

# GRMR Oil & Gas, LLC

Project: Moffat County, CO  
Site: Hamill  
Well: 19-16D  
Wellbore: OH  
Design: OH

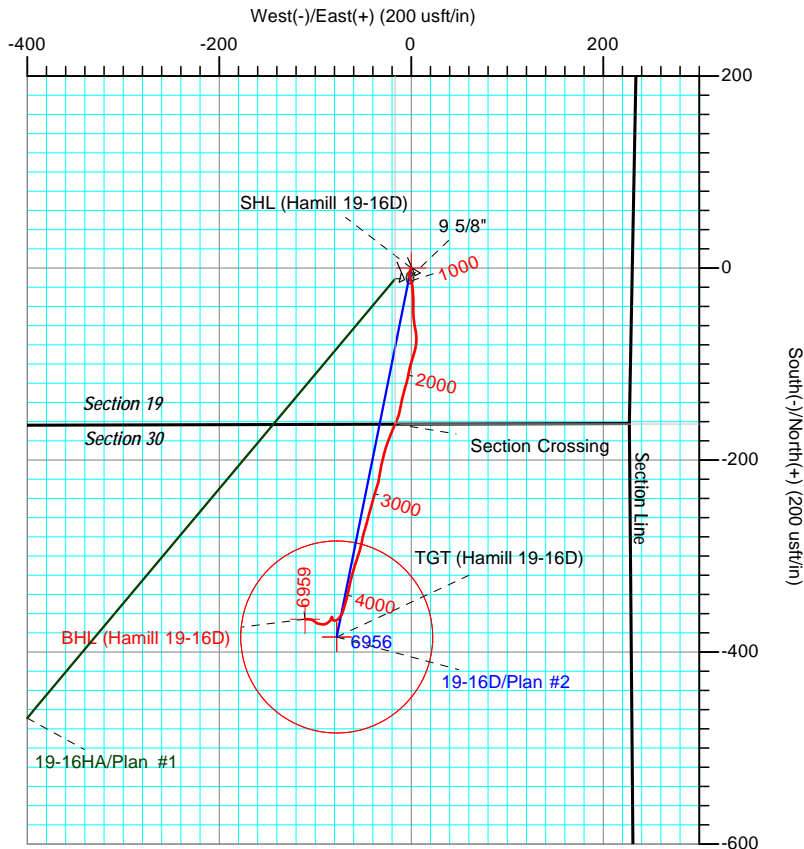
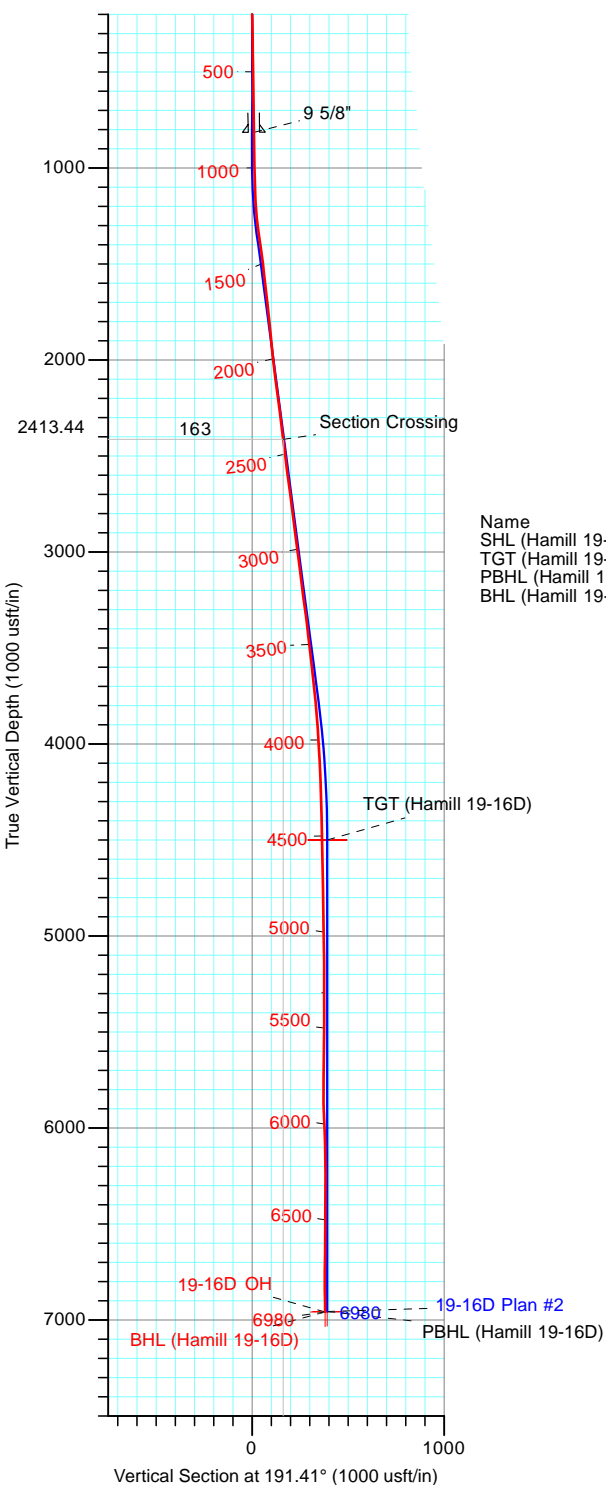


Azimuths to True North  
Magnetic North: 9.66°

Magnetic Field  
Strength: 52200.2snT  
Dip Angle: 66.44°  
Date: 10/14/2015  
Model: BGGM2015

PROJECT DETAILS: Moffat County, CO

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone



## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL (Hamill 19-16D)	0.00	0.00	0.00	1381998.90	2434530.90	40° 21' 51.211 N	107° 31' 45.986 W
TGT (Hamill 19-16D)	4500.00	-384.25	-77.55	1381616.53	2434444.58	40° 21' 47.414 N	107° 31' 46.988 W
PBHL (Hamill 19-16D)	6956.00	-384.25	-77.55	1381616.53	2434444.58	40° 21' 47.414 N	107° 31' 46.988 W
BHL (Hamill 19-16D)	6958.78	-365.64	-110.53	1381635.88	2434412.03	40° 21' 47.598 N	107° 31' 47.414 W

## ACTUAL CASING DETAILS

TVD	MD	Name
814.92	815.00	9 5/8"

## ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
2413.44	2422.50	7.79	203.96	-162.56	-16.74	162.66	167.18	Section Crossing



LEAM DRILLING SYSTEMS LLC  
2010 East Davis, Conroe, Texas 77301  
Phone: 936/756-7577, Fax: 936/756-7595

Design: OH (19-16D/OH)  
Hamill

Created By: Nora Tucker  
Date: 11:05, October 27 2015  
Approved: \_\_\_\_\_ Date: \_\_\_\_\_

# LEAM Drilling Systems LLC

## Survey Report

<b>Company:</b>	GRMR Oil & Gas, LLC	<b>Local Co-ordinate Reference:</b>	Well 19-16D
<b>Project:</b>	Moffat County, CO	<b>TVD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Site:</b>	Hamill	<b>MD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Well:</b>	19-16D	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Multi_User Db

<b>Project</b>	Moffat County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		Hamill			
Site Position:		Northing:	1,381,998.90 usft	Latitude:	40° 21' 51.211 N
From:	Map	Easting:	2,434,530.90 usft	Longitude:	107° 31' 45.986 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.31 °

Well	19-16D					
Well Position	+N/-S	0.00 usft	Northing:	1,381,998.90 usft	Latitude:	40° 21' 51.211 N
	+E/-W	0.00 usft	Easting:	2,434,530.90 usft	Longitude:	107° 31' 45.986 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,446.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2015	10/14/2015	9.66	66.44	52,200

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	191.41	

<b>Survey Program</b>	<b>Date</b>	10/27/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
137.00	6,939.00	Survey #1 (OH)	MWD-ISCWSA	MWD - Standard	
6,980.00	6,980.00	Survey #2 (OH)	Project	Projection	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
137.00	0.70	204.60	137.00	-0.76	-0.35	0.81	0.51	0.51	0.00	
229.00	0.80	199.70	228.99	-1.88	-0.80	2.00	0.13	0.11	-5.33	
320.00	0.80	203.10	319.98	-3.06	-1.26	3.25	0.05	0.00	3.74	
411.00	0.90	188.20	410.97	-4.35	-1.61	4.58	0.27	0.11	-16.37	
502.00	0.60	219.40	501.96	-5.43	-2.02	5.72	0.55	-0.33	34.29	
594.00	0.80	177.40	593.96	-6.44	-2.29	6.77	0.58	0.22	-45.65	
684.00	1.00	167.80	683.94	-7.84	-2.10	8.10	0.28	0.22	-10.67	
769.00	1.00	155.20	768.93	-9.23	-1.63	9.37	0.26	0.00	-14.82	
815.00	1.04	157.14	814.92	-9.98	-1.30	10.04	0.12	0.09	4.22	

# LEAM Drilling Systems LLC

## Survey Report

<b>Company:</b>	GRMR Oil & Gas, LLC	<b>Local Co-ordinate Reference:</b>	Well 19-16D
<b>Project:</b>	Moffat County, CO	<b>TVD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Site:</b>	Hamill	<b>MD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Well:</b>	19-16D	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Multi_User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9 5/8"									
874.00	1.10	159.40	873.91	-11.01	-0.89	10.97	0.12	0.10	3.83
969.00	1.20	155.50	968.90	-12.77	-0.16	12.55	0.13	0.11	-4.11
1,064.00	1.50	165.50	1,063.87	-14.88	0.56	14.47	0.40	0.32	10.53
1,158.00	3.10	172.60	1,157.79	-18.59	1.20	17.98	1.73	1.70	7.55
1,254.00	5.10	173.80	1,253.54	-25.41	1.99	24.51	2.09	2.08	1.25
1,349.00	8.70	182.00	1,347.84	-36.79	2.20	35.63	3.92	3.79	8.63
1,444.00	8.00	175.70	1,441.83	-50.56	2.45	49.08	1.21	-0.74	-6.63
1,540.00	6.90	168.30	1,537.02	-62.87	4.12	60.81	1.52	-1.15	-7.71
1,636.00	6.70	177.30	1,632.35	-74.11	5.55	71.55	1.13	-0.21	9.38
1,731.00	6.20	197.70	1,726.76	-84.54	4.25	82.02	2.45	-0.53	21.47
1,826.00	6.00	196.80	1,821.22	-94.18	1.26	92.07	0.23	-0.21	-0.95
1,920.00	5.50	191.70	1,914.75	-103.29	-1.08	101.46	0.76	-0.53	-5.43
2,016.00	6.20	191.80	2,010.25	-112.87	-3.07	111.25	0.73	0.73	0.10
2,111.00	7.80	197.00	2,104.54	-124.06	-6.01	122.79	1.81	1.68	5.47
2,206.00	7.40	193.10	2,198.71	-136.18	-9.28	135.32	0.69	-0.42	-4.11
2,302.00	6.80	189.50	2,293.97	-147.81	-11.62	147.18	0.78	-0.63	-3.75
2,397.00	8.00	204.60	2,388.19	-159.37	-15.30	159.24	2.39	1.26	15.89
2,422.50	7.79	203.96	2,413.44	-162.56	-16.74	162.66	0.91	-0.84	-2.50
Section Crossing									
2,493.00	7.20	202.00	2,483.34	-171.02	-20.33	171.66	0.91	-0.83	-2.78
2,588.00	6.60	200.10	2,577.65	-181.67	-24.44	182.91	0.68	-0.63	-2.00
2,683.00	8.30	195.00	2,671.85	-193.42	-28.09	195.15	1.92	1.79	-5.37
2,778.00	7.30	191.40	2,765.97	-205.96	-31.06	208.03	1.17	-1.05	-3.79
2,873.00	6.70	188.00	2,860.26	-217.36	-33.02	219.60	0.77	-0.63	-3.58
2,968.00	8.10	199.10	2,954.47	-229.17	-35.98	231.76	2.10	1.47	11.68
3,063.00	7.20	196.60	3,048.63	-241.20	-39.87	244.33	1.01	-0.95	-2.63
3,158.00	6.40	192.70	3,142.96	-252.08	-42.74	255.55	0.97	-0.84	-4.11
3,253.00	8.20	196.20	3,237.18	-263.75	-45.79	267.59	1.95	1.89	3.68
3,348.00	7.20	195.00	3,331.33	-276.00	-49.22	280.29	1.07	-1.05	-1.26
3,443.00	6.10	190.70	3,425.69	-286.71	-51.70	291.28	1.27	-1.16	-4.53
3,538.00	7.60	198.50	3,520.01	-297.63	-54.63	302.56	1.85	1.58	8.21
3,634.00	6.50	197.00	3,615.28	-308.85	-58.24	314.27	1.16	-1.15	-1.56
3,729.00	5.70	195.50	3,709.74	-318.54	-61.07	324.32	0.86	-0.84	-1.58
3,824.00	4.80	192.70	3,804.34	-326.96	-63.20	333.00	0.98	-0.95	-2.95
3,920.00	4.20	193.70	3,900.05	-334.30	-64.92	340.53	0.63	-0.63	1.04
4,014.00	3.50	192.30	3,993.83	-340.44	-66.35	346.84	0.75	-0.74	-1.49
4,110.00	2.90	194.20	4,089.68	-345.66	-67.57	352.20	0.63	-0.63	1.98
4,205.00	2.30	196.70	4,184.59	-349.82	-68.70	356.49	0.64	-0.63	2.63
4,301.00	1.90	200.30	4,280.52	-353.15	-69.81	359.98	0.44	-0.42	3.75
4,396.00	1.30	191.80	4,375.48	-355.69	-70.58	362.62	0.68	-0.63	-8.95
4,491.00	1.20	196.00	4,470.46	-357.70	-71.07	364.69	0.14	-0.11	4.42
4,587.00	1.10	195.70	4,566.44	-359.55	-71.60	366.61	0.10	-0.10	-0.31

# LEAM Drilling Systems LLC

## Survey Report

<b>Company:</b>	GRMR Oil & Gas, LLC	<b>Local Co-ordinate Reference:</b>	Well 19-16D
<b>Project:</b>	Moffat County, CO	<b>TVD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Site:</b>	Hamill	<b>MD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Well:</b>	19-16D	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Multi_User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,682.00	1.20	218.30	4,661.42	-361.21	-72.46	368.41	0.49	0.11	23.79	
4,777.00	0.90	220.90	4,756.41	-362.55	-73.56	369.94	0.32	-0.32	2.74	
4,872.00	1.00	216.70	4,851.39	-363.78	-74.55	371.34	0.13	0.11	-4.42	
4,967.00	1.00	221.60	4,946.38	-365.07	-75.59	372.81	0.09	0.00	5.16	
5,062.00	0.90	227.00	5,041.37	-366.20	-76.69	374.13	0.14	-0.11	5.68	
5,158.00	0.80	250.00	5,137.36	-366.94	-77.87	375.09	0.37	-0.10	23.96	
5,251.00	0.70	274.90	5,230.35	-367.11	-79.05	375.50	0.36	-0.11	26.77	
5,346.00	0.60	271.90	5,325.34	-367.05	-80.12	375.64	0.11	-0.11	-3.16	
5,440.00	0.70	290.90	5,419.34	-366.83	-81.15	375.63	0.25	0.11	20.21	
5,535.00	0.40	326.10	5,514.33	-366.34	-81.88	375.30	0.46	-0.32	37.05	
5,632.00	0.50	1.00	5,611.33	-365.64	-82.06	374.65	0.30	0.10	35.98	
5,727.00	0.60	350.70	5,706.33	-364.73	-82.13	373.77	0.15	0.11	-10.84	
5,822.00	0.90	349.40	5,801.32	-363.51	-82.35	372.62	0.32	0.32	-1.37	
5,918.00	2.20	196.50	5,897.30	-364.54	-83.01	373.75	3.16	1.35	-159.27	
6,013.00	2.30	222.30	5,992.23	-367.69	-84.81	377.21	1.06	0.11	27.16	
6,108.00	3.00	241.00	6,087.13	-370.31	-88.27	380.45	1.16	0.74	19.68	
6,203.00	1.70	280.60	6,182.05	-371.26	-91.83	382.08	2.11	-1.37	41.68	
6,298.00	1.50	280.70	6,277.01	-370.77	-94.44	382.12	0.21	-0.21	0.11	
6,394.00	1.70	282.80	6,372.98	-370.22	-97.06	382.10	0.22	0.21	2.19	
6,489.00	0.80	310.20	6,467.95	-369.48	-98.94	381.75	1.11	-0.95	28.84	
6,582.00	1.00	313.40	6,560.94	-368.50	-100.03	381.00	0.22	0.22	3.44	
6,677.00	1.30	298.10	6,655.92	-367.42	-101.58	380.26	0.45	0.32	-16.11	
6,770.00	1.50	297.10	6,748.89	-366.37	-103.59	379.62	0.22	0.22	-1.08	
6,865.00	2.20	271.30	6,843.85	-365.76	-106.52	379.61	1.13	0.74	-27.16	
6,939.00	1.90	272.00	6,917.80	-365.69	-109.17	380.06	0.41	-0.41	0.95	
6,980.00	1.90	272.00	6,958.78	-365.64	-110.53	380.28	0.00	0.00	0.00	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
815.00	814.92	9 5/8"	9-5/8	12-1/4	

# **GRMR Oil & Gas, LLC**

**Moffat County, CO**

**Hamill**

**19-16D**

**OH**

**Design: OH**

## **Survey Report - Geographic**

**27 October, 2015**

# LEAM Drilling Systems LLC

## Survey Report - Geographic

<b>Company:</b>	GRMR Oil & Gas, LLC	<b>Local Co-ordinate Reference:</b>	Well 19-16D
<b>Project:</b>	Moffat County, CO	<b>TVD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Site:</b>	Hamill	<b>MD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Well:</b>	19-16D	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Multi_User Db

<b>Project</b>	Moffat County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site	Hamill				
Site Position:		Northing:	1,381,998.90 usft	Latitude:	40° 21' 51.211 N
From:	Map	Easting:	2,434,530.90 usft	Longitude:	107° 31' 45.986 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.31 °

Well	19-16D					
Well Position	+N/-S	0.00 usft	Northing:	1,381,998.90 usft	Latitude:	40° 21' 51.211 N
	+E/-W	0.00 usft	Easting:	2,434,530.90 usft	Longitude:	107° 31' 45.986 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,446.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2015	10/14/2015	9.66	66.44	52,200

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	191.41	

<b>Survey Program</b>	<b>Date</b>	10/27/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
137.00	6,939.00	Survey #1 (OH)	MWD-ISCWSA	MWD - Standard	
6,980.00	6,980.00	Survey #2 (OH)	Project	Projection	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	1,381,998.90	2,434,530.90	40° 21' 51.211 N	107° 31' 45.986 W
137.00	0.70	204.60	137.00	-0.76	-0.35	1,381,998.15	2,434,530.54	40° 21' 51.204 N	107° 31' 45.990 W
229.00	0.80	199.70	228.99	-1.88	-0.80	1,381,997.04	2,434,530.06	40° 21' 51.193 N	107° 31' 45.996 W
320.00	0.80	203.10	319.98	-3.06	-1.26	1,381,995.87	2,434,529.57	40° 21' 51.181 N	107° 31' 46.002 W
411.00	0.90	188.20	410.97	-4.35	-1.61	1,381,994.59	2,434,529.19	40° 21' 51.168 N	107° 31' 46.007 W
502.00	0.60	219.40	501.96	-5.43	-2.02	1,381,993.52	2,434,528.76	40° 21' 51.158 N	107° 31' 46.012 W
594.00	0.80	177.40	593.96	-6.44	-2.29	1,381,992.51	2,434,528.46	40° 21' 51.148 N	107° 31' 46.016 W
684.00	1.00	167.80	683.94	-7.84	-2.10	1,381,991.12	2,434,528.63	40° 21' 51.134 N	107° 31' 46.013 W
769.00	1.00	155.20	768.93	-9.23	-1.63	1,381,989.71	2,434,529.06	40° 21' 51.120 N	107° 31' 46.007 W
815.00	1.04	157.14	814.92	-9.98	-1.30	1,381,988.95	2,434,529.38	40° 21' 51.113 N	107° 31' 46.003 W
9 5/8"									

# LEAM Drilling Systems LLC

## Survey Report - Geographic

<b>Company:</b>	GRMR Oil & Gas, LLC	<b>Local Co-ordinate Reference:</b>	Well 19-16D
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<b>Site:</b>	Hamill	<b>MD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Well:</b>	19-16D	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Multi_User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
874.00	1.10	159.40	873.91	-11.01	-0.89	1,381,987.92	2,434,529.76	40° 21' 51.103 N	107° 31' 45.997 W
969.00	1.20	155.50	968.90	-12.77	-0.16	1,381,986.14	2,434,530.45	40° 21' 51.085 N	107° 31' 45.988 W
1,064.00	1.50	165.50	1,063.87	-14.88	0.56	1,381,984.02	2,434,531.13	40° 21' 51.064 N	107° 31' 45.979 W
1,158.00	3.10	172.60	1,157.79	-18.59	1.20	1,381,980.29	2,434,531.68	40° 21' 51.028 N	107° 31' 45.970 W
1,254.00	5.10	173.80	1,253.54	-25.41	1.99	1,381,973.46	2,434,532.32	40° 21' 50.960 N	107° 31' 45.960 W
1,349.00	8.70	182.00	1,347.84	-36.79	2.20	1,381,962.07	2,434,532.26	40° 21' 50.848 N	107° 31' 45.957 W
1,444.00	8.00	175.70	1,441.83	-50.56	2.45	1,381,948.30	2,434,532.19	40° 21' 50.712 N	107° 31' 45.954 W
1,540.00	6.90	168.30	1,537.02	-62.87	4.12	1,381,935.95	2,434,533.58	40° 21' 50.590 N	107° 31' 45.933 W
1,636.00	6.70	177.30	1,632.35	-74.11	5.55	1,381,924.68	2,434,534.76	40° 21' 50.479 N	107° 31' 45.914 W
1,731.00	6.20	197.70	1,726.76	-84.54	4.25	1,381,914.29	2,434,533.22	40° 21' 50.376 N	107° 31' 45.931 W
1,826.00	6.00	196.80	1,821.22	-94.18	1.26	1,381,904.72	2,434,530.00	40° 21' 50.281 N	107° 31' 45.970 W
1,920.00	5.50	191.70	1,914.75	-103.29	-1.08	1,381,895.66	2,434,527.46	40° 21' 50.191 N	107° 31' 46.000 W
2,016.00	6.20	191.80	2,010.25	-112.87	-3.07	1,381,886.13	2,434,525.25	40° 21' 50.096 N	107° 31' 46.026 W
2,111.00	7.80	197.00	2,104.54	-124.06	-6.01	1,381,875.01	2,434,522.06	40° 21' 49.985 N	107° 31' 46.063 W
2,206.00	7.40	193.10	2,198.71	-136.18	-9.28	1,381,862.97	2,434,518.51	40° 21' 49.866 N	107° 31' 46.106 W
2,302.00	6.80	189.50	2,293.97	-147.81	-11.62	1,381,851.40	2,434,515.91	40° 21' 49.751 N	107° 31' 46.136 W
2,397.00	8.00	204.60	2,388.19	-159.37	-15.30	1,381,839.93	2,434,511.96	40° 21' 49.637 N	107° 31' 46.183 W
2,422.50	7.79	203.96	2,413.44	-162.56	-16.74	1,381,836.77	2,434,510.45	40° 21' 49.605 N	107° 31' 46.202 W
Section Crossing									
2,493.00	7.20	202.00	2,483.34	-171.02	-20.33	1,381,828.39	2,434,506.66	40° 21' 49.521 N	107° 31' 46.249 W
2,588.00	6.60	200.10	2,577.65	-181.67	-24.44	1,381,817.84	2,434,502.32	40° 21' 49.416 N	107° 31' 46.302 W
2,683.00	8.30	195.00	2,671.85	-193.42	-28.09	1,381,806.18	2,434,498.40	40° 21' 49.300 N	107° 31' 46.349 W
2,778.00	7.30	191.40	2,765.97	-205.96	-31.06	1,381,793.71	2,434,495.14	40° 21' 49.176 N	107° 31' 46.387 W
2,873.00	6.70	188.00	2,860.26	-217.36	-33.02	1,381,782.35	2,434,492.92	40° 21' 49.063 N	107° 31' 46.412 W
2,968.00	8.10	199.10	2,954.47	-229.17	-35.98	1,381,770.61	2,434,489.69	40° 21' 48.947 N	107° 31' 46.451 W
3,063.00	7.20	196.60	3,048.63	-241.20	-39.87	1,381,758.67	2,434,485.52	40° 21' 48.828 N	107° 31' 46.501 W
3,158.00	6.40	192.70	3,142.96	-252.08	-42.74	1,381,747.87	2,434,482.41	40° 21' 48.720 N	107° 31' 46.538 W
3,253.00	8.20	196.20	3,237.18	-263.75	-45.79	1,381,736.27	2,434,479.09	40° 21' 48.605 N	107° 31' 46.577 W
3,348.00	7.20	195.00	3,331.33	-276.00	-49.22	1,381,724.10	2,434,475.38	40° 21' 48.484 N	107° 31' 46.622 W
3,443.00	6.10	190.70	3,425.69	-286.71	-51.70	1,381,713.44	2,434,472.65	40° 21' 48.378 N	107° 31' 46.654 W
3,538.00	7.60	198.50	3,520.01	-297.63	-54.63	1,381,702.60	2,434,469.47	40° 21' 48.270 N	107° 31' 46.692 W
3,634.00	6.50	197.00	3,615.28	-308.85	-58.24	1,381,691.46	2,434,465.62	40° 21' 48.159 N	107° 31' 46.738 W
3,729.00	5.70	195.50	3,709.74	-318.54	-61.07	1,381,681.84	2,434,462.56	40° 21' 48.064 N	107° 31' 46.775 W
3,824.00	4.80	192.70	3,804.34	-326.96	-63.20	1,381,673.47	2,434,460.24	40° 21' 47.980 N	107° 31' 46.802 W
3,920.00	4.20	193.70	3,900.05	-334.30	-64.92	1,381,666.18	2,434,458.35	40° 21' 47.908 N	107° 31' 46.825 W
4,014.00	3.50	192.30	3,993.83	-340.44	-66.35	1,381,660.06	2,434,456.79	40° 21' 47.847 N	107° 31' 46.843 W
4,110.00	2.90	194.20	4,089.68	-345.66	-67.57	1,381,654.88	2,434,455.45	40° 21' 47.796 N	107° 31' 46.859 W
4,205.00	2.30	196.70	4,184.59	-349.82	-68.70	1,381,650.75	2,434,454.21	40° 21' 47.754 N	107° 31' 46.873 W
4,301.00	1.90	200.30	4,280.52	-353.15	-69.81	1,381,647.44	2,434,453.03	40° 21' 47.721 N	107° 31' 46.888 W
4,396.00	1.30	191.80	4,375.48	-355.69	-70.58	1,381,644.92	2,434,452.21	40° 21' 47.696 N	107° 31' 46.898 W
4,491.00	1.20	196.00	4,470.46	-357.70	-71.07	1,381,642.92	2,434,451.67	40° 21' 47.677 N	107° 31' 46.904 W
4,587.00	1.10	195.70	4,566.44	-359.55	-71.60	1,381,641.08	2,434,451.10	40° 21' 47.658 N	107° 31' 46.911 W
4,682.00	1.20	218.30	4,661.42	-361.21	-72.46	1,381,639.44	2,434,450.20	40° 21' 47.642 N	107° 31' 46.922 W
4,777.00	0.90	220.90	4,756.41	-362.55	-73.56	1,381,638.13	2,434,449.06	40° 21' 47.629 N	107° 31' 46.936 W
4,872.00	1.00	216.70	4,851.39	-363.78	-74.55	1,381,636.92	2,434,448.05	40° 21' 47.616 N	107° 31' 46.949 W
4,967.00	1.00	221.60	4,946.38	-365.07	-75.59	1,381,635.66	2,434,446.98	40° 21' 47.604 N	107° 31' 46.962 W
5,062.00	0.90	227.00	5,041.37	-366.20	-76.69	1,381,634.56	2,434,445.85	40° 21' 47.593 N	107° 31' 46.977 W
5,158.00	0.80	250.00	5,137.36	-366.94	-77.87	1,381,633.84	2,434,444.66	40° 21' 47.585 N	107° 31' 46.992 W
5,251.00	0.70	274.90	5,230.35	-367.11	-79.05	1,381,633.69	2,434,443.48	40° 21' 47.584 N	107° 31' 47.007 W
5,346.00	0.60	271.90	5,325.34	-367.05	-80.12	1,381,633.78	2,434,442.40	40° 21' 47.584 N	107° 31' 47.021 W
5,440.00	0.70	290.90	5,419.34	-366.83	-81.15	1,381,634.03	2,434,441.38	40° 21' 47.586 N	107° 31' 47.034 W
5,535.00	0.40	326.10	5,514.33	-366.34	-81.88	1,381,634.53	2,434,440.66	40° 21' 47.591 N	107° 31' 47.044 W
5,632.00	0.50	1.00	5,611.33	-365.64	-82.06	1,381,635.24	2,434,440.50	40° 21' 47.598 N	107° 31' 47.046 W
5,727.00	0.60	350.70	5,706.33	-364.73	-82.13	1,381,636.14	2,434,440.45	40° 21' 47.607 N	107° 31' 47.047 W
5,822.00	0.90	349.40	5,801.32	-363.51	-82.35	1,381,637.37	2,434,440.26	40° 21' 47.619 N	107° 31' 47.050 W

# LEAM Drilling Systems LLC

## Survey Report - Geographic

<b>Company:</b>	GRMR Oil & Gas, LLC	<b>Local Co-ordinate Reference:</b>	Well 19-16D
<b>Project:</b>	Moffat County, CO	<b>TVD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Site:</b>	Hamill	<b>MD Reference:</b>	GE 6446' + KB 18' @ 6464.00usft
<b>Well:</b>	19-16D	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Multi_User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,918.00	2.20	196.50	5,897.30	-364.54	-83.01	1,381,636.36	2,434,439.57	40° 21' 47.609 N	107° 31' 47.058 W	
6,013.00	2.30	222.30	5,992.23	-367.69	-84.81	1,381,633.24	2,434,437.70	40° 21' 47.578 N	107° 31' 47.082 W	
6,108.00	3.00	241.00	6,087.13	-370.31	-88.27	1,381,630.71	2,434,434.18	40° 21' 47.552 N	107° 31' 47.126 W	
6,203.00	1.70	280.60	6,182.05	-371.26	-91.83	1,381,629.84	2,434,430.60	40° 21' 47.543 N	107° 31' 47.172 W	
6,298.00	1.50	280.70	6,277.01	-370.77	-94.44	1,381,630.39	2,434,428.01	40° 21' 47.547 N	107° 31' 47.206 W	
6,394.00	1.70	282.80	6,372.98	-370.22	-97.06	1,381,631.00	2,434,425.40	40° 21' 47.553 N	107° 31' 47.240 W	
6,489.00	0.80	310.20	6,467.95	-369.48	-98.94	1,381,631.79	2,434,423.53	40° 21' 47.560 N	107° 31' 47.264 W	
6,582.00	1.00	313.40	6,560.94	-368.50	-100.03	1,381,632.79	2,434,422.47	40° 21' 47.570 N	107° 31' 47.278 W	
6,677.00	1.30	298.10	6,655.92	-367.42	-101.58	1,381,633.90	2,434,420.94	40° 21' 47.580 N	107° 31' 47.298 W	
6,770.00	1.50	297.10	6,748.89	-366.37	-103.59	1,381,635.00	2,434,418.95	40° 21' 47.591 N	107° 31' 47.324 W	
6,865.00	2.20	271.30	6,843.85	-365.76	-106.52	1,381,635.67	2,434,416.04	40° 21' 47.597 N	107° 31' 47.362 W	
6,939.00	1.90	272.00	6,917.80	-365.69	-109.17	1,381,635.81	2,434,413.39	40° 21' 47.598 N	107° 31' 47.396 W	
6,980.00	1.90	272.00	6,958.78	-365.64	-110.53	1,381,635.89	2,434,412.04	40° 21' 47.598 N	107° 31' 47.414 W	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
815.00	814.92	9 5/8"		9-5/8	12-1/4