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

QUARTERLY PROJECT UPDATE REPORT
4th QUARTER 2020

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

February 2, 2021

ECT No. 130685-2000

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
February 2, 2021	February 2, 2021
Date	Date

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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 through the 4th Quarter 2020 (October 1, 2020 through December 31, 2020) for 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 Northeast 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

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 2020 indicate the remediation system has mitigated concentrations of sulfolane in groundwater with 12 of the 13 monitor wells that reported a concentration of sulfolane above the cleanup goal from the pre-startup sampling event reporting sulfolane non-detect from the monitoring event completed September 9-10, 2020. Concentrations of sulfolane were reported above the cleanup goal from MW-17S (91 µg/L) for the 3rd Quarter 2020 performance monitoring event. Refer to the Quarterly Project Update Report – 3rd Quarter 2020 dated December 17, 2020 for a summary of results of performance monitoring events completed through the 3rd Quarter 2020.

5.0 REMEDIATION SYSTEM OPERATION AND MAINTENANCE

The remediation system was shut down on February 17, 2020 for scheduled maintenance of the air sparge compressor skid. The remediation system remained shut down until operation resumed on November 4, 2020. Operation of the remediation system resumed in order to mitigate the concentration of sulfolane detected at MW-17S from the 3rd Quarter 2020 monitoring event. 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
- 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-17S, biosparge points BSP-28 and BSP-29 were operated during the 4th Quarter 2020. Target BSP flow rates were 15 to 20 standard cubic feet

per minute (scfm), pending pressure associated with the operating array. Remediation system operational performance (i.e. percent runtime) was 75% from November 4, 2020 through December 1, 2020. The remediation system was shut down on December 1, 2020 to allow for a period of subsurface stabilization prior to the December 10, 2020 performance monitoring event. The remediation system remained shut down for the remainder of the 4th Quarter 2020, pending analytical results from the December 2020 performance monitoring event.

6.0 PERFORMANCE MONITORING SUMMARY

The following sections detail performance monitoring activities completed at the Site in the 4th Quarter 2020.

6.1 PERFORMANCE MONITORING EVENTS

Personnel from ECT completed the following performance monitoring events at the Site in the 4th Quarter 2020:

- October 23, 2020 – Confirmation groundwater sampling event at MW-17S
- December 10, 2020 – 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

6.2 LABORATORY ANALYSIS

Groundwater samples from the October 23, 2020 and December 10, 2020 monitoring events 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, including QA/QC 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 (only groundwater samples collected on December 10, 2020)

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 for sulfolane through the quarterly groundwater sampling event completed December 10, 2020.

Monitor wells located west beyond the extent of the lower clay confining layer

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

Monitor wells screened below the lower clay confining layer

- 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:
  - October 23, 2020:
    - MW-17S: 91 µg/L – 97.1%
  - December 10, 2020:
    - MW-7D, MW-14S, MW-14D, MW-15D, MW-15DD, MW-17S, MW-17D, MW-18, MW-19S, MW-19D, MW-20S, and MW-20D: Non-detect – 100%
    - MW-13D: 99 µg/L – 86.4%
- Prior to the 2nd Quarter 2020 monitoring event, MW-13D was the only monitor well at the Site that reported concentrations of sulfate above the cleanup goal (250 mg/L). MW-17D has reported sulfate above the cleanup goal for the 2nd and 3rd Quarter 2020 monitoring event. MW-7 reported sulfate above the cleanup goal for the 4th Quarter 2020 monitoring event. Sulfate concentrations were reported at 250 mg/L for MW-7, 460 mg/L for MW-13D, and 220 mg/L for MW-17D from the 4th Quarter 2020 monitoring event. 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. Natural attenuation/biodegradation appears to be occurring as supported by the decrease to the concentrations of sulfate at MW-13D and MW-17D from peak concentrations of 920 µg/L (MW-13D – 1st Quarter 2020) and 290 µg/L (MW-17D – 3rd Quarter 2020).

Monitor well locations are illustrated on Figure 3 in Appendix A. Please refer to Table 2 and Table 3 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 approximately three years (37 months) of operation. The supplemental monitoring event sample collected from MW-17S on October 23, 2020 reported a concentration of sulfolane (91 µg/L) above the cleanup goal. 13 of the 14 monitor wells, including MW-17S, that previously reported a concentration of sulfolane above the cleanup goal were reported non-detect at the December 10, 2020 monitoring event. MW-13D reported a concentration of sulfolane (99 µg/L) above the cleanup goal for the first time since the 2nd Quarter 2020 performance monitoring event.

The concentration of sulfate reported from MW-13D remains above the cleanup goal. However, the concentration of sulfate at MW-13D decreased to 460 µg/L from 920 µg/L from the 1st Quarter 2020 monitoring event, thus indicating natural attenuation/biodegradation (i.e sulfate reduction) of sulfate is likely occurring. Prior to the 2nd Quarter 2020 monitoring event, MW-13D was the only monitor well to have reported a concentration of sulfate above the cleanup goal. In addition to MW-13D, MW-7 reported sulfate above the cleanup goal for the 4th Quarter 2020 monitoring event.

Per recommendations presented in the Quarterly Project Update Report – 3rd Quarter 2018 dated October 26, 2018, and correspondence with EGLE-OGMD staff, three performance monitoring

events per year were to include the 14 monitor wells with current/previous detections of sulfolane and one performance monitoring event per year was to include all (37) monitor wells. As a result of sulfolane reported non-detect from two of the 2020 quarterly sampling events, thus indicating that the majority of the plume has been remediated and minimal concerns remain, sampling the remaining 23 monitor wells is no longer warranted.

8.0 SCHEDULE

The following schedule of activities is proposed/anticipated for the 1st Quarter 2021:

- The following performance monitoring events are proposed to be completed during the 1st Quarter 2021:
  - Supplemental monitoring event in January 2021 at MW-13D and MW-17S.
  - Quarterly monitoring event in March 2021 to include the 14 monitor wells with current/previous detections of sulfolane.
- The remediation system continues to be shut down pending the result for MW-13D and MW-17S from the January 2021 monitoring event.
- A quarterly project update report will be submitted within three weeks of receipt of analytical data from the March 2021 monitoring event.

APPENDIX A

FIGURES

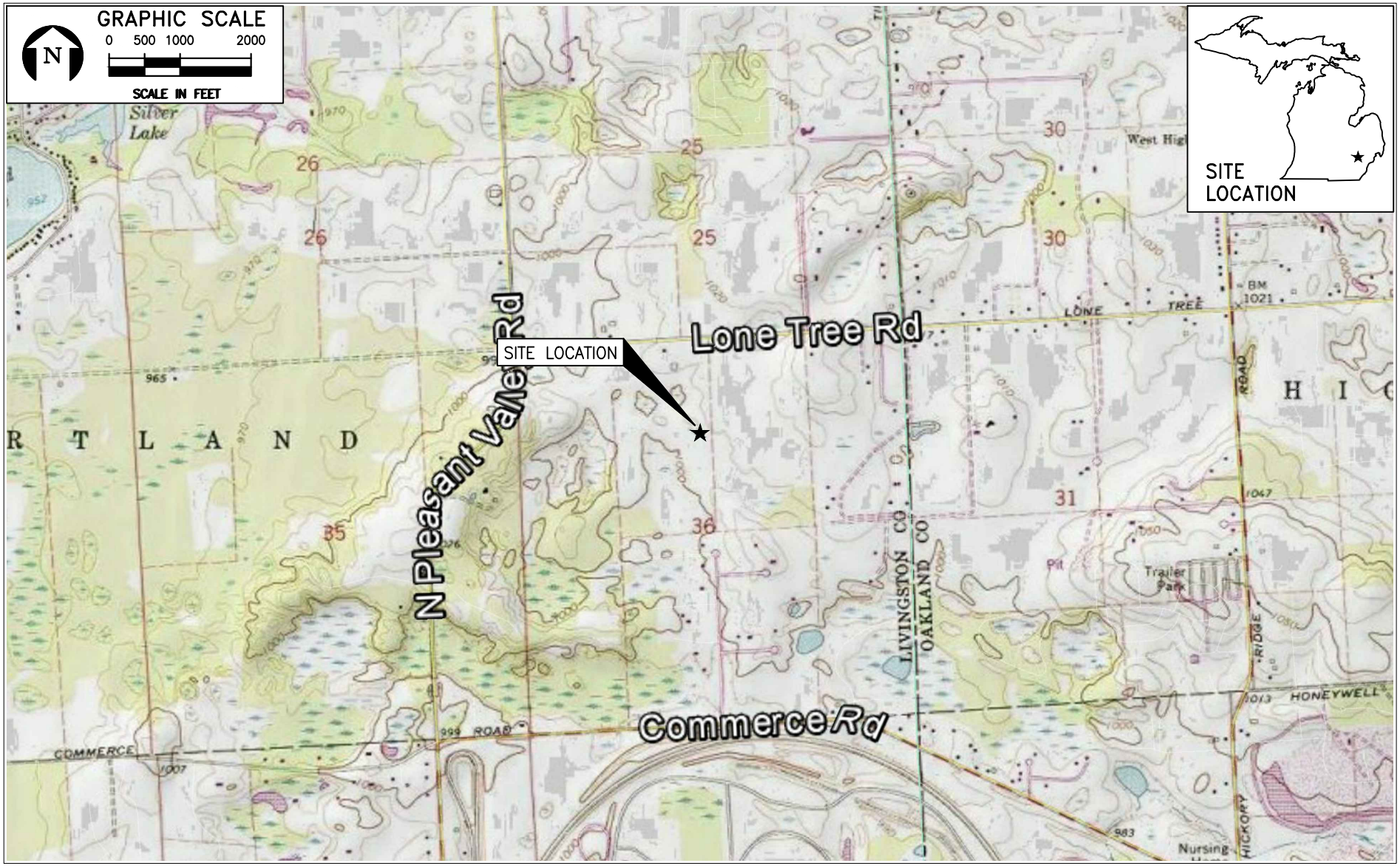

FIGURE 1
SITE LOCATION MAP
HARTLAND 36 GAS PLANT
PORTION OF E 1/2 OF NE 1/4 OF SECTION 36, T03N-R06E
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
Source: USGS QUad: Kent Lake, 2015; West Highland, 2015; ECT, 2016.

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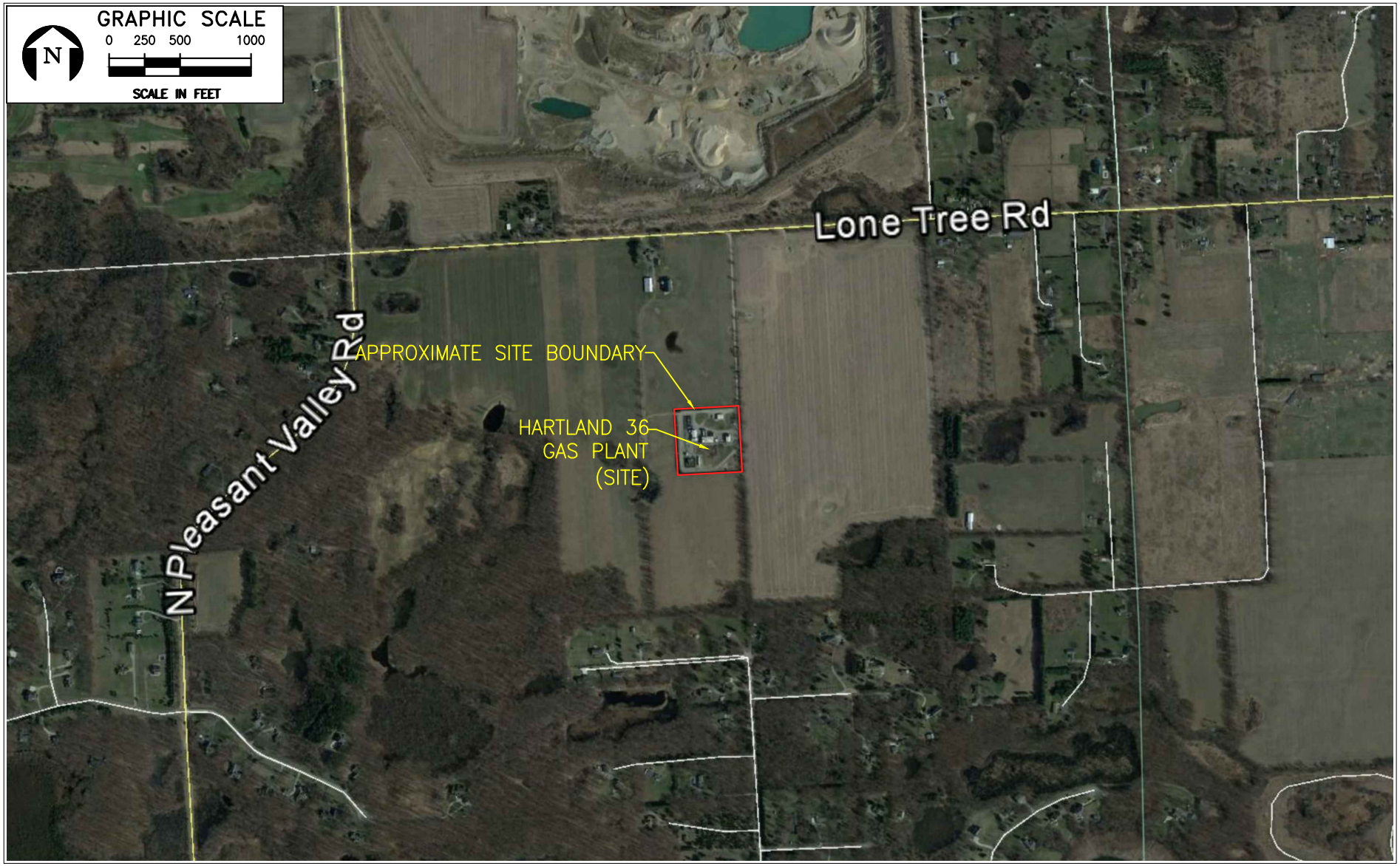

FIGURE 2
SITE AND SURROUNDING PROPERTIES MAP
HARTLAND 36 GAS PLANT
PORTION OF E 1/2 OF NE 1/4 OF SECTION 36, T03N-R06E
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
Source: Google Earth, 2016; ECT, 2016.

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Legend

Monitor Well

Temporary Monitor Well

Soil Boring

Excavation Boundary

Fenceline (former)

BSP Location

ND

Not Detected at the Reporting Limit
Sulfolane concentrations (in µg/L) from the December 2020 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,
ECT Project #13-0685-2000

	11/4/2020				11/12/2020				11/18/2020				11/25/2020				12/1/2021			
	Arrival		Departure		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)	Pressure (psi)	Flow Rate (scfm)	Pressure (psi)	Flow Rate (scfm)
1																				
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22																				
23																				
24																				
25																				
26																				
27			16	6	1	0	0	0									15	0	8	0
28			12	12	0	0	11	17	0	0	10	7	8	15	8	18	10	19	5	0
29			10	16	1	0	12.5	17	0	0	11	17	7	20	7	19	9	20	5	0
30																				
31																				
32																				
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46																				
47																				
48																				
Elapsed Time, hrs	57595.47		57596.65		57693.63		57694.44		57767.85		57769.63		57936.83		57937.59		58081.43		58081.49	
Blower Temp., °F	---		270		15		255		52		240		242		239		220		150	
Blower Pressure, psi	---		29		11.5		27		12		26		24		24.5		24.5		12	
Manifold Pressure, psi	---		18		1		16		1.5		15		12.5		13		14		0	
Heat Exr Temp., °F	---		70		46		60		42		50		47		47		32		32	
Comments					System down on arrival; Process Room High Temp light on.				System down on arrival; Air Sparge Fault light on.								Shut system down upon departure for sampling 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**
% 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	0.38	**740**
3/25-26/19	**1,700**	0.19	53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	11.46	110	**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	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	8.93	140	ND	5.07	**750**
12/3-4/19	**1,200**	4.02	48	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	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**
% Decrease	100%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	86.4%	---	---
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 shaded 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 (2,800)**	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
% 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)	---	---	---	---	---	---	---	---	---
% 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 shaded 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
MW-1	20.1 - 25.1	ND	ND	ND	---	ND	---	---	---	---	---	ND	---	---	---	ND	ND	---	ND
MW-2	19.1 - 24.1	ND	ND	ND	---	ND	---	---	---	---	---	ND	---	---	---	ND	ND	---	ND
MW-2D	27.7 - 29.7	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	ND	ND	---	ND
MW-3	22.0 - 27.0	ND	---	ND	---	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND
MW-3D	30.0 - 32.0	---	---	---	---	---	---	---	---	---	ND	ND	---	---	---	ND	ND	---	ND
MW-4	23.1 - 28.1	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
MW-6	25.4 - 30.4	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
MW-7	25.2 - 30.2	**880**	**44**	**510**	ND	**210**	---	---	---	ND	---	ND	---	---	---	**12**	ND	---	ND
MW-7D	39.2 - 44.2	---	---	---	---	---	---	---	**3,100**	---	---	**3,000**	---	---	---	**2,600**	**1,900**	---	**4,100**
MW-8	24.6 - 29.6	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND
MW-9	23.6 - 28.6	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND
MW-10	21.2 - 26.2	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND
MW-11	21.7 - 26.7	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND
MW-12S	20.5 - 25.5	---	---	---	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
MW-13	19.1 - 24.1	---	---	---	**6,600**	**8,800**	---	---	---	**3,500**	---	**5,100**	**7,000**	**3,700**	**97**	ND	ND	---	ND
MW-13D	27.7 - 29.7	---	---	---	---	---	---	**7,800**	---	**8,300**	---	**5,400**	**6,900**	**1,100**	**420**	**290**	**730**	---	**480**
MW-14S	18.6 - 23.6	---	---	---	---	---	---	46	---	**460**	---	**540**	**490**	**160**	**520**	**94**	**120**	---	**100**
MW-14D	36.7 - 41.7	---	---	---	---	---	---	**7,900**	---	**10,000**	---	**7,600**	**9,800**	**8,600**	**8,200**	**7,800**	**7,700**	---	**7,100**
MW-15	19.3 - 24.3	---	---	---	ND	ND	---	---	---	ND	---	ND	---	---	---	ND	ND	---	ND
MW-15D	37.9 - 42.9	---	---	---	---	---	---	---	---	---	**4,600**	**3,200**	---	---	---	**670**	**230**	---	ND
MW-15DD	50 - 55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**33**	**48**	ND
MW-16	19.5 - 24.5	---	---	---	ND	ND	---	---	---	ND	---	ND	ND	ND	ND	ND	ND	---	ND
MW-16D	31.4 - 33.4	---	---	---	---	---	---	---	---	---	ND	ND	---	---	---	ND	ND	---	ND
MW-17S	19.9 - 24.9	---	---	---	---	---	---	**3,900**	---	**5,100**	---	**3,000**	**---**	---	---	**5,300**	**3,100**	---	**2,400**
MW-17D	35.4 - 37.4	---	---	---	---	---	---	**440**	---	**510**	---	**400**	**---**	---	---	**390**	**400**	---	**51**
MW-18	19.9 - 24.9	---	---	---	---	---	---	**6,800**	---	**6,800**	---	**4,300**	**---**	**2,100**	**4,800**	**3,800**	**2,200**	---	**660**
MW-19S	22.6 - 27.6	---	---	---	---	---	---	**2,700**	---	**1,500**	---	**1,300**	**---**	---	---	**24**	**33**	---	ND
MW-19D	43.0 - 48.0	---	---	---	---	---	---	**7,000**	---	**7,600**	---	**4,300**	**---**	---	---	**7,000**	**5,900**	---	**3,200**
MW-19DD	57 - 62	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	ND
MW-20S	17.8 - 22.8	---	---	---	---	---	---	---	**25**	---	---	**97**	**---**	---	---	**160**	**63**	---	**49**
MW-20D	31.0 - 33.0	---	---	---	---	---	---	---	**8,700**	---	---	**8,300**	**---**	---	---	**11,000**	**12,000**	---	**12,000**
MW-21D	52.3 - 57.3	---	---	---	---	---	---	---	ND	---	---	ND	---	---	---	ND	ND	---	ND
MW-22D	36.4 - 41.4	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	ND	ND	---	ND
MW-23D	28.1 - 30.1	---	---	---	---	---	---	---	---	---	---	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 shaded 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)	1/25/2018	2/27/2018	3/28-29/2018	6/19-21/2018	9/18-20/2018	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
MW-1	20.1 - 25.1	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-2	19.1 - 24.1	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-2D	27.7 - 29.7	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-3	22.0 - 27.0	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-3D	30.0 - 32.0	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-4	23.1 - 28.1	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-5	18.0 - 23.0	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-6	25.4 - 30.4	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-6D	39.4 - 44.4	---	---	ND	ND	ND	---	---	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	---	**1,200**	**820**	**180**	**170**	**300**	**1,700**	**510**	**140**	**1,200**	**2,400**	**1,500**	ND	**330**	ND	ND	---	ND
MW-8	24.6 - 29.6	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-9	23.6 - 28.6	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-10	21.2 - 26.2	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-11	21.7 - 26.7	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-12S	20.5 - 25.5	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-12D	39.7 - 44.7	---	---	ND	ND	ND	---	---	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	**400**	ND	ND	**180**	ND	ND	**16**	**19**	ND	**37**	---	---	ND	**16**	ND	ND	---	**99**
MW-14S	18.6 - 23.6	**85**	ND	ND	**52**	ND	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND
MW-14D	36.7 - 41.7	**5,400**	**4,000**	**5,100**	**2,800**	**680**	**290**	ND	**110**	**71**	**71**	---	---	ND	ND	ND	ND	---	ND
MW-15	19.3 - 24.3	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-15D	37.9 - 42.9	---	---	ND	ND	ND	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND
MW-15DD	50 - 55	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-16	19.5 - 24.5	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-16D	31.4 - 33.4	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-17S	19.9 - 24.9	**510**	**460**	**52**	**55**	**32**	ND	ND	ND	ND	ND	---	---	ND	---	ND	**190**	**91**	ND
MW-17D	35.4 - 37.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND
MW-18	19.9 - 24.9	**2,300**	**2,000**	**980**	**14**	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	ND	ND	**290**	**750**	**170**	**440**	**350**	**98**	ND	**92**	---	---	ND	ND	ND	ND	---	ND
MW-19DD	57 - 62	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-20S	17.8 - 22.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND
MW-20D	31.0 - 33.0	**10,000**	**9,300**	**10,000**	**6,600**	**34**	**19**	ND	ND	ND	ND	---	---	ND	---	ND	ND	---	ND
MW-21D	52.3 - 57.3	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-22D	36.4 - 41.4	---	---	ND	ND	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---
MW-23D	28.1 - 30.1	---	---	ND	ND	ND	---	---	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 shaded 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

02-Nov-2020

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

Re: **Lambda (Hartland 36 Gas Plant)** Work Order: **20102451**

Dear Nick,

ALS Environmental received 1 sample on 27-Oct-2020 09:00 AM 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 7.

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

Certificate No: MI: 0022

ALS Group, USA

Date: 02-Nov-20

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant)
Work Order: **20102451**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
20102451-01	MW-17S	Groundwater		10/23/2020 10:15	10/27/2020 09:00	☐

ALS Group, USA

Date: *02-Nov-20*

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant) **Work Order:** 20102451
Sample ID: MW-17S **Lab ID:** 20102451-01
Collection Date: 10/23/2020 10:15 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 10/30/20 15:17	Analyst: **EEW**
Sulfolane	**91**		**10**	**µg/L**	1	10/30/2020 09:36 PM
Surr: 2-Fluorobiphenyl	*46.0*		*26-79*	*%REC*	1	10/30/2020 09:36 PM
Surr: 4-Terphenyl-d14	*62.3*		*43-106*	*%REC*	1	10/30/2020 09:36 PM
Surr: Nitrobenzene-d5	*42.7*		*29-80*	*%REC*	1	10/30/2020 09:36 PM

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

ALS Group, USA

Date: 02-Nov-20

Client: Lambda Energy Resources

Work Order: 20102451

Project: Lambda (Hartland 36 Gas Plant)

QC BATCH REPORT

Batch ID: **166867** Instrument ID **SVMS10** Method: **SW846 8270D**

MBLK Sample ID: **SBLKW1-166867-166867** Units: **µg/L** Analysis Date: **10/30/2020 08:15 PM**

Client ID: Run ID: **SVMS10_201030A** SeqNo: **6848168** Prep Date: **10/30/2020** 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	*29.71*	0	*50*	0	*59.4*	*26-79*	0			
Surr: 4-Terphenyl-d14	*36.03*	0	*50*	0	*72.1*	*43-106*	0			
Surr: Nitrobenzene-d5	*30.3*	0	*50*	0	*60.6*	*29-80*	0			

LCS Sample ID: **SLCSW1-166867-166867** Units: **µg/L** Analysis Date: **10/30/2020 08:42 PM**

Client ID: Run ID: **SVMS10_201030A** SeqNo: **6848169** Prep Date: **10/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfolane	79.94	10	100	0	79.9	30-100	0			
Surr: 2-Fluorobiphenyl	*28.39*	0	*50*	0	*56.8*	*26-79*	0			
Surr: 4-Terphenyl-d14	*36.62*	0	*50*	0	*73.2*	*43-106*	0			
Surr: Nitrobenzene-d5	*27.77*	0	*50*	0	*55.5*	*29-80*	0			

LCSD Sample ID: **SLCSDW1-166867-166867** Units: **µg/L** Analysis Date: **10/30/2020 09:09 PM**

Client ID: Run ID: **SVMS10_201030A** SeqNo: **6848170** Prep Date: **10/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfolane	76.49	10	100	0	76.5	30-100	79.94	4.41	30	
Surr: 2-Fluorobiphenyl	*23.2*	0	*50*	0	*46.4*	*26-79*	28.39	*20.1*	*40*	
Surr: 4-Terphenyl-d14	*33.24*	0	*50*	0	*66.5*	*43-106*	36.62	*9.68*	*40*	
Surr: Nitrobenzene-d5	*25.15*	0	*50*	0	*50.3*	*29-80*	27.77	*9.9*	*40*	

The following samples were analyzed in this batch: 20102451-01A

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

ALS Group, USA

Date: 02-Nov-20

Client: Lambda Energy Resources
Project: Lambda (Hartland 36 Gas Plant)
WorkOrder: **20102451**

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

ALS Group, USA

Sample Receipt Checklist

Client Name: **LAMBDA-KAL** Date/Time Received: **27-Oct-20 09:00**

Work Order: **20102451** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 27-Oct-20 (Date) Reviewed by: Nathan Williams (eSignature) 28-Oct-20 (Date)

Matrices: Groundwater

Carrier name: FedEx

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):	3.0/3.0 c	IR1	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	10/27/2020 2:08:04 PM		
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:

ALS Environmental
781 Industrial Cir, Ste 3
Traverse City, Michigan 49686
(Tel) 231.421.3204
(Cell) 231.944.3459

Chain of Custody Form

Page 1 of 1

☑ RETURN SAMPLES TO:
ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager: Gary Byar | ALS Work Order #: 20102451

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Hartland 36 Gas Plant	A	Sulfolane (1) Amber Liter
Work Order		Project Number		B	Sulfate (1) 125 p
Company Name	ECT, Inc.	Bill To Company	Lambda Energy	C	
Send Report To	Jeremy Lewandowski	Invoice Attn.	Nick Summerland	D	HOLD 1 x 1L amber pending
Address	3399 Veterans Dr.	Address	1510 Thomas Rd	E	analytical results please
				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		michigan.invoices@lambdaenergyllc.com	J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-175	10/23/2020	1015	GW	→	2	2										

Sampler(s): Please Print & Sign: Jim Karcik

Shipment Method: UPS Ground

Required Turnaround Time: (Check Box) ☐10 Wk Days ☑5-7 Wk Days ☐3 Wk Days ☐2 Wk Days ☐24 Hour ☐Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	10/23/2020	12:00	ECT COLD STORAGE	10/23/2020	12:00
ECT COLD STORAGE	10/26/2020	14:00		10/23/20	1400
Logged by (Laboratory): DFS	Date: 10/27/20	Time: 1400	Checked by (Laboratory): GRB		

Notes: Rel. V 10/26/2020
ALS Project: MERITENERGY - Misc

ALS Cooler ID	Cooler Temp
IR1	3.0°C
pH22	

QC Package: (Check Box Below)
☑Level II: Standard QC ☐Level III: Raw Data
☐TRRP LRC ☐TRRP Level IV
☐Level IV: SW846 Methods/CLP like
☐Other:

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

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

Recd 10/27/20 0900

30-Dec-2020

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

Re: **Lambda (Merit Hartland 130685.2000)** Work Order: **20121039**

Dear Nick,

ALS Environmental received 15 samples on 11-Dec-2020 08:00 AM 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: 30-Dec-20

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000)
Work Order: **20121039**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
20121039-01	MW-7D	Groundwater		12/10/2020 10:35	12/11/2020 08:00	☐
20121039-02	MW-15D	Groundwater		12/10/2020 10:35	12/11/2020 08:00	☐
20121039-03	MW-7S	Groundwater		12/10/2020 11:15	12/11/2020 08:00	☐
20121039-04	MW-17D	Groundwater		12/10/2020 11:20	12/11/2020 08:00	☐
20121039-05	MW-19D	Groundwater		12/10/2020 11:50	12/11/2020 08:00	☐
20121039-06	MW-17S	Groundwater		12/10/2020 12:00	12/11/2020 08:00	☐
20121039-07	MW-19S	Groundwater		12/10/2020 12:30	12/11/2020 08:00	☐
20121039-08	MW-14S	Groundwater		12/10/2020 12:45	12/11/2020 08:00	☐
20121039-09	MW-13D	Groundwater		12/10/2020 13:20	12/11/2020 08:00	☐
20121039-10	MW-14D	Groundwater		12/10/2020 13:25	12/11/2020 08:00	☐
20121039-11	MW-13S	Groundwater		12/10/2020 14:00	12/11/2020 08:00	☐
20121039-12	MW-20S	Groundwater		12/10/2020 14:15	12/11/2020 08:00	☐
20121039-13	MW-18	Groundwater		12/10/2020 14:40	12/11/2020 08:00	☐
20121039-14	MW-20D	Groundwater		12/10/2020 15:00	12/11/2020 08:00	☐
20121039-15	MW-20D Dup	Groundwater		12/10/2020 15:00	12/11/2020 08:00	☐

ALS Group, USA

Date: *30-Dec-20*

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000)
Work Order: 20121039
Sample ID: MW-7D
Lab ID: 20121039-01
Collection Date: 12/10/2020 10:35 AM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 03:50 AM
Surr: 2-Fluorobiphenyl	*63.5*		*26-79*	*%REC*	1	12/28/2020 03:50 AM
Surr: 4-Terphenyl-d14	*86.7*		*43-106*	*%REC*	1	12/28/2020 03:50 AM
Surr: Nitrobenzene-d5	*61.1*		*29-80*	*%REC*	1	12/28/2020 03:50 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**21**		**1.0**	**mg/L**	1	12/15/2020 05:51 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-15D **Lab ID:** 20121039-02
Collection Date: 12/10/2020 10:35 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 04:11 AM
Surr: 2-Fluorobiphenyl	*63.1*		*26-79*	*%REC*	1	12/28/2020 04:11 AM
Surr: 4-Terphenyl-d14	*84.7*		*43-106*	*%REC*	1	12/28/2020 04:11 AM
Surr: Nitrobenzene-d5	*61.7*		*29-80*	*%REC*	1	12/28/2020 04:11 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**26**		**1.0**	**mg/L**	1	12/15/2020 05:52 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-7S **Lab ID:** 20121039-03
Collection Date: 12/10/2020 11:15 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 04:33 AM
Surr: 2-Fluorobiphenyl	*64.8*		*26-79*	*%REC*	1	12/28/2020 04:33 AM
Surr: 4-Terphenyl-d14	*85.6*		*43-106*	*%REC*	1	12/28/2020 04:33 AM
Surr: Nitrobenzene-d5	*63.0*		*29-80*	*%REC*	1	12/28/2020 04:33 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**250**		**4.0**	**mg/L**	4	12/15/2020 06:02 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-17D **Lab ID:** 20121039-04
Collection Date: 12/10/2020 11:20 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 04:54 AM
Surr: 2-Fluorobiphenyl	*68.0*		*26-79*	*%REC*	1	12/28/2020 04:54 AM
Surr: 4-Terphenyl-d14	*85.7*		*43-106*	*%REC*	1	12/28/2020 04:54 AM
Surr: Nitrobenzene-d5	*66.6*		*29-80*	*%REC*	1	12/28/2020 04:54 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**220**		**4.0**	**mg/L**	4	12/15/2020 06:03 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-19D **Lab ID:** 20121039-05
Collection Date: 12/10/2020 11:50 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 05:16 AM
Surr: 2-Fluorobiphenyl	*63.0*		*26-79*	*%REC*	1	12/28/2020 05:16 AM
Surr: 4-Terphenyl-d14	*92.7*		*43-106*	*%REC*	1	12/28/2020 05:16 AM
Surr: Nitrobenzene-d5	*61.5*		*29-80*	*%REC*	1	12/28/2020 05:16 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**120**		**4.0**	**mg/L**	4	12/15/2020 06:03 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-17S **Lab ID:** 20121039-06
Collection Date: 12/10/2020 12:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 05:37 AM
Surr: 2-Fluorobiphenyl	*67.7*		*26-79*	*%REC*	1	12/28/2020 05:37 AM
Surr: 4-Terphenyl-d14	*87.9*		*43-106*	*%REC*	1	12/28/2020 05:37 AM
Surr: Nitrobenzene-d5	*67.0*		*29-80*	*%REC*	1	12/28/2020 05:37 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**64**		**1.0**	**mg/L**	1	12/15/2020 05:54 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-19S **Lab ID:** 20121039-07
Collection Date: 12/10/2020 12:30 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 05:59 AM
Surr: 2-Fluorobiphenyl	*62.6*		*26-79*	*%REC*	1	12/28/2020 05:59 AM
Surr: 4-Terphenyl-d14	*81.7*		*43-106*	*%REC*	1	12/28/2020 05:59 AM
Surr: Nitrobenzene-d5	*60.2*		*29-80*	*%REC*	1	12/28/2020 05:59 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**74**		**1.0**	**mg/L**	1	12/15/2020 05:54 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-14S **Lab ID:** 20121039-08
Collection Date: 12/10/2020 12:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 06:20 AM
Surr: 2-Fluorobiphenyl	*71.0*		*26-79*	*%REC*	1	12/28/2020 06:20 AM
Surr: 4-Terphenyl-d14	*94.2*		*43-106*	*%REC*	1	12/28/2020 06:20 AM
Surr: Nitrobenzene-d5	*69.5*		*29-80*	*%REC*	1	12/28/2020 06:20 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**50**		**1.0**	**mg/L**	1	12/15/2020 05:55 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-13D **Lab ID:** 20121039-09
Collection Date: 12/10/2020 01:20 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	**99**		**10**	**µg/L**	1	12/28/2020 06:42 AM
Surr: 2-Fluorobiphenyl	*68.5*		*26-79*	*%REC*	1	12/28/2020 06:42 AM
Surr: 4-Terphenyl-d14	*88.6*		*43-106*	*%REC*	1	12/28/2020 06:42 AM
Surr: Nitrobenzene-d5	*65.5*		*29-80*	*%REC*	1	12/28/2020 06:42 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**460**		**10**	**mg/L**	10	12/15/2020 06:10 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-14D **Lab ID:** 20121039-10
Collection Date: 12/10/2020 01:25 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 07:03 AM
Surr: 2-Fluorobiphenyl	*62.9*		*26-79*	*%REC*	1	12/28/2020 07:03 AM
Surr: 4-Terphenyl-d14	*80.7*		*43-106*	*%REC*	1	12/28/2020 07:03 AM
Surr: Nitrobenzene-d5	*59.2*		*29-80*	*%REC*	1	12/28/2020 07:03 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**110**		**4.0**	**mg/L**	4	12/15/2020 06:05 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-13S **Lab ID:** 20121039-11
Collection Date: 12/10/2020 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 07:25 AM
Surr: 2-Fluorobiphenyl	*59.9*		*26-79*	*%REC*	1	12/28/2020 07:25 AM
Surr: 4-Terphenyl-d14	*78.0*		*43-106*	*%REC*	1	12/28/2020 07:25 AM
Surr: Nitrobenzene-d5	*59.2*		*29-80*	*%REC*	1	12/28/2020 07:25 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**94**		**1.0**	**mg/L**	1	12/15/2020 05:56 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-20S **Lab ID:** 20121039-12
Collection Date: 12/10/2020 02:15 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 07:47 AM
Surr: 2-Fluorobiphenyl	*57.6*		*26-79*	*%REC*	1	12/28/2020 07:47 AM
Surr: 4-Terphenyl-d14	*87.1*		*43-106*	*%REC*	1	12/28/2020 07:47 AM
Surr: Nitrobenzene-d5	*56.4*		*29-80*	*%REC*	1	12/28/2020 07:47 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**57**		**1.0**	**mg/L**	1	12/15/2020 05:57 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-18 **Lab ID:** 20121039-13
Collection Date: 12/10/2020 02:40 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		20	µg/L	1	12/28/2020 03:28 AM
Surr: 2-Fluorobiphenyl	*62.4*		*26-79*	*%REC*	1	12/28/2020 03:28 AM
Surr: 4-Terphenyl-d14	*83.9*		*43-106*	*%REC*	1	12/28/2020 03:28 AM
Surr: Nitrobenzene-d5	*60.1*		*29-80*	*%REC*	1	12/28/2020 03:28 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**58**		**1.0**	**mg/L**	1	12/15/2020 05:57 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-20D **Lab ID:** 20121039-14
Collection Date: 12/10/2020 03:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 08:08 AM
Surr: 2-Fluorobiphenyl	*70.5*		*26-79*	*%REC*	1	12/28/2020 08:08 AM
Surr: 4-Terphenyl-d14	*96.8*		*43-106*	*%REC*	1	12/28/2020 08:08 AM
Surr: Nitrobenzene-d5	*70.4*		*29-80*	*%REC*	1	12/28/2020 08:08 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**80**		**1.0**	**mg/L**	1	12/15/2020 05:59 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000) **Work Order:** 20121039
Sample ID: MW-20D Dup **Lab ID:** 20121039-15
Collection Date: 12/10/2020 03:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 12/17/20 12:32	Analyst: **EE**
Sulfolane	ND		10	µg/L	1	12/28/2020 08:30 AM
Surr: 2-Fluorobiphenyl	*64.1*		*26-79*	*%REC*	1	12/28/2020 08:30 AM
Surr: 4-Terphenyl-d14	*83.5*		*43-106*	*%REC*	1	12/28/2020 08:30 AM
Surr: Nitrobenzene-d5	*61.9*		*29-80*	*%REC*	1	12/28/2020 08:30 AM
SULFATE			**A4500-SO4 E-11**			Analyst: **JDR**
Sulfate	**80**		**1.0**	**mg/L**	1	12/15/2020 06:00 PM

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

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000)
Work Order: 20121039

Case Narrative

Batch 169411 Sample 20121039-13A SVO_8270_W Prep comment: Reduced volume for MS/MSD due to limited bottles. Client Sample ID: MW-18

Batch R306100 Sample 20121039-13BMS/MSD SO4_4500E_DISC_W The MS/MSD recovery for Sulfate was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: sulfate Client Sample ID: MW-18

ALS Group, USA

Date: 30-Dec-20

Client: Lambda Energy Resources

Work Order: 20121039

Project: Lambda (Merit Hartland 130685.2000)

QC BATCH REPORT

Batch ID: **169411** Instrument ID **SVMS8** Method: **SW846 8270D**

MBLK Sample ID: **SBLKW1-169411-169411** Units: **µg/L** Analysis Date: **12/28/2020 02:02 AM**

Client ID: Run ID: **SVMS8_201227A** SeqNo: **7035444** Prep Date: **12/17/2020** 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	*35.57*	0	*50*	0	*71.1*	*26-79*	0			
Surr: 4-Terphenyl-d14	*42.7*	0	*50*	0	*85.4*	*43-106*	0			
Surr: Nitrobenzene-d5	*35.24*	0	*50*	0	*70.5*	*29-80*	0			

LCS Sample ID: **SLCSW1-169411-169411** Units: **µg/L** Analysis Date: **12/28/2020 02:24 AM**

Client ID: Run ID: **SVMS8_201227A** SeqNo: **7035445** Prep Date: **12/17/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfolane	57.31	10	100	0	57.3	30-100	0			
Surr: 2-Fluorobiphenyl	*35.08*	0	*50*	0	*70.2*	*26-79*	0			
Surr: 4-Terphenyl-d14	*43.13*	0	*50*	0	*86.3*	*43-106*	0			
Surr: Nitrobenzene-d5	*33.75*	0	*50*	0	*67.5*	*29-80*	0			

MS Sample ID: **20121039-13A MS** Units: **µg/L** Analysis Date: **12/28/2020 02:45 AM**

Client ID: **MW-18** Run ID: **SVMS8_201227A** SeqNo: **7035446** Prep Date: **12/17/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfolane	139.2	20	200	0	69.6	30-100	0			
Surr: 2-Fluorobiphenyl	*65.06*	0	*100*	0	*65.1*	*26-79*	0			
Surr: 4-Terphenyl-d14	*84.84*	0	*100*	0	*84.8*	*43-106*	0			
Surr: Nitrobenzene-d5	*63*	0	*100*	0	*63*	*29-80*	0			

MSD Sample ID: **20121039-13A MSD** Units: **µg/L** Analysis Date: **12/28/2020 03:07 AM**

Client ID: **MW-18** Run ID: **SVMS8_201227A** SeqNo: **7035447** Prep Date: **12/17/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfolane	152.4	20	200	0	76.2	30-100	139.2	9.04	30	
Surr: 2-Fluorobiphenyl	*74.16*	0	*100*	0	*74.2*	*26-79*	65.06	*13.1*	*40*	
Surr: 4-Terphenyl-d14	*83.62*	0	*100*	0	*83.6*	*43-106*	84.84	*1.45*	*40*	
Surr: Nitrobenzene-d5	*72.66*	0	*100*	0	*72.7*	*29-80*	63	*14.2*	*40*	

The following samples were analyzed in this batch:

20121039-01A	20121039-02A	20121039-03A
20121039-04A	20121039-05A	20121039-06A
20121039-07A	20121039-08A	20121039-09A
20121039-10A	20121039-11A	20121039-12A
20121039-13A	20121039-14A	20121039-15A

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

Client: Lambda Energy Resources
Work Order: 20121039
Project: Lambda (Merit Hartland 130685.2000)

QC BATCH REPORT

Batch ID: **R306100** Instrument ID **GALLERY** Method: **A4500-SO4 E-11**

MBLK Sample ID: **00MBLANK-R306100** Units: **mg/L** Analysis Date: **12/15/2020 07:19 PM**
Client ID: Run ID: **GALLERY_201215B** SeqNo: **7000272** 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: **20121039-13BMS** Units: **mg/L** Analysis Date: **12/15/2020 06:23 PM**
Client ID: **MW-18** Run ID: **GALLERY_201215B** SeqNo: **7000249** Prep Date: DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	105	4.0	50	58.19	93.6	95-118	0			S

MSD Sample ID: **20121039-13BMSD** Units: **mg/L** Analysis Date: **12/15/2020 06:23 PM**
Client ID: **MW-18** Run ID: **GALLERY_201215B** SeqNo: **7000250** Prep Date: DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	103.4	4.0	50	58.19	90.4	95-118	105	1.53	10	S

LCS1 Sample ID: **0LCS1 10-R306100** Units: **mg/L** Analysis Date: **12/15/2020 07:20 PM**
Client ID: Run ID: **GALLERY_201215B** SeqNo: **7000273** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	10.09	1.0	10	0	101	90-119	0			

LCS2 Sample ID: **0LCS2 50-R306100** Units: **mg/L** Analysis Date: **12/15/2020 05:50 PM**
Client ID: Run ID: **GALLERY_201215B** SeqNo: **7000178** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	53.4	1.0	50	0	107	95-118	0			

The following samples were analyzed in this batch:

20121039-01B	20121039-02B	20121039-03B
20121039-04B	20121039-05B	20121039-06B
20121039-07B	20121039-08B	20121039-09B
20121039-10B	20121039-11B	20121039-12B
20121039-13B	20121039-14B	20121039-15B

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

ALS Group, USA

Date: 30-Dec-20

Client: Lambda Energy Resources
Project: Lambda (Merit Hartland 130685.2000)
WorkOrder: **20121039**

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: **11-Dec-20 08:00**

Work Order: **20121039** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 11-Dec-20 (Date) Reviewed by: Nathan Williams (eSignature) 11-Dec-20 (Date)

Matrices: Groundwater
Carrier name: Courier

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):	2.8/2.8 c	IR1	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	12/11/2020 9:22:18 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
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: 45339

ALS Project Manager:

ALS Work Order #: 20121039

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Merit Hartland	A	Sulfolane
Work Order		Project Number	130685-2000	B	Sulfate
Company Name	ECT Inc.	Bill To Company		C	
Send Report To		Invoice Attn		D	
Address		Address		E	
				F	
City/State/Zip		City/State/Zip		G	
Phone	231-676-3025	Phone		H	
Fax		Fax		I	
e-Mail Address	JLewandowski@ectinc.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-7D	12/10/2020	10:35	GW	—	2	X	X									
2	MW-15D	12/10/2020	10:35	GW	-	2	X	X									
3	MW-7S	12/10/2020	11:15	GW	—	2	X	X									
4	MW-17D	12/10/2020	11:20	GW	-	2	X	X									
5	MW-19D	12/10/2020	11:50	GW	—	2	X	X									
6	MW-17S	12/10/2020	12:00	GW	-	2	X	X									
7	MW-19S	12/10/2020	12:30	GW	—	2	X	X									
8	MW-14S	12/10/2020	12:45	GW	-	2	X	X									
9	MW-13D	12/10/2020	13:20	GW	-	2	X	X									
10	MW-14D	12/10/2020	13:25	GW													

Sampler(s) Please Print & Sign: Ty Martin, Joey Kniss

Shipment Method:

Turnaround Time in Business Days (BD): ☐ 10 BD ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☐ Other

Results Due Date:

Relinquished by: Ty Martin	Date: 12/10/2020	Time: 15:20	Received by:	
Relinquished by:	Date: 12/10/20	Time: 1700	Received by (Laboratory):	12/11/20 0800
Logged by (Laboratory): DCS	Date: 12/11/20	Time: 0900	Checked by (La: GRB	

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

Notes:

Cooler ID	Cooler Temp
IR1	2.8°C
ptl23	

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

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: 45338

ALS Project Manager:

ALS Work Order #: 20121039

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Merit Hartland	A	Sulfolane
Work Order		Project Number	130685.2000	B	Sulfate
Company Name	ECT Inc	Bill To Company		C	
Send Report To		Invoice Attn		D	
Address		Address		E	
				F	
City/State/Zip		City/State/Zip		G	
Phone	231-676-3023	Phone		H	
Fax		Fax		I	
e-Mail Address	JLewandowski@ectinc.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-13S	12/10/2020	14:00	GW	—	2	X	X									
2	MW-20S	12/10/2020	14:15	GW	-	2	X	X									
3	MW-18 / MS/MSD	12/10/2020	14:40	GW	—	4	X	X									
4	MW-20D	12/10/2020	15:00	GW	—	2	X	X									
5	MW-20D Dup	12/10/2020	15:00	GW	—	2	X	X									
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Ty Martin, Joey Kniss

Shipment Method:

Turnaround Time in Business Days (BD): ☐ 10 BD ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☐ Other

Results Due Date:

Relinquished by: Ty Martin	Date: 12/10/2020	Time: 15:20	Received by:		
Relinquished by:	Date: 12/10/20	Time: 1700	Received by (Laboratory):	Date: 12/11/20	Time: 0800
Logged by (Laboratory): DFS	Date: 12/11/20	Time: 0900	Checked by (La		

Notes:

Cooler ID	Cooler Temp
IR1	2.8°c
pH23	

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

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

INSPECTION

Label on well?	(YES) NO REMEDIED	Is cement pad in good repair?	~~YES NO REMEDIED~~ N/A
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: 10/23/2020 Time: 0905

Top of Casing Elevation:
Depth to Water: 18.91
Elevation of Water:

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

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER______

Date: 10/23/2020 Start Time: 0917

Measured Well Depth: 27.10'
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)
initial	18.91								
0920	Clean @ purge start, trace particulates; issues w/ pumping rate and								
0925	drawdown resolved @ 0930								
0930	19.01	0.10'	200	11.14	571	26.88	7.60	-93.7	2.03
0935	19.01	0.10'	200	11.20	533	21.50	7.35	-83.5	2.37
0940	19.01	0.10'	200	11.23	535	18.57	7.37	-83.9	3.31
0945	19.01	0.10'	200	11.25	535	14.30	7.42	-84.6	1.13
0950	19.01	0.10'	200	11.26	535	9.96	7.46	-85.4	1.04
0955	19.01	0.10'	200	11.31	536	8.30	7.48	-85.3	1.07
1000	19.01	0.10'	200	11.30	536	7.27	7.49	-85.2	2.58
1005	19.01	0.10'	200	11.34	537	7.09	7.51	-85.1	1.29
		Stabilization Criteria:		+/- 3% ✓	+/- 3% ✓	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units ✓	+/- 10 mV ✓	+/- 10 % ✓ (if > 5 NTU)

Total Volume Purged (gal):______

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

FIELD ANALYSIS

Particulates appear to be organic (bacteria, algae, etc.?) in nature

Time: 1008
Temperature: 11.48 deg. C
Specific Conductance: 543 umhos/cm
Dissolved Oxygen: 6.89 mg/L
pH: 7.53 S.U.
ORP: -85.3 mV
Turbidity: 0.97 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: 1015
Appearance of Sample:______
Sample Duplicate ?: NO
Sample Method: Low flow / peristaltic

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~~ JK
	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-7S
Well Type: 2" PVC

INSPECTION

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

Repair Notes:

STATIC WATER LEVEL

Date: 12/10/20 Time: 10:42

Top of Casing Elevation:
Depth to Water: 25.15
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: 12/10/20 Start Time: 10:44

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)
11:06	25.23	0.08	250	10.3	1080	3.25	7.33	121.7	1.71
11:05	25.23	0.08	250	10.3	1050	3.39	7.34	119.3	1.07
11:10	25.24	0.09	250	10.5	1020	3.52	7.35	117.1	0.64
Final	25.25								

Stabilization Criteria: Temp +/- 3%; Spec Cond. +/- 3%; Diss Oxy +/- 10% (if > 0.5 mg/l); pH +/- 0.1 Units; ORP +/- 10 mV; Turbidity +/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 2 gal

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

FIELD ANALYSIS

Time: 11:10
Temperature: 10.5 deg. C
Specific Conductance: 1020 umhos/cm
Dissolved Oxygen: 3.52 mg/L
pH: 7.35 S.U.
ORP: 117.1 mV
Turbidity: 0.64 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: 11:15
Appearance of Sample: Clear, no odor
Sample Duplicate ?:
Sample Method:

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass	no	None	Sulfolane
1	125 ml	plastic	no	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
LOCATION: 13390 Lone Tree Road
Hartland Township, Michigan
PROJECT: 130685.2000

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

INSPECTION

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

Repair Notes:

STATIC WATER LEVEL

Date: 12/10/20 Time: 10:03

Top of Casing Elevation: ______
Depth to Water: 25.55
Elevation of Water: ______

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

WELL PURGING

Purge Method: PERISTALTIC BLADDER OTHER______
Date: 12/10/20 Start Time: 10:05

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)
10:20	25.55	0	250	9.9	467	9.73	7.53	140.5	6.20
10:25	25.55	0	250	9.8	465	9.46	7.52	137.1	2.25
10:30	25.55	0	250	9.9	464	8.80	7.49	133.2	2.29
Final	25.55								
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10% (if > 5 NTU)

Total Volume Purged (gal): 2 gal

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

FIELD ANALYSIS

Time: 10:30
Temperature: 9.9 deg. C
Specific Conductance: 464 umhos/cm
Dissolved Oxygen: 8.80 mg/L
pH: 7.49 S.U.
ORP: 133.2 mV
Turbidity: ______ 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: 10:35
Appearance of Sample: Clear, no odor
Sample Duplicate ?: No
Sample Method: Low Flow

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass (boxed)	no (boxed)	None (boxed)	Sulfolane
1	125 ml	plastic (boxed)	no (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-13S
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: 12/10/2020 Time: ____

Top of Casing Elevation: ____
Depth to Water: 21.81
Elevation of Water: ____

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

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER____ Date: 12/10/20 Start Time: 13:30

Measured Well Depth: 30.30 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)
13:45	21.93	0.12	250	12.4	800	4.60	2.81	64.2	3.71
13:50	21.94	0.13	250	12.4	800	4.58	2.81	66.0	2.27
13:55	21.94	0.13	250	12.4	810	4.56	2.82	66.8	1.73
Final	21.94								
Stabilization Criteria:				(+/- 3%)	(+/- 3%)	(+/- 10% (if > 0.5 mg/l))	(+/- 0.1 Units)	(+/- 10 mV)	(+/- 10 % (if > 5 NTU))

Total Volume Purged (gal): 2 gal

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

FIELD ANALYSIS

Time: 13:55
Temperature: 12.4 deg. C
Specific Conductance: 810 umhos/cm
Dissolved Oxygen: 4.56 mg/L
pH: 2.82 S.U.
ORP: 66.8 mV
Turbidity: 1.73 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: 14:00
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
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): 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

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: 12/10/20 Time: 12:41

Top of Casing Elevation: ______
Depth to Water: 21.14
Elevation of Water: ______

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

WELL PURGING

Purge Method: PERISTALTIC BLADDER OTHER______
Date: 12/10/20 Start Time: 12:43

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)
13:00	21.35	0.21	250	11.4	1300	0.21	7.28	75.5	6.10
13:05	21.35	0.21	250	11.7	1270	0.17	7.28	61.7	5.24
13:10	21.36	0.22	250	11.7	1260	0.16	7.29	57.7	6.57
13:15	21.36	0.22	250	11.8	1270	0.12	7.29	52.9	5.22
Final	21.37								
Stabilization Criteria:				+/- 3%	+/- 3%	+/- 10% (if > 0.5 mg/l)	+/- 0.1 Units	+/- 10 mV	+/- 10 % (if > 5 NTU)

Total Volume Purged (gal): 2 gal

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

FIELD ANALYSIS

Time: 13:15
Temperature: 11.8 deg. C
Specific Conductance: 1270 umhos/cm
Dissolved Oxygen: 0.12 mg/L
pH: 7.29 S.U.
ORP: 52.9 mV
Turbidity: 5.22 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: 13:20
Appearance of Sample: Clear, no odor
Sample Duplicate ?: no
Sample Method: Low Flow

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass (boxed) plastic	yes no (boxed)	None (boxed), HCl, HNO_3, NaOH, H_2SO_4, ZnAc, TSP, BAK	Sulfolane
1	125 ml	glass plastic (boxed)	yes no (boxed)	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	Monitoring Location:	Hartland #36
LOCATION:	13390 Lone Tree Road	Sample ID:	MW-14S
	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: 12/10/2020 Time: 12:13

Top of Casing Elevation:

Depth to Water: 20.93'

Elevation of Water:

Measured with: (ELECTRONIC TAPE) CHALKED TAPE OTHER

Well depth verified? YES (NO)

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER____

Date: 12/10/2020 Start Time: 12:15

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)
12:30	21.05	-.12	200	10.47	825	1.90	5.95	74.3	7.24
12:35	21.05	-.12	200	10.55	821	1.95	6.04	66.7	7.20
12:40	21.05	-.12	200	10.58	820	1.94	6.10	61.4	7.09
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:	12:40	
Temperature:	10.58	deg. C
Specific Conductance:	820	umhos/cm
Dissolved Oxygen:	1.94	mg/L
pH:	6.16	S.U.
ORP:	61.4	mV
Turbidity:	7.09	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

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	
	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-** 14 D
	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: 12/10/2020 Time: 12:54

Top of Casing Elevation:
Depth to Water: 20.82 Measured with: (ELECTRONIC TAPE) CHALKED TAPE OTHER
Elevation of Water: Well depth verified? YES (NO)

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER______ Date: 12/10/2020 Start Time: 12:55

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)
13:10	20.83	-.01	240	9.52	664	1.76	6.26	48.9	3.71
13:15	20.83	-.01	240	9.48	665	1.69	6.19	50.8	3.47
13:20	20.83	-.01	240	9.39	663	1.66	6.17	51.6	3.12
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: 13:20

			CALIBRATION CHECK Standard (conc.)	Reading		Mark if Recalibrated
Temperature:	9.39	deg. C				
Specific Conductance:	663	umhos/cm	Specific Cond.:		umhos/cm	
Dissolved Oxygen:	1.66	mg/L	Dissolved Oxygen:		mg/L	
pH:	6.17	S.U.	pH:		S.U.	
ORP:	51.6	mV	Eh:		mV	
Turbidity:	3.12	NTU	Turbidity:		NTU	

SAMPLE COLLECTION

Time: 13:25 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-15 D
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: 12/10/2020 Time: 9:58

Top of Casing Elevation:
Depth to Water: 20.62'
Elevation of Water:

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

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER______ Date: 12/10/2020 Start Time: 10:00

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)
10:15	20.64	-.02	180	8.36	418	24.99	5.64	75.0	8.07
10:20	20.64	-.02	180	8.41	409	25.59	5.79	65.1	2.54
10:25	20.64	-.02	180	8.42	402	23.81	5.88	58.8	6.14
10:30	20.64	-.02	180	8.44	400	22.18	5.93	53.2	4.91
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:	10:30	
Temperature:	8.44	deg. C
Specific Conductance:	400	umhos/cm
Dissolved Oxygen:	22.18	mg/L
pH:	5.93	S.U.
ORP:	53.2	mV
Turbidity:	4.91	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: 10:35
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
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

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) 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: 12/10/2020 Time: 11:27

Top of Casing Elevation: ______
Depth to Water: 19.63'
Elevation of Water: ______

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

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER______
Date: 12/10/2020 Start Time: 11:28

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)
11:45	19.70	-.07	140	9.35	505	4.58	6.05	62.9	4.01
11:50	19.70	-.07	140	9.37	506	4.29	6.12	56.5	3.71
11:55	19.70	-.07	140	9.41	506	4.28	6.18	51.0	3.16
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: 11:55
Temperature: 9.41 deg. C
Specific Conductance: 506 umhos/cm
Dissolved Oxygen: 4.28 mg/L
pH: 6.18 S.U.
ORP: 51.0 mV
Turbidity: 3.16 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: 12:00
Appearance of Sample: clear, no odor
Sample Duplicate ?: No
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

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-17D
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
Repair Notes:

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

STATIC WATER LEVEL

Date: 12/10/2020 Time: 10:49

Top of Casing Elevation:
Depth to Water: 20.52'
Elevation of Water:

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

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER

Date: 12/10/2020 Start Time: 10:50

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)
11:05	20.88	-.36	240	9.15	642	5.20	5.85	75.4	7.84
11:10	20.88	-.36	240	9.21	639	4.87	5.91	71.0	7.17
11:15	20.88	-.36	240	9.17	640	4.75	5.96	66.6	7.03
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: 11:15
Temperature: 9.17 deg. C
Specific Conductance: 640 umhos/cm
Dissolved Oxygen: 4.75 mg/L
pH: 5.96 S.U.
ORP: 66.6 mV
Turbidity: 7.03 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: 11:20
Appearance of Sample: Clear, no odor
Sample Duplicate ?: No
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

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 / MS/MSD
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: 12/10/20 Time: 14:08

Top of Casing Elevation: ______
Depth to Water: 21.89
Elevation of Water: ______

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

WELL PURGING

Purge Method: PERISTALTIC BLADDER OTHER______ Date: 12/10/20 Start Time: 14:10

Measured Well Depth: 22.50 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)
14:25	21.94	0.05	250	12.2	740	0.15	7.21	64.6	3.03
14:30	21.94	0.05	250	12.1	740	0.11	7.23	63.4	1.28
14:35	21.94	0.05	250	12.1	740	0.12	7.23	63.2	0.74
Final	21.94								
Stabilization Criteria:				(+/- 3%)	(+/- 3%)	(+/- 10%) (if > 0.5 mg/l)	(+/- 0.1 Units)	(+/- 10mV)	(+/- 10 %) (if > 5 NTU)

Total Volume Purged (gal): 2 gal

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

FIELD ANALYSIS

Time:	14:35	
Temperature:	12.1	deg. C
Specific Conductance:	740	umhos/cm
Dissolved Oxygen:	0.12	mg/L
pH:	7.23	S.U.
ORP:	63.2	mV
Turbidity:	0.74	NTU

CALIBRATION CHECK (crossed out)

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

SAMPLE COLLECTION

Time: 14:40
Appearance of Sample: Clear, no odor
Sample Duplicate ?: Yes MS/MSD
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

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	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: 12/10/2020 Time: 11:53

Top of Casing Elevation:
Depth to Water: 23.04
Elevation of Water:

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

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER____
Date: 12/10/2020 Start Time: 11:55

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)
12:10	23.23	0.19	250	11.3	463	8.98	7.88	107.9	19.2
12:15	23.24	0.20	250	11.2	463	9.03	7.89	102.8	15.7
12:20	23.24	0.20	250	11.3	463	9.12	7.89	102.8	14.0
12:25	23.24	0.20	250	11.4	454	9.18	7.89	107.9	13.2
Final	23.24								

Stabilization Criteria: (+/- 3%) (+/- 3%) (+/- 10%) (if > 0.5 mg/l) (+/-0.1 Units) (+/- 10 mV) (+/- 10 %) (if > 5 NTU)

Total Volume Purged (gal): 2 gal

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

FIELD ANALYSIS

Time:	12:26	
Temperature:	11.4	deg. C
Specific Conductance:	454	umhos/cm
Dissolved Oxygen:	9.18	mg/L
pH:	7.89	S.U.
ORP:	107.9	mV
Turbidity:	13.2	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: 12:30
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
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

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-19D
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: 12/10/2020 Time: 11:18

Top of Casing Elevation:
Depth to Water: 22.95
Elevation of Water:

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

WELL PURGING

Purge Method: (PERISTALTIC) BLADDER OTHER______ Date: 12/10/20 Start Time: 11:20

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)
11:35	23.02	0.07	250	10.4	240	13.12	7.50	116.6	10.9
11:40	23.02	0.07	250	10.4	230	12.94	7.50	117.3	12.0
11:45	23.02	0.07	250	10.4	230	12.69	7.48	118.4	10.2
Final	23.02								

Total Volume Purged (gal): 2 gal

Stabilization Criteria: (+/- 3%) (+/- 3%) (+/- 10% (if > 0.5 mg/l)) (+/- 0.1 Units) (+/- 10 mV) (+/- 10 % (if > 5 NTU))

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

FIELD ANALYSIS

Time:	11:45	
Temperature:	10.4	deg. C
Specific Conductance:	230	umhos/cm
Dissolved Oxygen:	12.69	mg/L
pH:	7.48	S.U.
ORP:	118.4	mV
Turbidity:	10.2	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: 11:50
Appearance of Sample: Clear, no odor
Sample Duplicate ?: NO
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

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-20S
Well Type: 2" PVC

INSPECTION

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

Repair Notes:

STATIC WATER LEVEL

Date: 12/10/2020 Time: 13:44

Top of Casing Elevation:
Depth to Water: 22.36
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: 12/10/2020 Start Time: 13:45

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)
14:00	22.45	-.09	220	10.17	360	7.13	6.49	55.8	5.57
14:05	22.45	-.09	220	10.23	359	6.96	6.57	52.2	4.91
14:10	22.45	-.09	220	10.26	360	7.41	6.61	49.7	4.13
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:	14:10	
Temperature:	10.26	deg. C
Specific Conductance:	360	umhos/cm
Dissolved Oxygen:	7.41	mg/L
pH:	6.61	S.U.
ORP:	49.7	mV
Turbidity:	4.13	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: 14:15
Appearance of Sample: clear, no odor
Sample Duplicate ?: No
Sample Method: Low Flow

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass (marked)	no (marked)	None (marked)	Sulfolane
1	125 ml	plastic (marked)	no (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-20 D
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: 12/10/2020 Time: 14:24

Top of Casing Elevation:
Depth to Water: 22.20
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: 12/10/2020 Start Time: 14.25

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)
14:40	23.12	-.92	140	9.27	457	2.04	6.33	75.0	41.0
14:45	23.12	-.92	140	9.20	459	1.81	6.33	71.9	37.6
14:50	23.12	-.92	140	9.17	460	1.68	6.36	66.6	36.2
14:55	23.12	-.92	140	9.15	460	1.65	6.37	63.4	35.4
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: 14:55
Temperature: 9.15 deg. C
Specific Conductance: 460 umhos/cm
Dissolved Oxygen: 1.65 mg/L
pH: 6.37 S.U.
ORP: 63.4 mV
Turbidity: 35.4 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: 15:00
Appearance of Sample: clear, no odor
Sample Duplicate ?: yes
Sample Method: low flow

NO./BOTTLES:	SIZE:	TYPE:	FILTERED:	PRESERVATIVE:	PARAMETER:
1	1000 ml	glass	no	None	Sulfolane
1	125 ml	plastic	no	None	Sulfate
1	1000 ml	glass	no	None	Sulfolane
1	125 ml	plastic	no	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	

SAMPLING PERSONNEL

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

* Dup *