

**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

Company: LAMBDA ENERGY RESOURCES, LLC
Name:
ClientProj:

Site Addr: EPA-UIC ANNUAL SAMPLES

GTA ProjNo: 101320-5

Sampled By: LER

Date Rec: 10/13/2020

Time Rec: 12:30 PM

Sample No.	Sample ID	Date Sampled	Time Sampled	Sample Matrix
1	ST. CLEON 1-11 SWD	9/30/2020		BRINE
2	PARCELLS 2-9 SWD	9/30/2020		BRINE
3	STACK JEWELL 1-29	9/29/2020		BRINE
4	ST. MAPLE GROVE 1-16	9/30/2020		BRINE
5	ST. MANISTEE 1-15	10/1/2020		BRINE
6	ST. SPRINGDALE 1-28	9/30/2020		BRINE
7	ST. MANISTEE 1-23	10/1/2020		BRINE
8	FALK 1-4	10/1/2020		BRINE
9	ST. BEAR LAKE 1-13	9/30/2020		BRINE
10	ST. BEAR LAKE 1-22	9/30/2020		BRINE
11	ST. MAPLE GROVE 1-6	10/1/2020		BRINE
12	HILLIARD ET AL 2-26	10/1/2020		BRINE
13	ST. SPRINGDALE 2-36	10/1/2020		BRINE
14	ST. BEAR LAKE 1-32	9/30/2020		BRINE
15	SEDLAR JOHNSON 3-26	10/1/2020		BRINE

ELECTRONIC SIGNATURE REPORT. This is a final report for the following pages of data for the samples specified above. All analysis was performed by the methods stated and all quality control measures required were completed. All quality control information is available upon request.

Kirk Chase

Kirk L. Chase/Chemist
Grand Traverse Analytical
830 Robinwood Court
Traverse City, MI 49686
Ph: 231-929-0905
Fx: 231-929-0894
SP: 231-590-0291
kirk@gtanalytical.com

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COMPANY: LAMBDA ENERGY RESOURCES, LLC

GTA PROJECT NO: 101320-5

PROJECT NO:

GTA SAMPLE NO: 1

LOCATION: EPA-UIC ANNUAL SAMPLES

DATE SAMPLED: 9/30/2020

TIME SAMPLED:

DATE RECEIVED: 10/13/2020

SAMPLED BY: MI
LER

TIME RECEIVED: 12:30 PM

SAMPLE MATRIX: BRINE

SAMPLE ID: ST. CLEON 1-11 SWD

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
BARIUM DISS EPA 6020A	1.5	0.050	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
CALCIUM DISS EPA 6020A	68,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
IRON TOTAL EPA 6020A	4.3	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3020A
MAGNESIUM DISS EPA 6020A	8,500	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	23,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

DISS = DISSOLVED

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PROJECT NO:

LOCATION: EPA-UIC ANNUAL SAMPLES

MI

SAMPLED BY: LER

SAMPLE ID: ST. CLEON 1-11 SWD

GTA PROJECT NO: 101320-5

GTA SAMPLE NO: 1

DATE RECEIVED: 10/13/2020

TIME RECEIVED: 12:30 PM

DATE SAMPLED: 9/30/2020

TIME SAMPLED:

SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	5,000	10	mg/L (PPM)	TR	10/20/2020
ALKALINITY SM 4500CO2D (CARBONATE)	74	10	mg/L (PPM)	TR	10/20/2020
CHLORIDE EPA 300.0	240,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	8.2	0.10	s.u.	TR	10/20/2020
RESISTIVITY SM 2510A	5.5	-	ohms x cm	LV	10/14/2020
SPECIFIC GRAVITY SM 2710F	1.213	-	-	LV	10/15/2020
SULFATE EPA 300.0	ND	50	mg/L (PPM)	LV	10/14/2020
SULFIDE SM 4500S D	19	1.0	mg/L (PPM)	KC	10/15/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	390,000	5.0	mg/L (PPM)	TR	10/24/2020

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO: GTA PROJECT NO: 101320-5
LOCATION: EPA-UIC ANNUAL SAMPLES
DATE SAMPLED: 9/30/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLED BY: MI
LER
SAMPLE MATRIX: BRINE
SAMPLE ID: PARCELLS 2-9 SWD

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
BARIUM DISS EPA 6020A	0.94	0.050	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
CALCIUM DISS EPA 6020A	24,000	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
IRON TOTAL EPA 6020A	84	10	mg/L (PPM)	MR/TR	10/23/2020	EPA 3020A
MAGNESIUM DISS EPA 6020A	2,500	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	2,600	10	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO:
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: LER
SAMPLE ID: PARCELS 2-9 SWD

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 2
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
DATE SAMPLED: 9/30/2020
TIME SAMPLED:
SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	310	10	mg/L (PPM)	TR	10/20/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/20/2020
CHLORIDE EPA 300.0	77,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	5.7	0.10	s.u.	TR	10/20/2020
RESISTIVITY SM 2510A	7.9	-	ohms x cm	LV	10/14/2020
SPECIFIC GRAVITY SM 2710F	1.064	-	-	LV	10/15/2020
SULFATE EPA 300.0	ND	50	mg/L (PPM)	LV	10/14/2020
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	10/15/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	95,000	5.0	mg/L (PPM)	TR	10/24/2020

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PROJECT NO: GTA PROJECT NO: 101320-5
LOCATION: EPA-UIC ANNUAL SAMPLES
DATE SAMPLED: 9/29/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLED BY: MI
LER
SAMPLE MATRIX: BRINE
SAMPLE ID: STACK JEWELL 1-29

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	70,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	8,600	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	21,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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COMPANY: LAMBDA ENERGY RESOURCES, LLC

PROJECT NO:

LOCATION: EPA-UIC ANNUAL SAMPLES

MI

SAMPLED BY: LER

SAMPLE ID: STACK JEWELL 1-29

GTA PROJECT NO: 101320-5

GTA SAMPLE NO: 3

DATE RECEIVED: 10/13/2020

TIME RECEIVED: 12:30 PM

DATE SAMPLED: 9/29/2020

TIME SAMPLED:

SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	190	10	mg/L (PPM)	TR	10/20/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/20/2020
CHLORIDE EPA 300.0	320,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	5.0	0.10	s.u.	TR	10/20/2020
SPECIFIC GRAVITY SM 2710F	1.246	-	-	LV	10/15/2020
SULFATE EPA 300.0	110	50	mg/L (PPM)	LV	10/14/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	350,000	5.0	mg/L (PPM)	TR	10/24/2020

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PROJECT NO: GTA PROJECT NO: 101320-5
LOCATION: EPA-UIC ANNUAL SAMPLES
DATE SAMPLED: 9/30/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLED BY: MI
LER
SAMPLE MATRIX: BRINE
SAMPLE ID: ST. MAPLE GROVE 1-16

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	60,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	7,500	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	21,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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GTA PROJECT NO: 101320-5

PROJECT NO:

GTA SAMPLE NO: 4

LOCATION: EPA-UIC ANNUAL SAMPLES

DATE RECEIVED: 10/13/2020

TIME RECEIVED: 12:30 PM

MI

DATE SAMPLED: 9/30/2020

SAMPLED BY: LER

TIME SAMPLED:

SAMPLE MATRIX: BRINE

SAMPLE ID: ST. MAPLE GROVE 1-16

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	160	10	mg/L (PPM)	TR	10/20/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/20/2020
CHLORIDE EPA 300.0	230,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	5.6	0.10	s.u.	TR	10/20/2020
SPECIFIC GRAVITY SM 2710F	1.186	-	-	LV	10/15/2020
SULFATE EPA 300.0	150	50	mg/L (PPM)	LV	10/14/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	260,000	5.0	mg/L (PPM)	TR	10/24/2020

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO: GTA PROJECT NO: 101320-5
LOCATION: EPA-UIC ANNUAL SAMPLES
DATE SAMPLED: 10/1/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLED BY: MI
LER
SAMPLE MATRIX: BRINE
SAMPLE ID: ST. MANISTEE 1-15

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	50,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	5,800	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	24,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO:
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: LER
SAMPLE ID: ST. MANISTEE 1-15

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 5
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
DATE SAMPLED: 10/1/2020
TIME SAMPLED:
SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	180	10	mg/L (PPM)	TR	10/20/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/20/2020
CHLORIDE EPA 300.0	200,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	5.9	0.10	s.u.	TR	10/20/2020
SPECIFIC GRAVITY SM 2710F	1.158	-	-	LV	10/15/2020
SULFATE EPA 300.0	200	50	mg/L (PPM)	LV	10/14/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	220,000	5.0	mg/L (PPM)	TR	10/24/2020

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO: GTA PROJECT NO: 101320-5
LOCATION: EPA-UIC ANNUAL SAMPLES
DATE SAMPLED: 9/30/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLED BY: MI
LER
SAMPLE MATRIX: BRINE
SAMPLE ID: ST. SPRINGDALE 1-28

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	68,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	7,400	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	26,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO:
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: LER
SAMPLE ID: ST. SPRINGDALE 1-28

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 6
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
DATE SAMPLED: 9/30/2020
TIME SAMPLED:
SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	230	10	mg/L (PPM)	TR	10/20/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/20/2020
CHLORIDE EPA 300.0	270,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	5.5	0.10	s.u.	TR	10/20/2020
SPECIFIC GRAVITY SM 2710F	1.206	-	-	LV	10/15/2020
SULFATE EPA 300.0	260	50	mg/L (PPM)	LV	10/14/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	300,000	5.0	mg/L (PPM)	TR	10/24/2020

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PROJECT NO: GTA PROJECT NO: 101320-5
LOCATION: EPA-UIC ANNUAL SAMPLES
DATE SAMPLED: 10/1/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLED BY: MI
LER
SAMPLE MATRIX: BRINE
SAMPLE ID: ST. MANISTEE 1-23

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	19,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	2,200	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	13,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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COMPANY: LAMBDA ENERGY RESOURCES, LLC

GTA PROJECT NO: 101320-5

PROJECT NO:

GTA SAMPLE NO: 7

LOCATION: EPA-UIC ANNUAL SAMPLES

DATE RECEIVED: 10/13/2020

TIME RECEIVED: 12:30 PM

MI

DATE SAMPLED: 10/1/2020

SAMPLED BY: LER

TIME SAMPLED:

SAMPLE MATRIX: BRINE

SAMPLE ID: ST. MANISTEE 1-23

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	160	10	mg/L (PPM)	TR	10/20/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/20/2020
CHLORIDE EPA 300.0	83,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	6.6	0.10	s.u.	TR	10/20/2020
SPECIFIC GRAVITY SM 2710F	1.071	-	-	LV	10/15/2020
SULFATE EPA 300.0	730	50	mg/L (PPM)	LV	10/14/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	96,000	5.0	mg/L (PPM)	TR	10/24/2020

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**INDEPENDENT TESTING LAB**

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COMPANY: LAMBDA ENERGY RESOURCES, LLC

GTA PROJECT NO: 101320-5

PROJECT NO:

GTA SAMPLE NO: 8

LOCATION: EPA-UIC ANNUAL SAMPLES

DATE SAMPLED: 10/1/2020

TIME SAMPLED:

DATE RECEIVED: 10/13/2020

SAMPLED BY: MI
LER

TIME RECEIVED: 12:30 PM

SAMPLE MATRIX: BRINE

SAMPLE ID: FALK 1-4

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
BARIUM DISS EPA 6020A	0.36	0.050	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
CALCIUM DISS EPA 6020A	50,000	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
IRON TOTAL EPA 6020A	41	10	mg/L (PPM)	MR/TR	10/23/2020	EPA 3020A
MAGNESIUM DISS EPA 6020A	6,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	24,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

DISS = DISSOLVED

**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

COMPANY: LAMBDA ENERGY RESOURCES, LLC

PROJECT NO:

LOCATION: EPA-UIC ANNUAL SAMPLES

MI

SAMPLED BY: LER

SAMPLE ID: FALK 1-4

GTA PROJECT NO: 101320-5

GTA SAMPLE NO: 8

DATE RECEIVED: 10/13/2020

TIME RECEIVED: 12:30 PM

DATE SAMPLED: 10/1/2020

TIME SAMPLED:

SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	180	10	mg/L (PPM)	TR	10/21/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/21/2020
CHLORIDE EPA 300.0	190,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	5.8	0.10	s.u.	TR	10/21/2020
RESISTIVITY SM 2510A	2.6	-	ohms x cm	LV	10/14/2020
SPECIFIC GRAVITY SM 2710F	1.166	-	-	LV	10/15/2020
SULFATE EPA 300.0	200	50	mg/L (PPM)	LV	10/14/2020
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	10/15/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	230,000	5.0	mg/L (PPM)	TR	10/24/2020

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s.u. = STANDARD pH UNITS REPORTED AT 25 C

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PH: 231-929-0905

FAX: 231-929-0894

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COMPANY: LAMBDA ENERGY RESOURCES, LLC

GTA PROJECT NO: 101320-5

PROJECT NO:

GTA SAMPLE NO: 9

LOCATION: EPA-UIC ANNUAL SAMPLES

DATE SAMPLED: 9/30/2020

TIME SAMPLED:

DATE RECEIVED: 10/13/2020

SAMPLED BY: MI
LER

TIME RECEIVED: 12:30 PM

SAMPLE MATRIX: BRINE

SAMPLE ID: ST. BEAR LAKE 1-13

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	23,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	2,700	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	16,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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PROJECT NO:
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: LER
SAMPLE ID: ST. BEAR LAKE 1-13

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 9
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
DATE SAMPLED: 9/30/2020
TIME SAMPLED:
SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	160	10	mg/L (PPM)	TR	10/21/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/21/2020
CHLORIDE EPA 300.0	84,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	6.6	0.10	s.u.	TR	10/21/2020
SPECIFIC GRAVITY SM 2710F	1.073	-	-	LV	10/15/2020
SULFATE EPA 300.0	750	50	mg/L (PPM)	LV	10/14/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	98,000	5.0	mg/L (PPM)	TR	10/24/2020

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PH: 231-929-0905

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COMPANY: LAMBDA ENERGY RESOURCES, LLC

GTA PROJECT NO: 101320-5

PROJECT NO:

GTA SAMPLE NO: 10

LOCATION: EPA-UIC ANNUAL SAMPLES

DATE SAMPLED: 9/30/2020

TIME SAMPLED:

DATE RECEIVED: 10/13/2020

SAMPLED BY: MI

TIME RECEIVED: 12:30 PM

LER

SAMPLE MATRIX: BRINE

SAMPLE ID: ST. BEAR LAKE 1-22

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	100	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	26	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	34	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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PH: 231-929-0905

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO:
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: LER
SAMPLE ID: ST. BEAR LAKE 1-22

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 10
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
DATE SAMPLED: 9/30/2020
TIME SAMPLED:
SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	230	10	mg/L (PPM)	TR	10/21/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/21/2020
CHLORIDE EPA 300.0	260	10	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	8.2	0.10	s.u.	TR	10/21/2020
SPECIFIC GRAVITY SM 2710F	0.9931	-	-	LV	10/15/2020
SULFATE EPA 300.0	ND	10	mg/L (PPM)	LV	10/14/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	14,000	5.0	mg/L (PPM)	TR	10/24/2020

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO: GTA PROJECT NO: 101320-5
LOCATION: EPA-UIC ANNUAL SAMPLES
DATE SAMPLED: 10/1/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLED BY: MI
LER
SAMPLE MATRIX: BRINE
SAMPLE ID: ST. MAPLE GROVE 1-6

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	50,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	5,500	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	15,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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PH: 231-929-0905

FAX: 231-929-0894

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO:
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: LER
SAMPLE ID: ST. MAPLE GROVE 1-6

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 11
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
DATE SAMPLED: 10/1/2020
TIME SAMPLED:
SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	190	10	mg/L (PPM)	TR	10/21/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/21/2020
CHLORIDE EPA 300.0	200,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	5.8	0.10	s.u.	TR	10/21/2020
SPECIFIC GRAVITY SM 2710F	1.149	-	-	LV	10/15/2020
SULFATE EPA 300.0	160	50	mg/L (PPM)	LV	10/14/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	220,000	5.0	mg/L (PPM)	TR	10/24/2020

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO: EPA-UIC ANNUAL SAMPLES
LOCATION: MI
SAMPLED BY: LER
SAMPLE ID: HILLIARD ET AL 2-26

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 12
DATE SAMPLED: 10/1/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLE MATRIX: BRINE

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
BARIUM DISS EPA 6020A	0.19	0.050	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
CALCIUM DISS EPA 6020A	89	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
IRON TOTAL EPA 6020A	ND	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3020A
MAGNESIUM DISS EPA 6020A	24	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	30	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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COMPANY: LAMBDA ENERGY RESOURCES, LLC

GTA PROJECT NO: 101320-5

PROJECT NO:

GTA SAMPLE NO: 12

LOCATION: EPA-UIC ANNUAL SAMPLES

DATE RECEIVED: 10/13/2020

TIME RECEIVED: 12:30 PM

MI

DATE SAMPLED: 10/1/2020

TIME SAMPLED:

SAMPLED BY: LER

SAMPLE MATRIX: BRINE

SAMPLE ID: HILLIARD ET AL 2-26

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	220	10	mg/L (PPM)	TR	10/21/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/21/2020
CHLORIDE EPA 300.0	260	10	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	8.6	0.10	s.u.	TR	10/21/2020
RESISTIVITY SM 2510A	870	-	ohms x cm	LV	10/14/2020
SPECIFIC GRAVITY SM 2710F	0.9927	-	-	LV	10/15/2020
SULFATE EPA 300.0	ND	10	mg/L (PPM)	LV	10/14/2020
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	10/15/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	15,000	5.0	mg/L (PPM)	TR	10/24/2020

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**INDEPENDENT TESTING LAB**

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PH: 231-929-0905

FAX: 231-929-0894

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO: GTA PROJECT NO: 101320-5
LOCATION: EPA-UIC ANNUAL SAMPLES
DATE SAMPLED: 10/1/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLED BY: MI
LER
SAMPLE MATRIX: BRINE
SAMPLE ID: ST. SPRINGDALE 2-36

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	23,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	2,700	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	16,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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PROJECT NO:
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: LER
SAMPLE ID: ST. SPRINGDALE 2-36

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 13
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
DATE SAMPLED: 10/1/2020
TIME SAMPLED:
SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	160	10	mg/L (PPM)	TR	10/21/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/21/2020
CHLORIDE EPA 300.0	80,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	6.6	0.10	s.u.	TR	10/21/2020
SPECIFIC GRAVITY SM 2710F	1.068	-	-	LV	10/15/2020
SULFATE EPA 300.0	750	50	mg/L (PPM)	LV	10/15/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	100,000	5.0	mg/L (PPM)	TR	10/24/2020

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO: GTA PROJECT NO: 101320-5
LOCATION: EPA-UIC ANNUAL SAMPLES
DATE SAMPLED: 9/30/2020
TIME SAMPLED:
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
SAMPLED BY: MI
LER
SAMPLE MATRIX: BRINE
SAMPLE ID: ST. BEAR LAKE 1-32

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
CALCIUM DISS EPA 6020A	52,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
MAGNESIUM DISS EPA 6020A	6,100	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	26,000	100	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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PROJECT NO:
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: LER
SAMPLE ID: ST. BEAR LAKE 1-32

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 14
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
DATE SAMPLED: 9/30/2020
TIME SAMPLED:
SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	180	10	mg/L (PPM)	TR	10/21/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/21/2020
CHLORIDE EPA 300.0	200,000	2,000	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	5.9	0.10	s.u.	TR	10/21/2020
SPECIFIC GRAVITY SM 2710F	1.174	-	-	LV	10/15/2020
SULFATE EPA 300.0	210	50	mg/L (PPM)	LV	10/15/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	260,000	5.0	mg/L (PPM)	TR	10/24/2020

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COMPANY: LAMBDA ENERGY RESOURCES, LLC

GTA PROJECT NO: 101320-5

PROJECT NO:

GTA SAMPLE NO: 15

LOCATION: EPA-UIC ANNUAL SAMPLES

DATE SAMPLED: 10/1/2020

TIME SAMPLED:

DATE RECEIVED: 10/13/2020

SAMPLED BY: MI
LER

TIME RECEIVED: 12:30 PM

SAMPLE MATRIX: BRINE

SAMPLE ID: SEDLAR JOHNSON 3-26

METALS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>	<u>Digestion Method</u>
BARIUM DISS EPA 6020A	0.16	0.050	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
CALCIUM DISS EPA 6020A	110	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
IRON TOTAL EPA 6020A	ND	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3020A
MAGNESIUM DISS EPA 6020A	29	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A
SODIUM DISS EPA 6020A	35	0.50	mg/L (PPM)	MR/TR	10/23/2020	EPA 3005A

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**INDEPENDENT TESTING LAB**

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PH: 231-929-0905

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COMPANY: LAMBDA ENERGY RESOURCES, LLC
PROJECT NO:
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: LER
SAMPLE ID: SEDLAR JOHNSON 3-26

GTA PROJECT NO: 101320-5
GTA SAMPLE NO: 15
DATE RECEIVED: 10/13/2020
TIME RECEIVED: 12:30 PM
DATE SAMPLED: 10/1/2020
TIME SAMPLED:
SAMPLE MATRIX: BRINE

SAMPLE RESULTS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	220	10	mg/L (PPM)	TR	10/21/2020
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	10/21/2020
CHLORIDE EPA 300.0	270	10	mg/L (PPM)	LV	10/14/2020
pH EPA 150.1 - LAB	8.6	0.10	s.u.	TR	10/21/2020
RESISTIVITY SM 2510A	850	-	ohms x cm	LV	10/14/2020
SPECIFIC GRAVITY SM 2710F	0.9885	-	-	LV	10/15/2020
SULFATE EPA 300.0	ND	10	mg/L (PPM)	LV	10/15/2020
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	10/15/2020
TOTAL DISSOLVED SOLIDS EPA 160.1	2,700	5.0	mg/L (PPM)	TR	10/24/2020

ND = NOT DETECTED, RESULT < LOD

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s.u. = STANDARD pH UNITS REPORTED AT 25 C

DISS = DISSOLVED

CHAIN OF CUSTODY

PROJECT NUMBER	SITE NAME/ADDRESS	COMPANY/NAME
	Various	Lambda Energy Resources LLC
SAMPLED BY	COMPANY	GTA PROJECT #
various	same	101320-5

SAMPLE INFORMATION

#	SAMPLE ID	DATE SAMPLED	TIME	MATRIX	ANALYSIS
1	St. Cleon 1-11	9/30/2020		Brine	Parameter # 2
2	Parcells 2-9	9/30/2020			2
3	Stack Jewell 1-29	9/29/2020			1
4	St. Maple Grove 1-16	9/30/2020			1
5	St. Manistee 1-15	10/1/2020			1
6	St. Springdale 1-28	9/30/2020			1
7	St. Manistee 1-23	10/1/2020			1
8	Falk 1-4	10/1/2020			2
9	St. Bear Lake 1-13	9/30/2020			1
10	St. Bear Lake 1-22	9/30/2020			1
11	St. Maple Grove 1-6	10/1/2020			1
12	Hilliard et al 2-26	10/1/2020			2
13	St. Springdale 2-36	10/1/2020			1
14	St. Bear Lake 1-32	9/30/2020			1
15	Sedlar Johnson 3-26	10/1/2020		↓	2

BILL TO:

REPORT TO:

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME
Reana Altman	10/13/20 12:30p	K. Or	10/13/20 12:30p

REQUESTED TAT ☐ STANDARD ☐ 1 BUSINESS DAY ☐ 2 BUSINESS DAYS ☐ 3 BUSINESS DAYS