

# GRMR Oil & Gas, LLC

Project: Moffat County, CO  
Site: Hamill  
Well: 19-16HA  
Wellbore: OH  
Design: Plan #1



Azimuths to True North  
Magnetic North: 9.91°

Magnetic Field  
Strength: 52315.5snT  
Dip Angle: 66.43°  
Date: 12/1/2014  
Model: BGGM2014

## PROJECT DETAILS: Moffat County, CO

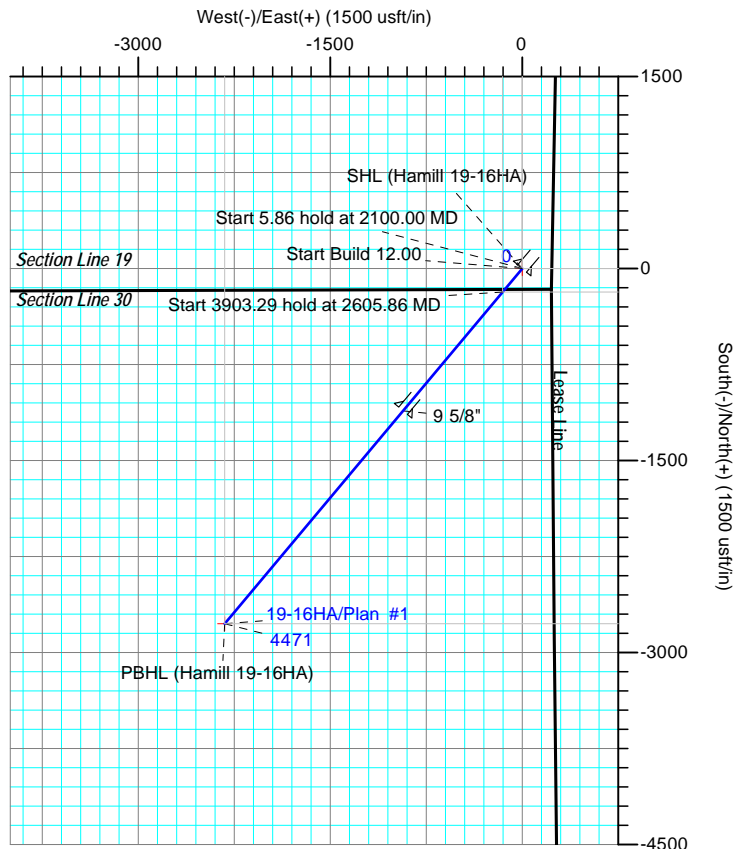
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
SHL (Hamill 19-16HA)	0.00	0.00	0.00	1381988.13	2434514.06
PBHL (Hamill 19-16HA)	4471.00	-2773.71	-2324.71	1379268.35	2432126.48

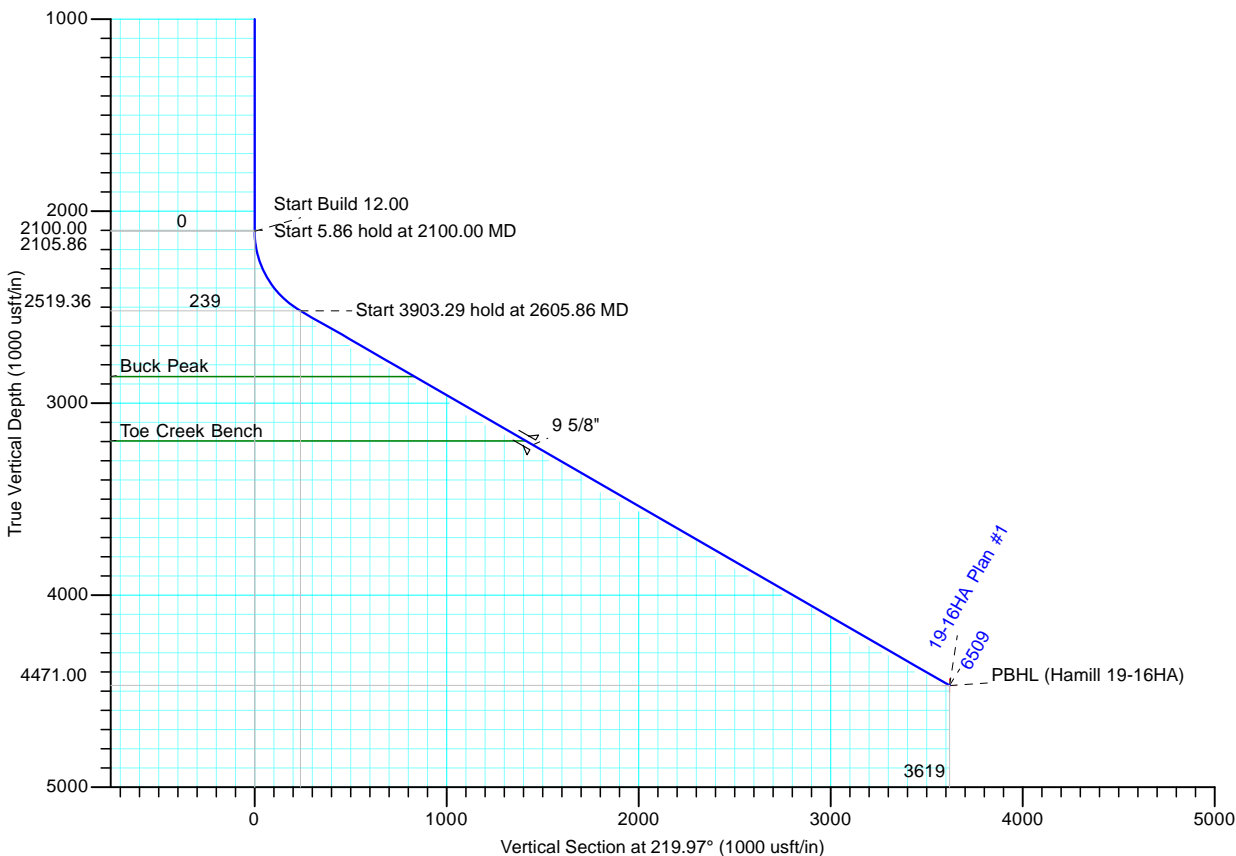
## CASING DETAILS

TVD	MD	Name	Size
700.00	700.00	30"	30
3218.00	4003.15	9 5/8"	9-5/8



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2100.00	0.00	0.00	2100.00	0.00	0.00	0.00	0.00	0.00	
3	2105.86	0.00	0.00	2105.86	0.00	0.00	0.00	0.00	0.00	
4	2605.86	60.00	219.97	2519.36	-182.97	-153.35	12.00	219.97	238.73	
5	6509.15	60.00	219.97	4471.00	-2773.71	-2324.71	0.00	0.00	3619.08	PBHL (Hamill 19-16HA)



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

Plan: Plan #1 (19-16HA/OH)  
Hamill

Created By: Elio Reyes  
Date: 15:53, December 02 2014  
Approved: \_\_\_\_\_ Date: \_\_\_\_\_

# LEAM Drilling Systems LLC

## Planning Report

<b>Database:</b>	EDM 5000.1 Multi User Db	<b>Local Co-ordinate Reference:</b>	Well 19-16HA
<b>Company:</b>	GRMR Oil & Gas, LLC	<b>TVD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Project:</b>	Moffat County, CO	<b>MD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Site:</b>	Hamill	<b>North Reference:</b>	True
<b>Well:</b>	19-16HA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Project	Moffat County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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	19-16HA					
Well Position	+N-S	-11.15 usft	Northing:	1,381,988.13 usft	Latitude:	40° 21' 51.101 N
	+E-W	-16.59 usft	Easting:	2,434,514.06 usft	Longitude:	107° 31' 46.200 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,446.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	12/1/2014	9.91	66.43	52,315

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	219.97

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,105.86	0.00	0.00	2,105.86	0.00	0.00	0.00	0.00	0.00	0.00	
2,605.86	60.00	219.97	2,519.36	-182.97	-153.35	12.00	12.00	0.00	219.97	
6,509.15	60.00	219.97	4,471.00	-2,773.71	-2,324.71	0.00	0.00	0.00	0.00	PBHL (Hamill 19-16)

# LEAM Drilling Systems LLC

## Planning Report

<b>Database:</b>	EDM 5000.1 Multi User Db	<b>Local Co-ordinate Reference:</b>	Well 19-16HA
<b>Company:</b>	GRMR Oil & Gas, LLC	<b>TVD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Project:</b>	Moffat County, CO	<b>MD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Site:</b>	Hamill	<b>North Reference:</b>	True
<b>Well:</b>	19-16HA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Planned 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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,105.86	0.00	0.00	2,105.86	0.00	0.00	0.00	0.00	0.00	0.00
2,125.00	2.30	219.97	2,124.99	-0.29	-0.25	0.38	12.00	12.00	0.00
2,150.00	5.30	219.97	2,149.94	-1.56	-1.31	2.04	12.00	12.00	0.00
2,175.00	8.30	219.97	2,174.76	-3.83	-3.21	5.00	12.00	12.00	0.00
2,200.00	11.30	219.97	2,199.39	-7.09	-5.94	9.25	12.00	12.00	0.00
2,225.00	14.30	219.97	2,223.77	-11.33	-9.50	14.79	12.00	12.00	0.00
2,250.00	17.30	219.97	2,247.82	-16.55	-13.87	21.59	12.00	12.00	0.00
2,275.00	20.30	219.97	2,271.48	-22.72	-19.04	29.65	12.00	12.00	0.00
2,300.00	23.30	219.97	2,294.69	-29.84	-25.01	38.93	12.00	12.00	0.00
2,325.00	26.30	219.97	2,317.39	-37.87	-31.74	49.41	12.00	12.00	0.00
2,350.00	29.30	219.97	2,339.50	-46.80	-39.23	61.07	12.00	12.00	0.00
2,375.00	32.30	219.97	2,360.97	-56.61	-47.45	73.87	12.00	12.00	0.00
2,400.00	35.30	219.97	2,381.74	-67.27	-56.38	87.77	12.00	12.00	0.00
2,425.00	38.30	219.97	2,401.76	-78.75	-66.00	102.75	12.00	12.00	0.00
2,450.00	41.30	219.97	2,420.97	-91.01	-76.28	118.75	12.00	12.00	0.00
2,475.00	44.30	219.97	2,439.31	-104.02	-87.19	135.73	12.00	12.00	0.00
2,500.00	47.30	219.97	2,456.74	-117.76	-98.70	153.65	12.00	12.00	0.00
2,525.00	50.30	219.97	2,473.20	-132.17	-110.78	172.46	12.00	12.00	0.00
2,550.00	53.30	219.97	2,488.66	-147.23	-123.39	192.10	12.00	12.00	0.00
2,575.00	56.30	219.97	2,503.07	-162.88	-136.52	212.53	12.00	12.00	0.00
2,600.00	59.30	219.97	2,516.39	-179.09	-150.10	233.68	12.00	12.00	0.00
2,605.86	60.00	219.97	2,519.36	-182.97	-153.35	238.73	12.00	12.00	0.00
2,700.00	60.00	219.97	2,566.43	-245.45	-205.72	320.26	0.00	0.00	0.00
2,800.00	60.00	219.97	2,616.43	-311.83	-261.35	406.86	0.00	0.00	0.00
2,900.00	60.00	219.97	2,666.43	-378.20	-316.98	493.47	0.00	0.00	0.00
3,000.00	60.00	219.97	2,716.43	-444.57	-372.61	580.07	0.00	0.00	0.00
3,100.00	60.00	219.97	2,766.43	-510.95	-428.24	666.67	0.00	0.00	0.00
3,200.00	60.00	219.97	2,816.43	-577.32	-483.86	753.27	0.00	0.00	0.00
3,300.00	60.00	219.97	2,866.43	-643.69	-539.49	839.88	0.00	0.00	0.00
3,400.00	60.00	219.97	2,916.43	-710.06	-595.12	926.48	0.00	0.00	0.00
3,500.00	60.00	219.97	2,966.43	-776.44	-650.75	1,013.08	0.00	0.00	0.00
3,600.00	60.00	219.97	3,016.43	-842.81	-706.38	1,099.68	0.00	0.00	0.00

# LEAM Drilling Systems LLC

## Planning Report

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<b>Company:</b>	GRMR Oil & Gas, LLC	<b>TVD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Project:</b>	Moffat County, CO	<b>MD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Site:</b>	Hamill	<b>North Reference:</b>	True
<b>Well:</b>	19-16HA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

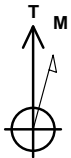
Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,700.00	60.00	219.97	3,066.43	-909.18	-762.01	1,186.29	0.00	0.00	0.00
3,800.00	60.00	219.97	3,116.43	-975.56	-817.64	1,272.89	0.00	0.00	0.00
3,900.00	60.00	219.97	3,166.43	-1,041.93	-873.27	1,359.49	0.00	0.00	0.00
4,000.00	60.00	219.97	3,216.43	-1,108.30	-928.90	1,446.09	0.00	0.00	0.00
4,100.00	60.00	219.97	3,266.43	-1,174.68	-984.53	1,532.70	0.00	0.00	0.00
4,200.00	60.00	219.97	3,316.43	-1,241.05	-1,040.16	1,619.30	0.00	0.00	0.00
4,300.00	60.00	219.97	3,366.43	-1,307.42	-1,095.78	1,705.90	0.00	0.00	0.00
4,400.00	60.00	219.97	3,416.43	-1,373.80	-1,151.41	1,792.50	0.00	0.00	0.00
4,500.00	60.00	219.97	3,466.43	-1,440.17	-1,207.04	1,879.11	0.00	0.00	0.00
4,600.00	60.00	219.97	3,516.43	-1,506.54	-1,262.67	1,965.71	0.00	0.00	0.00
4,700.00	60.00	219.97	3,566.43	-1,572.92	-1,318.30	2,052.31	0.00	0.00	0.00
4,800.00	60.00	219.97	3,616.43	-1,639.29	-1,373.93	2,138.91	0.00	0.00	0.00
4,900.00	60.00	219.97	3,666.43	-1,705.66	-1,429.56	2,225.52	0.00	0.00	0.00
5,000.00	60.00	219.97	3,716.43	-1,772.04	-1,485.19	2,312.12	0.00	0.00	0.00
5,100.00	60.00	219.97	3,766.43	-1,838.41	-1,540.82	2,398.72	0.00	0.00	0.00
5,200.00	60.00	219.97	3,816.43	-1,904.78	-1,596.45	2,485.32	0.00	0.00	0.00
5,300.00	60.00	219.97	3,866.43	-1,971.16	-1,652.07	2,571.93	0.00	0.00	0.00
5,400.00	60.00	219.97	3,916.43	-2,037.53	-1,707.70	2,658.53	0.00	0.00	0.00
5,500.00	60.00	219.97	3,966.43	-2,103.90	-1,763.33	2,745.13	0.00	0.00	0.00
5,600.00	60.00	219.97	4,016.43	-2,170.28	-1,818.96	2,831.73	0.00	0.00	0.00
5,700.00	60.00	219.97	4,066.43	-2,236.65	-1,874.59	2,918.34	0.00	0.00	0.00
5,800.00	60.00	219.97	4,116.43	-2,303.02	-1,930.22	3,004.94	0.00	0.00	0.00
5,900.00	60.00	219.97	4,166.43	-2,369.40	-1,985.85	3,091.54	0.00	0.00	0.00
6,000.00	60.00	219.97	4,216.43	-2,435.77	-2,041.48	3,178.15	0.00	0.00	0.00
6,100.00	60.00	219.97	4,266.43	-2,502.14	-2,097.11	3,264.75	0.00	0.00	0.00
6,200.00	60.00	219.97	4,316.43	-2,568.52	-2,152.74	3,351.35	0.00	0.00	0.00
6,300.00	60.00	219.97	4,366.43	-2,634.89	-2,208.37	3,437.95	0.00	0.00	0.00
6,400.00	60.00	219.97	4,416.43	-2,701.26	-2,263.99	3,524.56	0.00	0.00	0.00
6,509.15	60.00	219.97	4,471.00	-2,773.71	-2,324.71	3,619.08	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (Hamill 19-16HA) - plan hits target center - Point	0.00	358.69	0.00	0.00	0.00	1,381,988.13	2,434,514.06	40° 21' 51.101 N	107° 31' 46.200 W
PBHL (Hamill 19-16H) - plan hits target center - Point	0.00	358.68	4,471.00	-2,773.71	-2,324.71	1,379,268.35	2,432,126.48	40° 21' 23.690 N	107° 32' 16.230 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
700.00	700.00	30"	30	36	
4,003.15	3,218.00	9 5/8"	9-5/8	12-1/4	

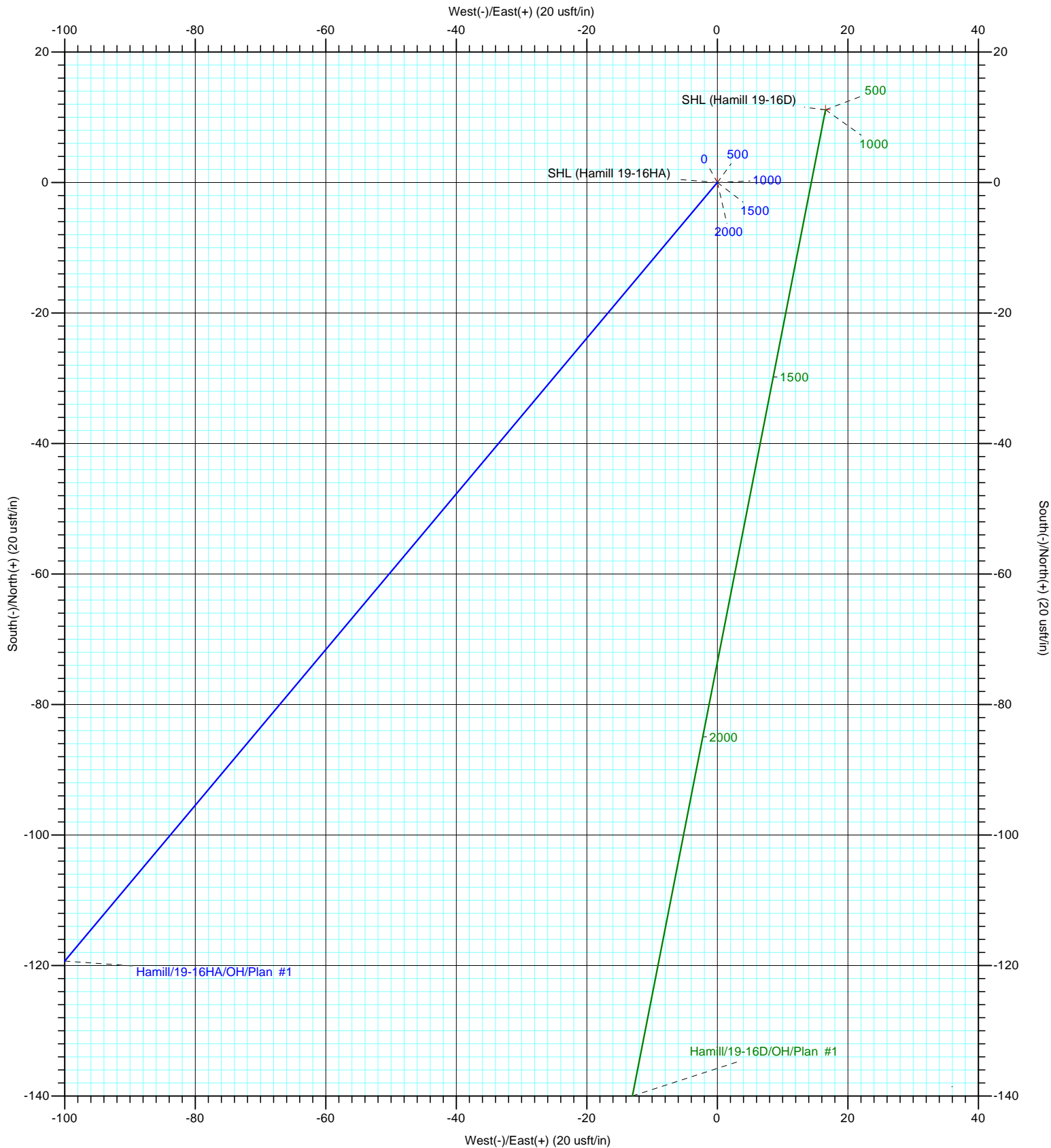
# GRMR Oil & Gas, LLC

Project: Moffat County, CO  
Site: Hamill  
Well: 19-16HA  
Wellbore: OH  
Design: Plan #1



Azimuths to True North  
Magnetic North: 9.91°

Magnetic Field  
Strength: 52315.5snT  
Dip Angle: 66.43°  
Date: 12/1/2014  
Model: BGGM2014



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

Plan: Plan #1 (19-16HA/OH)  
Hamill  
Created By: Elio Reyes  
Date: 15:56, December 02 2014  
Approved: \_\_\_\_\_  
Date: \_\_\_\_\_

# **GRMR Oil & Gas, LLC**

**Moffat County, CO**

**Hamill**

**19-16HA**

**OH**

**Plan #1**

## **Anticollision Report**

**02 December, 2014**

# LEAM Drilling Systems LLC

## Anticollision Report

<b>Company:</b>	GRMR Oil & Gas, LLC	<b>Local Co-ordinate Reference:</b>	Well 19-16HA
<b>Project:</b>	Moffat County, CO	<b>TVD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Reference Site:</b>	Hamill	<b>MD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	19-16HA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 5000.1 Multi User Db
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 us	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	12/2/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	6,509.15	Plan #1 (OH)	LEAM_MWD+HDGM	LEAM MWD + HDGM	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Hamill						
19-16D - OH - Plan #1	1,254.52	1,254.64	14.14	5.63	1.661	CC, ES, SF

<b>Offset Design</b>	Hamill - 19-16D - OH - Plan #1												<b>Offset Site Error:</b>	0.00 usft
<b>Survey Program:</b>	0-LEAM_MWD+HDGM												<b>Offset Well Error:</b>	0.00 usft
<b>Reference</b>	<b>Offset</b>	<b>Semi Major Axis</b>	<b>Highside</b>	<b>Offset Wellbore Centre</b>	<b>Distance</b>	<b>Minimum</b>	<b>Separation</b>	<b>Warning</b>						
<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Reference (usft)</b>	<b>Offset (usft)</b>	<b>Toolface (°)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Between Centres (usft)</b>	<b>Between Ellipses (usft)</b>	<b>Separation (usft)</b>	<b>Factor</b>		
0.00	0.00	0.00	0.00	0.00	0.00	56.09	11.15	16.59	19.99					
100.00	100.00	99.60	99.60	0.15	0.15	56.09	11.15	16.59	19.99	19.70	0.29	68.307		
200.00	200.00	199.60	199.60	0.50	0.50	56.09	11.15	16.59	19.99	18.98	1.01	19.816		
300.00	300.00	299.60	299.60	0.86	0.86	56.09	11.15	16.59	19.99	18.26	1.73	11.584		
400.00	400.00	399.60	399.60	1.22	1.22	56.09	11.15	16.59	19.99	17.55	2.44	8.184		
500.00	500.00	499.60	499.60	1.58	1.58	56.09	11.15	16.59	19.99	16.83	3.16	6.327		
600.00	600.00	599.60	599.60	1.94	1.94	56.09	11.15	16.59	19.99	16.11	3.88	5.157		
700.00	700.00	699.60	699.60	2.30	2.30	56.09	11.15	16.59	19.99	15.40	4.59	4.352		
800.00	800.00	799.60	799.60	2.66	2.65	56.09	11.15	16.59	19.99	14.68	5.31	3.764		
900.00	900.00	899.60	899.60	3.01	3.01	56.09	11.15	16.59	19.99	13.96	6.03	3.316		
1,000.00	1,000.00	999.60	999.60	3.37	3.37	56.09	11.15	16.59	19.99	13.25	6.74	2.964		
1,100.00	1,100.00	1,100.15	1,100.12	3.73	3.72	60.88	9.01	16.17	18.51	11.07	7.45	2.487		
1,200.00	1,200.00	1,200.33	1,200.07	4.09	4.05	80.23	2.57	14.91	15.13	7.00	8.13	1.861		
1,254.52	1,254.52	1,254.64	1,254.12	4.28	4.23	101.08	-2.72	13.87	14.14	5.63	8.51	1.661	CC, ES, SF	
1,300.00	1,300.00	1,299.84	1,299.03	4.45	4.38	120.72	-7.67	12.90	15.02	6.20	8.82	1.702		
1,400.00	1,400.00	1,399.21	1,397.79	4.81	4.72	149.87	-18.56	10.77	21.54	12.01	9.53	2.261		
1,500.00	1,500.00	1,498.59	1,496.54	5.16	5.07	163.65	-29.45	8.64	30.84	20.61	10.23	3.014		
1,600.00	1,600.00	1,597.96	1,595.29	5.52	5.43	170.84	-40.34	6.51	41.09	30.15	10.94	3.755		
1,700.00	1,700.00	1,697.34	1,694.04	5.88	5.79	175.12	-51.23	4.38	51.72	40.06	11.65	4.438		
1,800.00	1,800.00	1,796.71	1,792.80	6.24	6.15	177.93	-62.12	2.24	62.53	50.17	12.37	5.056		
1,900.00	1,900.00	1,896.09	1,891.55	6.60	6.52	179.91	-73.01	0.11	73.46	60.37	13.09	5.613		
2,000.00	2,000.00	1,995.46	1,990.30	6.96	6.90	-178.62	-83.90	-2.02	84.44	70.64	13.80	6.117		
2,100.00	2,100.00	2,094.84	2,089.06	7.32	7.27	-177.49	-94.80	-4.15	95.47	80.95	14.53	6.573		
2,105.86	2,105.86	2,100.66	2,094.84	7.34	7.29	-177.43	-95.43	-4.28	96.12	81.55	14.57	6.598		
2,125.00	2,124.99	2,119.71	2,113.78	7.40	7.36	-37.22	-97.52	-4.69	97.93	83.30	14.63	6.694		
2,150.00	2,149.94	2,144.66	2,138.57	7.49	7.46	-37.46	-100.26	-5.22	99.38	84.58	14.80	6.714		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

<b>Company:</b>	GRMR Oil & Gas, LLC	<b>Local Co-ordinate Reference:</b>	Well 19-16HA
<b>Project:</b>	Moffat County, CO	<b>TVD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Reference Site:</b>	Hamill	<b>MD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	19-16HA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 5000.1 Multi User Db
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM_MWVD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,175.00	2,174.76	2,169.61	2,163.37	7.57	7.55	-38.22	-102.99	-5.76	99.80	84.84	14.96	6.671	
2,200.00	2,199.39	2,194.51	2,188.11	7.66	7.65	-39.52	-105.72	-6.29	99.23	84.12	15.11	6.567	
2,225.00	2,223.77	2,219.27	2,212.72	7.74	7.74	-41.40	-108.43	-6.82	97.72	82.47	15.25	6.408	
2,250.00	2,247.82	2,243.84	2,237.13	7.83	7.84	-43.92	-111.13	-7.35	95.36	79.97	15.39	6.198	
2,275.00	2,271.48	2,268.15	2,261.28	7.92	7.93	-47.18	-113.79	-7.87	92.27	76.75	15.53	5.943	
2,300.00	2,294.69	2,292.12	2,285.10	8.00	8.02	-51.29	-116.42	-8.39	88.64	72.96	15.68	5.653	
2,325.00	2,317.39	2,315.69	2,308.53	8.09	8.11	-56.36	-119.00	-8.89	84.71	68.85	15.86	5.341	
2,350.00	2,339.50	2,338.81	2,331.50	8.17	8.20	-62.47	-121.53	-9.39	80.82	64.75	16.08	5.027	
2,375.00	2,360.97	2,361.40	2,353.95	8.26	8.28	-69.61	-124.01	-9.87	77.45	61.11	16.33	4.741	
2,400.00	2,381.74	2,383.40	2,375.82	8.36	8.37	-77.64	-126.42	-10.34	75.16	58.55	16.61	4.525	
2,419.14	2,397.14	2,399.81	2,392.12	8.45	8.43	-84.17	-128.22	-10.70	74.55	57.74	16.81	4.435	
2,425.00	2,401.76	2,404.76	2,397.04	8.47	8.45	-86.20	-128.76	-10.80	74.61	57.75	16.86	4.424	
2,450.00	2,420.97	2,425.41	2,417.56	8.59	8.53	-94.81	-131.02	-11.25	76.42	59.36	17.05	4.482	
2,475.00	2,439.31	2,445.29	2,437.32	8.73	8.60	-102.94	-133.20	-11.67	80.97	63.83	17.14	4.725	
2,500.00	2,456.74	2,464.36	2,456.27	8.87	8.68	-110.20	-135.29	-12.08	88.37	71.25	17.12	5.161	
2,525.00	2,473.20	2,482.57	2,474.36	9.03	8.75	-116.40	-137.29	-12.47	98.45	81.43	17.02	5.783	
2,550.00	2,488.66	2,499.85	2,491.54	9.20	8.81	-121.50	-139.18	-12.84	110.89	94.02	16.88	6.570	
2,575.00	2,503.07	2,516.17	2,507.75	9.39	8.88	-125.56	-140.97	-13.19	125.36	108.65	16.71	7.501	
2,600.00	2,516.39	2,531.47	2,522.96	9.59	8.94	-128.67	-142.65	-13.52	141.53	124.98	16.55	8.551	
2,605.86	2,519.36	2,534.91	2,526.38	9.64	8.95	-129.28	-143.02	-13.60	145.54	129.02	16.52	8.812	
2,700.00	2,566.43	2,589.66	2,580.78	10.56	9.16	-142.77	-149.02	-14.77	214.42	198.46	15.97	13.429	
2,800.00	2,616.43	2,647.81	2,638.57	11.69	9.38	-151.05	-155.40	-16.02	291.83	276.00	15.84	18.429	
2,900.00	2,666.43	2,705.97	2,696.37	12.96	9.61	-156.19	-161.77	-17.27	370.93	354.94	15.99	23.192	
3,000.00	2,716.43	2,764.12	2,754.16	14.32	9.83	-159.63	-168.14	-18.51	450.83	434.51	16.32	27.622	
3,100.00	2,766.43	2,822.28	2,811.95	15.75	10.06	-162.08	-174.52	-19.76	531.17	514.42	16.75	31.703	
3,200.00	2,816.43	2,880.43	2,869.74	17.23	10.28	-163.91	-180.89	-21.01	611.78	594.52	17.26	35.448	
3,300.00	2,866.43	2,938.59	2,927.53	18.75	10.51	-165.33	-187.27	-22.26	692.56	674.75	17.81	38.879	
3,400.00	2,916.43	2,996.74	2,985.32	20.30	10.74	-166.45	-193.64	-23.50	773.46	755.06	18.41	42.022	
3,500.00	2,966.43	3,054.90	3,043.11	21.88	10.96	-167.37	-200.01	-24.75	854.45	835.42	19.03	44.902	
3,600.00	3,016.43	3,113.05	3,100.90	23.48	11.19	-168.13	-206.39	-26.00	935.50	915.82	19.68	47.545	
3,700.00	3,066.43	3,171.21	3,158.69	25.09	11.41	-168.77	-212.76	-27.25	1,016.60	996.26	20.34	49.974	
3,800.00	3,116.43	3,229.36	3,216.49	26.71	11.64	-169.32	-219.13	-28.50	1,097.73	1,076.71	21.03	52.210	
3,900.00	3,166.43	3,287.52	3,274.28	28.35	11.87	-169.79	-225.51	-29.74	1,178.90	1,157.18	21.72	54.272	
4,000.00	3,216.43	3,345.67	3,332.07	29.99	12.09	-170.20	-231.88	-30.99	1,260.09	1,237.66	22.43	56.178	
4,100.00	3,266.43	3,403.83	3,389.86	31.65	12.32	-170.56	-238.25	-32.24	1,341.30	1,318.15	23.15	57.942	
4,200.00	3,316.43	3,461.98	3,447.65	33.31	12.55	-170.88	-244.63	-33.49	1,422.52	1,398.65	23.88	59.577	
4,300.00	3,366.43	3,520.14	3,505.44	34.97	12.78	-171.17	-251.00	-34.73	1,503.76	1,479.15	24.61	61.097	
4,400.00	3,416.43	3,578.29	3,563.23	36.64	13.00	-171.43	-257.37	-35.98	1,585.01	1,559.66	25.36	62.512	
4,500.00	3,466.43	3,636.45	3,621.02	38.31	13.23	-171.66	-263.75	-37.23	1,666.27	1,640.17	26.10	63.831	
4,600.00	3,516.43	3,694.60	3,678.81	39.99	13.46	-171.87	-270.12	-38.48	1,747.54	1,720.68	26.86	65.064	
4,700.00	3,566.43	3,752.76	3,736.61	41.67	13.69	-172.06	-276.49	-39.73	1,828.82	1,801.20	27.62	66.217	
4,800.00	3,616.43	3,810.91	3,794.40	43.35	13.92	-172.24	-282.87	-40.97	1,910.10	1,881.72	28.38	67.297	
4,900.00	3,666.43	3,869.07	3,852.19	45.04	14.14	-172.40	-289.24	-42.22	1,991.39	1,962.23	29.15	68.312	
5,000.00	3,716.43	3,927.22	3,909.98	46.73	14.37	-172.55	-295.61	-43.47	2,072.68	2,042.76	29.92	69.265	
5,100.00	3,766.43	3,985.38	3,967.77	48.42	14.60	-172.68	-301.99	-44.72	2,153.98	2,123.28	30.70	70.163	
5,200.00	3,816.43	4,043.53	4,025.56	50.11	14.83	-172.81	-308.36	-45.96	2,235.28	2,203.80	31.48	71.009	
5,300.00	3,866.43	4,101.69	4,083.35	51.80	15.06	-172.93	-314.73	-47.21	2,316.58	2,284.32	32.26	71.807	
5,400.00	3,916.43	4,159.84	4,141.14	53.50	15.29	-173.04	-321.11	-48.46	2,397.89	2,364.84	33.05	72.562	
5,500.00	3,966.43	4,217.99	4,198.94	55.19	15.51	-173.14	-327.48	-49.71	2,479.20	2,445.37	33.83	73.276	
5,600.00	4,016.43	4,276.15	4,256.73	56.89	15.74	-173.24	-333.85	-50.96	2,560.51	2,525.89	34.62	73.952	
5,700.00	4,066.43	4,334.30	4,314.52	58.59	15.97	-173.33	-340.23	-52.20	2,641.83	2,606.41	35.42	74.594	
5,800.00	4,116.43	4,392.46	4,372.31	60.29	16.20	-173.42	-346.60	-53.45	2,723.15	2,686.94	36.21	75.203	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# LEAM Drilling Systems LLC

## Anticollision Report

<b>Company:</b>	GRMR Oil & Gas, LLC	<b>Local Co-ordinate Reference:</b>	Well 19-16HA
<b>Project:</b>	Moffat County, CO	<b>TVD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Reference Site:</b>	Hamill	<b>MD Reference:</b>	GE 6446.4' + KB 18' @ 6464.40usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	19-16HA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 5000.1 Multi User Db
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Hamill - 19-16D - OH - Plan #1		Offset Site Error:		0.00 usft	
Survey Program: 0-LEAM_MWD+HDGM													Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor						
5,900.00	4,166.43	4,450.61	4,430.10	61.99	16.43	-173.50	-352.97	-54.70	2,804.47	2,767.46	37.01	75.781						
6,000.00	4,216.43	4,508.77	4,487.89	63.69	16.66	-173.57	-359.35	-55.95	2,885.79	2,847.98	37.81	76.332						
6,100.00	4,266.43	4,566.92	4,545.68	65.39	16.89	-173.65	-365.72	-57.19	2,967.11	2,928.51	38.61	76.856						
6,200.00	4,316.43	4,625.08	4,603.47	67.09	17.12	-173.71	-372.09	-58.44	3,048.44	3,009.03	39.41	77.356						
6,300.00	4,366.43	4,683.23	4,661.26	68.79	17.35	-173.78	-378.47	-59.69	3,129.76	3,089.55	40.21	77.833						
6,400.00	4,416.43	4,741.39	4,719.06	70.50	17.58	-173.84	-384.84	-60.94	3,211.09	3,170.07	41.02	78.288						
6,509.15	4,471.00	4,804.86	4,782.13	72.36	17.83	-173.90	-391.80	-62.30	3,299.86	3,257.96	41.90	78.762						