



INDEPENDENT TESTING LAB

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

Company: MILLER ENERGY COMPANY II, LLC
Name:
ClientProj: ANNUAL INJECTION FLUID ANALYSIS-
GTA ProjNo: 110922-10

Site Addr: EPA-UIC ANNUAL SAMPLES
Sampled By: NICK NEWELL/MECH
Date Rec: 11/9/2022
Time Rec: 8:20 AM

Sample No.	Sample ID	Date Sampled	Time Sampled	Sample Matrix
1	SMOCK STATE VERNON 2-26	11/8/2022	10:38 AM	BRINE
2	MOLL 1-B (Q4)	11/8/2022	11:11 AM	BRINE
3	NORTH WISE UNIT 7-1	11/8/2022	10:53 AM	BRINE
4	MURPHY OIL-SMOCK 1A-23	11/8/2022	10:19 AM	BRINE
5	H.E. TOPE A-2 (Q4)	11/8/2022	11:25 AM	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
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COMPANY: MILLER ENERGY COMPANY II, LLC
 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-
 LOCATION: EPA-UIC ANNUAL SAMPLES
 MI
 SAMPLED BY: NICK NEWELL/MECII
 SAMPLE ID: SMOCK STATE VERNON 2-26

GTA PROJECT NO: 110922-10
 GTA SAMPLE NO: 1
 DATE RECEIVED: 11/9/2022
 TIME RECEIVED: 8:20 AM
 DATE SAMPLED: 11/8/2022
 TIME SAMPLED: 10:38 AM
 SAMPLE MATRIX: BRINE

SAMPLE ANALYSIS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	ND	10	mg/L (PPM)	TR	12/4/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/4/2022
CHLORIDE EPA 300.0	300,000	2,000	mg/L (PPM)	KC/TR	11/27/2022
pH EPA 150.1 - LAB	3.6	0.10	s.u.	TR	12/4/2022
RESISTIVITY SM 2510A	2.1	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.032	-	-	TR	12/4/2022
SULFATE EPA 300.0	360	50	mg/L (PPM)	KC/TR	11/27/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/15/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	290,000	5.0	mg/L (PPM)	TR	12/3/2022

ND = NOT DETECTED, RESULT < LOD
 LOD = LIMIT OF DETECTION
 s.u. = STANDARD pH UNITS REPORTED AT 25 C
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COMPANY:	MILLER ENERGY COMPANY II, LLC	GTA PROJECT NO:	110922-10
PROJECT NO:	ANNUAL INJECTION FLUID ANALYSIS-	GTA SAMPLE NO:	2
LOCATION:	EPA-UIC ANNUAL SAMPLES	DATE SAMPLED:	11/8/2022
		TIME SAMPLED:	11:11 AM
		DATE RECEIVED:	11/9/2022
	MI	TIME RECEIVED:	8:20 AM
SAMPLED BY:	NICK NEWELL/MECII	SAMPLE MATRIX:	BRINE
SAMPLE ID:	MOLL 1-B (Q4)		

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	ND	1.0	mg/L (PPM)	MR	11/29/2022	EPA 3005A
CALCIUM DISS EPA 6020A	9,300	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A
IRON TOTAL EPA 6020A	99	10	mg/L (PPM)	MR	11/29/2022	EPA 3020A
MAGNESIUM DISS EPA 6020A	7,800	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A
SODIUM DISS EPA 6020A	42,000	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A

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COMPANY: MILLER ENERGY COMPANY II, LLC
 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-
 LOCATION: EPA-UIC ANNUAL SAMPLES
 MI
 SAMPLED BY: NICK NEWELL/MECII
 SAMPLE ID: MOLL 1-B (Q4)

GTA PROJECT NO: 110922-10
 GTA SAMPLE NO: 2
 DATE RECEIVED: 11/9/2022
 TIME RECEIVED: 8:20 AM
 DATE SAMPLED: 11/8/2022
 TIME SAMPLED: 11:11 AM
 SAMPLE MATRIX: BRINE

SAMPLE ANALYSIS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	11	10	mg/L (PPM)	TR	12/4/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/4/2022
CHLORIDE EPA 300.0	340,000	2,000	mg/L (PPM)	KC/TR	11/27/2022
pH EPA 150.1 - LAB	4.8	0.10	s.u.	TR	12/4/2022
RESISTIVITY SM 2510A	1.8	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.050	-	-	TR	12/4/2022
SULFATE EPA 300.0	210	50	mg/L (PPM)	KC/TR	11/27/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/15/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	350,000	5.0	mg/L (PPM)	TR	12/3/2022

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COMPANY:	MILLER ENERGY COMPANY II, LLC	GTA PROJECT NO:	110922-10
PROJECT NO:	ANNUAL INJECTION FLUID ANALYSIS-	GTA SAMPLE NO:	3
LOCATION:	EPA-UIC ANNUAL SAMPLES	DATE SAMPLED:	11/8/2022
		TIME SAMPLED:	10:53 AM
		DATE RECEIVED:	11/9/2022
	MI	TIME RECEIVED:	8:20 AM
SAMPLED BY:	NICK NEWELL/MECII	SAMPLE MATRIX:	BRINE
SAMPLE ID:	NORTH WISE UNIT 7-1		

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	ND	1.0	mg/L (PPM)	MR	11/29/2022	EPA 3005A
CALCIUM DISS EPA 6020A	9,400	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A
IRON TOTAL EPA 6020A	84	10	mg/L (PPM)	MR	11/29/2022	EPA 3020A
MAGNESIUM DISS EPA 6020A	5,400	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A
SODIUM DISS EPA 6020A	34,000	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A

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COMPANY: MILLER ENERGY COMPANY II, LLC
 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-
 LOCATION: EPA-UIC ANNUAL SAMPLES
 MI
 SAMPLED BY: NICK NEWELL/MECII
 SAMPLE ID: NORTH WISE UNIT 7-1

GTA PROJECT NO: 110922-10
 GTA SAMPLE NO: 3
 DATE RECEIVED: 11/9/2022
 TIME RECEIVED: 8:20 AM
 DATE SAMPLED: 11/8/2022
 TIME SAMPLED: 10:53 AM
 SAMPLE MATRIX: BRINE

SAMPLE ANALYSIS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	55	10	mg/L (PPM)	TR	12/4/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/4/2022
CHLORIDE EPA 300.0	230,000	2,000	mg/L (PPM)	KC/TR	11/27/2022
pH EPA 150.1 - LAB	6.0	0.10	s.u.	TR	12/4/2022
RESISTIVITY SM 2510A	3.1	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	0.9700	-	-	TR	12/4/2022
SULFATE EPA 300.0	320	50	mg/L (PPM)	KC/TR	11/27/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/15/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	210,000	5.0	mg/L (PPM)	TR	12/3/2022

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COMPANY:	MILLER ENERGY COMPANY II, LLC	GTA PROJECT NO:	110922-10
PROJECT NO:	ANNUAL INJECTION FLUID ANALYSIS-	GTA SAMPLE NO:	4
LOCATION:	EPA-UIC ANNUAL SAMPLES	DATE SAMPLED:	11/8/2022
		TIME SAMPLED:	10:19 AM
		DATE RECEIVED:	11/9/2022
	MI	TIME RECEIVED:	8:20 AM
SAMPLED BY:	NICK NEWELL/MECII	SAMPLE MATRIX:	BRINE
SAMPLE ID:	MURPHY OIL-SMOCK 1A-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>
BARIUM DISS EPA 6020A	ND	1.0	mg/L (PPM)	MR	11/29/2022	EPA 3005A
CALCIUM DISS EPA 6020A	5,400	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A
IRON TOTAL EPA 6020A	350	10	mg/L (PPM)	MR	11/29/2022	EPA 3020A
MAGNESIUM DISS EPA 6020A	6,100	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A
SODIUM DISS EPA 6020A	38,000	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A

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COMPANY: MILLER ENERGY COMPANY II, LLC
PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-
LOCATION: EPA-UIC ANNUAL SAMPLES
MI
SAMPLED BY: NICK NEWELL/MECII
SAMPLE ID: MURPHY OIL-SMOCK 1A-23

GTA PROJECT NO: 110922-10
GTA SAMPLE NO: 4
DATE RECEIVED: 11/9/2022
TIME RECEIVED: 8:20 AM
DATE SAMPLED: 11/8/2022
TIME SAMPLED: 10:19 AM
SAMPLE MATRIX: BRINE

SAMPLE ANALYSIS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	ND	10	mg/L (PPM)	TR	12/4/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/4/2022
CHLORIDE EPA 300.0	310,000	2,000	mg/L (PPM)	KC/TR	11/27/2022
pH EPA 150.1 - LAB	4.0	0.10	s.u.	TR	12/4/2022
RESISTIVITY SM 2510A	1.9	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.090	-	-	TR	12/4/2022
SULFATE EPA 300.0	330	50	mg/L (PPM)	KC/TR	11/27/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/15/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	300,000	5.0	mg/L (PPM)	TR	12/3/2022

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COMPANY:	MILLER ENERGY COMPANY II, LLC	GTA PROJECT NO:	110922-10
PROJECT NO:	ANNUAL INJECTION FLUID ANALYSIS-	GTA SAMPLE NO:	5
LOCATION:	EPA-UIC ANNUAL SAMPLES	DATE SAMPLED:	11/8/2022
		TIME SAMPLED:	11:25 AM
		DATE RECEIVED:	11/9/2022
	MI	TIME RECEIVED:	8:20 AM
SAMPLED BY:	NICK NEWELL/MECII	SAMPLE MATRIX:	BRINE
SAMPLE ID:	H.E. TOPE A-2 (Q4)		

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	ND	1.0	mg/L (PPM)	MR	11/29/2022	EPA 3005A
CALCIUM DISS EPA 6020A	4,900	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A
IRON TOTAL EPA 6020A	21	10	mg/L (PPM)	MR	11/29/2022	EPA 3020A
MAGNESIUM DISS EPA 6020A	5,300	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A
SODIUM DISS EPA 6020A	40,000	100	mg/L (PPM)	MR	11/29/2022	EPA 3005A

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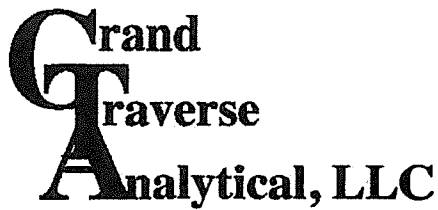
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COMPANY:	MILLER ENERGY COMPANY II, LLC	GTA PROJECT NO:	110922-10
PROJECT NO:	ANNUAL INJECTION FLUID ANALYSIS-	GTA SAMPLE NO:	5
LOCATION:	EPA-UIC ANNUAL SAMPLES	DATE RECEIVED:	11/9/2022
		TIME RECEIVED:	8:20 AM
	MI	DATE SAMPLED:	11/8/2022
SAMPLED BY:	NICK NEWELL/MECII	TIME SAMPLED:	11:25 AM
		SAMPLE MATRIX:	BRINE
SAMPLE ID:	H.E. TOPE A-2 (Q4)		

SAMPLE ANALYSIS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Completed</u>
ALKALINITY SM 4500CO2D (BICARBONATE)	ND	10	mg/L (PPM)	TR	12/4/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/4/2022
CHLORIDE EPA 300.0	290,000	2,000	mg/L (PPM)	KC/TR	11/27/2022
pH EPA 150.1 - LAB	4.6	0.10	s.u.	TR	12/4/2022
RESISTIVITY SM 2510A	11	-	ohms x cm	AS	12/1/2022
SULFATE EPA 300.0	310	50	mg/L (PPM)	KC/TR	11/27/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/15/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	280,000	5.0	mg/L (PPM)	TR	12/3/2022

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CHAIN OF CUSTODY

PROJECT NUMBER Annual Injection Fluid Analysis- SWD/WIW	SITE NAME/ADDRESS	COMPANY/NAME Miller Energy Company II LLC
SAMPLED BY Nick Newell- Route 8	COMPANY Miller Energy Company II LLC	GTA PROJECT # 110922-10

SAMPLE INFORMATION

#	SAMPLE ID	DATE SAMPLED	TIME	MATRIX	ANALYSIS
1	Smock State Vernon 2-26	11-8-22	10:38 AM	Water	Specific Gravity, Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total Dissolved Solids, pH, Resistivity
2	Moll 1-B (Q4)	10-8-22	11:11 AM	Water	Specific Gravity, Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total Dissolved Solids, pH, Resistivity
3	North Wise Unit 7-1	11-8-22	10:53 AM	Water	Specific Gravity, Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total Dissolved Solids, pH, Resistivity
4	Murphy Oil-Smock 1A-23	11-8-22	10:19 AM	Water	Specific Gravity, Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total Dissolved Solids, pH, Resistivity
5	H.E. Tope A-2 (Q4)	11-8-22	11:26 AM	Water	Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total Dissolved Solids, pH, Resistivity

BILL TO: Miller Energy Company II LLC	REPORT TO: Laura Dyke Olivia Lazic
--	---

RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME
<i>Nick Newell</i>	11-8-22	<i>[Signature]</i>	11/8/22 11:35 AM
<i>[Signature]</i>	11/9/22 8:20 AM	<i>[Signature]</i>	11-9-22 8:30am
	11:09 AM		

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