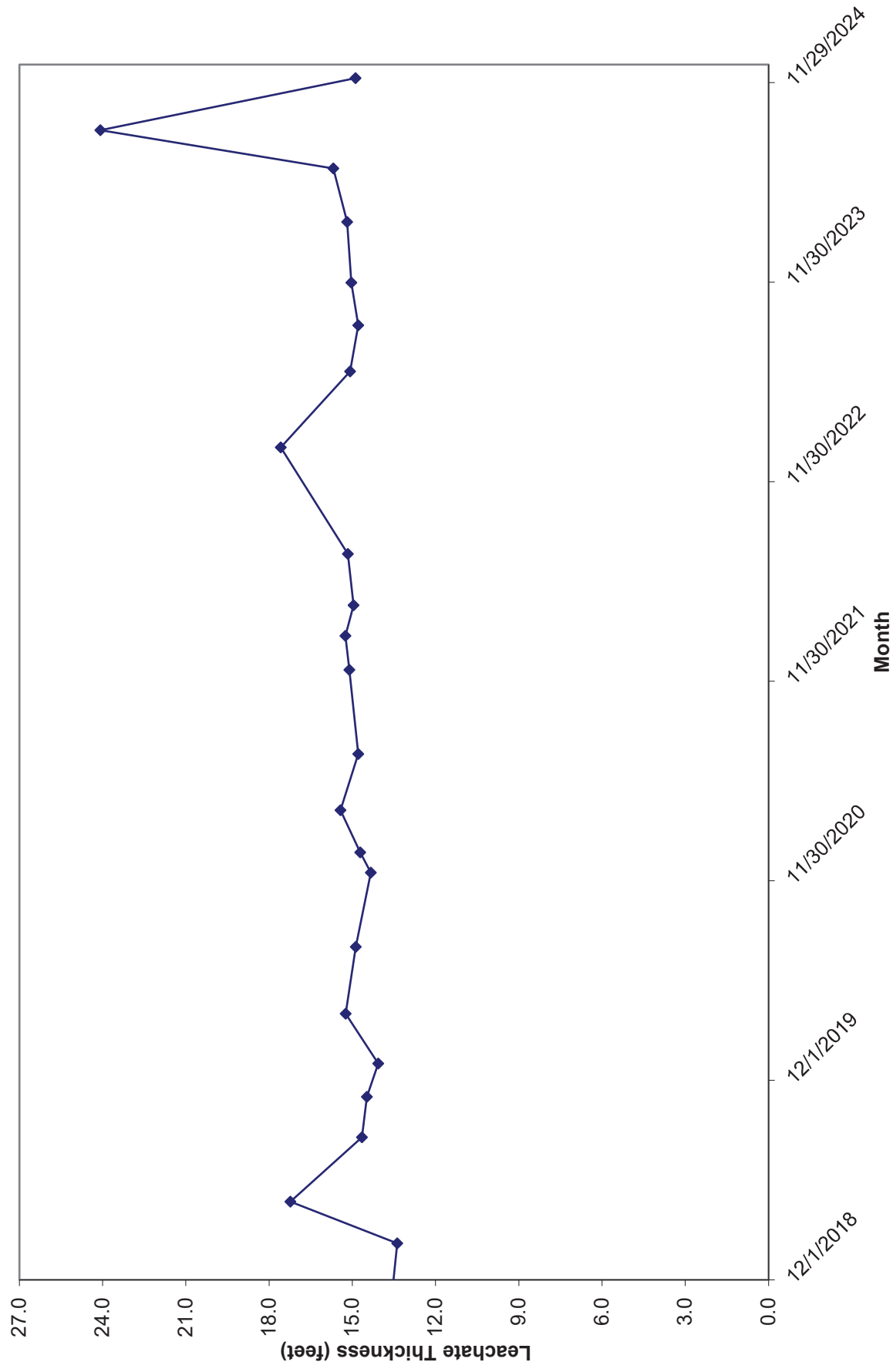




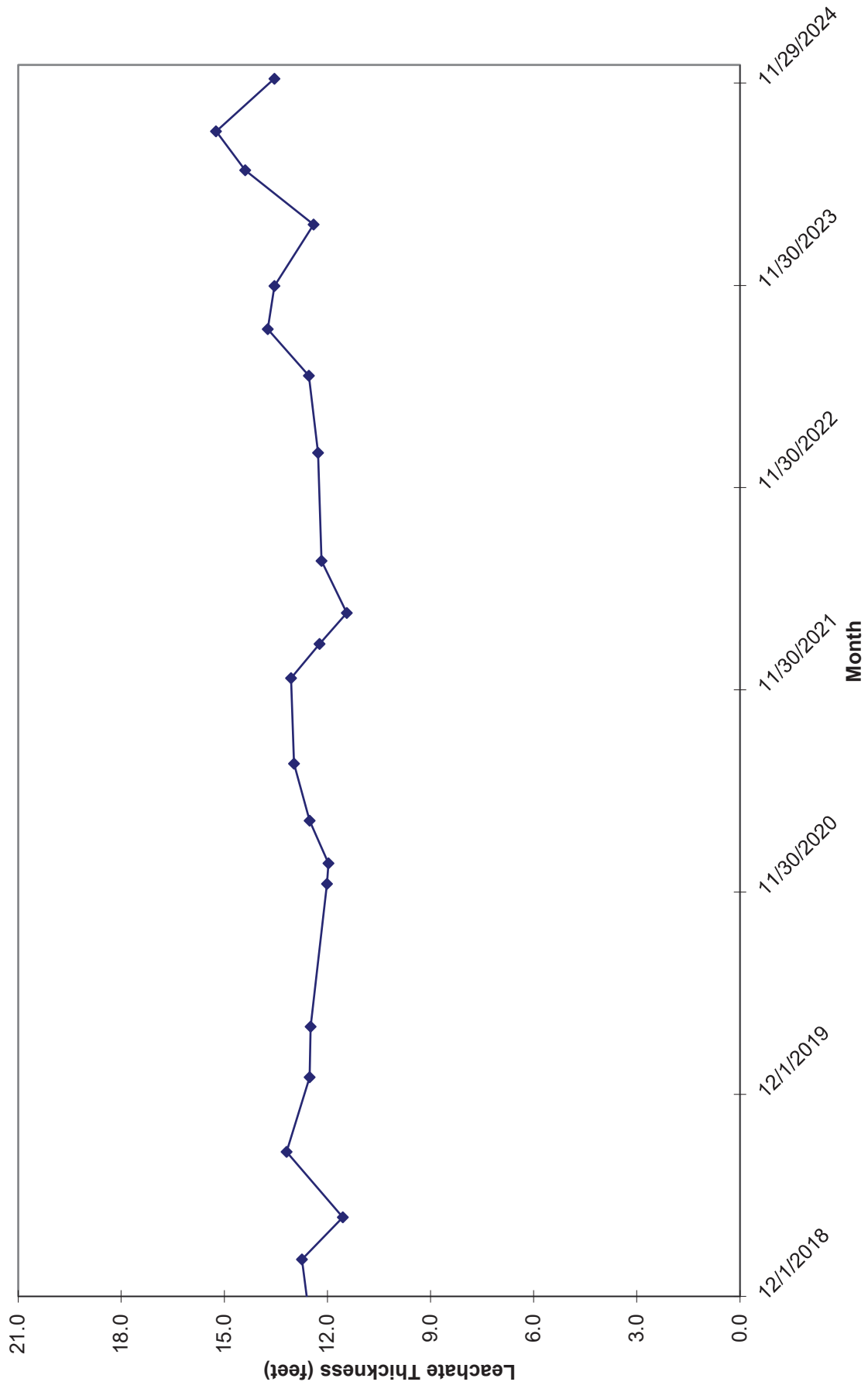
LMEW-3R



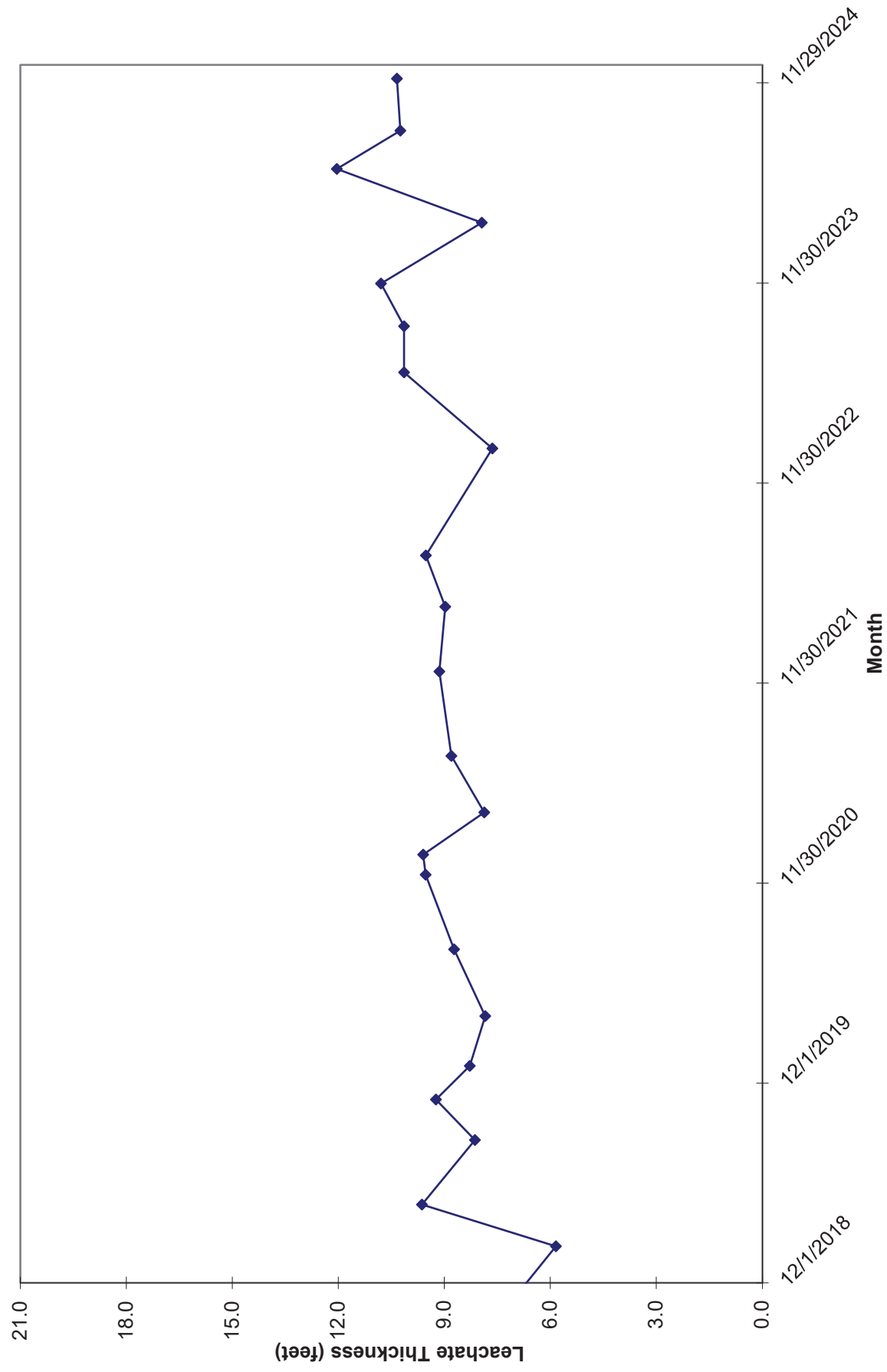
LMEW-4R



LMEW-5R



LP-5

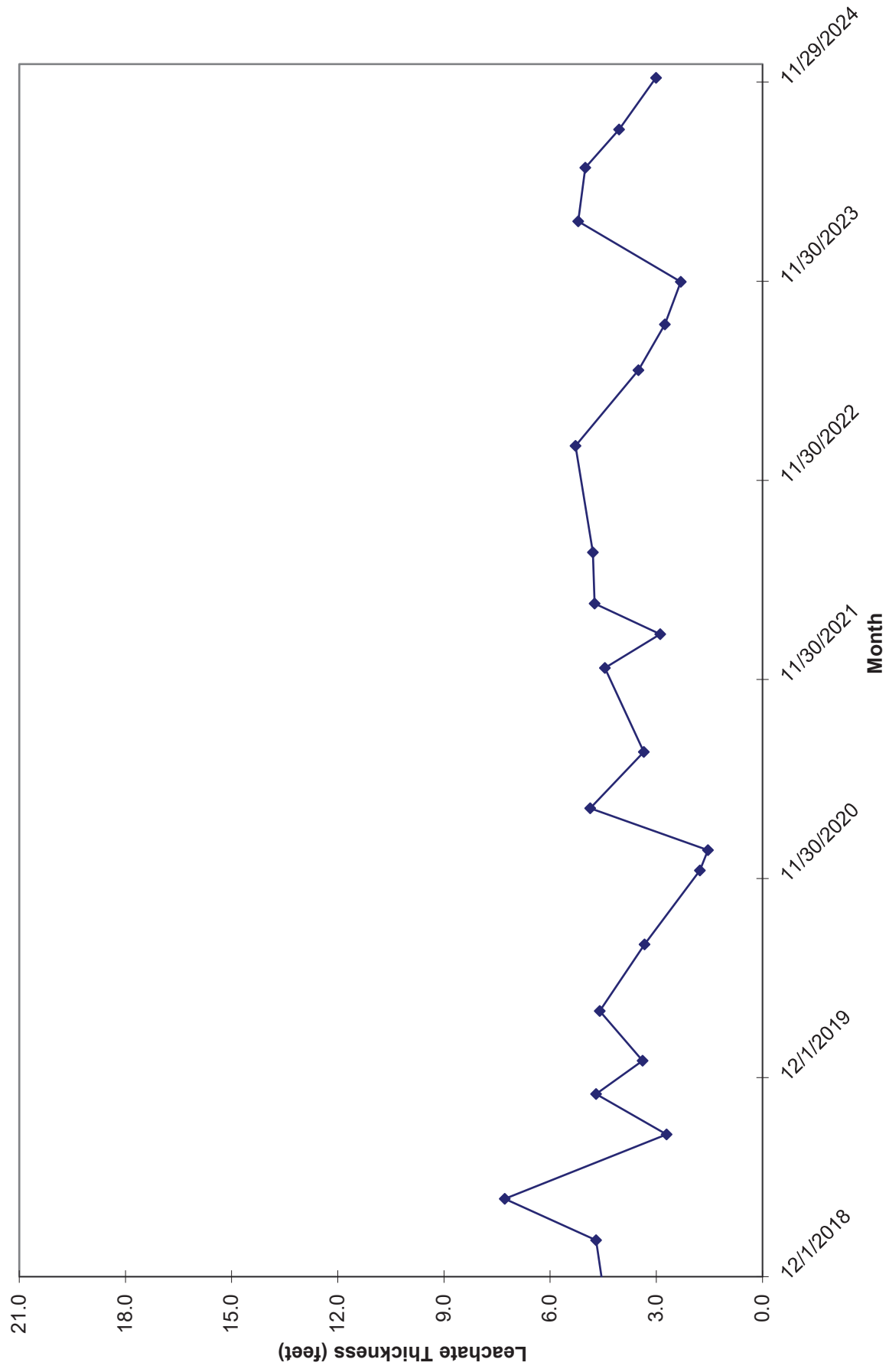


The graph displays the Leachate Thickness in feet over a period of nearly six years. The y-axis represents the thickness, ranging from 0.0 to 21.0 feet in increments of 3.0. The x-axis represents time, with major ticks for 12/1/2018, 12/1/2019, 11/30/2020, 11/30/2021, 11/30/2022, 11/30/2023, and 11/29/2024. The data points are connected by a dark blue line, showing a general upward trend with significant fluctuations. The thickness starts at approximately 4.5 feet in late 2018, rises to about 8.5 feet by early 2019, and then fluctuates between 6.0 and 8.5 feet until late 2023, where it reaches a peak of about 8.5 feet. It then drops sharply to around 4.5 feet in early 2024, before rising again to approximately 6.5 feet by late 2024.

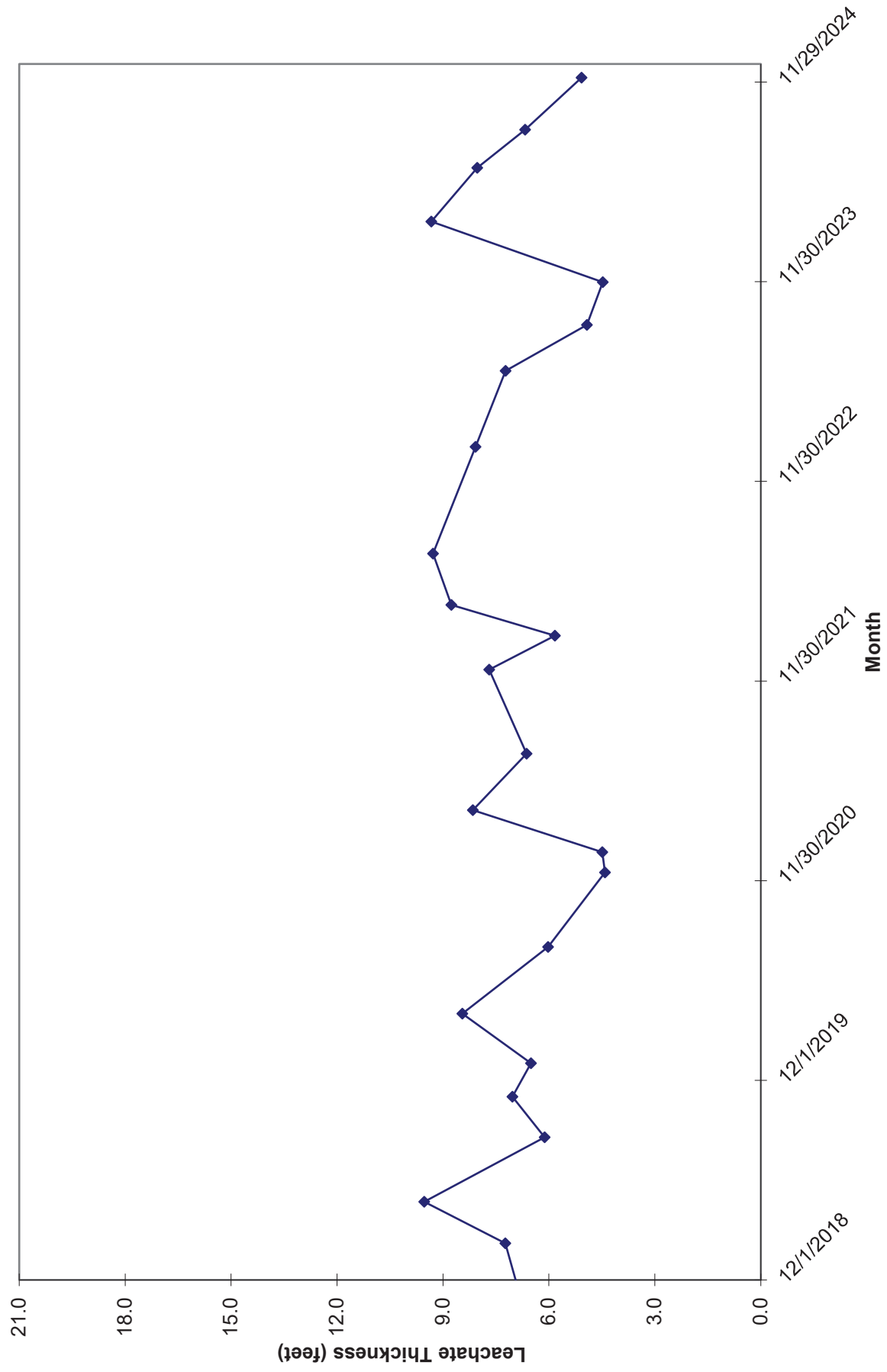
Month	Leachate Thickness (feet)
12/1/2018	4.5
12/1/2019	8.5
11/30/2020	6.5
11/30/2021	7.5
11/30/2022	6.5
11/30/2023	8.5
11/29/2024	6.5

Month

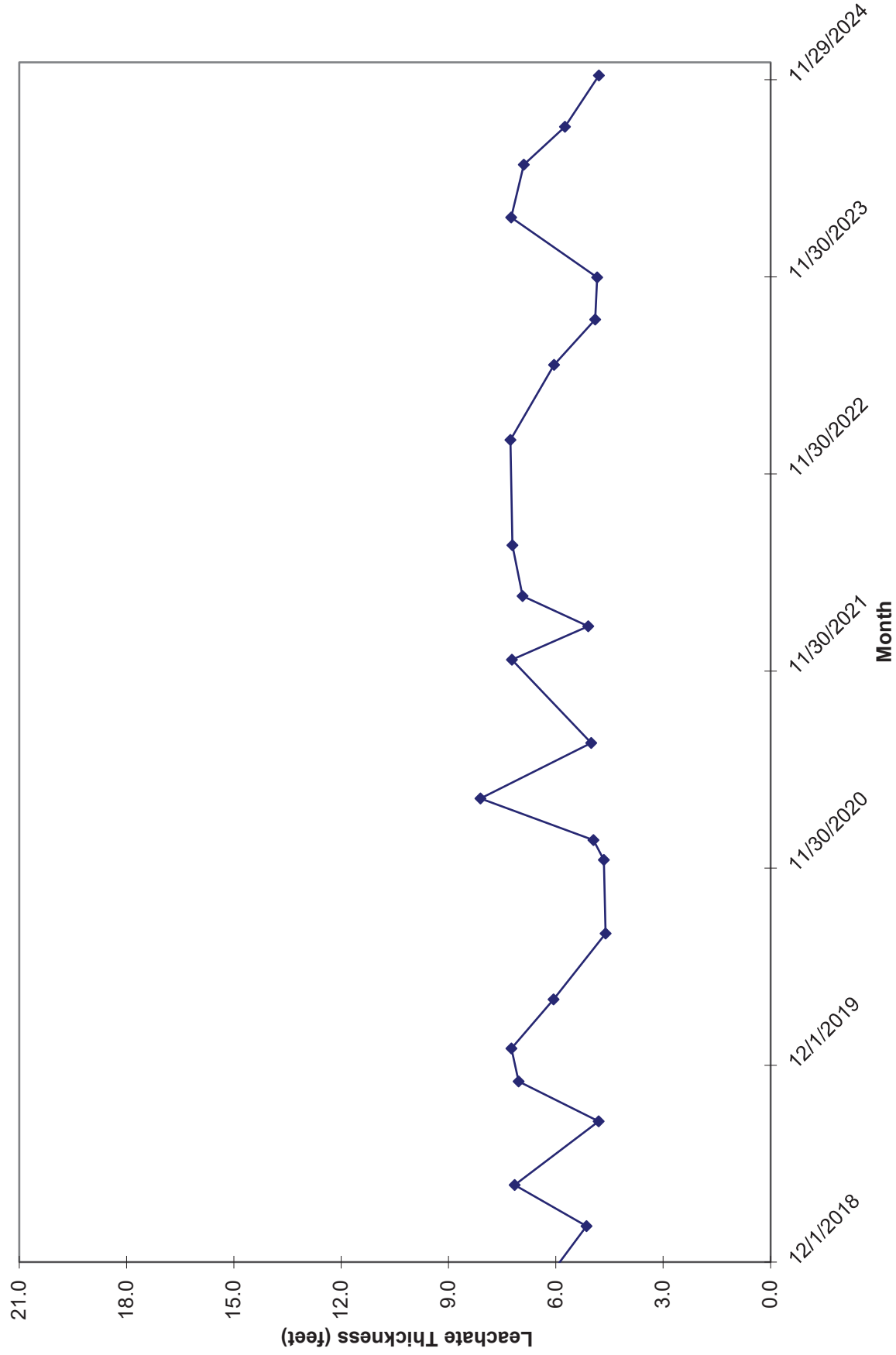
LMEW-7



LMEW-8



LPZ-1



ATTACHMENT B
Leachate Concentration Data

TABLE F-2
LEACHATE ANALYTICAL SUMMARY AND COMPARISON
HAMILTON COUNTY SANITARY LANDFILL

Parameters	Samples Collected 8/30/2018			Reference No. 1			Reference No. 2		
	Leachate Piezometers			Acid Phase		Methanogenic Phase	Young Leachate		Mature Leachate
	Comp. Leachate E	Comp. Leachate W	MH-3	Average	Range		Average	Range	
General (mg/L):									
Biochemical Oxygen Demand (BOD)	124	29.2	<12	13000	4,000 - 40,000	180	2,032	13.1 - 6,350	196
Chemical Oxygen Demand (COD)	795	434	41.7	22,000	6,000 - 60,000	3,000	3,641	226 - 9,600	875
BOD:COD	0.156	0.067	NA	0.58		0.06	0.31	0.05 - 0.66	0.20
Ammonia	69.9	42.4	1.01				289	103 - 520	260
Total Suspended Solids (TSS)	1680	340	14.3						
pH	6.9	7	7.6						

References:

- 1) Kjeldsen, P., et al. Present and Long-Term Composition of MSW Landfill Leachate: A Review. 2002. Critical Reviews in Environmental Science and Technology, 32(4):297-336
- 2) Lee, A.H., Nikraz, H., Hung, Y.T. Influence of Waste Age on Landfill Leachate Quality. October 2010. International Journal of Environmental Science and Development, Vol. 1, No. 4, ISSN: 2010-0264

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-138166-1

TestAmerica Sample Delivery Group: 18002

Client Project/Site: HAMSW 18002 - Composite Leachate Sample

For:

Barker, Lemar & Associates

1801 Industrial Circle

West Des Moines, Iowa 50265

Attn: Jessica Reese McIntyre



Authorized for release by:

9/13/2018 1:37:59 PM

Shirley Thompson, Senior Project Manager

(319)277-2401

shirley.thompson@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Sample Summary	4
Detection Summary	5
Client Sample Results	6
Definitions	9
QC Sample Results	10
QC Association	14
Chronicle	16
Certification Summary	17
Method Summary	18
Chain of Custody	19
Receipt Checklists	22



Case Narrative

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Job ID: 310-138166-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative 310-138166-1

Comments

No additional comments.

Receipt

The samples were received on 8/30/2018 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was -0.1° C.

General Chemistry

Method(s) SM 5210B: The USB dilution water D.O. depletion was greater than 0.2 mg O₂/L. The associated sample results in batch 310-214238 are qualified and reported. BOD blank average depletion: 0.32 mg/L.

Method(s) SM 5210B: All the dilutions failed to deplete the method-required 2 mg O₂/L for the following samples: MH-3 (310-138166-3). Only a "less than" result could be calculated from the least dilute preparation.

Method(s) SM 5210B: The USB dilution water D.O. depletion was greater than 0.2 mg O₂/L. The associated sample results in batch 310-214250 are qualified and reported. BOD blank average depletion: 0.34 mg/L.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-138166-1	Comp. Leachate E	Water	08/30/18 08:04	08/30/18 17:30
310-138166-2	Comp. Leachate W	Water	08/30/18 08:40	08/30/18 17:30
310-138166-3	MH-3	Water	08/30/18 08:55	08/30/18 17:30

Detection Summary

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Client Sample ID: Comp. Leachate E

Lab Sample ID: 310-138166-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Ammonia	69.9		2.50	1.00	mg/L	1			350.1	Total/NA
Total Suspended Solids	1680		300	102	mg/L	1			I-3765-85	Total/NA
Biochemical Oxygen Demand	124	b	3.00	1.41	mg/L	1			SM 5210B	Total/NA
Chemical Oxygen Demand	795		250	85.0	mg/L	50			SM 5220D	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
pH	6.9	HF	0.1	0.1	SU	1			SM 4500 H+ B	Total/NA

Client Sample ID: Comp. Leachate W

Lab Sample ID: 310-138166-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Ammonia	42.4		2.50	1.00	mg/L	1			350.1	Total/NA
Total Suspended Solids	340		60.0	20.4	mg/L	1			I-3765-85	Total/NA
Biochemical Oxygen Demand	29.2	b	3.00	1.41	mg/L	1			SM 5210B	Total/NA
Chemical Oxygen Demand	434		250	85.0	mg/L	50			SM 5220D	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
pH	7.0	HF	0.1	0.1	SU	1			SM 4500 H+ B	Total/NA

Client Sample ID: MH-3

Lab Sample ID: 310-138166-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Ammonia	1.01		0.500	0.200	mg/L	1			350.1	Total/NA
Total Suspended Solids	14.3		2.50	0.850	mg/L	1			I-3765-85	Total/NA
Chemical Oxygen Demand	41.7		25.0	8.50	mg/L	5			SM 5220D	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
pH	7.6	HF	0.1	0.1	SU	1			SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

Client Sample Results

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Client Sample ID: Comp. Leachate E

Lab Sample ID: 310-138166-1

Date Collected: 08/30/18 08:04

Matrix: Water

Date Received: 08/30/18 17:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	69.9		2.50	1.00	mg/L		09/11/18 10:12	09/11/18 18:40	1
Total Suspended Solids	1680		300	102	mg/L			08/31/18 11:52	1
Biochemical Oxygen Demand	124	b	3.00	1.41	mg/L			08/31/18 13:17	1
Chemical Oxygen Demand	795		250	85.0	mg/L			08/31/18 13:18	50
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1	0.1	SU			08/30/18 22:56	1

Client Sample Results

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Client Sample ID: Comp. Leachate W

Lab Sample ID: 310-138166-2

Date Collected: 08/30/18 08:40

Matrix: Water

Date Received: 08/30/18 17:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	42.4		2.50	1.00	mg/L		09/11/18 10:12	09/11/18 18:54	1
Total Suspended Solids	340		60.0	20.4	mg/L			09/04/18 15:00	1
Biochemical Oxygen Demand	29.2	b	3.00	1.41	mg/L			08/31/18 14:16	1
Chemical Oxygen Demand	434		250	85.0	mg/L			08/31/18 13:18	50
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1	0.1	SU			08/30/18 23:01	1

Client Sample Results

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Client Sample ID: MH-3
Date Collected: 08/30/18 08:55
Date Received: 08/30/18 17:30

Lab Sample ID: 310-138166-3
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	1.01		0.500	0.200	mg/L		09/11/18 10:12	09/11/18 18:55	1
Total Suspended Solids	14.3		2.50	0.850	mg/L			09/04/18 15:36	1
Biochemical Oxygen Demand	<12.0		12.0	5.64	mg/L			08/31/18 14:23	4
Chemical Oxygen Demand	41.7		25.0	8.50	mg/L			08/31/18 13:18	5
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.1	0.1	SU			08/30/18 23:03	1

Definitions/Glossary

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
b	Result Detected in the Unseeded Control blank (USB).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Sample Results

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-215138/1-A
Matrix: Water
Analysis Batch: 215218

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 215138

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.500		0.500	0.200	mg/L		09/11/18 10:12	09/11/18 18:38	1

Lab Sample ID: LCS 310-215138/2-A
Matrix: Water
Analysis Batch: 215218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 215138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	4.00	4.091		mg/L		102	90 - 110

Lab Sample ID: 310-138166-1 MS
Matrix: Water
Analysis Batch: 215218

Client Sample ID: Comp. Leachate E
Prep Type: Total/NA
Prep Batch: 215138

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	69.9		20.0	91.00		mg/L		105	90 - 110

Lab Sample ID: 310-138166-1 MSD
Matrix: Water
Analysis Batch: 215218

Client Sample ID: Comp. Leachate E
Prep Type: Total/NA
Prep Batch: 215138

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	69.9		20.0	90.60		mg/L		103	90 - 110	0	10

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-214229/1
Matrix: Water
Analysis Batch: 214229

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			08/31/18 11:52	1

Lab Sample ID: LCS 310-214229/2
Matrix: Water
Analysis Batch: 214229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	91.00		mg/L		91	74 - 114

Lab Sample ID: 310-138166-1 DU
Matrix: Water
Analysis Batch: 214229

Client Sample ID: Comp. Leachate E
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	1680		1540		mg/L		9	30

TestAmerica Cedar Falls

QC Sample Results

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

Lab Sample ID: MB 310-214483/1
Matrix: Water
Analysis Batch: 214483

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			09/04/18 15:00	1

Lab Sample ID: LCS 310-214483/2
Matrix: Water
Analysis Batch: 214483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	99.00		mg/L		99	74 - 114

Lab Sample ID: 310-138166-2 DU
Matrix: Water
Analysis Batch: 214483

Client Sample ID: Comp. Leachate W
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	340		348.0		mg/L		2	30

Lab Sample ID: MB 310-214492/1
Matrix: Water
Analysis Batch: 214492

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			09/04/18 15:36	1

Lab Sample ID: LCS 310-214492/2
Matrix: Water
Analysis Batch: 214492

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	98.00		mg/L		98	74 - 114

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-214107/1
Matrix: Water
Analysis Batch: 214107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		99	98 - 102

Lab Sample ID: 310-138166-1 DU
Matrix: Water
Analysis Batch: 214107

Client Sample ID: Comp. Leachate E
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.9	HF	7.0		SU		0.1	20

QC Sample Results

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 310-214238/1
Matrix: Water
Analysis Batch: 214238

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	<3.00		3.00	1.41	mg/L	-		08/31/18 11:59	1

Lab Sample ID: LCS 310-214238/2
Matrix: Water
Analysis Batch: 214238

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	206.1		mg/L	-	104	85 - 115

Lab Sample ID: USB 310-214250/1
Matrix: Water
Analysis Batch: 214250

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	<3.00		3.00	1.41	mg/L	-		08/31/18 13:55	1

Lab Sample ID: LCS 310-214250/2
Matrix: Water
Analysis Batch: 214250

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	222.8		mg/L	-	113	85 - 115

Method: SM 5220D - COD

Lab Sample ID: MB 310-214245/32
Matrix: Water
Analysis Batch: 214245

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00	1.70	mg/L	-		08/31/18 13:18	1

Lab Sample ID: MB 310-214245/60
Matrix: Water
Analysis Batch: 214245

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00	1.70	mg/L	-		08/31/18 13:18	1

Lab Sample ID: LCS 310-214245/33
Matrix: Water
Analysis Batch: 214245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	125	129.5		mg/L	-	103	85 - 115

TestAmerica Cedar Falls

QC Sample Results

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Method: SM 5220D - COD (Continued)

Lab Sample ID: LCS 310-214245/63

Matrix: Water

Analysis Batch: 214245

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	125	132.2		mg/L	—	105	85 - 115

QC Association Summary

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

General Chemistry

Analysis Batch: 214107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-138166-1	Comp. Leachate E	Total/NA	Water	SM 4500 H+ B	
310-138166-2	Comp. Leachate W	Total/NA	Water	SM 4500 H+ B	
310-138166-3	MH-3	Total/NA	Water	SM 4500 H+ B	
LCS 310-214107/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-138166-1 DU	Comp. Leachate E	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 214229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-138166-1	Comp. Leachate E	Total/NA	Water	I-3765-85	
MB 310-214229/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-214229/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-138166-1 DU	Comp. Leachate E	Total/NA	Water	I-3765-85	

Analysis Batch: 214238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-138166-1	Comp. Leachate E	Total/NA	Water	SM 5210B	
USB 310-214238/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 310-214238/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 214245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-138166-1	Comp. Leachate E	Total/NA	Water	SM 5220D	
310-138166-2	Comp. Leachate W	Total/NA	Water	SM 5220D	
310-138166-3	MH-3	Total/NA	Water	SM 5220D	
MB 310-214245/32	Method Blank	Total/NA	Water	SM 5220D	
MB 310-214245/60	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-214245/33	Lab Control Sample	Total/NA	Water	SM 5220D	
LCS 310-214245/63	Lab Control Sample	Total/NA	Water	SM 5220D	

Analysis Batch: 214250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-138166-2	Comp. Leachate W	Total/NA	Water	SM 5210B	
310-138166-3	MH-3	Total/NA	Water	SM 5210B	
USB 310-214250/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 310-214250/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 214483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-138166-2	Comp. Leachate W	Total/NA	Water	I-3765-85	
MB 310-214483/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-214483/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-138166-2 DU	Comp. Leachate W	Total/NA	Water	I-3765-85	

Analysis Batch: 214492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-138166-3	MH-3	Total/NA	Water	I-3765-85	
MB 310-214492/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-214492/2	Lab Control Sample	Total/NA	Water	I-3765-85	

TestAmerica Cedar Falls

QC Association Summary

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

General Chemistry (Continued)

Prep Batch: 215138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-138166-1	Comp. Leachate E	Total/NA	Water	Distill/Ammonia	
310-138166-2	Comp. Leachate W	Total/NA	Water	Distill/Ammonia	
310-138166-3	MH-3	Total/NA	Water	Distill/Ammonia	
MB 310-215138/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-215138/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
310-138166-1 MS	Comp. Leachate E	Total/NA	Water	Distill/Ammonia	
310-138166-1 MSD	Comp. Leachate E	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 215218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-138166-1	Comp. Leachate E	Total/NA	Water	350.1	215138
310-138166-2	Comp. Leachate W	Total/NA	Water	350.1	215138
310-138166-3	MH-3	Total/NA	Water	350.1	215138
MB 310-215138/1-A	Method Blank	Total/NA	Water	350.1	215138
LCS 310-215138/2-A	Lab Control Sample	Total/NA	Water	350.1	215138
310-138166-1 MS	Comp. Leachate E	Total/NA	Water	350.1	215138
310-138166-1 MSD	Comp. Leachate E	Total/NA	Water	350.1	215138

Lab Chronicle

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Client Sample ID: Comp. Leachate E

Date Collected: 08/30/18 08:04

Date Received: 08/30/18 17:30

Lab Sample ID: 310-138166-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Distill/Ammonia			215138	09/11/18 10:12	WJF	TAL CF
Total/NA	Analysis	350.1		1	215218	09/11/18 18:40	JMH	TAL CF
Total/NA	Analysis	I-3765-85		1	214229	08/31/18 11:52	KLK	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	214107	08/30/18 22:56	JMH	TAL CF
Total/NA	Analysis	SM 5210B		1	214238	08/31/18 13:17	BLP	TAL CF
Total/NA	Analysis	SM 5220D		50	214245	08/31/18 13:18	JDK	TAL CF

Client Sample ID: Comp. Leachate W

Date Collected: 08/30/18 08:40

Date Received: 08/30/18 17:30

Lab Sample ID: 310-138166-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Distill/Ammonia			215138	09/11/18 10:12	WJF	TAL CF
Total/NA	Analysis	350.1		1	215218	09/11/18 18:54	JMH	TAL CF
Total/NA	Analysis	I-3765-85		1	214483	09/04/18 15:00	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	214107	08/30/18 23:01	JMH	TAL CF
Total/NA	Analysis	SM 5210B		1	214250	08/31/18 14:16	BLP	TAL CF
Total/NA	Analysis	SM 5220D		50	214245	08/31/18 13:18	JDK	TAL CF

Client Sample ID: MH-3

Date Collected: 08/30/18 08:55

Date Received: 08/30/18 17:30

Lab Sample ID: 310-138166-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Distill/Ammonia			215138	09/11/18 10:12	WJF	TAL CF
Total/NA	Analysis	350.1		1	215218	09/11/18 18:55	JMH	TAL CF
Total/NA	Analysis	I-3765-85		1	214492	09/04/18 15:36	SAS	TAL CF
Total/NA	Analysis	SM 4500 H+ B		1	214107	08/30/18 23:03	JMH	TAL CF
Total/NA	Analysis	SM 5210B		4	214250	08/31/18 14:23	BLP	TAL CF
Total/NA	Analysis	SM 5220D		5	214245	08/31/18 13:18	JDK	TAL CF

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Laboratory: TestAmerica Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-18
Illinois	NELAP	5	200024	11-29-18
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-19
Minnesota	NELAP	5	019-999-319	12-31-18
Minnesota (Petrofund)	State Program	1	3349	08-22-19
North Dakota	State Program	8	R-186	09-29-18
Oregon	NELAP	10	IA100001	09-29-18

Method Summary

Client: Barker, Lemar & Associates
Project/Site: HAMSW 18002 - Composite Leachate Sample

TestAmerica Job ID: 310-138166-1
SDG: 18002

Method	Method Description	Protocol	Laboratory
350.1	Nitrogen, Ammonia	MCAWW	TAL CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	TAL CF
SM 4500 H+ B	pH	SM	TAL CF
SM 5210B	BOD, 5-Day	SM	TAL CF
SM 5220D	COD	SM	TAL CF
Distill/Ammonia	Distillation, Ammonia	None	TAL CF

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>Barker Lemar Engineering Consulting</u>			
City/State: <u>West Des Moines IA</u>		Project: <u>HAMSW 18002-Composite Leachate Sample</u>	
Receipt Information			
Date/Time Received: <u>8-30-18 1730</u>		Received By: <u>APB</u>	
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		If yes: Cooler ID:	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Multiple Coolers?		If yes: Cooler # ____ of ____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Cooler Custody Seals Present?		If yes: Cooler custody seals intact?	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?		If yes: Sample custody seals intact?	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?		If yes: Which VOA samples are in cooler? ↓	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>M</u>		Correction Factor (°C): <u>0.0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>-0.1</u>		Corrected Temp (°C): <u>-0.1</u>	
• Sample Container Temperature			
Container type(s) used:			
Uncorrected Temp (°C):		Corrected Temp (°C):	
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

704 Enterprise Drive
Cedar Falls, Iowa 50613

319.277.2401 (phone)
515.792.7989 (fax)

Page 1 of 1

SAMPLER: Barker Lemar Engineering Consultants

SITE NAME: Hamilton County Sanitary Landfill

ADDRESS: 1801 Industrial Circle

CITY/STATE/ZIP: West Des Moines, IA 50265

TELEPHONE NUMBER: 515-256-8814

SAMPLED BY: (PRINT NAME)

SIGNATURE:

Fax: 515-256-0152

AVSTIN BARNES

[illegible]

Note: Reduced Metals List consists of Arsenic, Barium, Cobalt, Copper, Lead, Nickel, Selenium, and Zinc

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
Comp. Leachate E	310-138166-A-1	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
Comp. Leachate W	310-138166-A-2	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
MH-3	310-138166-A-3	Plastic 250ml - with Sulfuric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Barker, Lemar & Associates

Job Number: 310-138166-1

SDG Number: 18002

Login Number: 138166

List Number: 1

Creator: Homolar, Dana J

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	