



**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

[www.gtanalytical.com](http://www.gtanalytical.com)

Company: MILLER ENERGY COMPANY II, LLC  
Name:  
ClientProj: ANNUAL INJECTION FLUID ANALYSIS-  
GTA ProjNo: 111722-5

Site Addr: EPA-UIC ANNUAL SAMPLES  
Sampled By: HOUSTON SHUFELT/MECII  
Date Rec: 11/17/2022  
Time Rec: 3:03 PM

Sample No.	Sample ID	Date Sampled	Time Sampled	Sample Matrix
1	W.M. MAYWOOD CARTER 6	11/17/2022	10:05 AM	WATER
2	W&S WILLIAMS 1	11/17/2022	9:25 AM	WATER
3	P.E. BAXTER 4	11/17/2022	8:36 AM	WATER
4	MERTON EMERY 1	11/17/2022	8:10 AM	WATER
5	JESSE RICHMOND 1	11/17/2022	9:38 AM	WATER
6	J.W. CAMPBELL 11	11/17/2022	9:07 AM	WATER
7	HERMAN NEITZKE B-1	11/17/2022	10:30 AM	WATER
8	G. ROOT 1-A	11/17/2022	8:00 AM	WATER

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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 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-  
 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: W.M. MAYWOOD CARTER 6

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 1  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 10:05 AM  
 SAMPLE MATRIX: WATER

**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)	22	10	mg/L (PPM)	TR	12/8/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/8/2022
CHLORIDE EPA 300.0	310,000	2,000	mg/L (PPM)	KC/TR	12/13/2022
pH EPA 150.1 - LAB	5.6	0.10	mg/L (PPM)	TR	12/8/2022
RESISTIVITY SM 2510A	8.5	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.216	-	-	TR	12/8/2022
SULFATE EPA 300.0	270	50	mg/L (PPM)	KC/TR	12/13/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/20/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	340,000	5.0	mg/L (PPM)	TR	12/13/2022

ND = NOT DETECTED, RESULT < LOD  
 LOD = LIMIT OF DETECTION  
 s.u. = STANDARD pH UNITS REPORTED AT 25 C  
 DISS = DISSOLVED





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 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-  
 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: W&S WILLIAMS 1

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 2  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 9:25 AM  
 SAMPLE MATRIX: WATER

**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	12/8/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/8/2022
CHLORIDE EPA 300.0	240,000	2,000	mg/L (PPM)	KC/TR	12/13/2022
pH EPA 150.1 - LAB	5.2	0.10	mg/L (PPM)	TR	12/8/2022
RESISTIVITY SM 2510A	1.9	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.170	-	-	TR	12/8/2022
SULFATE EPA 300.0	210	50	mg/L (PPM)	KC/TR	12/13/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/20/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	300,000	5.0	mg/L (PPM)	TR	12/13/2022

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COMPANY: MILLER ENERGY COMPANY II, LLC  
 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-  
 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: P.E. BAXTER 4

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 3  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 8:36 AM  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 SAMPLE MATRIX: WATER

**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	12/1/2022	EPA 3005A
CALCIUM DISS EPA 6020A	28,000	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A
IRON TOTAL EPA 6020A	ND	10	mg/L (PPM)	MR	12/1/2022	EPA 3020A
MAGNESIUM DISS EPA 6020A	8,100	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A
SODIUM DISS EPA 6020A	43,000	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A

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 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-  
 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: P.E. BAXTER 4

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 3  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 8:36 AM  
 SAMPLE MATRIX: WATER

**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)	44	10	mg/L (PPM)	TR	12/8/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/8/2022
CHLORIDE EPA 300.0	310,000	2,000	mg/L (PPM)	KC/TR	12/13/2022
pH EPA 150.1 - LAB	5.8	0.10	mg/L (PPM)	TR	12/8/2022
RESISTIVITY SM 2510A	1.7	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.207	-	-	TR	12/8/2022
SULFATE EPA 300.0	230	50	mg/L (PPM)	KC/TR	12/13/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/20/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	350,000	5.0	mg/L (PPM)	TR	12/13/2022

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 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: MERTON EMERY 1

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 4  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 8:10 AM  
 SAMPLE MATRIX: WATER

**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	12/8/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/8/2022
CHLORIDE EPA 300.0	300,000	2,000	mg/L (PPM)	KC/TR	12/13/2022
pH EPA 150.1 - LAB	5.9	0.10	mg/L (PPM)	TR	12/8/2022
RESISTIVITY SM 2510A	1.7	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.224	-	-	TR	12/8/2022
SULFATE EPA 300.0	240	50	mg/L (PPM)	KC/TR	12/13/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/20/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	360,000	5.0	mg/L (PPM)	TR	12/13/2022

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 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-  
 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: JESSE RICHMOND 1

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 5  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 9:38 AM  
 SAMPLE MATRIX: WATER

**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	12/8/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/8/2022
CHLORIDE EPA 300.0	320,000	2,000	mg/L (PPM)	KC/TR	12/13/2022
pH EPA 150.1 - LAB	5.8	0.10	mg/L (PPM)	TR	12/8/2022
RESISTIVITY SM 2510A	1.7	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.218	-	-	TR	12/8/2022
SULFATE EPA 300.0	260	50	mg/L (PPM)	KC/TR	12/13/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/20/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	320,000	5.0	mg/L (PPM)	TR	12/13/2022

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 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-  
 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: J.W. CAMPBELL 11

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 6  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 9:07 AM  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 SAMPLE MATRIX: WATER

**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	12/1/2022	EPA 3005A
CALCIUM DISS EPA 6020A	24,000	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A
IRON TOTAL EPA 6020A	ND	10	mg/L (PPM)	MR	12/1/2022	EPA 3020A
MAGNESIUM DISS EPA 6020A	6,800	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A
SODIUM DISS EPA 6020A	37,000	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A

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 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-  
 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: J.W. CAMPBELL 11

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 6  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 9:07 AM  
 SAMPLE MATRIX: WATER

**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)	33	10	mg/L (PPM)	TR	12/8/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/8/2022
CHLORIDE EPA 300.0	320,000	2,000	mg/L (PPM)	KC/TR	12/13/2022
pH EPA 150.1 - LAB	5.5	0.10	mg/L (PPM)	TR	12/8/2022
RESISTIVITY SM 2510A	8.6	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.199	-	-	TR	12/8/2022
SULFATE EPA 300.0	250	50	mg/L (PPM)	KC/TR	12/13/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/20/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	340,000	5.0	mg/L (PPM)	TR	12/13/2022

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COMPANY: MILLER ENERGY COMPANY II, LLC  
 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-  
 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: HERMAN NEITZKE B-1

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 7  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 10:30 AM  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 SAMPLE MATRIX: WATER

**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	12/1/2022	EPA 3005A
CALCIUM DISS EPA 6020A	37,000	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A
IRON TOTAL EPA 6020A	ND	10	mg/L (PPM)	MR	12/1/2022	EPA 3020A
MAGNESIUM DISS EPA 6020A	7,800	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A
SODIUM DISS EPA 6020A	59,000	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A

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 PROJECT NO: ANNUAL INJECTION FLUID ANALYSIS-  
 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: HERMAN NEITZKE B-1

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 7  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 10:30 AM  
 SAMPLE MATRIX: WATER

**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)	44	10	mg/L (PPM)	TR	12/8/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/8/2022
CHLORIDE EPA 300.0	320,000	2,000	mg/L (PPM)	KC/TR	12/13/2022
pH EPA 150.1 - LAB	5.8	0.10	mg/L (PPM)	TR	12/8/2022
RESISTIVITY SM 2510A	1.7	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.188	-	-	TR	12/8/2022
SULFATE EPA 300.0	240	50	mg/L (PPM)	KC/TR	12/13/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/20/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	340,000	5.0	mg/L (PPM)	TR	12/13/2022

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COMPANY:	MILLER ENERGY COMPANY II, LLC	GTA PROJECT NO:	111722-5
PROJECT NO:	ANNUAL INJECTION FLUID ANALYSIS-	GTA SAMPLE NO:	8
LOCATION:	EPA-UIC ANNUAL SAMPLES	DATE SAMPLED:	11/17/2022
		TIME SAMPLED:	8:00 AM
		DATE RECEIVED:	11/17/2022
	MI	TIME RECEIVED:	3:03 PM
SAMPLED BY:	HOUSTON SHUFELT/MECII	SAMPLE MATRIX:	WATER
SAMPLE ID:	G. ROOT 1-A		

**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	12/1/2022	EPA 3005A
CALCIUM DISS EPA 6020A	26,000	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A
IRON TOTAL EPA 6020A	450	10	mg/L (PPM)	MR	12/1/2022	EPA 3020A
MAGNESIUM DISS EPA 6020A	8,100	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A
SODIUM DISS EPA 6020A	38,000	100	mg/L (PPM)	MR	12/1/2022	EPA 3005A

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 LOCATION: EPA-UIC ANNUAL SAMPLES  
 MI  
 SAMPLED BY: HOUSTON SHUFELT/MECII  
 SAMPLE ID: G. ROOT 1-A

GTA PROJECT NO: 111722-5  
 GTA SAMPLE NO: 8  
 DATE RECEIVED: 11/17/2022  
 TIME RECEIVED: 3:03 PM  
 DATE SAMPLED: 11/17/2022  
 TIME SAMPLED: 8:00 AM  
 SAMPLE MATRIX: WATER

**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	12/8/2022
ALKALINITY SM 4500CO2D (CARBONATE)	ND	10	mg/L (PPM)	TR	12/8/2022
CHLORIDE EPA 300.0	280,000	2,000	mg/L (PPM)	KC/TR	12/13/2022
pH EPA 150.1 - LAB	5.0	0.10	mg/L (PPM)	TR	12/8/2022
RESISTIVITY SM 2510A	2.0	-	ohms x cm	AS	12/1/2022
SPECIFIC GRAVITY SM 2710F	1.175	-	-	TR	12/8/2022
SULFATE EPA 300.0	270	50	mg/L (PPM)	KC/TR	12/13/2022
SULFIDE SM 4500S D	ND	1.0	mg/L (PPM)	KC	11/20/2022
TOTAL DISSOLVED SOLIDS EPA 160.1	280,000	5.0	mg/L (PPM)	TR	12/13/2022

ND = NOT DETECTED, RESULT < LOD  
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