H&M Precision Products
Water Analysis Report

Company: M&G Drilling
Location: Hammond #91
Field: 0
Sample Date: August 24, 2018

API#
County & State: (blank)

30-045-06252

Hammond #91

Sampled At:	0
pH:	9.96
Sample Temperature:	70 °C
Manganese:	8.5 mg/L
BaSO4 Scale Possible:	YES

Total Dissolved Solids @ 180°C:	1840.57 mg/L
Specific Gravity:	1.0013
Ionic Strength:	0.026
CaCO3 Scaling Tendency @ 104°F:	12.8439288

Units for scaling tendency=pounds of scale produced per 1000 bbls of water.

Cations

Sodium:	425.1 mg/L
Calcium:	14.7 mg/L
Magnesium	6.17 mg/L
Iron:	1.6 mg/L
Barium:	14 mg/L
Total	461.57 mg/L

Anions

Sulfate:	49 mg/L
Chloride:	500 mg/L
Bicarbonate:	830 mg/L
Total	1379 mg/L

Residuals

Chemical Residuals:	NA PPM
Amine Residuals:	NA PPM

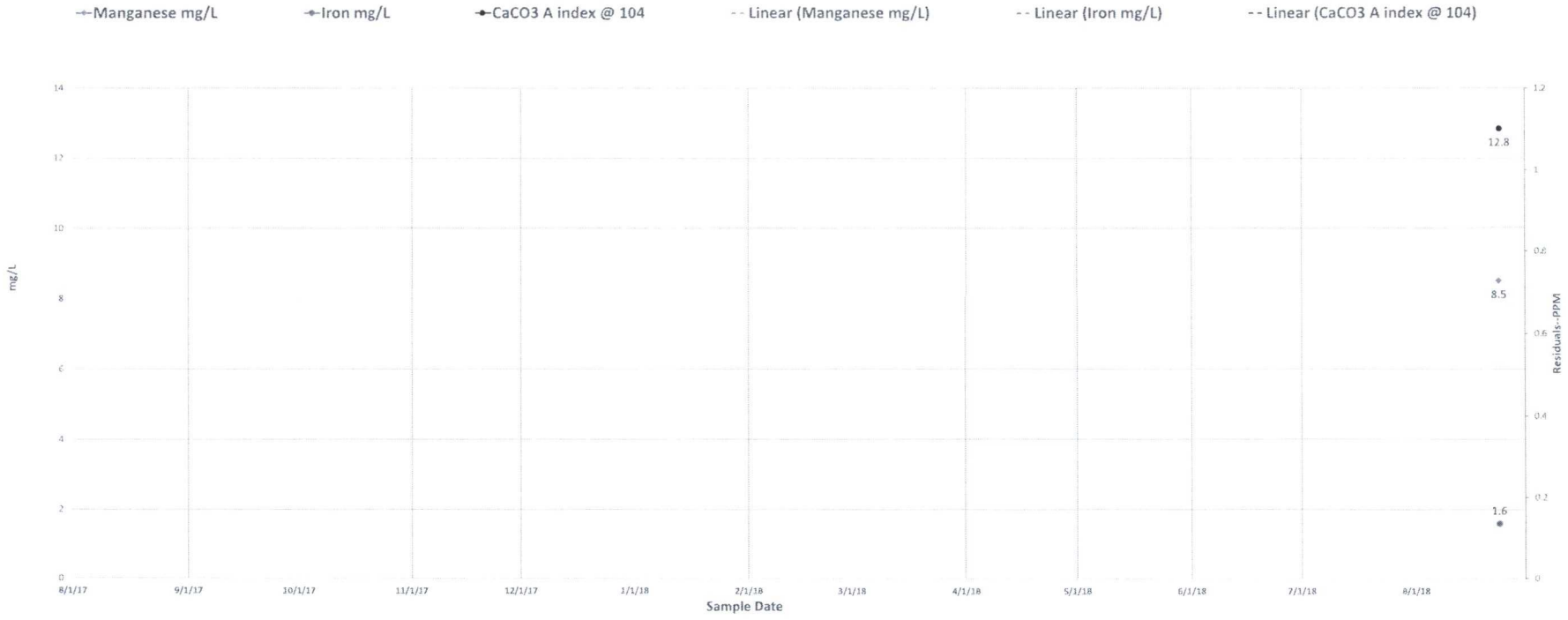
Bacteria Culture Results *Cultures are incubated for 21 days--results may be from a previous sample.*

Last Injection Date:	na	
Acid Producing Bacteria Culture Bottles Positive:	na	bottles
Sulfate Producing Bacteria Culture Bottles Positive:	na	bottles

Current Treatments

Not Currently Treating	(blank)	(blank)

Well Snap Shot	Sampled At	Manganese mg/L	Iron mg/L	Scaling Tendency @ 104°F	Driver
August 24, 2018	0	8.5	1.6	12.84	0
January 0, 1900	0	0	0	0.00	0
January 0, 1900	0	0	0	0.00	0
January 0, 1900	0	0	0	0.00	0



GAS ANALYSIS SERVICE

2030 Afton Place
Farmington, NM 87401
(505) 325-6622

Analysis No: MG180011
Cust No: 50000-10110

Well/Lease Information

Customer Name:	M & G DRILLING CO., INC.	Source:	CASING
Well Name:	HAMMOND #91; CSG	Well Flowing:	Y
County/State:	SAN JUAN NM	Pressure:	112 PSIG
Location:		Flow Temp:	DEG. F
Field:		Ambient Temp:	DEG. F
Formation:		Flow Rate:	1 MCF/D
Cust. Stn. No.:		Sample Method:	Purge & Fill
		Sample Date:	08/29/2018
		Sample Time:	9.22 AM
		Sampled By:	DANIEL T.
Heat Trace:		Sampled by (CO):	M&G DRILLING
Remarks:			

Analysis

Component::	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.5489	0.5508	0.0610	0.00	0.0053
CO2	0.3073	0.3084	0.0530	0.00	0.0047
Methane	83.5065	83.7978	14.2010	843.42	0.4625
Ethane	8.0832	8.1114	2.1690	143.05	0.0839
Propane	4.1745	4.1891	1.1540	105.03	0.0636
Iso-Butane	0.6977	0.7001	0.2290	22.69	0.0140
N-Butane	1.1767	1.1808	0.3720	38.39	0.0236
I-Pentane	0.3935	0.3949	0.1440	15.74	0.0098
N-Pentane	0.2995	0.3005	0.1090	12.01	0.0075
Hexane Plus	0.8122	0.8150	0.3630	42.81	0.0269
Total	100.0000	100.3488	18.8550	1223.14	0.7018

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBLITY FACTOR (1/Z):	1.0034	CYLINDER #:	6122
BTU/CU.FT IDEAL:	1226.0	CYLINDER PRESSURE:	95 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	1230.1	ANALYIS DATE:	09/06/2018
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	1208.7	ANALYIS TIME:	01:35:42 AM
DRY BTU @ 15.025:	1254.7	ANALYSIS RUN BY:	RICHARD WILSON
REAL SPECIFIC GRAVITY:	0.7039		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA-2261
GC: Danalyzer Model 500 **Last Cal/Verify: 09/11/2018**
GC Method: C6+ Gas

M & G DRILLING CO., INC.

WELL ANALYSIS COMPARISON

Lease:	HAMMOND #91; CSG	CASING	09/11/2018
Stn. No.:			50000-10110
Mtr. No.:			

Smpl Date:	08/29/2018
Test Date:	09/06/2018
Run No:	MG180011
Nitrogen:	0.5489
CO2:	0.3073
Methane:	83.5065
Ethane:	8.0832
Propane:	4.1745
I-Butane:	0.6977
N-Butane:	1.1767
I-Pentane:	0.3935
N-Pentane:	0.2995
Hexane+:	0.8122
BTU:	1230.1
GPM:	18.8550
SPG:	0.7039

GAS ANALYSIS SERVICE

2030 Afton Place
Farmington, NM 87401
(505) 325-6622

Analysis No: MG180012
Cust No: 50000-10115

Well/Lease Information

Customer Name:	M & G DRILLING CO., INC.	Source:	TUBING
Well Name:	HAMMOND #91; TBG	Well Flowing:	Y
County/State:	SAN JUAN NM	Pressure:	112 PSIG
Location:		Flow Temp:	DEG. F
Field:		Ambient Temp:	DEG. F
Formation:		Flow Rate:	1 MCF/D
Cust. Stn. No.:		Sample Method:	Purge & Fill
		Sample Date:	08/29/2018
		Sample Time:	9.17 AM
		Sampled By:	DANIEL T.
Heat Trace:		Sampled by (CO):	M&G DRILLING
Remarks:			

Analysis

Component::	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.5567	0.5534	0.0610	0.00	0.0054
CO2	0.3017	0.2999	0.0520	0.00	0.0046
Methane	83.5446	83.0535	14.2080	843.80	0.4628
Ethane	7.9624	7.9156	2.1360	140.91	0.0827
Propane	4.1860	4.1614	1.1570	105.32	0.0637
Iso-Butane	0.7085	0.7043	0.2330	23.04	0.0142
N-Butane	1.1805	1.1736	0.3730	38.51	0.0237
I-Pentane	0.3959	0.3936	0.1450	15.84	0.0099
N-Pentane	0.3028	0.3010	0.1100	12.14	0.0075
Hexane Plus	0.8609	0.8558	0.3850	45.38	0.0285
Total	100.0000	99.4121	18.8600	1224.94	0.7029

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBLITY FACTOR (1/Z):	1.0034	CYLINDER #:	6018
BTU/CU.FT IDEAL:	1227.8	CYLINDER PRESSURE:	92 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	1232.0	ANALYIS DATE:	09/06/2018
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	1210.6	ANALYIS TIME:	01:10:23 PM
DRY BTU @ 15.025:	1256.7	ANALYSIS RUN BY:	PATRICIA KING
REAL SPECIFIC GRAVITY:	0.705		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA-2261
GC: Danalyzer Model 500 **Last Cal/Verify: 09/11/2018**
GC Method: C6+ Gas

GAS ANALYSIS SERVICE

M & G DRILLING CO., INC.

WELL ANALYSIS COMPARISON

Lease:	HAMMOND #91; TBG	TUBING	09/11/2018
Stn. No.:			50000-10115
Mtr. No.:			

Smpl Date:	08/29/2018
Test Date:	09/06/2018
Run No:	MG180012
Nitrogen:	0.5567
CO2:	0.3017
Methane:	83.5446
Ethane:	7.9624
Propane:	4.1860
I-Butane:	0.7085
N-Butane:	1.1805
I-Pentane:	0.3959
N-Pentane:	0.3028
Hexane+:	0.8609
BTU:	1232.0
GPM:	18.8600
SPG:	0.7050