March 3, 2022 *(sent via email to kidderk1@michigan.gov)*
ECT No.: 13-0685-2000

Mr. Keith Kidder, Senior Geologist
Michigan Department of Environment, Great Lakes, and Energy – Oil, Gas, and Minerals Division
Lansing Central Office
525 West Allegan Street
Lansing, Michigan 48909

Re: **Quarterly Project Update Report – 4th Quarter 2021**
Hartland 36 Gas Plant
Portion of E½ of NW ¼ of Section 36, T03N-R06E
Hartland Township, Livingston County, Michigan

Dear Mr. Kidder:

Attached please find an electronic copy of the Quarterly Project Update Report – 4th Quarter 2021 completed by Environmental Consulting & Technology, Inc. (ECT) for the Hartland 36 Gas Plant site.

ECT sincerely appreciates the opportunity to provide our consulting services on this important project. Should you have questions or require additional information, please do not hesitate to contact me at (231) 676-3023 or jlewandowski@ectinc.com.

Sincerely,
ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Jeremy S. Lewandowski
Senior Engineer

cc: Mr. Nick Summerland – Lambda Energy Resources, LLC

Attachments: Quarterly Project Update Report – 4th Quarter 2021

Environmental Consulting & Technology, Inc.
3399 Veterans Drive, Traverse City, Michigan 49684

QUARTERLY PROJECT UPDATE REPORT
4th QUARTER 2021

HARLTAND 36 GAS PLANT
PORTION OF E½ of NW ¼ of SECTION 36, T03N-R06E,
HARTLAND TWP, LIVINGSTON COUNTY, MICHIGAN

LAMBDA ENERGY RESOURCES, LLC
1510 THOMAS ROAD
KALKASKA, MICHIGAN 49646

March 3, 2021

ECT No. 13-0685-2000

DOCUMENT REVIEW

The dual signatory process is an integral part of Environmental Consulting & Technology, Inc.'s (ECT's) Document Review Policy No. 9.03. All ECT documents undergo technical/peer review prior to dispatching these documents to any outside entity.

This document has been authored and reviewed by the following employees:

Jeremy S. Lewandowski	Brian J. Baumann, PE
Author	Peer Review
	
Signature	Signature
March 3, 2022	March 3, 2022
Date	Date

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LIST OF APPENDICES

1.0 INTRODUCTION

This Quarterly Project Update Report was compiled by Environmental Consulting & Technology, Inc. (ECT), on behalf of Lambda Energy Resources, LLC (LER) and details remediation system operations and performance monitoring completed during the 4th Quarter 2021 at the Hartland 36 Gas Plant location, herein referenced as the "Site".

2.0 PROJECT LOCATION

The Site is a former natural gas processing plant which operated from 1999 to 2015. The property is located in a portion of the East ½ of the Northwest ¼ of Section 36, T03N-R06E, on the south side of Lone Tree Road between North Pleasant Valley Road and South Tipsico Lake Road in Hartland Township, Livingston County, Michigan. A Site Location Map and Site and Surrounding Properties Map are included as Figure 1 and Figure 2, respectively, in Appendix A.

3.0 PROJECT SUBMITTALS

The following presents a chronological summary of previous documents submitted to the Michigan Department of Environment, Great Lakes, and Energy – Oil, Gas, and Minerals Division (EGLE-OGMD) by ECT for the Site:

- Soil Closure Report dated February 15, 2016
- Groundwater Characterization Work Plan dated February 23, 2016
- Groundwater Characterization Work Plan 2 dated July 8, 2016
- Project Update Report dated September 26, 2016
- Groundwater Characterization Work Plan 3 dated October 14, 2016
- Additional Groundwater Characterization Work Plan dated December 29, 2016
- Groundwater Characterization Work Plan 5 dated March 2, 2017
- Biosparging Pilot Study Work Plan dated April 5, 2017
- Groundwater Characterization Report dated July 3, 2017
- Technical Memorandum – Biosparging Pilot Study dated July 28, 2017
- Remediation System Design Plan dated August 11, 2017
- Quarterly Project Update Report – 1st Quarter 2018 dated April 24, 2018
- Quarterly Project Update Report – 2nd Quarter 2018 dated August 8, 2018
- Quarterly Project Update Report – 3rd Quarter 2018 dated October 26, 2018
- Quarterly Project Update Report – 4th Quarter 2018 dated April 8, 2019
- Quarterly Project Update Report – 1st Quarter 2019 dated April 10, 2019
- Quarterly Project Update Report – 2nd Quarter 2019 dated August 19, 2019
- Quarterly Project Update Report – 3rd Quarter 2019 dated November 25, 2019
- Quarterly Project Update Report – 4th Quarter 2020 dated May 5, 2020
- Quarterly Project Update Report – 1st Quarter 2020 dated July 17, 2020
- Quarterly Project Update Report – 2nd Quarter 2020 dated September 10, 2020

- Quarterly Project Update Report – 3rd Quarter 2020 dated December 17, 2020
- Quarterly Project Update Report – 4th Quarter 2020 dated February 2, 2021
- Quarterly Project Update Report – 1st Quarter 2021 dated April 1, 2021
- Quarterly Project Update Report – 2nd Quarter 2021 dated July 14, 2021
- Quarterly Project Update Report – 3rd Quarter 2021 dated October 28, 2021

4.0 PROJECT OVERVIEW

KCS Michigan Resources developed the Site in 1999 and operated the natural gas processing plant into 2006. Merit Energy Company acquired the Site in 2006 and operated the plant until August 2015, when facility decommissioning commenced. LER acquired the Site from Merit Energy Company in July 2018.

In general, operations at the Site included crude oil and brine separation and storage, natural gas compression, dehydration, sweetening (hydrogen sulfide [H_2S] removal), carbon dioxide (CO_2) removal (amine process), and refrigeration for natural gas liquid (NGL) extraction and storage.

Contaminated soil was discovered in September 2015 during facility decommissioning activities at the former sweetening plant/refrigeration building; sulfolane impacts are from the gas treatment chemical Sulfinol®. Remediation activities (excavation and off-Site disposal) completed from September 2015 through December 2016 resulted in disposal of 13,481.4 tons of soil at the Venice Park Landfill in Lennon, Michigan. Verification of soil remediation (VSR) samples collected from the excavations confirmed remediation of impacted soils. Refer to the Soil Closure Report dated February 15, 2016 for a detailed summary of soil remediation and sampling activities.

Groundwater investigation activities commenced on October 29, 2015 and were completed on March 7, 2017. Seven soil borings, 13 temporary monitor wells, including two vertical aquifer profile (VAP) locations, and 37 permanent monitor wells, including 20 shallow screened monitor wells and 17 deep screened monitor wells, have been installed at the Site. The lateral and vertical extents of groundwater impacted with sulfolane have been delineated to non-detectable concentrations (laboratory reporting limit of 10 micrograms per liter, µg/L). The maximum sulfolane concentration reported from a monitor well at the Site was 11,000 micrograms per liter (µg/L) from MW-20D on the June 19-21, 2017 sampling event. Refer to the Groundwater Characterization Report dated July 3, 2017 for a detailed summary of groundwater characterization and assessment activities.

A biosparging pilot study was conducted at the Site from May 1, 2017 through June 16, 2017. The pilot study included three tests to evaluate the effectiveness of biosparging to enhance bioremediation of sulfolane dissolved in groundwater at the Site. Data obtained from the pilot study indicates biosparging is an effective remedial alternative for the Site. Concentrations of sulfolane were reduced by 100% within five feet of the biosparge point and 97% to 99% at a distance of 20 feet from the biosparge point. Dissolved oxygen (DO) influence of 4.2-10 milligrams per liter (mg/L) was observed at monitoring locations situated 40 feet from the biosparge point. Refer to the Technical Memorandum – Biosparging Pilot Study dated July 28, 2017 for a summary of pilot study activities and results.

Information obtained from the pilot study was utilized to compile the Remediation System Design Plan dated August 11, 2017. The Remediation System Design Plan presented the biosparge point (BSP) array, remediation system equipment, anticipated remediation system operation and maintenance (O&M), and performance monitoring activities. Biosparge system installation activities commenced at the Site on August 21, 2017 and concluded with startup of the remediation system on November 16, 2017. Remediation system equipment and components were generally consistent with details and specifications provided in the Remediation System Design Plan and included 41 biosparge points (BSPs). Refer to the Quarterly Project Update Report – 1st Quarter 2018 dated April 24, 2018 for a summary of remediation system installation activities, O&M, and results of performance monitoring events completed through the 1st Quarter 2018.

Performance monitoring results from the 3rd Quarter 2021 indicate the remediation system has significantly reduced concentrations of sulfolane in groundwater. Remediation system operations resumed on August 1, 2021 (shutdown since March 3, 2021). Remediation system operations resumed to mitigate concentrations of sulfolane detected at MW-7D and MW-13D from monitoring events completed during the 2nd and 3rd Quarters of 2021. The monitoring event completed on September 20, 2021 reported sulfolane non-detect from MW-7D, MW-13D, and MW-17S (only wells that were sampled). Refer to the Quarterly Project Update Report – 3rd Quarter 2021 dated October 28, 2021 for a summary of results of performance monitoring events completed through the 3rd Quarter 2021.

5.0 REMEDIATION SYSTEM OPERATION AND MAINTENANCE

The remediation system was shut down on March 3, 2021 for the 1st Quarter 2021 performance monitoring event. The remediation system remained shut down until operation resumed on August 1, 2021 to mitigate concentrations of sulfolane detected at MW-7D and MW-13D (from monitoring events completed during the 2nd and 3rd Quarters of 2021).

Site visits are completed to assure optimal operating conditions, to monitor remediation system equipment, and to perform regularly scheduled maintenance. Site visits generally include the following:

- Equipment readings – temperature, flow rate, pressure, operation hours, etc.
- Flow rate adjustments and BSP array changes
- Scheduled equipment maintenance
- Alarm condition assessment (as necessary)

The above information is logged on field forms to assess operating conditions as well as for completing system adjustments with respect to performance monitoring data. The primary monitoring parameters utilized to assess remediation system performance are as follows:

- BSP pressure and flow rate
- Sulfolane and sulfate concentrations
- Dissolved oxygen (DO) levels

Remediation system O&M data obtained from site visits is included on Table 1 in Appendix B. Groundwater sampling data is summarized on Table 2 in Appendix B and is further discussed in Section 6.0.

In order to target residual sulfolane concentrations at MW-7D and MW-13D, the following BSP array was operated during the 4th Quarter 2021:

- BSP-1, BSP-2, BSP-4, BSP-5, BSP-17, BSP-18, BSP-24, BSP-45, and BSP-47

Target BSP flow rates were five to 15 standard cubic feet per minute (scfm), pending pressure associated with the operating array.

The remediation system was down due to an 'Air Spart Fault' alarm condition upon ECT personnel arriving at the Site on November 19, 2021. No alarm conditions occurred during the 4th Quarter 2021. Although hour meter readings for the air sparge blower are collected at each Site visit, it has been determined that the hour meter on the air sparge blower is not working properly.

6.0 PERFORMANCE MONITORING SUMMARY

The following sections detail performance monitoring activities completed at the Site in the 4th Quarter 2021.

6.1 PERFORMANCE MONITORING EVENTS

Personnel from ECT completed the following performance monitoring event at the Site in the 4th Quarter 2021:

- December 28-29, 2021 – Quarterly groundwater monitoring event of the following 14 monitor wells:
  - MW-7, MW-7D, MW-13, MW-13D, MW-14S, MW-14D, MW-15D, MW-17S, MW-17D, MW-18, MW-19S, MW-19D, MW-20S, and MW-20D

As discussed in previous project submittals, upon the commencement of closure monitoring, three quarterly monitoring events per year will include the 14 monitor wells with previous detections of sulfolane and one performance monitoring event per year will included all (37) monitor wells.

6.2 LABORATORY ANALYSIS

Groundwater samples from the 4th Quarter 2021 monitoring event were collected via low-stress sampling methods in general accordance with USEPA Region 1 Low-Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, Revision Date September 19, 2017. Groundwater samples were collected and analyzed in general accordance with currently applicable EGLE-RRD guidance documents.

The samples were collected into laboratory supplied containers, placed on ice, and shipped under chain-of-custody protocols to the ALS Environmental laboratory facility located in Holland, Michigan for analysis of the following:

- Sulfolane by USEPA Method 8270D
- Sulfate by Method A4500-SO4 E-11

Copies of laboratory analytical reports are included in Appendix C. Copies of low-flow sampling field forms are included in Appendix D.

6.3 CLEANUP GOALS

The EGLE-OGMD established an interim drinking water criterion for sulfolane of 90 µg/L which has been considered the cleanup goal for sulfolane dissolved in groundwater at the Site. However, per the June 28, 2020 EGLE-OGMD response to the Quarterly Project Update Report – 1st Quarter 2020, the Draft EGLE Part 201 Residential Generic Cleanup Criteria and Screening Level (Part 201 Residential GCCSL) for Drinking Water for sulfolane (5.9 µg/L), published in the Comprehensive Cleanup Criteria Update 2017, is now considered the basis for final site closure. Per footnote (M) of the proposed cleanup criteria tables, since the calculated health-based criteria of 5.9 µg/L is below the analytical target detection limit of 10 µg/L, the analytical target detection limit of 10 µg/L is considered the criterion.

The cleanup goal for sulfate, resulting from the biodegradation of sulfolane, was established in previous project submittals and is the EGLE Part 201 Residential GCCSL Drinking Water Criterion of 250 mg/L.

6.4 GROUNDWATER ANALYTICAL SUMMARY & CLEANUP CRITERIA COMPARISON

The following presents a summary and comparison of groundwater analytical results to the cleanup goal from sampling events completed in the 4th Quarter 2021. Additional discussion is provided for monitor wells that are not included as part of the quarterly performance monitoring program.

<u>Monitor wells located west beyond the extent of the lower clay confining layer</u>

- Monitor well clusters MW-6/6D and MW-12S/12D reported sulfolane non-detect from all associated sampling events.

<u>Monitor wells screened below the lower clay confining layer</u>

- Monitor wells MW-19DD and MW-21D reported sulfolane non-detect from all associated sampling events.
- Concentrations of sulfolane were reported above applicable cleanup criteria from MW-15DD from the pre-remediation system startup sampling event (September 11-13, 2017) and a confirmation sampling event (September 21, 2018). The concentration of sulfolane detected in

MW-15DD is suspected to be the result of drilling activities completed on August 28, 2017. Sulfolane was reported non-detect from MW-15DD from all subsequent sampling events.

Monitor wells screened within the limits of the clay confining layer (area of sulfolane impact)

- The following monitor wells reported sulfolane non-detect from all associated sampling events:
  - MW-1, MW-2, MW-2D, MW-3, MW-3D, MW-4, MW-5, MW-8, MW-9, MW-10, MW-11, MW-15, MW-16, MW-16D, MW-22D, and MW-23D
- The following monitor wells previously reported sulfolane above the cleanup goal prior to the pre-remediation system startup event and non-detect at and subsequent to the pre-remediation system startup event:
  - MW-7 and MW-13
- The following presents percent reductions to the concentration of sulfolane (relative to the highest concentration from/after the pre-remediation system startup sampling event) for monitor wells that reported sulfolane above the cleanup goal from the pre-remediation system startup sampling event:
  - MW-7, MW-7D, MW-13, MW-14S, MW-14D, MW-15D, MW-17S, MW-17D, MW-18, MW-19S, MW-19D, MW-20S, and MW-20D: Non-detect – 100%
  - MW-13D: 21 µg/L – 97.1%
- The concentration of sulfate was reported above the cleanup goal (250 mg/L) from MW-13D (440 mg/L). As noted in the Technical Memorandum – Biosparging Pilot Study dated July 28, 2017, natural attenuation/biodegradation (i.e sulfate reduction) of sulfate is expected once biosparging has ceased. The concentration of sulfate reported for MW-13D from the 4th Quarter 2021 monitoring event is the lowest concentration since the maximum concentration of 920 mg/L reported from the 1st Quarter 2020 monitoring event.

Monitor well locations are illustrated on Figure 3 in Appendix A. Please refer to Table 1 and Table 2 in Appendix B for a summary of groundwater monitoring data for the Site.

7.0 CONCLUSIONS AND RECOMMENDATIONS

As supported by the data presented herein, the remediation system has been effective at reducing concentrations of sulfolane after four years (49 months) of operation. The concentration of sulfolane was reported non-detect from 13 of the 14 monitor wells that were sampled for the 4th Quarter 2021 performance monitoring event. The concentration of sulfolane reported from MW-13D (21 µg/L) was above the cleanup goal. The concentration of sulfolane at MW-13D continues to fluctuate from non-detect to low-level concentrations since the 1st Quarter 2020 performance monitoring event.

The concentration of sulfate reported from MW-13D remains above the cleanup goal. However, the concentration decreased to 440 µg/L from 920 µg/L reported for the 1st Quarter 2020 monitoring event, thus indicating natural attenuation/biodegradation (i.e sulfate reduction) of sulfate is likely occurring. In general, the concentration of sulfate has remained stable since the 2nd Quarter 2020 monitoring event for MW-13D.

A supplemental groundwater monitoring event will include collecting a groundwater sample from MW-13D for sulfolane analysis in February 2022. Pending the results from the February 2022 sampling, the status of remediation system operations will be evaluated.

8.0 SCHEDULE

The following schedule of activities is proposed/anticipated for the 1st Quarter 2022:

- Supplemental performance monitoring event in February 2022 to include collecting a groundwater sample for sulfolane analysis from MW-13D.
- Quarterly performance monitoring event in March 2022 to include sulfolane and sulfate analysis from the 14 monitor wells with previous detections of sulfolane.
- Remediation system operations will be evaluated following receipt of analytical results from the February 2022 monitoring event.
- A quarterly project update report will be submitted within three weeks of receipt of analytical data from the March 2022 performance monitoring event.

APPENDIX A

FIGURES

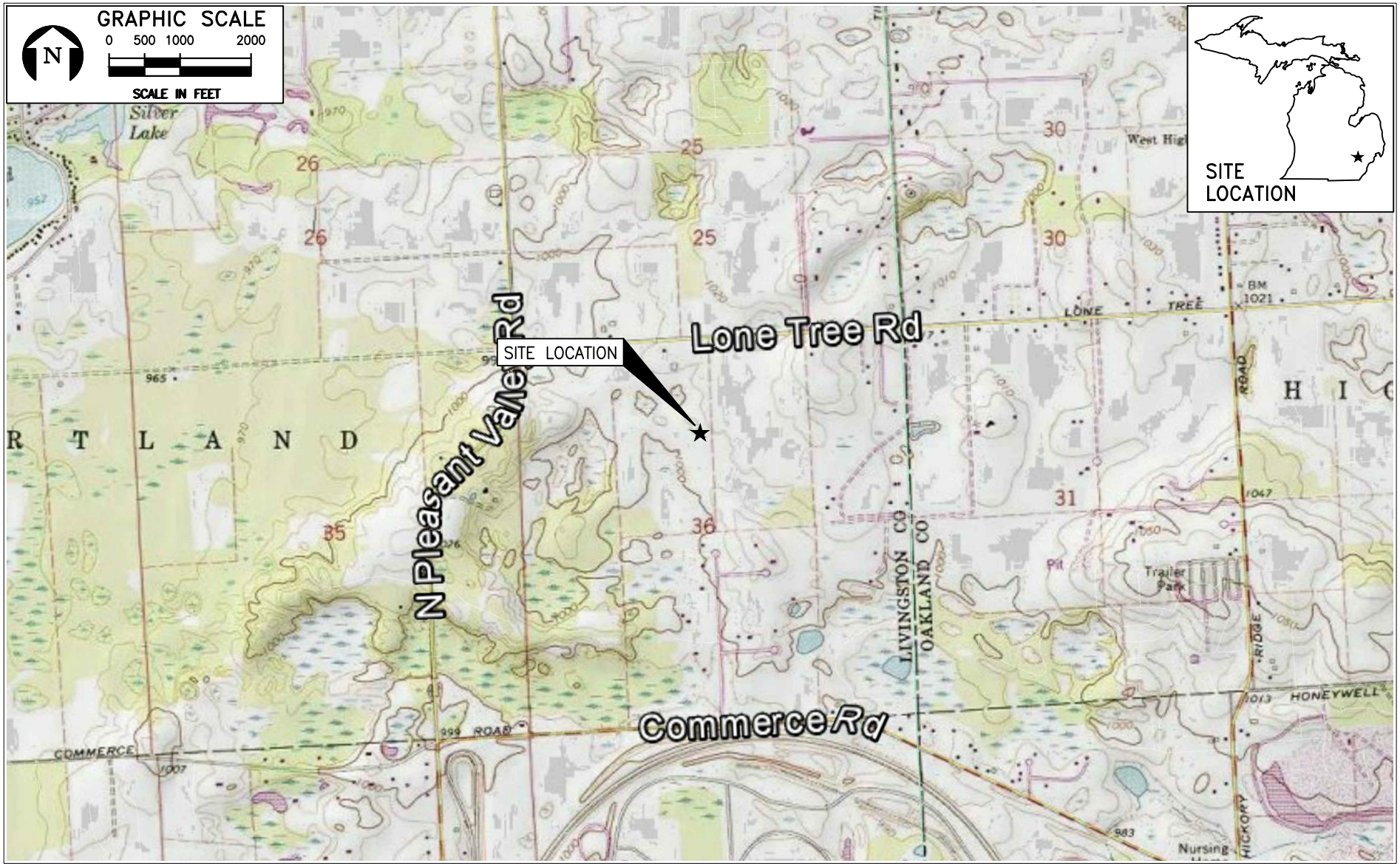

FIGURE 1
SITE LOCATION MAP
HARTLAND 36 GAS PLANT
PORTION OF E 1/2 OF NE 1/4 OF SECTION 36, T03N-R06E
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
Source: USGS QUad: Kent Lake, 2015; West Highland, 2015; ECT, 2016.

ECT Environmental Consulting & Technology, Inc.

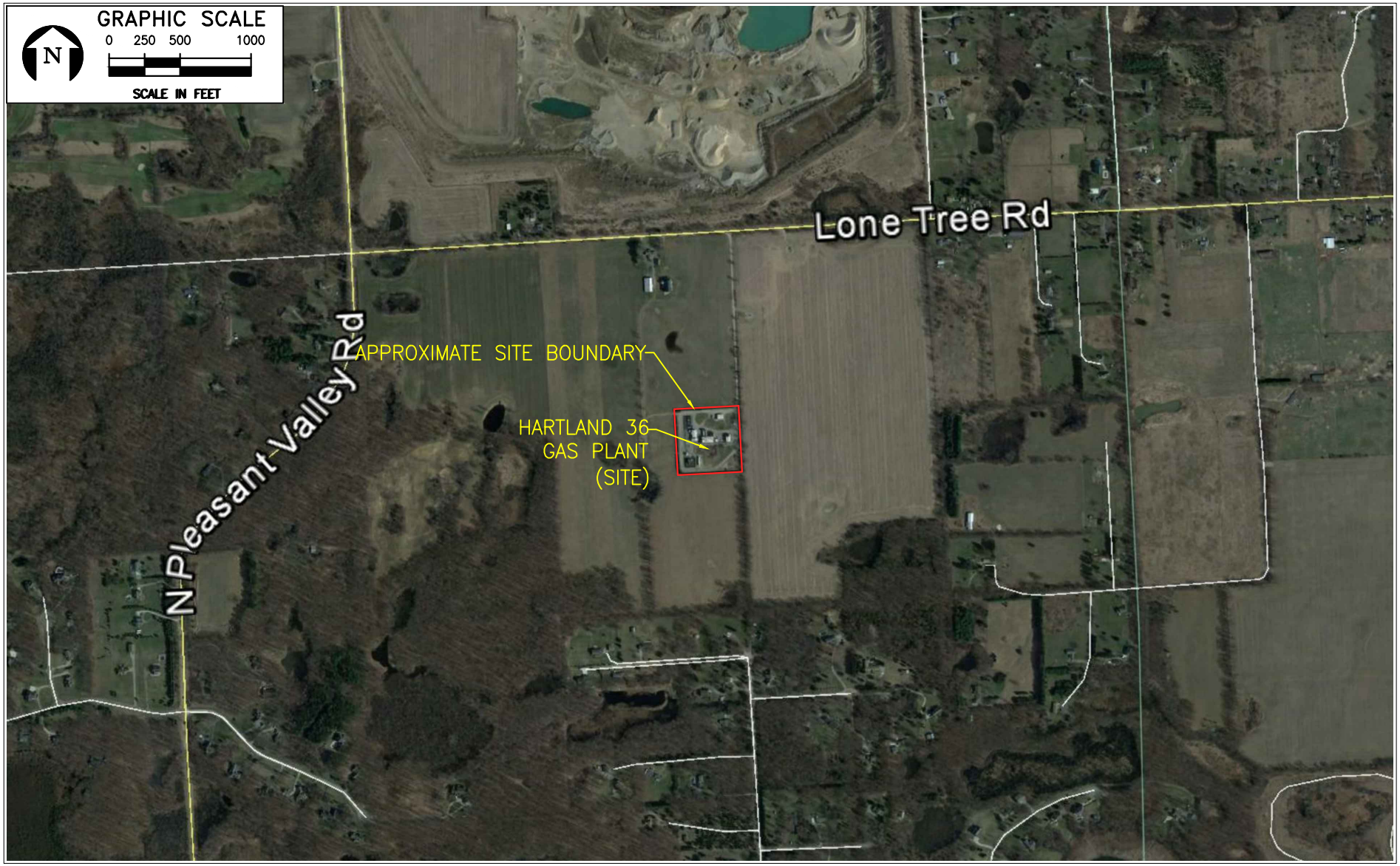

FIGURE 2
SITE AND SURROUNDING PROPERTIES MAP
HARTLAND 36 GAS PLANT
PORTION OF E 1/2 OF NE 1/4 OF SECTION 36, T03N-R06E
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
Source: Google Earth, 2016; ECT, 2016.

ECT Environmental Consulting & Technology, Inc.

Legend

Monitor Well

Temporary Monitor Well

Soil Boring

Excavation Boundary

Fenceline (former)

BSP Location

ND

Not Detected at the Reporting Limit
Sulfolane concentrations (in ug/L) from the December 2021 sampling event.

FIGURE ADAPTED FROM SURVEY PERFORMED BY:

Gourdie-Fraser
Municipal | Development | Transportation

NOTES:

1) DRAWING BASED UPON FIELD OBSERVATIONS TAKEN 11/18/15 (FOR MW DESIGNATED WELLS), 06/06/16 (FOR TMW DESIGNATED WELLS/BORINGS) AND 08/02/16 (FOR MONITORING WELLS 8-13 & 15-16, MW-14 NOT INSTALLED).
2) ADDITIONAL FIELD OBSERVATIONS TAKEN 11/01/16 FOR LOCATIONS AND ELEVATIONS OF MW-13D, MW-14S & D, MW-17S & D, MW-18, AND MW-19S & D. NEW ELEVATIONS WERE ESTABLISHED FOR MW-9, MW-10, MW-11, MW-13, MW-15 AND MW-16. SOIL BORINGS SB-1 & SB-2 WERE ALSO LOCATED ON 11/01/16

ECT Environmental Consulting & Technology, Inc.

HARTLAND 36 GAS PLANT

130685 - 2000
ECT PROJECT NUMBER

\- DESIGNED BY

\- CHECKED BY

BJB DRAWN BY

JSL APPROVED BY

SHEET TITLE

SITE PLAN

SCALE: 1" = 50 @ 11x17

0 25' 50'

NORTH

FIGURE

3

APPENDIX B

TABLES

TABLE 1
REMEDIATION SYSTEM O&M DATA
Hartland 36 Gas Plant
Portion of E1/2 of NW1/4 of Section 36, T03N-R06E, Hartland Township, Livingston County, Michigan
ECT Project #13-0685-2000

	10/1/2021				10/4/2021				10/14/2022				10/29/2022			
	Arrival		Departure		Arrival		Departure		Arrival		Departure		Arrival		Departure	
BSP #	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)
1	8.5	0	9.5	5	10	8	10	8	9	8	9	8	10	9	10	9
2	9.5	12	11	14	10.5	13	10.5	13	10.5	13	10.5	13	10.5	15	10.5	15
3																
4	5.5	0	7	8	8	8	8	8	7	8	7	8	9	8	9	8
5	0	12	0	15	0	14	0	14	0	15	0	15	1	15	1	15
6																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17	8	10	9.5	12	9.5	11	9.5	11	9	11	9	11	10	12	10	12
18	0	21	0	15	0	14	0	14	0	14	0	14	1	15	1	15
19																
20																
21																
22																
23																
24	3.5	17	2.5	15	4.5	14	4.5	14	3	14	3	14	7	14	7	14
25																
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29																
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33																
34																
35																
36																
37																
38																
39																
40																
41																
42																
43																
44																
45	5.5	8	7.5	15	8	17	8	17	7	17	7	17	9.5	17	9.5	17
46																
47	0.5	11	0.5	15	0.5	15	0.5	15	0.5	15	0.5	15	1.5	15	1.5	15
48																
Elapsed Time, hrs	59399.23		59399.59		---		---		59444.37		59444.37		59487.11		59487.28	
Blower Temp., °F	217		225		219		219		223		223		207		207	
Blower Pressure, psi	19		21		21		21		21		21		21		21	
Manifold Pressure, psi	8.5		10		10		10		9.5		9.5		10		10	
Heat Exr Temp., °F	81		82		78		78		82		82		69		69	
Comments																

BSP's with closed valves.
BSPs installed 5/2-3/2018.
BSP-42 permanently removed from manifold 5/2/2018.
BSP-48 installed 2/12/2020.

TABLE 1
REMEDIATION SYSTEM O&M DATA
Hartland 36 Gas Plant
Portion of E1/2 of NW1/4 of Section 36, T03N-R06E, Hartland Township, Livingston County, Michigan
ECT Project #13-0685-2000

	11/11/2021				11/19/2021				11/30/2021				12/6/2021			
	Arrival		Departure		Arrival		Departure		Arrival		Departure		Arrival		Departure	
BSP #	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)
1	9	8	9	8			10	<5	8	<5	11	5	11	9		
2	10.5	15	10.5	15			10	<5	8.5	11	7	11	9.5	10		
3																
4	7	9	7	9			12	5	8	<5	11	8	13	12		
5	0	16	0	16			5	5	0	8	3	11	5	13		
6																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17	9.5	13	9.5	13			11	<5	8.5	5	11.5	5	11.5	6		
18	0	14	0	14			7	6	0	12	0	10	3.5	10		
19																
20																
21																
22																
23																
24	4.5	14	4.5	14			12	10	6.5	17	4.5	10	7	10		
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33																
34																
35																
36																
37																
38																
39																
40																
41																
42																
43																
44																
45	8	16	8	16			13	9	8.5	<5	10	11	11	11		
46																
47	0.5	15	0.5	15			5.5	9	0.5	10	0.5	10	3	10		
48																
Elapsed Time, hrs	59706.82		59706.82		59706.82		59706.82		59710.06		59710.06		59710.07		59710.07	
Blower Temp., °F	212		212		45		160		197		210		201		165	
Blower Pressure, psi	20.5		20.5		11		21		19		21		22		12	
Manifold Pressure, psi	10		10		2		11		8.5		11.5		11.5		1.5	
Heat Exr Temp., °F	80		80		39		49		49		51		42		39	
Comments					System down on arrival; Air Sparge Fault light on.								System shut down upon departure for groundwater sampling event next week.			

BSP's with closed valves.
BSPs installed 5/2-3/2018.
BSP-42 permanently removed from manifold 5/2/2018.
BSP-48 installed 2/12/2020.

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY & CLEANUP CRITERIA COMPARISON
Hartland 36 Gas Plant
Portion of E1/2 of NW1/4 of Section 36, T03N-R06E, Hartland Township, Livingston County, Michigan
ECT Project #13-0685-2000

	MW-1			MW-2			MW-2D			MW-3			MW-3D			MW-4			MW-5			MW-6			MW-6D			MW-7		
Date	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**
9/11-13/17	ND	8.08	---	ND	4.14	---	ND	5.36	---	ND	6.96	---	ND	1.03	---	ND	7.75	---	ND	7.31	---	ND	2.77	---	ND	5.90	---	ND	1.55	---
9/21/17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12/19-20/17	ND	8.83	6.4	ND	8.76	16	ND	5.02	21	ND	9.81	41	ND	1.90	27	ND	7.10	24	ND	6.85	24	ND	2.99	42	ND	9.26	19	ND	10.07	46
1/25/18	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--
2/27/18	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--
3/28-29/18	ND	7.87	5.0	ND	7.79	14	ND	4.05	17	ND	11.53	26	ND	1.31	30	ND	9.77	29	ND	6.31	24	ND	3.22	41	ND	6.92	20	ND	9.75	31
6/19-21/18	ND	15.96	9.3	ND	10.66	15	ND	7.87	18	ND	8.43	11	ND	1.06	28	ND	9.86	21	ND	12.49	28	ND	10.58	56	ND	10.91	10	ND	10.49	17
9/18-20/18	ND	9.98	8.5	ND	12.08	15	ND	10.21	21	ND	9.56	16	ND	1.87	34	ND	11.86	23	ND	11.26	25	ND	5.56	57	ND	8.27	22	ND	13.67	24
12/17-18/18	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	10.03	41
3/25-26/19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	15.99	44
6/24-26/19	ND	11.22	6.8	ND	7.00	17	ND	3.79	20	ND	11.36	15	ND	4.99	32	ND	11.47	27	ND	9.78	36	ND	6.25	61	ND	7.11	23	ND	12.22	20
9/23-24/19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	12.78	25
12/3-4/19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	9.65	29
1/2/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2/13/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3/5-6/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	49.87	22
4/2/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6/1-2/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	18.32	23
9/9-10/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	8.50	21
10/23/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12/10/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	3.52	**250**
1/11/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3/10/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	9.23	**260**
6/17/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	7.53	**290**
7/15/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
9/20/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12/28-29/2021	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	8.74	42
% Decrease	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Sulfolane Criterion (µg/L)	**Non-detect - <10**																													
Sulfate Criterion (mg/L)	**250**																													

	MW-7D			MW-8			MW-9			MW-10			MW-11			MW-12S			MW-12D			MW-13			MW-13D		
Date	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**
9/11-13/17	**1,900**	0.79	---	ND	9.09	---	ND	0.73	---	ND	7.42	---	ND	3.69	---	ND	2.65	---	ND	1.36	---	ND	0.94	---	**660 (730)**	0.52	**330**
9/21/17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12/19-20/17	**4,100**	0.89	46	ND	6.34	8	ND	0.57	21	ND	7.95	36	ND	5.04	20	ND	3.98	19	ND	4.00	32	ND	13.79	80	**480**	0.51	240
1/25/18	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	**400**	2.13	240
2/27/18	**1,200**	1.47	96	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	ND	9.90	210
3/28-29/18	**820**	0.61	81	ND	9.65	12	ND	1.32	26	ND	10.34	48	ND	5.17	16	ND	7.70	18	ND	3.45	33	ND	10.12	63	ND	8.41	220
6/19-21/18	**180 (170)**	1.09	61 (57)	ND	8.58	30	ND	3.36	21	ND	9.98	39	ND	10.94	18	ND	9.09	22	ND	5.26	36	ND	8.08	93	**180**	2.42	**480**
9/18-20/18	**170**	1.32	58	ND	7.88	9.4	ND	1.66	29	ND	11.83	18	ND	11.00	45	ND	3.52	55	ND	4.27	34	ND	9.36	69	ND	5.06	**650**
12/17-18/18	**270 (300)**	12.68	37	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	10.41	94	ND	0.38	**740**
3/25-26/19	**1,700**	0.19	53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**16**	1.95	**740**
6/24-26/19	**510**	0.81	84	ND	12.70	17	ND	1.20	26	ND	8.50	61	ND	11.21	40	ND	5.84	27	ND	2.96	37	ND	8.54	140	**19**	2.61	**740**
9/23-24/19	**140**	2.58	57	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8.93	140	ND	5.07	**750**
12/3-4/19	**1,200**	4.02	48	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10.09	120	**37**	0.82	**660**
1/2/20	**2,400**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2/13/20	**1,500**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3/5-6/20	ND	12.14	32	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	28.96	91	ND	7.08	**920**
4/2/20	**330**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**16**	---	---
6/1-2/20	ND	15.88	30	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	4.51	86	ND	6.56	**560**
9/9-10/20	ND	12.56	27	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	**3.70**	92	ND	2.92	**510**
10/23/20	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--
12/10/20	ND	8.80	21	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	ND	4.56	94	**99**	0.12	**460**
1/11/21	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	**110**	---	--
3/10/21	ND	9.84	17	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	ND	13.08	120	ND	9.78	**450**
6/17/21	**74**	5.82	67	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	ND	10.33	110	**93**	0.63	**510**
7/15/21	**97**	5.16	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	**45**	1.68	--
9/20/21	ND	2.97	90	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	ND	7.41	**530**
12/28-29/2021	ND	5.44	86	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	ND	8.24	120	**21**	1.61	**440**
% Decrease	100%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	97.1%	---	---
Sulfolane Criterion (µg/L)	**Non-detect - <10**																										
Sulfate Criterion (mg/L)	**250**																										

Notes

1) Concentrations of sulfolane reported in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
2) DO - dissolved oxygen.
3) Concentrations of dissolved oxygen and sulfate reported in milligrams per liter (mg/L), equivalent to parts per million (ppm).
4) (---) - Not sampled.
5) ND - Concentration not detected above reporting limit.
6) Concentrations shown in parenthesis are from duplicate sample.
7) % Decrease of sulfolane is the most recent sampling event relative to highest reported concentration since the pre-system startup event (9/11-13/17).
8) Sulfolane criterion established by EGLE-Oil, Gas, and Minerals Division (EGLE-OGMD).
9) Sulfate criterion - Part 201 Residential Generic Cleanup Criteria and Screening Levels (Part 201 Residential GCCSLs), dated January 10, 2018, per R299.44 (Table 1) of the Michigan Administrative Code.
10) Concentrations that are highlighted and bold exceed cleanup criteria.

TABLE 2
GROUNDWATER ANALYTICAL SUMMARY & CLEANUP CRITERIA COMPARISON
Hartland 36 Gas Plant
Portion of E1/2 of NW1/4 of Section 36, T03N-R06E, Hartland Township, Livingston County, Michigan
ECT Project #13-0685-2000

	MW-14S			MW-14D			MW-15			MW-15D			MW-15DD			MW-16			MW-16D			MW-17S			MW-17D		
Date	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**
9/11-13/17	**120**	0.85	---	**7,700**	0.22	---	ND	4.39	---	**230**	0.22	---	**33**	0.23	---	ND	3.31	---	ND	0.28	---	**3,100**	0.25	---	**380**	0.36	---
9/21/17	---	---	---	---	---	---	---	---	---	---	---	---	**48**	0.64	---	---	---	---	---	---	---	---	---	---	---	---	---
12/19-20/17	**100**	2.05	91	**7,100**	0.45	39	ND	11.02	14	ND	4.22	46	ND	0.56	37	ND	8.42	16	ND	5.99	24	**2,400**	0.88	49	**51**	8.10	33
1/25/18	**85**	3.35	56	**5,400**	0.43	44	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	**510**	0.95	53	ND	10.07	38
2/27/18	ND	9.63	110	**4,000**	0.50	48	---	---	--	---	---	--	---	---	--	---	---	--	---	---	--	**460**	0.96	53	ND	11.02	38
3/28-29/18	ND	8.61	120	**3,000 (5,100)**	0.22	50 (51)	ND	7.96	16	ND	6.86	29	ND	0.54	37	ND	8.73	19	ND	3.88	25	**52 (52)**	3.28	64	ND	9.68	36
6/19-21/18	**52**	0.28	67	**2,600 (2,000)**	0.09	77 (77)	ND	7.98	39	ND	3.80	27	ND	0.53	42	ND	16.43	43	ND	8.12	24	**55**	8.61	68	ND (ND)	10.63	42 (41)
9/18-20/18	ND	4.90	140	**680**	2.89	110	ND	8.25	32	ND	7.45	20	ND	0.60	41	ND	8.12	21	ND	2.08	22	**32**	3.07	65	ND	3.83	49
12/17-18/18	ND	9.20	220	**290**	3.49	120	---	---	---	ND	6.77	22	---	---	---	---	---	---	---	---	---	ND	9.30	61	ND	9.75	47
3/25-26/19	ND	11.08	180	ND	5.71	120	---	---	---	ND	7.53	23	---	---	---	---	---	---	---	---	---	ND	5.77	80	ND	9.68	45
6/24-26/19	ND	9.88	160	**110**	5.82	120	ND	8.58	55	ND	5.65	28	ND	0.53	65	ND	11.24	23	ND	6.78	33	ND	1.43	69	ND	10.93	65
9/23-24/19	ND	5.96	100	**71**	2.83	150	---	---	---	ND	22.96	26	---	---	---	---	---	---	---	---	---	ND	4.78	73	ND	7.19	96
12/3-4/19	ND	8.66	93	**71**	10.21	150	---	---	---	ND	6.29	21	---	---	---	---	---	---	---	---	---	ND	7.98	61	ND	8.87	80
1/2/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2/13/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3/5-6/20	ND	8.44	100	ND	11.39	130	---	---	---	ND	5.66	21	---	---	---	---	---	---	---	---	---	ND	3.26	56	ND	8.20	230
4/2/20	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6/1-2/20	ND	5.62	120	ND	7.50	110	---	---	---	ND	6.87	24	---	---	---	---	---	---	---	---	---	ND	0.86	67	ND	5.71	**260**
9/9-10/20	ND	17.85	88	ND	10.57	100	---	---	---	ND	8.34	21	---	---	---	---	---	---	---	---	---	**190**	1.09	67	ND	1.25	**290**
10/23/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**91**	6.89	---	---	---	---
12/10/20	ND	1.94	50	ND	1.66	110	---	---	---	ND	22.18	26	---	---	---	---	---	---	---	---	---	ND	4.28	64	ND	4.75	220
1/11/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---
3/10/21	ND	12.24	67	ND	1.29	150	---	---	---	ND	6.90	32	---	---	---	---	---	---	---	---	---	ND	9.32	73	ND	3.23	160
6/17/21	ND (ND)	1.41	77 (79)	ND	2.56	130	---	---	---	ND	3.72	38	---	---	---	---	---	---	---	---	---	ND	3.13	68	ND	0.90	69
7/15/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	2.62	---	---	---	---
9/20/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	7.08	44	---	---	---
12/28-29/2021	ND	4.23	36	ND	3.85	83	---	---	---	ND	4.08	35	---	---	---	---	---	---	---	---	---	ND	1.31	53	ND	0.34	100
% Decrease	100%	---	---	100%	---	---	---	---	---	100%	---	---	100%	---	---	---	---	---	---	---	---	100%	---	---	100%	---	---
Sulfolane Criterion (µg/L)	**Non-detect - <10**																										
Sulfate Criterion (mg/L)	**250**																										

	MW-18			MW-19S			MW-19D			MW-19DD			MW-20S			MW-20D			MW-21D			MW-22D			MW-23D		
Date	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**	**Sulfolane**	**DO**	**Sulfate**
9/11-13/17	**2,200**	1.16	---	**29**	1.64	---	**5,900**	0.60	---	ND	3.82	---	**63**	1.50	---	**12,000**	0.45	---	ND	6.08	---	ND	7.76	---	ND	2.87	---
9/21/17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12/19-20/17	**660**	0.67	37	ND	10.32	44	**3,200**	0.38	73	ND	7.16	22	**49**	4.04	45	**12,000**	0.52	43	ND	7.58	22	ND	5.74	12	ND	2.48	20
1/25/18	**2,300**	0.74	34	---	---	--	ND	0.77	74	---	---	--	ND	3.76	45	**10,000**	1.61	41	---	---	--	---	---	--	---	---	--
2/27/18	**2,000**	0.39	33	---	---	--	ND	0.57	51	---	---	--	ND	---	52	**9,300**	0.61	46	---	---	--	---	---	--	---	---	--
3/28-29/18	**980**	0.71	34	ND	9.45	43	**290**	0.47	54	ND	6.27	26		2.03	57 (58)	**10,000**	2.00	51	ND	4.13	22	ND	5.32	9.4	ND	3.03	19
6/19-21/18	**14**	3.13	39	ND	11.14	36	**750**	1.08	63	ND	5.25	23	ND	4.80	56	**6,600**	3.99	58	ND	4.22	21	ND	12.97	8.0	ND	5.72	20
9/18-20/18	ND (ND)	0.67	49 (49)	ND	12.84	44	**170 (150)**	0.86	77 (77)	ND	6.89	20	ND	9.28	63	**22 (34)**	5.37	80 (81)	ND	5.77	21	ND	7.65	6.8	ND	3.12	21
12/17-18/18	ND	2.28	53	ND	8.95	47	**440**	3.02	83	---	---	---	ND	9.77	48	**19**	5.32	90	---	---	---	---	---	---	---	---	---
3/25-26/19	ND	1.09	47	ND	14.18	47	**350**	0.24	88	---	---	---	ND	12.20	62	ND (ND)	10.35	89 (84)	---	---	---	---	---	---	---	---	---
6/24-26/19	ND (ND)	0.97	45 (44)	ND	10.42	62	**98 (73)**	0.17	100 (94)	ND	7.27	23	ND	20.73	72	ND (ND)	10.86	94 (94)	ND	5.66	24	ND	9.20	8.3	ND	6.39	30
9/23-24/19	ND	1.60	43	ND	9.79	58	ND	8.39	110	---	---	---	ND	6.06	66	ND (ND)	6.26	84 (79)	---	---	---	---	---	---	---	---	---
12/3-4/19	ND	0.93	49	ND	11.40	62	**92**	0.57	92	---	---	---	ND	7.23	64	ND (ND)	6.15	84 (80)	---	---	---	---	---	---	---	---	---
1/2/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2/13/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3/5-6/20	ND	7.25	71	ND	13.19	68	ND	9.24	100	---	---	---	ND	9.74	33	ND (ND)	4.20	88 (91)	---	---	---	---	---	---	---	---	---
4/2/20	---	---	---	---	---	--	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6/1-2/20	ND	6.08	61	ND	11.36	72	ND	15.02	92	---	---	---	ND	11.51	36	ND (ND)	7.29	83 (85)	---	---	---	---	---	---	---	---	---
9/9-10/20	ND	0.56	50	ND	10.46	72	ND	13.48	84	---	---	---	ND	7.91	110	ND (ND)	2.79	83 (80)	---	---	---	---	---	---	---	---	---
10/23/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12/10/20	ND	0.12	58	ND	9.18	74	ND	12.69	120	---	---	---	ND	7.41	57	ND (ND)	1.65	80 (80)	---	---	---	---	---	---	---	---	---
1/11/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3/10/21	ND	8.42	55	ND	12.27	79	ND	7.40	130	---	---	---	ND	21.91	80	ND (ND)	11.71	80 (82)	---	---	---	---	---	---	---	---	---
6/17/21	ND	0.75	58	ND	11.95	80	ND	2.39	130	---	---	---	ND	8.61	100	ND	7.21	78	---	---	---	---	---	---	---	---	---
7/15/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
9/20/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12/28-29/2021	ND	5.49	55	ND	7.27	90	ND	1.35	120	---	---	---	ND	6.84	97	ND	4.87	73	---	---	---	---	---	---	---	---	---
% Decrease	100%	---	---	100%	---	---	100%	---	---	---	---	---	100%	---	---	100%	---	---	---	---	---	---	---	---	---	---	---
Sulfolane Criterion (µg/L)	**Non-detect - <10**																										
Sulfate Criterion (mg/L)	**250**																										

Notes

1) Concentrations of sulfolane reported in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
2) DO - dissolved oxygen.
3) Concentrations of dissolved oxygen and sulfate reported in milligrams per liter (mg/L), equivalent to parts per million (ppm).
4) (---) - Not sampled.
5) ND - Concentration not detected above reporting limit.
6) Concentrations shown in parenthesis are from duplicate sample.
7) % Decrease of sulfolane is the most recent sampling event relative to highest reported concentration since the pre-system startup event (9/11-13/17).
8) Sulfolane criterion established by EGLE-Oil, Gas, and Minerals Division (EGLE-OGMD).
9) Sulfate criterion - Part 201 Residential Generic Cleanup Criteria and Screening Levels (Part 201 Residential GCCSLs), dated January 10, 2018, per R299.44 (Table 1) of the Michigan Administrative Code.
10) Concentrations that are highlighted and bold exceed cleanup criteria.

TABLE 3
SULFOLANE GROUNDWATER ANALYTICAL SUMMARY & CLEANUP CRITERIA COMPARISON
Hartland 36 Gas Plant
Portion of E1/2 of NW1/4 of Section 36, T03N-R06E,
Hartland Township, Livingston County, Michigan
ECT Project #13-0685-2000

Sample Location	Screened Interval (ft bgs)	11/4-5/15	1/27/16	6/3/2016	8/3-4/16	9/21-22/16	10/12/16	11/3/16	12/8/16	12/21-23/16	2/14/17	3/14-16/2017	4/27/17; 5/1/17	5/11/2017	5/30-31/17	6/19-21/17	9/11-13/17	9/21/2017	12/19-20/2017	1/25/2018	2/27/2018	3/28-29/2018	6/19-21/2018	9/18-20/2018
MW-1	20.1 - 25.1	ND	ND	ND	---	ND	---	---	---	---	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-2	19.1 - 24.1	ND	ND	ND	---	ND	---	---	---	---	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-2D	27.7 - 29.7	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-3	22.0 - 27.0	ND	---	ND	---	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-3D	30.0 - 32.0	---	---	---	---	---	---	---	---	---	ND	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-4	23.1 - 28.1	ND	ND	ND	ND	ND	ND	ND	---	ND	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-5	18.0 - 23.0	ND	ND	ND	---	ND	ND	---	---	ND	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-6	25.4 - 30.4	ND	ND	ND	ND	ND	ND	ND	---	ND	---	ND	---	---	ND	ND	ND	---	ND	---	---	ND	ND	ND
MW-6D	39.4 - 44.4	---	---	---	ND	ND	ND	ND	---	ND	---	ND	---	---	ND	ND	ND	---	ND	---	---	ND	ND	ND
MW-7	25.2 - 30.2	**880**	**44**	**510**	ND	**210**	---	---	---	ND	---	ND	---	---	---	**12**	ND	---	ND	---	---	ND	ND	ND
MW-7D	39.2 - 44.2	---	---	---	---	---	---	---	**3,100**	---	---	**3,000**	---	---	---	**2,600**	**1,900**	---	**4,100**	---	**1,200**	**820**	**180**	**170**
MW-8	24.6 - 29.6	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-9	23.6 - 28.6	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-10	21.2 - 26.2	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-11	21.7 - 26.7	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-12S	20.5 - 25.5	---	---	---	ND	ND	ND	ND	---	ND	---	ND	---	---	ND	ND	ND	---	ND	---	---	ND	ND	ND
MW-12D	39.7 - 44.7	---	---	---	ND	ND	ND	ND	---	ND	---	ND	---	---	ND	ND	ND	---	ND	---	---	ND	ND	ND
MW-13	19.1 - 24.1	---	---	---	**6,600**	**8,800**	---	---	---	**3,500**	---	**5,100**	**7,000**	**3,700**	**97**	ND	ND	---	ND	---	---	ND	ND	ND
MW-13D	27.7 - 29.7	---	---	---	---	---	---	**7,800**	---	**8,300**	---	**5,400**	**6,900**	**1,100**	**420**	**290**	**730**	---	**480**	**400**	ND	ND	**180**	ND
MW-14S	18.6 - 23.6	---	---	---	---	---	---	46	---	**460**	---	**540**	**490**	**160**	**520**	**94**	**120**	---	**100**	**85**	ND	ND	**52**	ND
MW-14D	36.7 - 41.7	---	---	---	---	---	---	**7,900**	---	**10,000**	---	**7,600**	**9,800**	**8,600**	**8,200**	**7,800**	**7,700**	---	**7,100**	**5,400**	**4,000**	**5,100**	**2,800**	**680**
MW-15	19.3 - 24.3	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-15D	37.9 - 42.9	---	---	---	---	---	---	---	---	---	**4,600**	**3,200**	---	---	---	**670**	**230**	---	ND	---	---	ND	ND	ND
MW-15DD	50 - 55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**33**	**48**	ND	---	---	ND	ND	ND
MW-16	19.5 - 24.5	---	---	---	ND	ND	---	---	---	ND	---	ND	ND	ND	ND	ND	ND	---	ND	---	---	ND	ND	ND
MW-16D	31.4 - 33.4	---	---	---	---	---	---	---	---	---	ND	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-17S	19.9 - 24.9	---	---	---	---	---	---	**3,900**	---	**5,100**	---	**3,000**	---	---	---	**5,300**	**3,100**	---	**2,400**	**510**	**460**	**52**	**55**	**32**
MW-17D	35.4 - 37.4	---	---	---	---	---	---	**440**	---	**510**	---	**400**	---	---	---	**390**	**400**	---	**51**	ND	ND	ND	ND	ND
MW-18	19.9 - 24.9	---	---	---	---	---	---	**6,800**	---	**6,800**	---	**4,300**	---	**2,100**	**4,800**	**3,800**	**2,200**	---	**660**	**2,300**	**2,000**	**980**	**14**	ND
MW-19S	22.6 - 27.6	---	---	---	---	---	---	**2,700**	---	**1,500**	---	**1,300**	---	---	---	**24**	**33**	---	ND	---	---	ND	ND	ND
MW-19D	43.0 - 48.0	---	---	---	---	---	---	**7,000**	---	**7,600**	---	**4,300**	---	---	---	**7,000**	**5,900**	---	**3,200**	ND	ND	**290**	**750**	**170**
MW-19DD	57 - 62	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	ND	---	---	ND	ND	ND
MW-20S	17.8 - 22.8	---	---	---	---	---	---	---	**25**	---	---	**97**	---	---	---	**160**	**63**	---	**49**	ND	ND	ND	ND	ND
MW-20D	31.0 - 33.0	---	---	---	---	---	---	---	**8,700**	---	---	**8,300**	---	---	---	**11,000**	**12,000**	---	**12,000**	**10,000**	**9,300**	**10,000**	**6,600**	**34**
MW-21D	52.3 - 57.3	---	---	---	---	---	---	---	ND	---	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-22D	36.4 - 41.4	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
MW-23D	28.1 - 30.1	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	ND	ND	---	ND	---	---	ND	ND	ND
EGLE-OGMD Cleanup Criteria		**Non-detect - <10 µg/L**																						
Collection Method		LF		Bailer/PP	LF																			

Notes

1) ft bgs - Feet below ground surface.
2) Collection method - Grab, peristaltic pump (PP), low flow (LF), Bailer.
3) µg/L - Micrograms per liter, equivalent to parts per billion (ppb).
4) (---) - Not sampled.
5) ND - Concentration not detected above reporting limit.
6) Sulfolane concentrations included on the table are for the higher concentration from samples submitted for duplicate analysis.
7) Cleanup criteria for sulfolane established by EGLE-Oil, Gas, and Minerals Division (EGLE-OGMD).
8) Concentrations that are highlighted and bold exceed cleanup criteria.
9) MW-7 sampled on 8/11/2016 for the 8/3-4/2016 sample event.

TABLE 3
SULFOLANE GROUNDWATER ANALYTICAL SUMMARY & CLEANUP CRITERIA COMPARISON
Hartland 36 Gas Plant
SE/NE/NW Section 36, T03N-R06E,
Hartland Township, Livingston County, Michigan
ECT Project #13-0685-2000

Sample Location	Screened Interval (ft bgs)	12/17-18/2018	3/25-26/19	6/24-26/2019	9/23-24/2019	12/3-4/19	1/2/2020	2/13/2020	3/5-6/2020	4/2/2020	6/1-2/2020	9/9-10/2020	10/23/2020	12/10/2020	1/11/2021	3/10/2021	6/17/2021	7/15/2021	9/20/2021	12/28-29/21
MW-1	20.1 - 25.1	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	19.1 - 24.1	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2D	27.7 - 29.7	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	22.0 - 27.0	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3D	30.0 - 32.0	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	23.1 - 28.1	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	18.0 - 23.0	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6	25.4 - 30.4	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6D	39.4 - 44.4	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	25.2 - 30.2	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-7D	39.2 - 44.2	**300**	**1,700**	**510**	**140**	**1,200**	**2,400**	**1,500**	ND	**330**	ND	ND	---	ND	---	ND	**74**	**97**	ND	ND
MW-8	24.6 - 29.6	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-9	23.6 - 28.6	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-10	21.2 - 26.2	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-11	21.7 - 26.7	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12S	20.5 - 25.5	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12D	39.7 - 44.7	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	19.1 - 24.1	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-13D	27.7 - 29.7	ND	**16**	**19**	ND	**37**	---	---	ND	**16**	ND	ND	---	**99**	**110**	ND	**93**	**45**	ND	**21**
MW-14S	18.6 - 23.6	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-14D	36.7 - 41.7	**290**	ND	**110**	**71**	**71**	---	---	ND	ND	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-15	19.3 - 24.3	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-15D	37.9 - 42.9	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-15DD	50 - 55	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-16	19.5 - 24.5	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-16D	31.4 - 33.4	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-17S	19.9 - 24.9	ND	ND	ND	ND	ND	---	---	ND	---	ND	**190**	**91**	ND	ND	ND	ND	ND	ND	ND
MW-17D	35.4 - 37.4	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-18	19.9 - 24.9	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-19S	22.6 - 27.6	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-19D	43.0 - 48.0	**440**	**350**	**98**	ND	**92**	---	---	ND	ND	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-19DD	57 - 62	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-20S	17.8 - 22.8	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-20D	31.0 - 33.0	**19**	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND	---	ND	ND	---	---	ND
MW-21D	52.3 - 57.3	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-22D	36.4 - 41.4	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-23D	28.1 - 30.1	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
EGLE-OGMD Cleanup Criteria		**Non-detect - <10 µg/L**																		
Collection Method		LF										Bailer		LF	Bailer	LF				

Notes

1) ft bgs - Feet below ground surface.
2) Collection method - Grab, peristaltic pump (PP), low flow (LF), Bailer.
3) µg/L - Micrograms per liter, equivalent to parts per billion (ppb).
4) (---) - Not sampled.
5) ND - Concentration not detected above reporting limit.
6) Sulfolane concentrations included on the table are for the higher concentration from samples submitted for duplicate analysis.
7) Cleanup criteria for sulfolane established by EGLE-Oil, Gas, and Minerals Division (EGLE-OGMD).
8) Concentrations that are highlighted and bold exceed cleanup criteria.
9) MW-7 sampled on 8/11/2016 for the 8/3-4/2016 sample event.

APPENDIX C

LABORATORY ANALYTICAL REPORTS

11-Jan-2022

Nick Summerland
Lambda Energy Resources
1510 Thomas Rd
Kalkaska, MI 49646

Re: **Lambda (Hartland 36 Gas Plant)** Work Order: **22010008**

Dear Nick,

ALS Environmental received 14 samples on 30-Dec-2021 04:03 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 24.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Gary Byar

Electronically approved by: Gary Byar

Gary Byar
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 11-Jan-22

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant)
Work Order: **22010008**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
22010008-01	MW-7s	Groundwater		12/28/2021 09:15	12/30/2021 16:03	☐
22010008-02	MW-7d	Groundwater		12/28/2021 10:20	12/30/2021 16:03	☐
22010008-03	MW-19d	Groundwater		12/28/2021 11:10	12/30/2021 16:03	☐
22010008-04	MW-19s	Groundwater		12/28/2021 11:55	12/30/2021 16:03	☐
22010008-05	MW-20s	Groundwater		12/28/2021 12:55	12/30/2021 16:03	☐
22010008-06	MW-20d	Groundwater		12/28/2021 13:50	12/30/2021 16:03	☐
22010008-07	MW-15d	Groundwater		12/28/2021 14:50	12/30/2021 16:03	☐
22010008-08	MW-17d	Groundwater		12/28/2021 15:45	12/30/2021 16:03	☐
22010008-09	MW-17s	Groundwater		12/28/2021 16:35	12/30/2021 16:03	☐
22010008-10	MW-14s	Groundwater		12/29/2021 09:30	12/30/2021 16:03	☐
22010008-11	MW-14d	Groundwater		12/29/2021 10:25	12/30/2021 16:03	☐
22010008-12	MW-18	Groundwater		12/29/2021 11:30	12/30/2021 16:03	☐
22010008-13	MW-13s	Groundwater		12/29/2021 12:45	12/30/2021 16:03	☐
22010008-14	MW13d	Groundwater		12/29/2021 13:45	12/30/2021 16:03	☐

ALS Group, USA

Date: *11-Jan-2022*

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant)
Work Order: 22010008
Sample ID: MW-7s
Lab ID: 22010008-01
Collection Date: 12/28/2021 09:15 AM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 12:01 AM
Surr: 2-Fluorobiphenyl	*72.3*		*26-79*	*%REC*	1	1/5/2022 12:01 AM
Surr: 4-Terphenyl-d14	*87.7*		*43-106*	*%REC*	1	1/5/2022 12:01 AM
Surr: Nitrobenzene-d5	*67.4*		*29-80*	*%REC*	1	1/5/2022 12:01 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**42**		**1.0**	**mg/L**	1	1/3/2022 01:07 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-7d **Lab ID:** 22010008-02
Collection Date: 12/28/2021 10:20 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 12:29 AM
Surr: 2-Fluorobiphenyl	*68.1*		*26-79*	*%REC*	1	1/5/2022 12:29 AM
Surr: 4-Terphenyl-d14	*93.0*		*43-106*	*%REC*	1	1/5/2022 12:29 AM
Surr: Nitrobenzene-d5	*65.0*		*29-80*	*%REC*	1	1/5/2022 12:29 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**86**		**1.0**	**mg/L**	1	1/3/2022 01:07 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-19d **Lab ID:** 22010008-03
Collection Date: 12/28/2021 11:10 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 12:56 AM
Surr: 2-Fluorobiphenyl	*70.5*		*26-79*	*%REC*	1	1/5/2022 12:56 AM
Surr: 4-Terphenyl-d14	*95.2*		*43-106*	*%REC*	1	1/5/2022 12:56 AM
Surr: Nitrobenzene-d5	*67.4*		*29-80*	*%REC*	1	1/5/2022 12:56 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**120**		**4.0**	**mg/L**	4	1/3/2022 01:19 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-19s **Lab ID:** 22010008-04
Collection Date: 12/28/2021 11:55 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 01:23 AM
Surr: 2-Fluorobiphenyl	*69.9*		*26-79*	*%REC*	1	1/5/2022 01:23 AM
Surr: 4-Terphenyl-d14	*82.4*		*43-106*	*%REC*	1	1/5/2022 01:23 AM
Surr: Nitrobenzene-d5	*68.1*		*29-80*	*%REC*	1	1/5/2022 01:23 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**90**		**1.0**	**mg/L**	1	1/3/2022 01:08 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-20s **Lab ID:** 22010008-05
Collection Date: 12/28/2021 12:55 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 01:51 AM
Surr: 2-Fluorobiphenyl	*63.5*		*26-79*	*%REC*	1	1/5/2022 01:51 AM
Surr: 4-Terphenyl-d14	*98.8*		*43-106*	*%REC*	1	1/5/2022 01:51 AM
Surr: Nitrobenzene-d5	*59.5*		*29-80*	*%REC*	1	1/5/2022 01:51 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**97**		**4.0**	**mg/L**	4	1/3/2022 01:21 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-20d **Lab ID:** 22010008-06
Collection Date: 12/28/2021 01:50 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 02:18 AM
Surr: 2-Fluorobiphenyl	*69.2*		*26-79*	*%REC*	1	1/5/2022 02:18 AM
Surr: 4-Terphenyl-d14	*94.7*		*43-106*	*%REC*	1	1/5/2022 02:18 AM
Surr: Nitrobenzene-d5	*65.9*		*29-80*	*%REC*	1	1/5/2022 02:18 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**73**		**1.0**	**mg/L**	1	1/3/2022 01:10 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-15d **Lab ID:** 22010008-07
Collection Date: 12/28/2021 02:50 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 02:45 AM
Surr: 2-Fluorobiphenyl	*64.4*		*26-79*	*%REC*	1	1/5/2022 02:45 AM
Surr: 4-Terphenyl-d14	*85.8*		*43-106*	*%REC*	1	1/5/2022 02:45 AM
Surr: Nitrobenzene-d5	*61.8*		*29-80*	*%REC*	1	1/5/2022 02:45 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**35**		**1.0**	**mg/L**	1	1/3/2022 01:10 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-17d **Lab ID:** 22010008-08
Collection Date: 12/28/2021 03:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 03:12 AM
Surr: 2-Fluorobiphenyl	*68.3*		*26-79*	*%REC*	1	1/5/2022 03:12 AM
Surr: 4-Terphenyl-d14	*94.4*		*43-106*	*%REC*	1	1/5/2022 03:12 AM
Surr: Nitrobenzene-d5	*64.3*		*29-80*	*%REC*	1	1/5/2022 03:12 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**100**		**4.0**	**mg/L**	4	1/3/2022 01:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-17s **Lab ID:** 22010008-09
Collection Date: 12/28/2021 04:35 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 03:40 AM
Surr: 2-Fluorobiphenyl	*65.8*		*26-79*	*%REC*	1	1/5/2022 03:40 AM
Surr: 4-Terphenyl-d14	*92.1*		*43-106*	*%REC*	1	1/5/2022 03:40 AM
Surr: Nitrobenzene-d5	*63.1*		*29-80*	*%REC*	1	1/5/2022 03:40 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**53**		**1.0**	**mg/L**	1	1/3/2022 01:13 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-14s **Lab ID:** 22010008-10
Collection Date: 12/29/2021 09:30 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 04:07 AM
Surr: 2-Fluorobiphenyl	*64.9*		*26-79*	*%REC*	1	1/5/2022 04:07 AM
Surr: 4-Terphenyl-d14	*91.4*		*43-106*	*%REC*	1	1/5/2022 04:07 AM
Surr: Nitrobenzene-d5	*61.8*		*29-80*	*%REC*	1	1/5/2022 04:07 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**36**		**1.0**	**mg/L**	1	1/3/2022 01:19 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-14d **Lab ID:** 22010008-11
Collection Date: 12/29/2021 10:25 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 04:34 AM
Surr: 2-Fluorobiphenyl	*62.4*		*26-79*	*%REC*	1	1/5/2022 04:34 AM
Surr: 4-Terphenyl-d14	*82.9*		*43-106*	*%REC*	1	1/5/2022 04:34 AM
Surr: Nitrobenzene-d5	*62.7*		*29-80*	*%REC*	1	1/5/2022 04:34 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**83**		**1.0**	**mg/L**	1	1/3/2022 01:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-18 **Lab ID:** 22010008-12
Collection Date: 12/29/2021 11:30 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 05:02 AM
Surr: 2-Fluorobiphenyl	*64.5*		*26-79*	*%REC*	1	1/5/2022 05:02 AM
Surr: 4-Terphenyl-d14	*96.5*		*43-106*	*%REC*	1	1/5/2022 05:02 AM
Surr: Nitrobenzene-d5	*63.9*		*29-80*	*%REC*	1	1/5/2022 05:02 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**55**		**1.0**	**mg/L**	1	1/3/2022 01:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW-13s **Lab ID:** 22010008-13
Collection Date: 12/29/2021 12:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	ND		10	µg/L	1	1/5/2022 05:29 AM
Surr: 2-Fluorobiphenyl	*66.6*		*26-79*	*%REC*	1	1/5/2022 05:29 AM
Surr: 4-Terphenyl-d14	*94.5*		*43-106*	*%REC*	1	1/5/2022 05:29 AM
Surr: Nitrobenzene-d5	*64.1*		*29-80*	*%REC*	1	1/5/2022 05:29 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**120**		**4.0**	**mg/L**	4	1/3/2022 01:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 22010008
Sample ID: MW13d **Lab ID:** 22010008-14
Collection Date: 12/29/2021 01:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 1/4/22 11:53	Analyst: **EEW**
Sulfolane	**21**		**10**	**µg/L**	1	1/5/2022 05:56 AM
Surr: 2-Fluorobiphenyl	*67.4*		*26-79*	*%REC*	1	1/5/2022 05:56 AM
Surr: 4-Terphenyl-d14	*88.4*		*43-106*	*%REC*	1	1/5/2022 05:56 AM
Surr: Nitrobenzene-d5	*64.3*		*29-80*	*%REC*	1	1/5/2022 05:56 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **QTN**
Sulfate	**440**		**10**	**mg/L**	10	1/3/2022 01:42 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant)
Work Order: 22010008

Case Narrative

Batch R335668, Method A4500-SO4 E-11, Sample 22010008-05A MS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Sulfate

Batch R335668, Method A4500-SO4 E-11, Sample 21122409-01A MS: MS and MSD are for an unrelated sample

Batch R335668, Method A4500-SO4 E-11, Sample 21122409-01A MSD: MSD is for an unrelated sample

Batch 189858, Method SW846 8270D: The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Group, USA

Date: 11-Jan-22

Client: Lambda Energy Resources

Work Order: 22010008

Project: Lambda (Hartland 36 Gas Plant)

QC BATCH REPORT

Batch ID: **189858** Instrument ID **SVMS10** Method: **SW846 8270D**

MBLK Sample ID: **SBLKW1-189858-189858** Units: **µg/L** Analysis Date: **1/4/2022 10:40 PM**

Client ID: Run ID: **SVMS10_220104A** SeqNo: **8086451** Prep Date: **1/4/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfolane	ND	10								
Surr: 2-Fluorobiphenyl	*37.78*	0	*50*	0	*75.6*	*26-79*	0			
Surr: 4-Terphenyl-d14	*45.35*	0	*50*	0	*90.7*	*43-106*	0			
Surr: Nitrobenzene-d5	*37.24*	0	*50*	0	*74.5*	*29-80*	0			

LCS Sample ID: **SLCSW1-189858-189858** Units: **µg/L** Analysis Date: **1/4/2022 11:07 PM**

Client ID: Run ID: **SVMS10_220104A** SeqNo: **8086452** Prep Date: **1/4/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfolane	57	10	100	0	57	30-100	0			
Surr: 2-Fluorobiphenyl	*39.46*	0	*50*	0	*78.9*	*26-79*	0			
Surr: 4-Terphenyl-d14	*46.7*	0	*50*	0	*93.4*	*43-106*	0			
Surr: Nitrobenzene-d5	*39.22*	0	*50*	0	*78.4*	*29-80*	0			

LCSD Sample ID: **SLCSDW1-189858-189858** Units: **µg/L** Analysis Date: **1/4/2022 11:34 PM**

Client ID: Run ID: **SVMS10_220104A** SeqNo: **8086453** Prep Date: **1/4/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfolane	51.61	10	100	0	51.6	30-100	57	9.93	30	
Surr: 2-Fluorobiphenyl	*37.15*	0	*50*	0	*74.3*	*26-79*	39.46	*6.03*	*40*	
Surr: 4-Terphenyl-d14	*50.59*	0	*50*	0	*101*	*43-106*	46.7	*8*	*40*	
Surr: Nitrobenzene-d5	*35.96*	0	*50*	0	*71.9*	*29-80*	39.22	*8.67*	*40*	

The following samples were analyzed in this batch:

22010008-01B	22010008-02B	22010008-03B
22010008-04B	22010008-05B	22010008-06B
22010008-07B	22010008-08B	22010008-09B
22010008-10B	22010008-11B	22010008-12B
22010008-13B	22010008-14B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Lambda Energy Resources
Work Order: 22010008
Project: Lambda (Hartland 36 Gas Plant)

QC BATCH REPORT

Batch ID: **R335668** Instrument ID **GALLERY** Method: **A4500-SO4 E-11**

MBLK Sample ID: **MBLK-R335668** Units: **mg/L** Analysis Date: **1/3/2022 01:13 PM**
Client ID: Run ID: **GALLERY_220103A** SeqNo: **8080988** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	ND	1.0								

MS Sample ID: **22010008-05A MS** Units: **mg/L** Analysis Date: **1/3/2022 01:21 PM**
Client ID: **MW-20s** Run ID: **GALLERY_220103A** SeqNo: **8081015** Prep Date: DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	140.2	4.0	50	96.9	86.6	95-118	0			S

MS Sample ID: **21122409-01A MS** Units: **mg/L** Analysis Date: **1/3/2022 01:58 PM**
Client ID: Run ID: **GALLERY_220103A** SeqNo: **8081062** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	498.6	10	50	478.4	40.4	95-118	0			SO

MSD Sample ID: **22010008-05A MSD** Units: **mg/L** Analysis Date: **1/3/2022 01:21 PM**
Client ID: **MW-20s** Run ID: **GALLERY_220103A** SeqNo: **8081016** Prep Date: DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	143.9	4.0	50	96.9	93.9	95-118	140.2	2.56	10	S

MSD Sample ID: **21122409-01A MSD** Units: **mg/L** Analysis Date: **1/3/2022 01:59 PM**
Client ID: Run ID: **GALLERY_220103A** SeqNo: **8081063** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	497.3	10	50	478.4	37.8	95-118	498.6	0.264	10	SO

LCS1 Sample ID: **LCS1-R335668** Units: **mg/L** Analysis Date: **1/3/2022 01:13 PM**
Client ID: Run ID: **GALLERY_220103A** SeqNo: **8080985** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	10.47	1.0	10	0	105	90-119	0			

LCS2 Sample ID: **LCS2-R335668** Units: **mg/L** Analysis Date: **1/3/2022 01:02 PM**
Client ID: Run ID: **GALLERY_220103A** SeqNo: **8080948** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	52.78	1.0	50	0	106	95-118	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Lambda Energy Resources
Work Order: 22010008
Project: Lambda (Hartland 36 Gas Plant)

QC BATCH REPORT

Batch ID: **R335668** Instrument ID **GALLERY** Method: **A4500-SO4 E-11**

The following samples were analyzed in this batch:

22010008-01A	22010008-02A	22010008-03A
22010008-04A	22010008-05A	22010008-06A
22010008-07A	22010008-08A	22010008-09A
22010008-10A	22010008-11A	22010008-12A
22010008-13A	22010008-14A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Group, USA

Date: 11-Jan-22

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant)
WorkOrder: **22010008**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group, USA

Sample Receipt Checklist

Client Name: **LAMBDA-KAL** Date/Time Received: **30-Dec-21 16:03**

Work Order: **22010008** Received by: **LYS**

Checklist completed by Lydia Sweet (eSignature) 03-Jan-22 (Date) Reviewed by: Gary Byar (eSignature) 06-Jan-22 (Date)

Matrices: Water
Carrier name: Client

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.9/2.9, 2.0/3.0, 3.7/4.7c	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	1/3/2022 10:07:07 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	_		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 2

COC ID: 250043

ALS Project Manager: | ALS Work Order #: 22010008

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Hartland 36 Gas Plant	A	Sulfate
Work Order		Project Number		B	Sulfolane
Company Name	ECT Inc.	Bill To Company	LAMBDA Energy	C	
Send Report To	Jeremy Lewandowski	Invoice Attn	Nick Summerland	D	
Address	3399 Veterans Dr.	Address	1510 Thomas Rd.	E	
				F	
City/State/Zip	Traverse City, MI 49684	City/State/Zip	Kalkaska, MI 49646	G	
Phone	231-946-8200	Phone	231-258-6411	H	
Fax	231-946-8208	Fax		I	
e-Mail Address	jlewandowski@ectinc.com	e-Mail Address	michigan.invoices@lambdaenergyllc.com		

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-7s	12/28/21	9:15	GW	-	2	X	X									
2	MW-7d	12/28/21	10:20	GW	-	2	X	X									
3	MW-19d	12/28/21	11:10	GW	-	2	X	X									
4	MW-19s	12/28/21	11:55	GW	-	2	X	X									
5	MW-20s	12/28/21	12:55	GW	-	2	X	X									
6	MW-20d	12/28/21	13:50	GW	-	2	X	X									
7	MW-15d	12/28/21	14:50	GW	-	2	X	X									
8	MW-17d	12/28/21	15:45	GW	-	2	X	X									
9	MW-17s	12/28/21	16:35	GW	-	2	X	X									
10	MW-14s	12/29/21	9:30	GW	-	2	X	X									

Sampler(s) Please Print & Sign: Ty Martin (ECT)

Shipment Method: Pick-up

Required Turnaround Time: (Check Box): Normal

Results Due Date:

Relinquished by: Ty Martin	Date: 12/30/21	Time: 1107	Received by:	
Relinquished by:	Date: 12/30/21	Time: 1603	Received by (Laboratory):	
Logged by (Laboratory):	Date: 1/3/22	Time: 0945	Checked by (Laboratory): GRB	

Notes:

Cooler ID	Cooler Temp.
IR3	1.9
	2.0
pH36	3.7

QC Package: (Check One Box Below)

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Middletown, PA +1 717 944 5541
Spring City, PA +1 610 948 4903
Salt Lake City, UT +1 801 266 7700
South Charleston, WV +1 304 356 3168
York, PA +1 717 505 5280

Chain of Custody Form

COC ID: 250044

ALS Project Manager: | ALS Work Order #: 2201008

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Hartland 36 Gas Plant	A	Sulfate
Work Order		Project Number		B	Sulfolane
Company Name	ECT Inc.	Bill To Company	LAMBDA Energy	C	
Send Report To	Jeremy Lewandowski	Invoice Attn	Nick Summerland	D	
Address	3349 Veterans Dr.	Address	156 Thomas Rd.	E	
				F	
City/State/Zip	Traverse City, MI 49684	City/State/Zip	Kalkaska, MI 49646	G	
Phone	231-946-8200	Phone	231-258-6411	H	
Fax	231-946-8208	Fax		I	
e-Mail Address	jlewandowski@ectinc.com	e-Mail Address	michigan.invoices@lambdaenergyllc.com	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-14d	12/29/21	10:25	GW	-	2	X	X									
2	MW-18	12/29/21	11:30	GW	-	2	X	X									
3	MW-13s	12/29/21	12:45	GW	-	2	X	X									
4	MW-13d	12/29/21	13:45	GW	-	2	X	X									
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Ty Martin (ECT) | Shipment Method: Pick-up | Required Turnaround Time: (Check Box): Normal | Results Due Date:

Relinquished by:	Date: 12/30/21	Time: 1107	Received by:	Notes:
Relinquished by:	Date: 12/30/21	Time: 1683	Received by (Laboratory):	
Logged by (Laboratory):	Date: 1/3/22	Time: 0945	Checked by (Laboratory): GR3	

Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)
IR3	1.9	
	2.0	
pH 80	3.7	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note:
1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

APPENDIX D

LOW-FLOW SAMPLING FIELD FORMS

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road
Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW- 7S
Well Type: 2" PVC

INSPECTION

Label on well?	(YES) NO REMEDIED
Is reference mark visible?	(YES) NO REMEDIED
Standing water present?	YES (NO) REMEDIED
Indication of surface runoff in well?	YES (NO) REMEDIED
Is cement pad in good repair?	(YES) NO REMEDIED
Is protective casing locked and in good repair?	(YES) NO REMEDIED
Is inner cap in place and properly sealing well?	(YES) NO REMEDIED
Is well casing in visibly good repair?	(YES) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/28/21 Time: 8:44

Top of Casing Elevation:
Depth to Water: 24.27
Elevation of Water:

Measured with: (ELECTRONIC TAPE) CHALKED TAPE OTHER
Well depth verified? YES (NO)

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER______
Date: 12/28/21 Start Time: 8:45

Measured Well Depth: 33.00' Screen Length: ______ Depth to Screen Midpoint: ______

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
9:00	24.33	-.06	250	9.0	.4516	8.61	6.87	108.7	1.73
9:05	24.33	-.06	250	9.3	.4496	8.69	6.93	109.1	1.62
9:10	24.33	-.06	250	9.4	.4489	8.74	6.99	110.1	1.49
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.75

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time: 9:10
Temperature: 9.4 deg. C
Specific Conductance: .4489 umhos/cm
Dissolved Oxygen: 8.74 mg/L
pH: 6.99 S.U.
ORP: 110.1 mV
Turbidity: 1.49 NTU

CALIBRATION CHECK

	Standard (conc.)	Reading		Mark if Recalibrated
Specific Cond.:			umhos/cm	
Dissolved Oxygen:			mg/L	
pH:			S.U.	
Eh:			mV	
Turbidity:			NTU	

SAMPLE COLLECTION

Time: 9:15
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	[glass] plastic	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass [plastic]	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]
Chain of Custody No.______
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road, Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-7d
Well Type: 2" PVC

INSPECTION

Label on well?	(YES) NO REMEDIED	Is cement pad in good repair?	(YES) NO REMEDIED
Is reference mark visible?	(YES) NO REMEDIED	Is protective casing locked and in good repair?	(YES) NO REMEDIED
Standing water present?	YES (NO) REMEDIED	Is inner cap in place and properly sealing well?	(YES) NO REMEDIED
Indication of surface runoff in well?	YES (NO) REMEDIED	Is well casing in visibly good repair?	(YES) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/28/21 Time: 9:34

Top of Casing Elevation:
Depth to Water: 24.67
Elevation of Water:

Measured with: (ELECTRONIC TAPE) CHALKED TAPE OTHER
Well depth verified? YES (NO)

WELL PURGING

Purge Method: PERISTALTIC BLADDER OTHER______
Date: 12/28/21 Start Time: 9:35

Measured Well Depth: 48.50' Screen Length: ______ Depth to Screen Midpoint: ______

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
9:50	24.68	-.01	250	9.21	.572	6.29	7.36	-19.3	8.91
9:55	24.68	-.01	250	9.2	.584	5.93	7.35	-22.6	6.63
10:10	24.68	-.01	250	9.2	.589	5.61	7.34	-24.7	6.41
10:15	24.68	-.01	250	9.3	.593	5.44	7.34	-26.1	6.29
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.75

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time: 10:15
Temperature: 9.3 deg. C
Specific Conductance: .593 umhos/cm
Dissolved Oxygen: 5.44 mg/L
pH: 7.34 S.U.
ORP: -26.1 mV
Turbidity: 6.29 NTU

CALIBRATION CHECK

	Standard (conc.)	Reading	Mark if Recalibrated
Specific Cond.:		umhos/cm	
Dissolved Oxygen:		mg/L	
pH:		S.U.	
Eh:		mV	
Turbidity:		NTU	

SAMPLE COLLECTION

Time: 10:20
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	[glass] plastic	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass [plastic]	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): Ty [signature]
Chain of Custody No.______
Name (SIGNATURE):

Added 50' of tubing 6" of Masterflex

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road
Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-135
Well Type: 2" PVC

INSPECTION

Label on well?	(YES) NO REMEDIED	Is cement pad in good repair?	(YES) NO REMEDIED
Is reference mark visible?	(YES) NO REMEDIED	Is protective casing locked and in good repair?	(YES) NO REMEDIED
Standing water present?	YES (NO) REMEDIED	Is inner cap in place and properly sealing well?	(YES) NO REMEDIED
Indication of surface runoff in well?	YES (NO) REMEDIED	Is well casing in visibly good repair?	(YES) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/29/21 Time: 12:14

Top of Casing Elevation:
Depth to Water: 20.99'
Elevation of Water:

Measured with: (ELECTRONIC TAPE) CHALKED TAPE OTHER
Well depth verified? YES (NO)

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER
Date: 12/29/21 Start Time: 12:15

Measured Well Depth: ~~30.30~~' 20.20 Screen Length: Depth to Screen Midpoint:

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
12:30	21.09	.10	250	10.7	.677	8.40	8.22	56.7	3.14
12:35	21.09	.10	250	10.6	.669	8.30	8.20	53.4	2.86
12:40	21.09	.10	250	10.5	.663	8.24	8.19	50.9	2.72
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 2

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time: 12:40
Temperature: 10.5 deg. C
Specific Conductance: .663 umhos/cm
Dissolved Oxygen: 8.24 mg/L
pH: 8.19 S.U.
ORP: 50.9 mV
Turbidity: 2.72 NTU

CALIBRATION CHECK

	Standard (conc.)	Reading	Mark if Recalibrated
Specific Cond.:		umhos/cm	
Dissolved Oxygen:		mg/L	
pH:		S.U.	
Eh:		mV	
Turbidity:		NTU	

SAMPLE COLLECTION

Time: 12:45
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	[glass] plastic	yes [no]	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass [plastic]	yes [no]	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]
Chain of Custody No.
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road, Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW- 13d
Well Type: 2" PVC

INSPECTION

Question	Answer
Label on well?	YES (circled)
Is reference mark visible?	YES (circled)
Standing water present?	NO (circled)
Indication of surface runoff in well?	NO (circled)
Is cement pad in good repair?	YES (circled)
Is protective casing locked and in good repair?	YES (circled)
Is inner cap in place and properly sealing well?	YES (circled)
Is well casing in visibly good repair?	YES (circled)

Repair Notes:

STATIC WATER LEVEL

Date: 12/29/21 Time: 13:09

Top of Casing Elevation:
Depth to Water: 20.38
Elevation of Water:

Measured with: ELECTRONIC TAPE (circled) CHALKED TAPE OTHER
Well depth verified? YES NO (circled)

WELL PURGING

Purge Method: PERISTALTIC (circled) BLADDER OTHER______
Date: 12/29/21 Start Time: 13:10

Measured Well Depth: 32.20 Screen Length: ______ Depth to Screen Midpoint: ______

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
13:25	20.60	-.22	250	10.3	1.204	1.98	7.65	51.3	5.16
13:30	20.60	-.22	250	10.2	1.219	1.76	7.61	43.7	4.91
13:35	20.60	-.22	250	10.1	1.224	1.68	7.59	40.1	4.81
13:40	20.60	-.22	250	10.2	1.229	1.61	7.58	38.3	4.61
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 2

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time: 13:40
Temperature: 10.2 deg. C
Specific Conductance: 1.229 umhos/cm
Dissolved Oxygen: 1.61 mg/L
pH: 7.58 S.U.
ORP: 38.3 mV
Turbidity: 4.61 NTU

CALIBRATION CHECK

	Standard (conc.)	Reading	Mark if Recalibrated
Specific Cond.:		umhos/cm	
Dissolved Oxygen:		mg/L	
pH:		S.U.	
Eh:		mV	
Turbidity:		NTU	

SAMPLE COLLECTION

Time: 13:45
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass (marked)	yes (marked)	None (marked)	Sulfolane
1	125 ml	plastic (marked)	yes (marked)	None (marked)	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]
Chain of Custody No.______
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road, Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-14S
Well Type: 2" PVC

INSPECTION

Label on well?	YES (circled) NO REMEDIED	Is cement pad in good repair?	YES NO REMEDIED
Is reference mark visible?	YES (circled) NO REMEDIED	Is protective casing locked and in good repair?	YES NO REMEDIED
Standing water present?	YES NO (circled) REMEDIED	Is inner cap in place and properly sealing well?	YES NO REMEDIED
Indication of surface runoff in well?	YES NO (circled) REMEDIED	Is well casing in visibly good repair?	YES NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/29/21 Time: 8:59

Top of Casing Elevation:
Depth to Water: 20.05'
Elevation of Water:

Measured with: ELECTRONIC TAPE (circled) CHALKED TAPE OTHER
Well depth verified? YES NO (circled)

WELL PURGING

Purge Method: PERISTALTIC (circled) BLADDER OTHER____ Date: 12/29/21 Start Time: 9:00

Measured Well Depth: 26.52 Screen Length: ____ Depth to Screen Midpoint: ____

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
9:15	20.10	-.05	180	11.0	1.056	4.35	6.91	79.4	4.63
9:20	20.10	-.05	180	10.8	1.051	4.27	6.92	77.3	4.19
9:25	20.10	-.05	180	10.7	1.048	4.23	6.93	76.1	4.06
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.5

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time: 9:25
Temperature: 10.7 deg. C
Specific Conductance: 1.048 umhos/cm
Dissolved Oxygen: 4.23 mg/L
pH: 6.93 S.U.
ORP: 76.1 mV
Turbidity: 4.06 NTU

CALIBRATION CHECK

	Standard (conc.)	Reading	Mark if Recalibrated
Specific Cond.:		umhos/cm	
Dissolved Oxygen:		mg/L	
pH:		S.U.	
Eh:		mV	
Turbidity:		NTU	

SAMPLE COLLECTION

Time: 9:30
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass (boxed) plastic	yes (boxed) no	None (boxed), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass plastic (boxed)	yes (boxed) no	None (boxed), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]
Chain of Custody No.
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road, Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-14d
Well Type: 2" PVC

INSPECTION

Question	Response	Question	Response
Label on well?	YES (circled) NO REMEDIED	Is cement pad in good repair?	YES (circled) NO REMEDIED
Is reference mark visible?	YES (circled) NO REMEDIED	Is protective casing locked and in good repair?	YES (circled) NO REMEDIED
Standing water present?	YES NO (circled) REMEDIED	Is inner cap in place and properly sealing well?	YES (circled) NO REMEDIED
Indication of surface runoff in well?	YES NO (circled) REMEDIED	Is well casing in visibly good repair?	YES (circled) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/29/21 Time: 9:54

Top of Casing Elevation:
Depth to Water: 19.92
Elevation of Water:

Measured with: ELECTRONIC TAPE (circled) CHALKED TAPE OTHER
Well depth verified? YES NO (circled)

WELL PURGING

Purge Method: PERISTALTIC (circled) BLADDER OTHER
Date: 12/29/21 Start Time: 9:55

Measured Well Depth: 45.11 Screen Length: Depth to Screen Midpoint:

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
10:10	19.93	0.01	220	10.3	.870	3.98	7.34	51.3	3.64
10:15	19.93	0.01	220	10.2	.863	3.91	7.33	46.7	3.51
10:20	19.93	0.01	220	10.3	.859	3.85	7.33	43.4	3.40
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.25

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time: 10:20
Temperature: 10.3 deg. C
Specific Conductance: .859 umhos/cm
Dissolved Oxygen: 3.85 mg/L
pH: 7.33 S.U.
ORP: 43.4 mV
Turbidity: 3.40 NTU

CALIBRATION CHECK

	Standard (conc.)	Reading	Mark if Recalibrated
Specific Cond.:		umhos/cm	
Dissolved Oxygen:		mg/L	
pH:		S.U.	
Eh:		mV	
Turbidity:		NTU	

SAMPLE COLLECTION

Time: 10:25
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass (boxed) plastic	yes (boxed) no	None (boxed), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass plastic (boxed)	yes (boxed) no	None (boxed), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]
Chain of Custody No.
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road
Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-15d
Well Type: 2" PVC

INSPECTION

Label on well?	YES (circled) NO REMEDIED	Is cement pad in good repair?	YES (circled) NO REMEDIED
Is reference mark visible?	YES (circled) NO REMEDIED	Is protective casing locked and in good repair?	YES (circled) NO REMEDIED
Standing water present?	YES NO (circled) REMEDIED	Is inner cap in place and properly sealing well?	YES (circled) NO REMEDIED
Indication of surface runoff in well?	YES NO (circled) REMEDIED	Is well casing in visibly good repair?	YES (circled) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/28/21 Time: 14:19

Top of Casing Elevation:
Depth to Water: 19.82'
Elevation of Water:

Measured with: ELECTRONIC TAPE (circled) CHALKED TAPE OTHER
Well depth verified? YES NO (circled)

WELL PURGING

Purge Method: PERISTALTIC (circled) BLADDER OTHER
Date: 12/28/21 Start Time: 14:20

Measured Well Depth: 46.00' Screen Length: Depth to Screen Midpoint:

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
14:35	19.88	-.06	180	9.7	.555	4.10	7.54	98.9	4.17
14:40	19.88	-.06	180	9.9	.552	4.10	7.54	100.2	4.09
14:45	19.88	-.06	180	9.8	.549	4.08	7.54	102.6	3.84
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.5

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time: 14:45
Temperature: 9.8 deg. C
Specific Conductance: .549 umhos/cm
Dissolved Oxygen: 4.08 mg/L
pH: 7.54 S.U.
ORP: 102.6 mV
Turbidity: 3.84 NTU

CALIBRATION CHECK

	Standard (conc.)	Reading	Mark if Recalibrated
Specific Cond.:		umhos/cm	
Dissolved Oxygen:		mg/L	
pH:		S.U.	
Eh:		mV	
Turbidity:		NTU	

SAMPLE COLLECTION

Time: 14:50
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass (boxed)	yes (boxed)	None (boxed)	Sulfolane
1	125 ml	plastic (boxed)	yes (boxed)	None (boxed)	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]
Chain of Custody No.
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road, Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-17S
Well Type: 2" PVC

INSPECTION

Label on well?	YES (circled) NO REMEDIED	Is cement pad in good repair?	YES (circled) NO REMEDIED
Is reference mark visible?	YES (circled) NO REMEDIED	Is protective casing locked and in good repair?	YES (circled) NO REMEDIED
Standing water present?	YES NO (circled) REMEDIED	Is inner cap in place and properly sealing well?	YES (circled) NO REMEDIED
Indication of surface runoff in well?	YES NO (circled) REMEDIED	Is well casing in visibly good repair?	YES (circled) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/28/21 Time: 16:04

Top of Casing Elevation:
Depth to Water: 18.70
Elevation of Water:

Measured with: ELECTRONIC TAPE (circled) CHALKED TAPE OTHER
Well depth verified? YES NO (circled)

WELL PURGING

Purge Method: PERISTALTIC (circled) BLADDER OTHER
Date: 12/28/21 Start Time: 16:05

Measured Well Depth: Screen Length: Depth to Screen Midpoint:

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
16:20	18.76	-.06	140	9.6	.557	1.33	7.53	91.6	6.71
16:25	18.76	-.06	140	9.7	.557	1.32	7.52	88.6	6.43
16:30	18.76	-.06	140	9.6	.555	1.31	7.50	86.4	6.30
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.25

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time:	16:30	
Temperature:	9.6	deg. C
Specific Conductance:	.555	umhos/cm
Dissolved Oxygen:	1.31	mg/L
pH:	7.50	S.U.
ORP:	86.4	mV
Turbidity:	6.30	NTU

CALIBRATION CHECK

	Standard (conc.)	Reading	Mark if Recalibrated
Specific Cond.:		umhos/cm	
Dissolved Oxygen:		mg/L	
pH:		S.U.	
Eh:		mV	
Turbidity:		NTU	

SAMPLE COLLECTION

Time: 16:35
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass (boxed) plastic	yes (boxed) no	None (boxed), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass plastic (boxed)	yes (boxed) no	None (boxed), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): Ty M[illegible signature]
Chain of Custody No.
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road, Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-17d
Well Type: 2" PVC

INSPECTION

Label on well?	(YES) NO REMEDIED	Is cement pad in good repair?	(YES) NO REMEDIED
Is reference mark visible?	(YES) NO REMEDIED	Is protective casing locked and in good repair?	(YES) NO REMEDIED
Standing water present?	YES (NO) REMEDIED	Is inner cap in place and properly sealing well?	(YES) NO REMEDIED
Indication of surface runoff in well?	YES (NO) REMEDIED	Is well casing in visibly good repair?	(YES) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/28/21 Time: 15:14

Top of Casing Elevation:
Depth to Water: 19.65'
Elevation of Water:

Measured with: (ELECTRONIC TAPE) CHALKED TAPE OTHER
Well depth verified? YES (NO)

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER______ Date: 12/28/21 Start Time: 15:15

Measured Well Depth: 40.78 Screen Length: ______ Depth to Screen Midpoint: ______

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
15:30	19.77	-.12	180	10.0	.763	.40	7.49	95.4	16.4
15:35	19.77	-.12	180	9.8	.762	.37	7.49	93.5	14.9
15:40	19.77	-.12	180	9.6	.760	.34	7.49	91.3	14.3
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.25

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time:	15:40	
Temperature:	9.6	deg. C
Specific Conductance:	.766	umhos/cm
Dissolved Oxygen:	.34	mg/L
pH:	7.49	S.U.
ORP:	91.3	mV
Turbidity:	14.3	NTU

CALIBRATION CHECK

	Standard (conc.)	Reading		Mark if Recalibrated
Specific Cond.:			umhos/cm	
Dissolved Oxygen:			mg/L	
pH:			S.U.	
Eh:			mV	
Turbidity:			NTU	

SAMPLE COLLECTION

Time: 15:45
Appearance of Sample: Clear, no odor
Sample Duplicate ?: No
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	[glass] plastic	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass [plastic]	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]
Chain of Custody No.______
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road, Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-18
Well Type: 2" PVC

INSPECTION

Label on well?	(YES) NO REMEDIED
Is reference mark visible?	(YES) NO REMEDIED
Standing water present?	YES (NO) REMEDIED
Indication of surface runoff in well?	YES (NO) REMEDIED
Is cement pad in good repair?	(YES) NO REMEDIED
Is protective casing locked and in good repair?	(YES) NO REMEDIED
Is inner cap in place and properly sealing well?	(YES) NO REMEDIED
Is well casing in visibly good repair?	(YES) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/29/21 Time: 10:54

Top of Casing Elevation:
Depth to Water: 21.04'
Elevation of Water:

Measured with: (ELECTRONIC TAPE) CHALKED TAPE OTHER
Well depth verified? YES (NO)

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER______ Date: 12/29/21 Start Time: 10:55

Measured Well Depth: 27.50' Screen Length: ______ Depth to Screen Midpoint: ______

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
11:10	21.08	.04	250	8.9	.598	5.34	7.57	45.1	8.76
11:15	21.08	.04	250	9.2	.581	5.41	7.58	45.9	8.13
11:20	21.08	.04	250	9.1	.576	5.46	7.59	46.3	7.91
11:25	21.08	.04	250	9.2	.570	5.49	7.59	47.1	9.82
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 2

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time:	11:25	
Temperature:	9.2	deg. C
Specific Conductance:	.570	umhos/cm
Dissolved Oxygen:	5.49	mg/L
pH:	7.59	S.U.
ORP:	47.1	mV
Turbidity:	9.82	NTU

CALIBRATION CHECK

	Standard (conc.)	Reading		Mark if Recalibrated
Specific Cond.:			umhos/cm	
Dissolved Oxygen:			mg/L	
pH:			S.U.	
Eh:			mV	
Turbidity:			NTU	

SAMPLE COLLECTION

Time: 11:30
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	[glass] plastic	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass [plastic]	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature] Chain of Custody No.______
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road
Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-19S
Well Type: 2" PVC

INSPECTION

Label on well?	YES NO REMEDIED (NO, REMEDIED circled)
Is reference mark visible?	YES NO REMEDIED (YES circled)
Standing water present?	YES NO REMEDIED (NO circled)
Indication of surface runoff in well?	YES NO REMEDIED (NO circled)
Is cement pad in good repair?	YES NO REMEDIED (YES circled)
Is protective casing locked and in good repair?	YES NO REMEDIED (YES circled)
Is inner cap in place and properly sealing well?	YES NO REMEDIED (YES circled)
Is well casing in visibly good repair?	YES NO REMEDIED (YES circled)

Repair Notes:

STATIC WATER LEVEL

Date: 12/28/21 Time: 11:24

Top of Casing Elevation:
Depth to Water: 22.13
Elevation of Water:

Measured with: ELECTRONIC TAPE (circled) CHALKED TAPE OTHER
Well depth verified? YES NO (NO circled)

WELL PURGING

Purge Method: PERISTALTIC (circled) BLADDER OTHER______
Date: 12/28/21 Start Time: 11:25

Measured Well Depth: 30.27 Screen Length: ______ Depth to Screen Midpoint: ______

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
11:40	22.37	-.24	225	8.8	.488	76.9	7.91	-.7	12.6
11:45	22.37	-.24	225	8.3	.486	74.3	7.92	-.3	11.9
11:50	22.37	-.24	225	8.4	.484	72.7	7.93	.3	11.1
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.5

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time:	11:50	
Temperature:	8.4	deg. C
Specific Conductance:	~~.488~~ .484	umhos/cm
Dissolved Oxygen:	72.7	mg/L
pH:	7.93	S.U.
ORP:	.3	mV
Turbidity:	11.1	NTU

CALIBRATION CHECK

	Standard (conc.)	Reading	Mark if Recalibrated
Specific Cond.:		umhos/cm	
Dissolved Oxygen:		mg/L	
pH:		S.U.	
Eh:		mV	
Turbidity:		NTU	

SAMPLE COLLECTION

Time: 11:55
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass (boxed) plastic	yes (boxed) no	None (boxed), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass plastic (boxed)	yes (boxed) no	None (boxed), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): Ty Platt (signature)
Chain of Custody No.______
Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road
Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW- 19d
Well Type: 2" PVC

INSPECTION

Question	Answer
Label on well?	NO, REMEDIED
Is reference mark visible?	YES
Standing water present?	NO
Indication of surface runoff in well?	NO
Is cement pad in good repair?	YES
Is protective casing locked and in good repair?	YES
Is inner cap in place and properly sealing well?	YES
Is well casing in visibly good repair?	YES

Repair Notes:

STATIC WATER LEVEL

Date: 12/28/21 Time: 10:39

Top of Casing Elevation:
Depth to Water: 22.07
Elevation of Water:

Measured with: ELECTRONIC TAPE (circled) CHALKED TAPE OTHER
Well depth verified? YES NO (circled)

WELL PURGING

Purge Method: PERISTALTIC (circled) BLADDER OTHER
Date: 12/28/21 Start Time: 10:40

Measured Well Depth: 50.00'
Screen Length:
Depth to Screen Midpoint:

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
10:55	22.11	.04	250	9.5	.768	1.25	7.43	-22.5	5.43
11:00	22.11	.04	250	9.2	.778	1.31	7.43	-24.9	5.36
11:05	22.11	.04	250	9.3	.784	1.35	7.42	-25.8	5.29
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.75

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Parameter	Value	Unit
Time:	11:05	
Temperature:	9.3	deg. C
Specific Conductance:	.784	umhos/cm
Dissolved Oxygen:	1.35	mg/L
pH:	7.42	S.U.
ORP:	-25.8	mV
Turbidity:	5.29	NTU

CALIBRATION CHECK

	Standard (conc.)	Reading	Mark if Recalibrated
Specific Cond.:		umhos/cm	
Dissolved Oxygen:		mg/L	
pH:		S.U.	
Eh:		mV	
Turbidity:		NTU	

SAMPLE COLLECTION

Time: 11:10
Appearance of Sample: Clear, no odor
Sample Duplicate ?: No
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass	yes	None	Sulfolane
1	125 ml	plastic	yes	None	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]
Chain of Custody No.
Name (SIGNATURE):

CLIENT:	**Lambda Energy**	**Monitoring Location:**	**Hartland #36**
LOCATION:	**13390 Lone Tree Road**	**Sample ID:**	**MW-** 20s
	Hartland Township, Michigan	**Well Type:**	2" PVC
PROJECT:	**130685.2000**		

INSPECTION

Label on well?	(YES) NO REMEDIED	Is cement pad in good repair?	(YES) NO REMEDIED
Is reference mark visible?	(YES) NO REMEDIED	Is protective casing locked and in good repair?	(YES) NO REMEDIED
Standing water present?	YES (NO) REMEDIED	Is inner cap in place and properly sealing well?	(YES) NO REMEDIED
Indication of surface runoff in well?	YES (NO) REMEDIED	Is well casing in visibly good repair?	(YES) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/28/21 Time: 12:24

Top of Casing Elevation:

Depth to Water: 21.41

Elevation of Water:

Measured with: (ELECTRONIC TAPE) CHALKED TAPE OTHER

Well depth verified? YES (NO)

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER_____ Date: 12/28/21 Start Time: 12:25

Measured Well Depth: 25.10 Screen Length: _____ Depth to Screen Midpoint: _____

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
12:40	21.49	-.08	180	9.1	.588	7.41	7.85	98.6	3.84
12:45	21.49	-.08	180	9.3	.586	7.11	7.87	95.7	3.61
12:50	21.49	-.08	180	9.2	.583	6.84	7.87	92.6	3.52
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.5

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time:	12:50	
Temperature:	9.2	deg. C
Specific Conductance:	.583	umhos/cm
Dissolved Oxygen:	6.84	mg/L
pH:	7.87	S.U.
ORP:	92.6	mV
Turbidity:	3.52	NTU

CALIBRATION CHECK

	Standard (conc.)	Reading		Mark if Recalibrated
Specific Cond.:			umhos/cm	
Dissolved Oxygen:			mg/L	
pH:			S.U.	
Eh:			mV	
Turbidity:			NTU	

SAMPLE COLLECTION

Time: 12:55 Sample Duplicate ?: No

Appearance of Sample: Clear, no odor Sample Method: LOW FlOW

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	(glass) plastic	yes (no)	(None), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass (plastic)	yes (no)	(None), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Chain of Custody No._____

Name (SIGNATURE): [signature] Name (SIGNATURE):

CLIENT: Lambda Energy
LOCATION: 13390 Lone Tree Road
Hartland Township, Michigan
PROJECT: 130685.2000

Monitoring Location: Hartland #36
Sample ID: MW-20d
Well Type: 2" PVC

INSPECTION

Label on well?	(YES) NO REMEDIED
Is reference mark visible?	(YES) NO REMEDIED
Standing water present?	YES (NO) REMEDIED
Indication of surface runoff in well?	YES (NO) REMEDIED
Is cement pad in good repair?	(YES) NO REMEDIED
Is protective casing locked and in good repair?	(YES) NO REMEDIED
Is inner cap in place and properly sealing well?	(YES) NO REMEDIED
Is well casing in visibly good repair?	(YES) NO REMEDIED

Repair Notes:

STATIC WATER LEVEL

Date: 12/28/21 Time: 13:19

Top of Casing Elevation:
Depth to Water: 21.28'
Elevation of Water: ________

Measured with: (ELECTRONIC TAPE) CHALKED TAPE OTHER
Well depth verified? YES (NO)

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER________ Date: 12/28/21 Start Time: 13:20

Measured Well Depth: ________ Screen Length: ________ Depth to Screen Midpoint: ________

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (ml/min)	Temp (°C)	Spec Cond. (umho/cm)	Diss Oxy (mg/l)	pH (S.U.)	ORP (mV)	Turbidity (NTU)
13:35	22.33	-1.05	220	9.3	.576	4.92	7.94	96.5	18.7
13:40	22.33	-1.05	220	9.4	.584	4.90	7.91	98.5	17.6
13:45	22.33	-1.05	220	9.3	.589	4.87	7.87	99.5	17.2
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 1.5

Stabilization Criteria Reference Doc. USEPA EQASOP-GW 001 Rev #3, January 19, 2010

FIELD ANALYSIS

Time:	13:45	
Temperature:	9.3	deg. C
Specific Conductance:	.589	umhos/cm
Dissolved Oxygen:	4.87	mg/L
pH:	7.87	S.U.
ORP:	99.5	mV
Turbidity:	17.2	NTU

CALIBRATION CHECK

	Standard (conc.)	Reading		Mark if Recalibrated
Specific Cond.:			umhos/cm	
Dissolved Oxygen:			mg/L	
pH:			S.U.	
Eh:			mV	
Turbidity:			NTU	

SAMPLE COLLECTION

Time: 13:50
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
Sample Method: LF

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	[glass] plastic	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass [plastic]	[yes] no	[None], HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfate
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	
	ml	glass plastic	yes no	None, HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]
Chain of Custody No.________
Name (SIGNATURE):