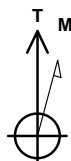


GRMR Oil & Gas, LLC

Project: Moffat County, CO
Site: Stover Federal
Well: #9-12 1D
Wellbore: OH
Design: Plan #2a



Azimuths to True North
Magnetic North: 9.67°

Magnetic Field
Strength: 52200.1snT
Dip Angle: 66.42°
Date: 8/5/2015
Model: BGGM2015

PROJECT DETAILS: Moffat County, CO

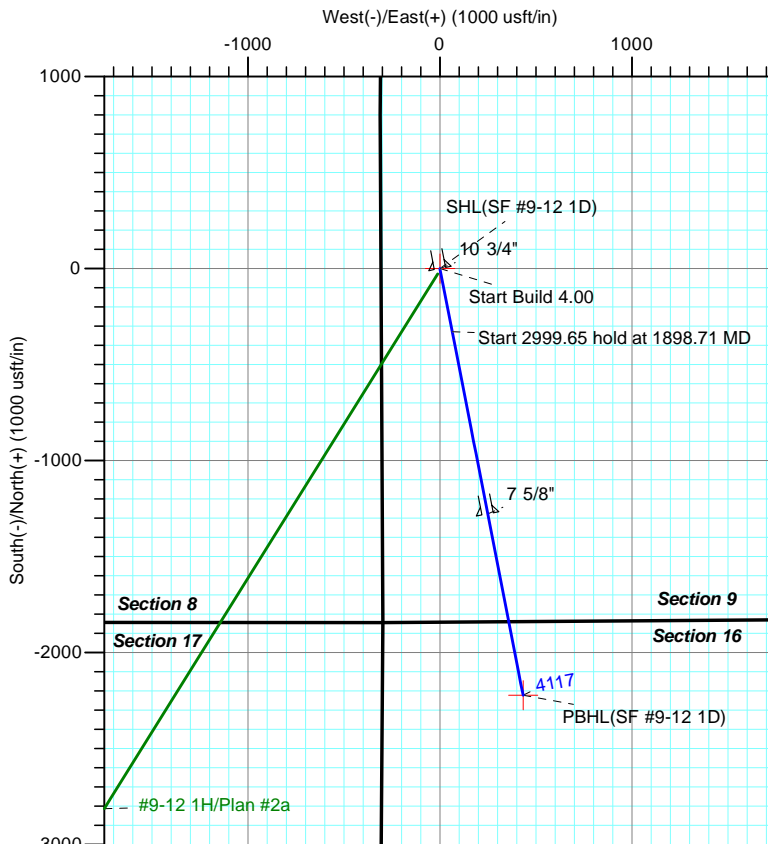
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

CASING DETAILS

TVD	MD	Name
500.00	500.00	10 3/4"
2971.02	3402.00	7 5/8"

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
16.30	16.30	Mancos Sh.
97.30	97.30	Morapos Ss.
277.30	277.30	B/Morapos
2878.12	3280.72	Buck Peak
3246.14	3761.14	Niobrara
3788.62	4469.30	B/WMB

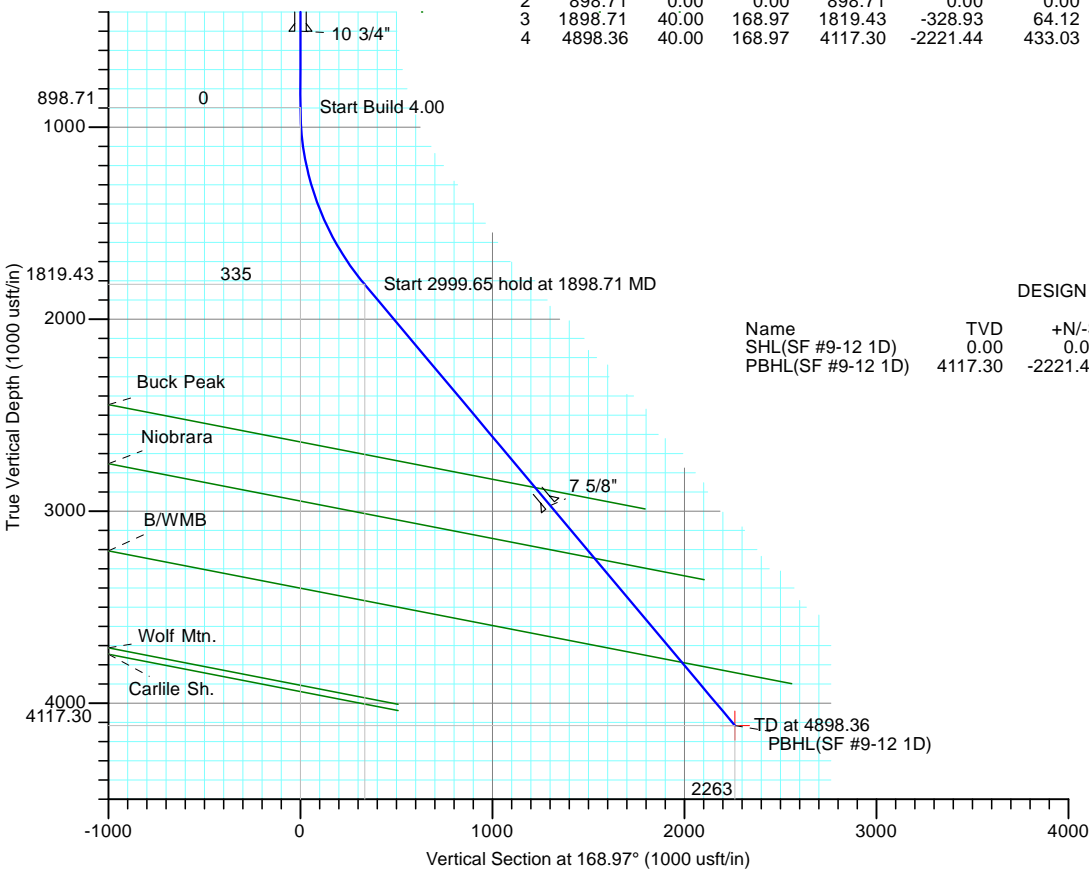


SECTION DETAILS

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	898.71	0.00	0.00	898.71	0.00	0.00	0.00	0.00	0.00	
3	1898.71	40.00	168.97	1819.43	-328.93	64.12	4.00	168.97	335.12	
4	4898.36	40.00	168.97	4117.30	-2221.44	433.03	0.00	0.00	2263.26	PBHL(SF #9-12 1D)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SHL(SF #9-12 1D)	0.00	0.00	0.00	40° 19' 38.482 N	107° 31' 5.632 W
PBHL(SF #9-12 1D)	4117.30	-2221.44	433.03	40° 19' 16.529 N	107° 31' 0.041 W



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

Plan: Plan #2a (#9-12 1D/OH)
Stover Federal
Created By: Nora Tucker
Date: 12:19, September 01 2015
Approved: _____
Date: _____

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi_User Db	Local Co-ordinate Reference:	Well #9-12 1D
Company:	GRMR Oil & Gas, LLC	TVD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Project:	Moffat County, CO	MD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Site:	Stover Federal	North Reference:	True
Well:	#9-12 1D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2a		

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		Stover Federal			
Site Position:		Northing:	1,368,499.84 usft	Latitude:	40° 19' 38.482 N
From:	Lat/Long	Easting:	2,437,348.04 usft	Longitude:	107° 31' 5.632 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.30 °

Well	#9-12 1D					
Well Position	+N/-S	0.00 usft	Northing:	1,368,499.84 usft	Latitude:	40° 19' 38.482 N
	+E/-W	0.00 usft	Easting:	2,437,348.04 usft	Longitude:	107° 31' 5.632 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,895.30 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	8/5/2015	9.67	66.42	52,200

Design	Plan #2a			
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	168.97

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	
898.71	0.00	0.00	898.71	0.00	0.00	0.00	0.00	0.00	0.00	
1,898.71	40.00	168.97	1,819.43	-328.93	64.12	4.00	4.00	0.00	168.97	
4,898.36	40.00	168.97	4,117.30	-2,221.44	433.03	0.00	0.00	0.00	0.00	PBHL(SF #9-12 1D)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi_User Db	Local Co-ordinate Reference:	Well #9-12 1D
Company:	GRMR Oil & Gas, LLC	TVD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Project:	Moffat County, CO	MD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Site:	Stover Federal	North Reference:	True
Well:	#9-12 1D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2a		

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(SF #9-12 1D)										
16.30	0.00	0.00	16.30	0.00	0.00	0.00	0.00	0.00	0.00	
Mancos Sh.										
97.30	0.00	0.00	97.30	0.00	0.00	0.00	0.00	0.00	0.00	
Morapos Ss.										
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	
277.30	0.00	0.00	277.30	0.00	0.00	0.00	0.00	0.00	0.00	
B/Morapos										
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	
10 3/4"										
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	
898.71	0.00	0.00	898.71	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.05	168.97	900.00	0.00	0.00	0.00	4.00	4.00	0.00	
1,000.00	4.05	168.97	999.92	-3.51	0.68	3.58	4.00	4.00	0.00	
1,100.00	8.05	168.97	1,099.34	-13.86	2.70	14.12	4.00	4.00	0.00	
1,200.00	12.05	168.97	1,197.78	-30.99	6.04	31.57	4.00	4.00	0.00	
1,300.00	16.05	168.97	1,294.77	-54.81	10.68	55.85	4.00	4.00	0.00	
1,400.00	20.05	168.97	1,389.83	-85.22	16.61	86.83	4.00	4.00	0.00	
1,500.00	24.05	168.97	1,482.50	-122.07	23.79	124.36	4.00	4.00	0.00	
1,600.00	28.05	168.97	1,572.32	-165.16	32.20	168.27	4.00	4.00	0.00	
1,700.00	32.05	168.97	1,658.86	-214.31	41.78	218.34	4.00	4.00	0.00	
1,800.00	36.05	168.97	1,741.69	-269.26	52.49	274.32	4.00	4.00	0.00	
1,898.71	40.00	168.97	1,819.43	-328.93	64.12	335.12	4.00	4.00	0.00	
1,900.00	40.00	168.97	1,820.42	-329.74	64.28	335.95	0.00	0.00	0.00	
2,000.00	40.00	168.97	1,897.03	-392.83	76.58	400.23	0.00	0.00	0.00	
2,100.00	40.00	168.97	1,973.63	-455.92	88.87	464.50	0.00	0.00	0.00	
2,200.00	40.00	168.97	2,050.24	-519.01	101.17	528.78	0.00	0.00	0.00	
2,300.00	40.00	168.97	2,126.84	-582.11	113.47	593.06	0.00	0.00	0.00	
2,400.00	40.00	168.97	2,203.45	-645.20	125.77	657.34	0.00	0.00	0.00	
2,500.00	40.00	168.97	2,280.05	-708.29	138.07	721.62	0.00	0.00	0.00	
2,600.00	40.00	168.97	2,356.65	-771.38	150.37	785.90	0.00	0.00	0.00	
2,700.00	40.00	168.97	2,433.26	-834.47	162.66	850.18	0.00	0.00	0.00	
2,800.00	40.00	168.97	2,509.86	-897.56	174.96	914.46	0.00	0.00	0.00	
2,900.00	40.00	168.97	2,586.47	-960.65	187.26	978.73	0.00	0.00	0.00	
3,000.00	40.00	168.97	2,663.07	-1,023.74	199.56	1,043.01	0.00	0.00	0.00	
3,100.00	40.00	168.97	2,739.68	-1,086.84	211.86	1,107.29	0.00	0.00	0.00	
3,200.00	40.00	168.97	2,816.28	-1,149.93	224.16	1,171.57	0.00	0.00	0.00	
3,280.72	40.00	168.97	2,878.12	-1,200.85	234.08	1,223.46	0.00	0.00	0.00	
Buck Peak										
3,300.00	40.00	168.97	2,892.89	-1,213.02	236.46	1,235.85	0.00	0.00	0.00	
3,400.00	40.00	168.97	2,969.49	-1,276.11	248.75	1,300.13	0.00	0.00	0.00	
3,402.00	40.00	168.97	2,971.02	-1,277.37	249.00	1,301.41	0.00	0.00	0.00	
7 5/8"										
3,500.00	40.00	168.97	3,046.09	-1,339.20	261.05	1,364.41	0.00	0.00	0.00	
3,600.00	40.00	168.97	3,122.70	-1,402.29	273.35	1,428.69	0.00	0.00	0.00	
3,700.00	40.00	168.97	3,199.30	-1,465.38	285.65	1,492.96	0.00	0.00	0.00	

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi_User Db	Local Co-ordinate Reference:	Well #9-12 1D
Company:	GRMR Oil & Gas, LLC	TVD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Project:	Moffat County, CO	MD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Site:	Stover Federal	North Reference:	True
Well:	#9-12 1D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2a		

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)
3,761.14	40.00	168.97	3,246.14	-1,503.96	293.17	1,532.27	0.00	0.00	0.00
Niobrara									
3,800.00	40.00	168.97	3,275.91	-1,528.47	297.95	1,557.24	0.00	0.00	0.00
3,900.00	40.00	168.97	3,352.51	-1,591.57	310.25	1,621.52	0.00	0.00	0.00
4,000.00	40.00	168.97	3,429.12	-1,654.66	322.54	1,685.80	0.00	0.00	0.00
4,100.00	40.00	168.97	3,505.72	-1,717.75	334.84	1,750.08	0.00	0.00	0.00
4,200.00	40.00	168.97	3,582.33	-1,780.84	347.14	1,814.36	0.00	0.00	0.00
4,300.00	40.00	168.97	3,658.93	-1,843.93	359.44	1,878.64	0.00	0.00	0.00
4,400.00	40.00	168.97	3,735.53	-1,907.02	371.74	1,942.92	0.00	0.00	0.00
4,469.30	40.00	168.97	3,788.62	-1,950.75	380.26	1,987.46	0.00	0.00	0.00
B/WMB									
4,500.00	40.00	168.97	3,812.14	-1,970.11	384.04	2,007.20	0.00	0.00	0.00
4,600.00	40.00	168.97	3,888.74	-2,033.20	396.34	2,071.47	0.00	0.00	0.00
4,700.00	40.00	168.97	3,965.35	-2,096.30	408.63	2,135.75	0.00	0.00	0.00
4,800.00	40.00	168.97	4,041.95	-2,159.39	420.93	2,200.03	0.00	0.00	0.00
4,898.36	40.00	168.97	4,117.30	-2,221.44	433.03	2,263.26	0.00	0.00	0.00
PBHL(SF #9-12 1D)									

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(SF #9-12 1D)	0.00	0.00	0.00	0.00	0.00	1,368,499.84	2,437,348.04	40° 19' 38.482 N	107° 31' 5.632 W
- plan hits target center									
- Point									
PBHL(SF #9-12 1D)	0.00	0.00	4,117.30	-2,221.44	433.03	1,366,269.12	2,437,730.40	40° 19' 16.529 N	107° 31' 0.041 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
500.00	500.00	10 3/4"	10-3/4	12-1/4	
3,402.00	2,971.02	7 5/8"	8-5/8	11	

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi_User Db	Local Co-ordinate Reference:	Well #9-12 1D
Company:	GRMR Oil & Gas, LLC	TVD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Project:	Moffat County, CO	MD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Site:	Stover Federal	North Reference:	True
Well:	#9-12 1D	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2a		

Formations						
	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
	16.30	16.30	Mancos Sh.		11.00	168.97
	97.30	97.30	Morapos Ss.		11.00	168.97
	277.30	277.30	B/Morapos		11.00	168.97
	3,280.72	2,878.12	Buck Peak		11.00	168.97
	3,761.14	3,246.14	Niobrara		11.00	168.97
	4,469.30	3,788.62	B/WMB		11.00	168.97

GRMR Oil & Gas, LLC

Moffat County, CO

Stover Federal

#9-12 1D

OH

Plan #2a

Anticollision Report

01 September, 2015

LEAM Drilling Systems LLC

Anticollision Report

Company:	GRMR Oil & Gas, LLC	Local Co-ordinate Reference:	Well #9-12 1D
Project:	Moffat County, CO	TVD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Reference Site:	Stover Federal	MD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	#9-12 1D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Multi_User Db
Reference Design:	Plan #2a	Offset TVD Reference:	Offset Datum

Reference	Plan #2a		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 9/1/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	4,898.36	Plan #2a (OH)	LEAM MWD	MWD - Standard

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							
Stover Federal							
#9-12 1H - OH - Plan #2a	1,164.79	1,163.26	16.45	11.55	3.359	CC, ES, SF	

Offset Design	Stover Federal - #9-12 1H - OH - Plan #2a												Offset Site Error:	0.00 usft
Survey Program:	0-LEAM MWD												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		
0.00	0.00	0.00	0.00	0.00	0.00	-157.31	-27.33	-11.43	29.63					
100.00	100.00	100.00	100.00	0.09	0.09	-157.31	-27.33	-11.43	29.63	29.44	0.18	160.753		
200.00	200.00	200.00	200.00	0.32	0.32	-157.31	-27.33	-11.43	29.63	28.99	0.63	46.744		
300.00	300.00	300.00	300.00	0.54	0.54	-157.31	-27.33	-11.43	29.63	28.54	1.08	27.348		
400.00	400.00	400.00	400.00	0.77	0.77	-157.31	-27.33	-11.43	29.63	28.10	1.53	19.328		
500.00	500.00	500.00	500.00	0.99	0.99	-157.31	-27.33	-11.43	29.63	27.65	1.98	14.945		
600.00	600.00	600.00	600.00	1.22	1.22	-157.31	-27.33	-11.43	29.63	27.20	2.43	12.183		
700.00	700.00	700.00	700.00	1.44	1.44	-157.31	-27.33	-11.43	29.63	26.75	2.88	10.282		
800.00	800.00	800.00	800.00	1.67	1.67	-157.31	-27.33	-11.43	29.63	26.30	3.33	8.895		
898.71	898.71	898.71	898.71	1.89	1.89	-157.31	-27.33	-11.43	29.63	25.85	3.77	7.849		
900.00	900.00	900.00	900.00	1.89	1.89	33.73	-27.33	-11.43	29.63	25.85	3.78	7.838		
1,000.00	999.92	999.92	999.92	2.06	2.11	38.06	-27.33	-11.43	26.72	22.54	4.19	6.381		
1,100.00	1,099.34	1,099.34	1,099.34	2.26	2.34	57.65	-27.33	-11.43	19.53	14.92	4.61	4.240		
1,164.79	1,163.26	1,163.26	1,163.26	2.41	2.48	90.00	-27.33	-11.43	16.45	11.55	4.90	3.359	CC, ES, SF	
1,200.00	1,197.78	1,197.78	1,197.78	2.49	2.56	112.39	-27.33	-11.43	17.85	12.78	5.07	3.520		
1,300.00	1,294.77	1,294.77	1,294.77	2.81	2.78	151.25	-27.33	-11.43	35.27	29.69	5.59	6.313		
1,400.00	1,389.83	1,389.83	1,389.83	3.24	2.99	164.27	-27.33	-11.43	64.32	58.26	6.06	10.616		
1,500.00	1,482.50	1,482.50	1,482.50	3.81	3.20	169.76	-27.33	-11.43	101.07	94.55	6.51	15.514		
1,600.00	1,572.32	1,572.32	1,572.32	4.51	3.40	172.61	-27.33	-11.43	144.57	137.61	6.96	20.776		
1,700.00	1,658.86	1,658.86	1,658.86	5.36	3.60	174.28	-27.33	-11.43	194.40	187.01	7.39	26.305		
1,800.00	1,741.69	1,741.69	1,741.69	6.34	3.78	175.34	-27.33	-11.43	250.22	242.41	7.81	32.041		
1,898.71	1,819.43	1,825.10	1,825.10	7.43	3.96	176.05	-27.61	-11.61	310.73	302.52	8.21	37.839		
1,900.00	1,820.42	1,826.40	1,826.40	7.44	3.97	176.05	-27.64	-11.62	311.54	303.32	8.22	37.908		
2,000.00	1,897.03	1,933.13	1,932.70	8.62	4.17	175.74	-35.19	-16.34	371.23	362.50	8.73	42.528		

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

LEAM Drilling Systems LLC

Anticollision Report

Company:	GRMR Oil & Gas, LLC	Local Co-ordinate Reference:	Well #9-12 1D
Project:	Moffat County, CO	TVD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Reference Site:	Stover Federal	MD Reference:	GW 6895.3' + KB 18' @ 6913.30usft (Planning)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	#9-12 1D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Multi_User Db
Reference Design:	Plan #2a	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Stover Federal - #9-12 1H - OH - Plan #2a													Offset Well Error:	0.00 usft
Survey Program: 0-LEAM MWD														
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		
2,100.00	1,973.63	2,051.33	2,048.43	9.83	4.41	173.95	-55.23	-28.84	424.27	414.92	9.35	45.387		
2,200.00	2,050.24	2,178.79	2,168.93	11.05	4.78	170.95	-90.24	-50.68	470.10	459.91	10.19	46.114		
2,300.00	2,126.84	2,311.72	2,287.58	12.27	5.43	166.92	-140.90	-82.29	508.75	497.30	11.45	44.445		
2,400.00	2,203.45	2,445.19	2,397.21	13.51	6.41	162.03	-205.32	-122.49	540.99	527.69	13.30	40.672		
2,500.00	2,280.05	2,564.64	2,486.02	14.75	7.61	157.00	-273.02	-164.74	568.83	553.14	15.69	36.254		
2,600.00	2,356.65	2,672.62	2,559.99	15.99	8.89	152.20	-339.73	-206.37	595.76	577.35	18.40	32.370		
2,700.00	2,433.26	2,763.04	2,618.31	17.24	10.07	148.14	-398.35	-242.94	623.67	602.56	21.11	29.548		
2,800.00	2,509.86	2,848.29	2,673.11	18.49	11.22	144.57	-453.75	-277.52	654.49	630.65	23.84	27.457		
2,900.00	2,586.47	2,933.55	2,727.91	19.74	12.41	141.28	-509.16	-312.09	687.90	661.26	26.64	25.823		
3,000.00	2,663.07	3,018.80	2,782.71	21.00	13.61	138.25	-564.57	-346.66	723.54	694.06	29.48	24.542		
3,100.00	2,739.68	3,104.06	2,837.52	22.26	14.83	135.46	-619.98	-381.24	761.11	728.77	32.34	23.534		
3,200.00	2,816.28	3,189.32	2,892.32	23.51	16.06	132.91	-675.38	-415.81	800.33	765.13	35.20	22.737		
3,300.00	2,892.89	3,274.57	2,947.12	24.77	17.30	130.56	-730.79	-450.39	840.97	802.93	38.05	22.103		
3,400.00	2,969.49	3,362.51	3,002.05	26.03	18.62	128.21	-789.03	-486.73	882.74	841.75	40.99	21.536		
3,500.00	3,046.09	3,446.07	3,048.45	27.29	19.95	125.70	-847.96	-523.50	925.66	881.66	44.00	21.038		
3,600.00	3,122.70	3,522.74	3,085.54	28.55	21.24	123.19	-904.87	-559.01	970.38	923.41	46.97	20.659		
3,700.00	3,199.30	3,592.48	3,114.50	29.81	22.45	120.75	-958.68	-592.59	1,017.47	967.63	49.84	20.414		
3,800.00	3,275.91	3,658.12	3,138.01	31.07	23.64	118.38	-1,010.66	-625.02	1,067.25	1,014.61	52.64	20.274		
3,900.00	3,352.51	3,719.46	3,157.42	32.34	24.76	116.16	-1,060.02	-655.82	1,119.77	1,064.46	55.31	20.244		
4,000.00	3,429.12	3,776.51	3,173.23	33.60	25.82	114.10	-1,106.53	-684.84	1,175.06	1,117.19	57.87	20.305		
4,100.00	3,505.72	3,836.32	3,187.88	34.86	26.94	111.95	-1,155.72	-715.54	1,232.97	1,172.52	60.45	20.398		
4,200.00	3,582.33	3,900.47	3,203.40	36.12	28.15	109.78	-1,208.53	-748.49	1,292.88	1,229.83	63.05	20.506		
4,300.00	3,658.93	3,964.62	3,218.92	37.39	29.36	107.73	-1,261.34	-781.44	1,354.49	1,288.91	65.58	20.653		
4,400.00	3,735.53	4,028.77	3,234.44	38.65	30.58	105.81	-1,314.14	-814.40	1,417.57	1,349.53	68.05	20.833		
4,500.00	3,812.14	4,092.92	3,249.96	39.91	31.80	104.00	-1,366.95	-847.35	1,481.94	1,411.50	70.44	21.038		
4,600.00	3,888.74	4,157.07	3,265.48	41.18	33.02	102.31	-1,419.76	-880.30	1,547.44	1,474.66	72.78	21.262		
4,700.00	3,965.35	4,221.22	3,281.00	42.44	34.24	100.71	-1,472.57	-913.25	1,613.93	1,538.86	75.06	21.501		
4,800.00	4,041.95	4,285.37	3,296.52	43.71	35.46	99.21	-1,525.37	-946.20	1,681.28	1,603.99	77.30	21.751		
4,898.36	4,117.30	4,348.47	3,311.78	44.95	36.67	97.82	-1,577.31	-978.61	1,748.28	1,668.84	79.45	22.006		

LEAM Drilling Systems LLC

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Reference Well:	#9-12 1D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Multi_User Db
Reference Design:	Plan #2a	Offset TVD Reference:	Offset Datum

Reference Depths are relative to GW 6895.3' + KB 18' @ 6913.30usft (

Offset Depths are relative to Offset Datum

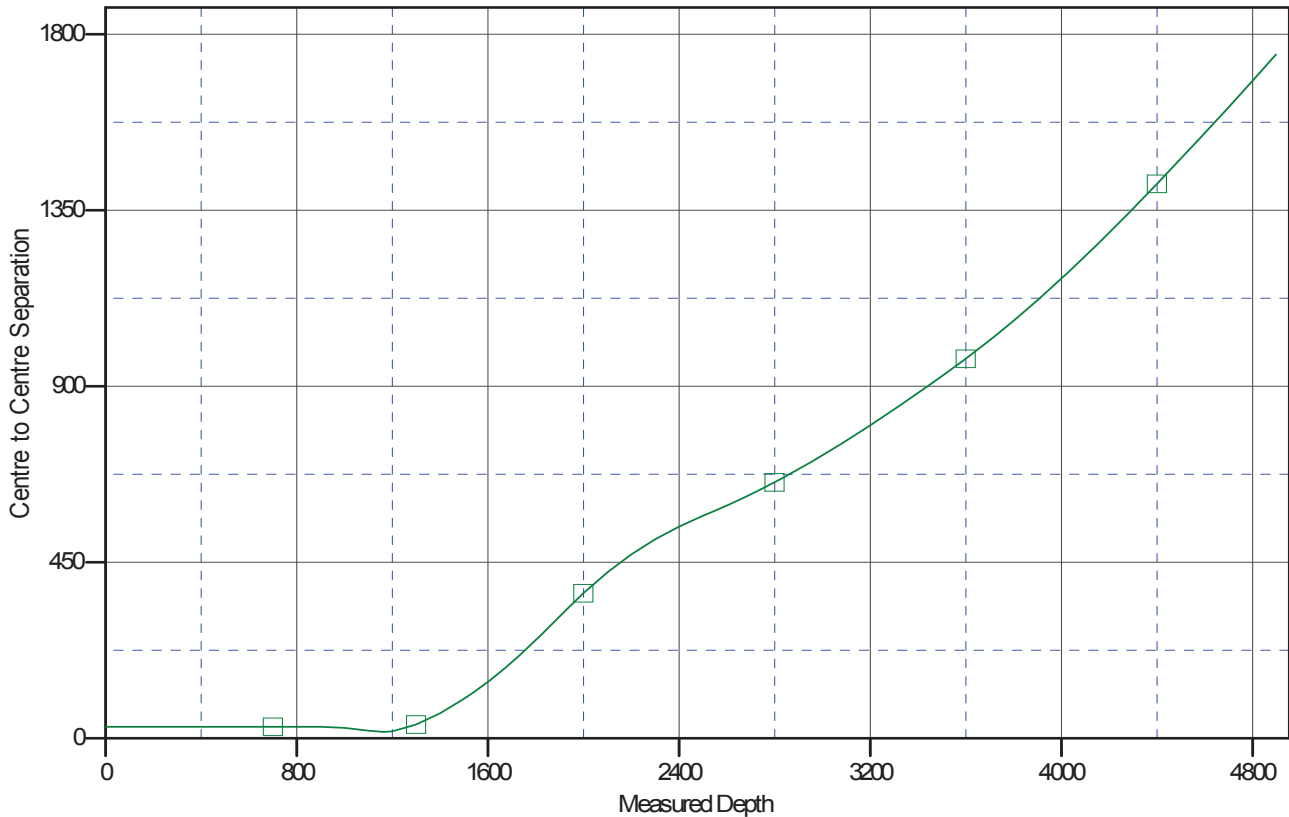
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: #9-12 1D


Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: -1.30°

Ladder Plot



LEGEND

 #9-12 1H, OH, Plan #2a V0

LEAM Drilling Systems LLC

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Reference Depths are relative to GW 6895.3' + KB 18' @ 6913.30usft (

Offset Depths are relative to Offset Datum

Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: #9-12 1D

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: -1.30°

