

GRMR Oil & Gas, LLC

Project: Moffat County, CO
Site: Myers
Well: #19-11HA
Wellbore: OH
Design: Draft #2



Azimuths to Grid North
True North: 1.32°
Magnetic North: 11.24°

Magnetic Field
Strength: 52321.8snT
Dip Angle: 66.43°
Date: 11/18/2014
Model: BGGM2014

PROJECT DETAILS: Moffat County, CO

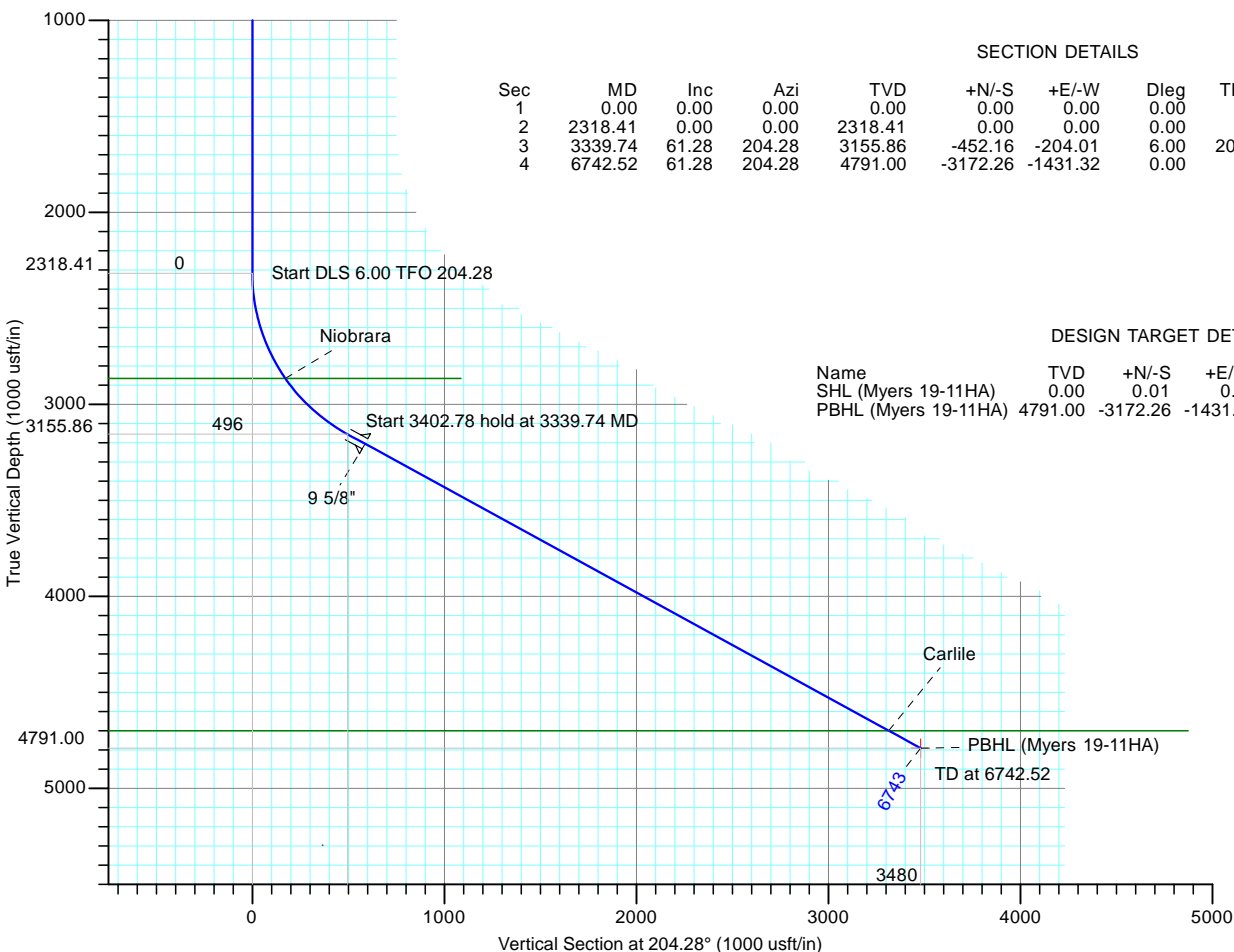
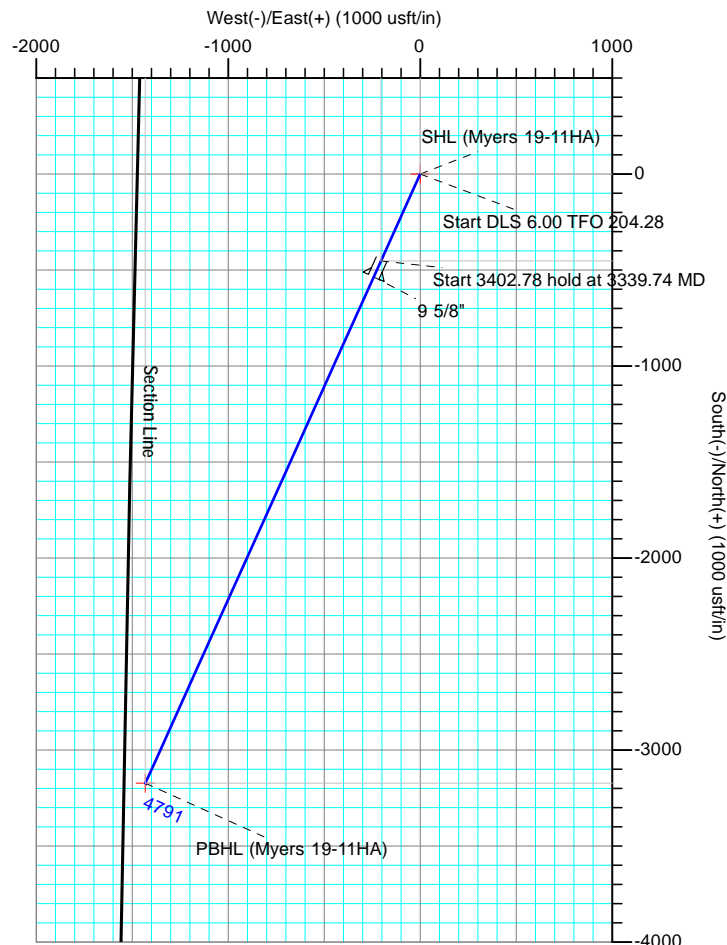
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
2865.00	2900.36	Niobrara	0.00	204.28
4700.00	6553.15	Carlile	0.00	204.28

CASING DETAILS

TVD	MD	Name	Size
3206.00	3444.08	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	2318.41	0.00	0.00	2318.41	0.00	0.00	0.00	0.00	0.00	
3	3339.74	61.28	204.28	3155.86	-452.16	-204.01	6.00	204.28	496.06	
4	6742.52	61.28	204.28	4791.00	-3172.26	-1431.32	0.00	0.00	3480.22	PBHL (Myers 19-11HA)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
SHL (Myers 19-11HA)	0.00	0.01	0.00	1383565.39	2431229.48
PBHL (Myers 19-11HA)	4791.00	-3172.26	-1431.32	1380393.12	2429798.16



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

Plan: Draft #2 (#19-11HA/OH)
Myers
Created By: David Vogler
Date: 9:58, December 17 2014
Approved: _____ Date: _____

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well #19-11HA
Company:	GRMR Oil & Gas, LLC	TVD Reference:	GE 6343.71 + KB 18' @ 6361.70usft
Project:	Moffat County, CO	MD Reference:	GE 6343.71 + KB 18' @ 6361.70usft
Site:	Myers	North Reference:	Grid
Well:	#19-11HA	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Draft #2		

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	Myers					
Site Position:		Northing:	1,383,565.39 usft	Latitude:	40° 22' 5.939 N	
From:	Map	Easting:	2,431,229.48 usft	Longitude:	107° 32' 29.092 W	
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.32 °

Well	#19-11HA					
Well Position	+N/-S	-0.01 usft	Northing:	1,383,565.38 usft	Latitude:	40° 22' 5.939 N
	+E/-W	0.00 usft	Easting:	2,431,229.48 usft	Longitude:	107° 32' 29.092 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,343.71 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	11/18/2014	9.92	66.43	52,322

Design	Draft #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	204.28

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	
2,318.41	0.00	0.00	2,318.41	0.00	0.00	0.00	0.00	0.00	0.00	
3,339.74	61.28	204.28	3,155.86	-452.16	-204.01	6.00	6.00	-15.25	204.28	
6,742.52	61.28	204.28	4,791.00	-3,172.26	-1,431.32	0.00	0.00	0.00	0.00	PBHL (Myers 19-11H/

LEAM Drilling Systems LLC

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Project:	Moffat County, CO	MD Reference:	GE 6343.71 + KB 18' @ 6361.70usft
Site:	Myers	North Reference:	Grid
Well:	#19-11HA	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Draft #2		

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
SHL (Myers 19-11HA)									
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
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,318.41	0.00	0.00	2,318.41	0.00	0.00	0.00	0.00	0.00	0.00
2,350.00	1.90	204.28	2,349.99	-0.48	-0.21	0.52	6.00	6.00	0.00
2,400.00	4.90	204.28	2,399.90	-3.18	-1.43	3.48	6.00	6.00	0.00
2,450.00	7.90	204.28	2,449.58	-8.25	-3.72	9.05	6.00	6.00	0.00
2,500.00	10.90	204.28	2,498.91	-15.69	-7.08	17.21	6.00	6.00	0.00
2,550.00	13.90	204.28	2,547.74	-25.47	-11.49	27.95	6.00	6.00	0.00
2,600.00	16.90	204.28	2,595.94	-37.57	-16.95	41.22	6.00	6.00	0.00
2,650.00	19.90	204.28	2,643.38	-51.95	-23.44	56.99	6.00	6.00	0.00
2,700.00	22.90	204.28	2,689.93	-68.58	-30.94	75.23	6.00	6.00	0.00
2,750.00	25.90	204.28	2,735.46	-87.40	-39.43	95.88	6.00	6.00	0.00
2,800.00	28.90	204.28	2,779.84	-108.37	-48.89	118.89	6.00	6.00	0.00
2,850.00	31.90	204.28	2,822.97	-131.42	-59.30	144.18	6.00	6.00	0.00
2,900.00	34.90	204.28	2,864.71	-156.51	-70.61	171.70	6.00	6.00	0.00
2,900.36	34.92	204.28	2,865.00	-156.69	-70.70	171.90	6.00	6.00	0.00
Niobrara									
2,950.00	37.90	204.28	2,904.95	-183.54	-82.82	201.36	6.00	6.00	0.00
3,000.00	40.90	204.28	2,943.58	-212.47	-95.86	233.09	6.00	6.00	0.00
3,050.00	43.90	204.28	2,980.50	-243.19	-109.73	266.80	6.00	6.00	0.00
3,100.00	46.90	204.28	3,015.61	-275.64	-124.37	302.40	6.00	6.00	0.00
3,150.00	49.90	204.28	3,048.81	-309.71	-139.74	339.78	6.00	6.00	0.00
3,200.00	52.90	204.28	3,080.00	-345.32	-155.81	378.85	6.00	6.00	0.00
3,250.00	55.90	204.28	3,109.11	-382.38	-172.53	419.50	6.00	6.00	0.00
3,300.00	58.90	204.28	3,136.05	-420.76	-189.85	461.61	6.00	6.00	0.00
3,339.74	61.28	204.28	3,155.86	-452.16	-204.01	496.06	6.00	6.00	0.00
3,400.00	61.28	204.28	3,184.82	-500.33	-225.75	548.90	0.00	0.00	0.00
3,444.08	61.28	204.28	3,206.00	-535.57	-241.65	587.56	0.00	0.00	0.00
9 5/8"									
3,500.00	61.28	204.28	3,232.87	-580.27	-261.82	636.60	0.00	0.00	0.00

LEAM Drilling Systems LLC

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Project:	Moffat County, CO	MD Reference:	GE 6343.71 + KB 18' @ 6361.70usft
Site:	Myers	North Reference:	Grid
Well:	#19-11HA	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Draft #2		

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)	
3,600.00	61.28	204.28	3,280.92	-660.21	-297.88	724.30	0.00	0.00	0.00	
3,700.00	61.28	204.28	3,328.98	-740.14	-333.95	811.99	0.00	0.00	0.00	
3,800.00	61.28	204.28	3,377.03	-820.08	-370.02	899.69	0.00	0.00	0.00	
3,900.00	61.28	204.28	3,425.08	-900.02	-406.09	987.39	0.00	0.00	0.00	
4,000.00	61.28	204.28	3,473.14	-979.96	-442.15	1,075.09	0.00	0.00	0.00	
4,100.00	61.28	204.28	3,521.19	-1,059.89	-478.22	1,162.79	0.00	0.00	0.00	
4,200.00	61.28	204.28	3,569.24	-1,139.83	-514.29	1,250.48	0.00	0.00	0.00	
4,300.00	61.28	204.28	3,617.30	-1,219.77	-550.36	1,338.18	0.00	0.00	0.00	
4,400.00	61.28	204.28	3,665.35	-1,299.71	-586.43	1,425.88	0.00	0.00	0.00	
4,500.00	61.28	204.28	3,713.40	-1,379.64	-622.49	1,513.58	0.00	0.00	0.00	
4,600.00	61.28	204.28	3,761.45	-1,459.58	-658.56	1,601.28	0.00	0.00	0.00	
4,700.00	61.28	204.28	3,809.51	-1,539.52	-694.63	1,688.97	0.00	0.00	0.00	
4,800.00	61.28	204.28	3,857.56	-1,619.46	-730.70	1,776.67	0.00	0.00	0.00	
4,900.00	61.28	204.28	3,905.61	-1,699.39	-766.76	1,864.37	0.00	0.00	0.00	
5,000.00	61.28	204.28	3,953.67	-1,779.33	-802.83	1,952.07	0.00	0.00	0.00	
5,100.00	61.28	204.28	4,001.72	-1,859.27	-838.90	2,039.76	0.00	0.00	0.00	
5,200.00	61.28	204.28	4,049.77	-1,939.21	-874.97	2,127.46	0.00	0.00	0.00	
5,300.00	61.28	204.28	4,097.83	-2,019.15	-911.04	2,215.16	0.00	0.00	0.00	
5,400.00	61.28	204.28	4,145.88	-2,099.08	-947.10	2,302.86	0.00	0.00	0.00	
5,500.00	61.28	204.28	4,193.93	-2,179.02	-983.17	2,390.56	0.00	0.00	0.00	
5,600.00	61.28	204.28	4,241.98	-2,258.96	-1,019.24	2,478.25	0.00	0.00	0.00	
5,700.00	61.28	204.28	4,290.04	-2,338.90	-1,055.31	2,565.95	0.00	0.00	0.00	
5,800.00	61.28	204.28	4,338.09	-2,418.83	-1,091.37	2,653.65	0.00	0.00	0.00	
5,900.00	61.28	204.28	4,386.14	-2,498.77	-1,127.44	2,741.35	0.00	0.00	0.00	
6,000.00	61.28	204.28	4,434.20	-2,578.71	-1,163.51	2,829.04	0.00	0.00	0.00	
6,100.00	61.28	204.28	4,482.25	-2,658.65	-1,199.58	2,916.74	0.00	0.00	0.00	
6,200.00	61.28	204.28	4,530.30	-2,738.58	-1,235.65	3,004.44	0.00	0.00	0.00	
6,300.00	61.28	204.28	4,578.36	-2,818.52	-1,271.71	3,092.14	0.00	0.00	0.00	
6,400.00	61.28	204.28	4,626.41	-2,898.46	-1,307.78	3,179.84	0.00	0.00	0.00	
6,500.00	61.28	204.28	4,674.46	-2,978.40	-1,343.85	3,267.53	0.00	0.00	0.00	
6,553.15	61.28	204.28	4,700.00	-3,020.88	-1,363.02	3,314.14	0.00	0.00	0.00	
Carlile										
6,600.00	61.28	204.28	4,722.51	-3,058.33	-1,379.92	3,355.23	0.00	0.00	0.00	
6,700.00	61.28	204.28	4,770.57	-3,138.27	-1,415.98	3,442.93	0.00	0.00	0.00	
6,742.52	61.28	204.28	4,791.00	-3,172.26	-1,431.32	3,480.22	0.00	0.00	0.00	
PBHL (Myers 19-11HA)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
SHL (Myers 19-11HA)	0.00	360.00	0.00	0.01	0.00	1,383,565.39	2,431,229.48	40° 22' 5.939 N	107° 32' 29.092 W	
- plan misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Point										
PBHL (Myers 19-11HA)	0.00	360.00	4,791.00	-3,172.26	-1,431.32	1,380,393.12	2,429,798.16	40° 21' 34.272 N	107° 32' 46.634 W	
- plan hits target center										
- Point										

LEAM Drilling Systems LLC

Planning Report

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Company:	GRMR Oil & Gas, LLC	TVD Reference:	GE 6343.71 + KB 18' @ 6361.70usft
Project:	Moffat County, CO	MD Reference:	GE 6343.71 + KB 18' @ 6361.70usft
Site:	Myers	North Reference:	Grid
Well:	#19-11HA	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Draft #2		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
3,444.08	3,206.00	9 5/8"	9-5/8	12-1/4	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,900.36	2,865.00	Niobrara		0.00	204.28
6,553.15	4,700.00	Carlile		0.00	204.28