

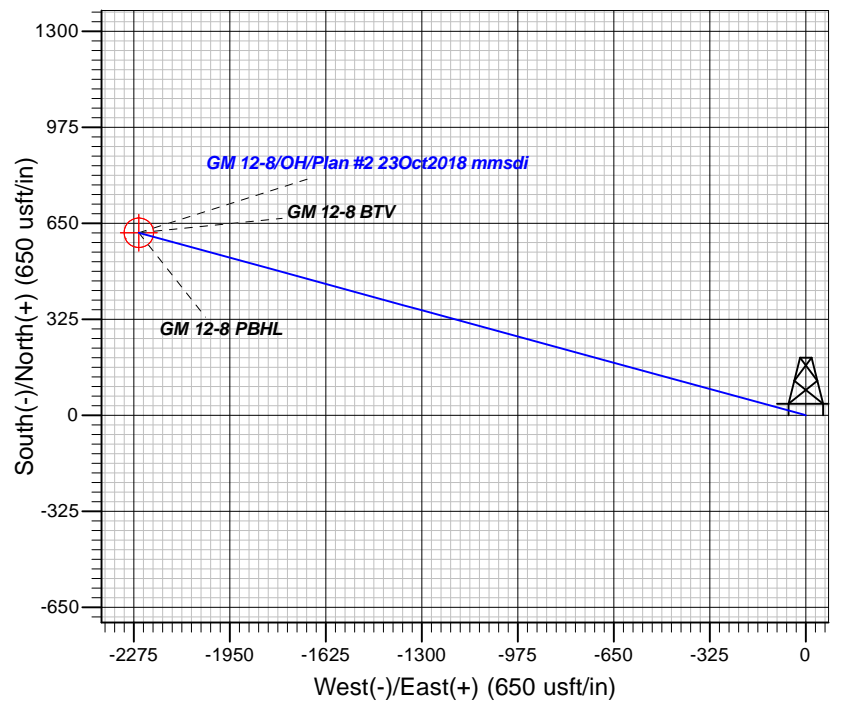
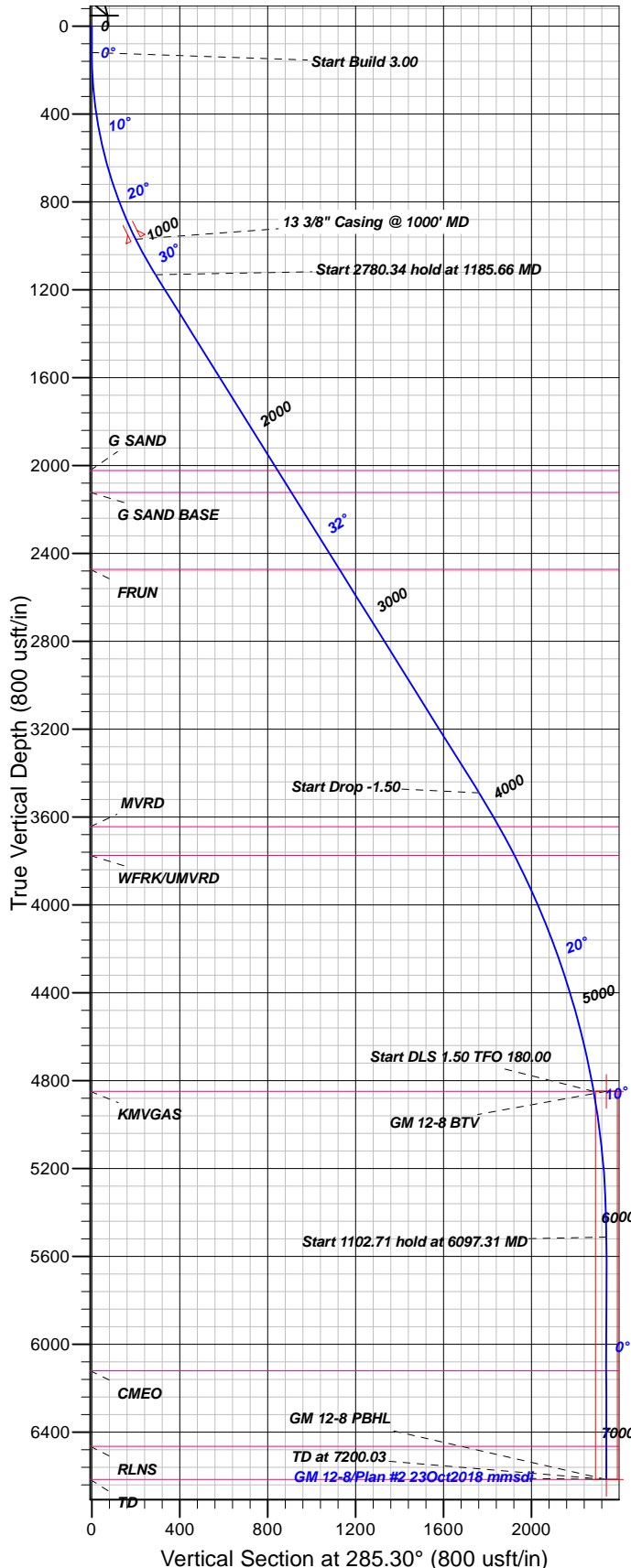


Azimuths to True North
Magnetic North: 9.52°

Magnetic Field
Strength: 51678.7snT
Dip Angle: 65.68°
Date: 6/18/2018
Model: HDGM

Well Details: GM 12-8

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1601158.55	2257369.61	39.4544332	-108.1303847	GM 12-8 (B8)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2022.00	2235.71	G SAND
2122.00	2353.58	G SAND BASE
2472.49	2766.74	FRUN
3644.00	4145.15	MVRD
3774.00	4292.63	WFRK/UMVRD
4849.00	5430.65	KMVGAS
6121.00	6706.03	CMEO
6465.00	7050.03	RLNS
6615.00	7200.03	TD

Plan: Plan #2 23Oct2018 mmsdi

9:21, November 02 2018
Created By: Mel Mireles

PROJECT DETAILS: Garfield County, CO NAD83

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

System Datum: Mean Sea Level

CASING DETAILS

TVD	MD	Name	Size
969.19	1000.00	3/8" Casing @ 1000' MD	13.37

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	120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	
3	1185.66	31.97	285.30	1131.22	76.45	-279.40	3.00	285.30	289.67	
4	3966.00	31.97	285.30	3489.86	465.00	-1699.31	0.00	0.00	0.00	
5	5430.65	10.00	285.30	4849.00	602.59	-2202.14	1.50	180.00	2283.10	
6	6097.31	0.00	0.00	5512.29	617.91	-2258.11	1.50	180.00	2341.13	
7	7200.03	0.00	0.00	6615.00	617.91	-2258.11	0.00	0.00	2341.13	GM 12-8 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 12-8 BTM	4849.00	617.91	-2258.11	1601841.57	2255130.33	39.4561294	-108.1383819	Circle (Radius: 50.00)
- plan misses target center by 57.17usft at 5440.21usft MD (4858.42 TVD, 603.02 N, -2203.73 E)								
GM 12-8 PBHL	6615.00	617.91	-2258.11	1601841.57	2255130.33	39.4561294	-108.1383819	Point
- plan hits target center								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

MV 60-8D Pad

GM 12-8 - Slot GM 12-8 (B8)

OH

Plan: Plan #2 23Oct2018 mmsdi

Standard Planning Report

02 November, 2018



Database:	Grand Junction District	Local Co-ordinate Reference:	Well GM 12-8 - Slot GM 12-8 (B8)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6175' & RKB 24' @ 6199.00usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6175' & RKB 24' @ 6199.00usft
Site:	MV 60-8D Pad	North Reference:	True
Well:	GM 12-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 23Oct2018 mmsdi		

Project	Garfield County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		MV 60-8D Pad			
Site Position:		Northing:	1,601,172.03 usft	Latitude:	39.4544712
From:	Map	Easting:	2,257,381.57 usft	Longitude:	-108.1303437
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.66 °

Well	GM 12-8 - Slot GM 12-8 (B8)					
Well Position	+N/-S	-13.82 usft	Northing:	1,601,158.55 usft	Latitude:	39.4544332
	+E/-W	-11.56 usft	Easting:	2,257,369.61 usft	Longitude:	-108.1303847
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,175.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/18/2018	9.52	65.68	51,679

Design	Plan #2 23Oct2018 mmsdi			
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	285.30

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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,185.66	31.97	285.30	1,131.22	76.45	-279.40	3.00	3.00	0.00	285.30	
3,966.00	31.97	285.30	3,489.86	465.00	-1,699.31	0.00	0.00	0.00	0.00	
5,430.65	10.00	285.30	4,849.00	602.59	-2,202.14	1.50	-1.50	0.00	180.00	
6,097.31	0.00	0.00	5,512.29	617.91	-2,258.11	1.50	-1.50	11.20	180.00	
7,200.03	0.00	0.00	6,615.00	617.91	-2,258.11	0.00	0.00	0.00	0.00	GM 12-8 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well GM 12-8 - Slot GM 12-8 (B8)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6175' & RKB 24' @ 6199.00usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6175' & RKB 24' @ 6199.00usft
Site:	MV 60-8D Pad	North Reference:	True
Well:	GM 12-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 23Oct2018 mmsdi		

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
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 3.00									
200.00	2.40	285.30	199.98	0.44	-1.62	1.68	3.00	3.00	0.00
300.00	5.40	285.30	299.73	2.24	-8.18	8.48	3.00	3.00	0.00
400.00	8.40	285.30	399.00	5.41	-19.76	20.49	3.00	3.00	0.00
500.00	11.40	285.30	497.50	9.94	-36.34	37.68	3.00	3.00	0.00
600.00	14.40	285.30	594.96	15.84	-57.87	60.00	3.00	3.00	0.00
700.00	17.40	285.30	691.13	23.07	-84.30	87.39	3.00	3.00	0.00
800.00	20.40	285.30	785.72	31.61	-115.54	119.78	3.00	3.00	0.00
900.00	23.40	285.30	878.50	41.46	-151.51	157.08	3.00	3.00	0.00
1,000.00	26.40	285.30	969.19	52.57	-192.11	199.18	3.00	3.00	0.00
13 3/8" Casing @ 1000' MD									
1,100.00	29.40	285.30	1,057.56	64.92	-237.24	245.96	3.00	3.00	0.00
1,185.66	31.97	285.30	1,131.22	76.45	-279.40	289.67	3.00	3.00	0.00
Start 2780.34 hold at 1185.66 MD									
1,200.00	31.97	285.30	1,143.38	78.46	-286.73	297.27	0.00	0.00	0.00
1,300.00	31.97	285.30	1,228.22	92.43	-337.79	350.21	0.00	0.00	0.00
1,400.00	31.97	285.30	1,313.05	106.41	-388.86	403.16	0.00	0.00	0.00
1,500.00	31.97	285.30	1,397.88	120.38	-439.93	456.11	0.00	0.00	0.00
1,600.00	31.97	285.30	1,482.71	134.36	-491.00	509.05	0.00	0.00	0.00
1,700.00	31.97	285.30	1,567.55	148.33	-542.07	562.00	0.00	0.00	0.00
1,800.00	31.97	285.30	1,652.38	162.31	-593.14	614.95	0.00	0.00	0.00
1,900.00	31.97	285.30	1,737.21	176.28	-644.21	667.90	0.00	0.00	0.00
2,000.00	31.97	285.30	1,822.04	190.26	-695.28	720.84	0.00	0.00	0.00
2,100.00	31.97	285.30	1,906.88	204.23	-746.35	773.79	0.00	0.00	0.00
2,200.00	31.97	285.30	1,991.71	218.21	-797.42	826.74	0.00	0.00	0.00
2,235.71	31.97	285.30	2,022.00	223.19	-815.66	845.64	0.00	0.00	0.00
G SAND									
2,300.00	31.97	285.30	2,076.54	232.18	-848.49	879.68	0.00	0.00	0.00
2,353.58	31.97	285.30	2,122.00	239.67	-875.86	908.06	0.00	0.00	0.00
G SAND BASE									
2,400.00	31.97	285.30	2,161.38	246.15	-899.56	932.63	0.00	0.00	0.00
2,500.00	31.97	285.30	2,246.21	260.13	-950.63	985.58	0.00	0.00	0.00
2,600.00	31.97	285.30	2,331.04	274.10	-1,001.70	1,038.53	0.00	0.00	0.00
2,700.00	31.97	285.30	2,415.87	288.08	-1,052.77	1,091.47	0.00	0.00	0.00
2,766.74	31.97	285.30	2,472.49	297.40	-1,086.85	1,126.81	0.00	0.00	0.00
FRUN									
2,800.00	31.97	285.30	2,500.71	302.05	-1,103.84	1,144.42	0.00	0.00	0.00
2,900.00	31.97	285.30	2,585.54	316.03	-1,154.91	1,197.37	0.00	0.00	0.00
3,000.00	31.97	285.30	2,670.37	330.00	-1,205.98	1,250.31	0.00	0.00	0.00
3,100.00	31.97	285.30	2,755.21	343.98	-1,257.05	1,303.26	0.00	0.00	0.00
3,200.00	31.97	285.30	2,840.04	357.95	-1,308.12	1,356.21	0.00	0.00	0.00
3,300.00	31.97	285.30	2,924.87	371.93	-1,359.19	1,409.16	0.00	0.00	0.00
3,400.00	31.97	285.30	3,009.70	385.90	-1,410.26	1,462.10	0.00	0.00	0.00
3,500.00	31.97	285.30	3,094.54	399.88	-1,461.33	1,515.05	0.00	0.00	0.00
3,600.00	31.97	285.30	3,179.37	413.85	-1,512.40	1,568.00	0.00	0.00	0.00
3,700.00	31.97	285.30	3,264.20	427.82	-1,563.47	1,620.94	0.00	0.00	0.00
3,800.00	31.97	285.30	3,349.03	441.80	-1,614.54	1,673.89	0.00	0.00	0.00
3,900.00	31.97	285.30	3,433.87	455.77	-1,665.61	1,726.84	0.00	0.00	0.00
3,966.00	31.97	285.30	3,489.86	465.00	-1,699.31	1,761.78	0.00	0.00	0.00
Start Drop -1.50									

Database:	Grand Junction District	Local Co-ordinate Reference:	Well GM 12-8 - Slot GM 12-8 (B8)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6175' & RKB 24' @ 6199.00usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6175' & RKB 24' @ 6199.00usft
Site:	MV 60-8D Pad	North Reference:	True
Well:	GM 12-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 23Oct2018 mmsdi		

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)	
4,000.00	31.46	285.30	3,518.78	469.71	-1,716.55	1,779.66	1.50	-1.50	0.00	
4,100.00	29.96	285.30	3,604.75	483.19	-1,765.81	1,830.72	1.50	-1.50	0.00	
4,145.15	29.28	285.30	3,644.00	489.08	-1,787.33	1,853.04	1.50	-1.50	0.00	
MVRD										
4,200.00	28.46	285.30	3,692.04	496.07	-1,812.88	1,879.52	1.50	-1.50	0.00	
4,292.63	27.07	285.30	3,774.00	507.46	-1,854.50	1,922.67	1.50	-1.50	0.00	
WFRK/UMVRD										
4,300.00	26.96	285.30	3,780.56	508.35	-1,857.73	1,926.02	1.50	-1.50	0.00	
4,400.00	25.46	285.30	3,870.28	520.00	-1,900.32	1,970.19	1.50	-1.50	0.00	
4,500.00	23.96	285.30	3,961.12	531.03	-1,940.64	2,011.99	1.50	-1.50	0.00	
4,600.00	22.46	285.30	4,053.03	541.44	-1,978.65	2,051.40	1.50	-1.50	0.00	
4,700.00	20.96	285.30	4,145.93	551.20	-2,014.33	2,088.39	1.50	-1.50	0.00	
4,800.00	19.46	285.30	4,239.77	560.32	-2,047.65	2,122.93	1.50	-1.50	0.00	
4,900.00	17.96	285.30	4,334.48	568.78	-2,078.59	2,155.01	1.50	-1.50	0.00	
5,000.00	16.46	285.30	4,430.00	576.59	-2,107.13	2,184.59	1.50	-1.50	0.00	
5,100.00	14.96	285.30	4,526.27	583.74	-2,133.24	2,211.67	1.50	-1.50	0.00	
5,200.00	13.46	285.30	4,623.20	590.22	-2,156.92	2,236.21	1.50	-1.50	0.00	
5,300.00	11.96	285.30	4,720.75	596.02	-2,178.14	2,258.22	1.50	-1.50	0.00	
5,400.00	10.46	285.30	4,818.84	601.15	-2,196.89	2,277.65	1.50	-1.50	0.00	
5,430.65	10.00	285.30	4,849.00	602.59	-2,202.14	2,283.10	1.50	-1.50	0.00	
Start DLS 1.50 TFO 180.00 - KMGAS										
5,440.21	9.86	285.30	4,858.42	603.02	-2,203.73	2,284.75	1.50	-1.50	0.00	
GM 12-8 BTV										
5,500.00	8.96	285.30	4,917.40	605.60	-2,213.16	2,294.52	1.50	-1.50	0.00	
5,600.00	7.46	285.30	5,016.38	609.37	-2,226.93	2,308.80	1.50	-1.50	0.00	
5,700.00	5.96	285.30	5,115.69	612.46	-2,238.20	2,320.48	1.50	-1.50	0.00	
5,800.00	4.46	285.30	5,215.27	614.85	-2,246.96	2,329.56	1.50	-1.50	0.00	
5,900.00	2.96	285.30	5,315.06	616.56	-2,253.20	2,336.03	1.50	-1.50	0.00	
6,000.00	1.46	285.30	5,414.98	617.58	-2,256.92	2,339.89	1.50	-1.50	0.00	
6,097.31	0.00	0.00	5,512.29	617.91	-2,258.11	2,341.13	1.50	-1.50	76.76	
Start 1102.71 hold at 6097.31 MD										
6,100.00	0.00	0.00	5,514.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
6,200.00	0.00	0.00	5,614.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
6,300.00	0.00	0.00	5,714.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
6,400.00	0.00	0.00	5,814.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
6,500.00	0.00	0.00	5,914.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,014.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,114.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
6,706.03	0.00	0.00	6,121.00	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
CME0										
6,800.00	0.00	0.00	6,214.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,314.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,414.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
7,050.03	0.00	0.00	6,465.00	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
RLNS										
7,100.00	0.00	0.00	6,514.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
7,200.00	0.00	0.00	6,614.97	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
7,200.03	0.00	0.00	6,615.00	617.91	-2,258.11	2,341.13	0.00	0.00	0.00	
TD at 7200.03 - TD - GM 12-8 PBHL										

Database:	Grand Junction District	Local Co-ordinate Reference:	Well GM 12-8 - Slot GM 12-8 (B8)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6175' & RKB 24' @ 6199.00usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6175' & RKB 24' @ 6199.00usft
Site:	MV 60-8D Pad	North Reference:	True
Well:	GM 12-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 23Oct2018 mmsdi		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
GM 12-8 BTV	0.00	0.00	4,849.00	617.91	-2,258.12	1,601,841.57	2,255,130.33	39.4561294	-108.1383820
- plan misses target center by 57.17usft at 5440.21usft MD (4858.42 TVD, 603.02 N, -2203.73 E)									
- Circle (radius 50.00)									
GM 12-8 PBHL	0.00	0.00	6,615.00	617.91	-2,258.12	1,601,841.57	2,255,130.33	39.4561294	-108.1383820
- plan hits target center									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,000.00	969.19	13 3/8" Casing @ 1000' MD	13.37	17.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,235.71	2,022.00	G SAND		0.00	0.00
2,353.58	2,122.00	G SAND BASE		0.00	0.00
2,766.74	2,472.49	FRUN		0.00	0.00
4,145.15	3,644.00	MVRD		0.00	0.00
4,292.63	3,774.00	WFRK/UMVRD		0.00	0.00
5,430.65	4,849.00	KMVGAS		0.00	0.00
6,706.03	6,121.00	CMEO		0.00	0.00
7,050.03	6,465.00	RLNS		0.00	0.00
7,200.03	6,615.00	TD		0.00	0.00

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.00	120.00	0.00	0.00	Start Build 3.00
1,185.66	1,131.22	76.45	-279.40	Start 2780.34 hold at 1185.66 MD
3,966.00	3,489.86	465.00	-1,699.31	Start Drop -1.50
5,430.65	4,849.00	602.59	-2,202.14	Start DLS 1.50 TFO 180.00
6,097.31	5,512.29	617.91	-2,258.11	Start 1102.71 hold at 6097.31 MD
7,200.03	6,615.00	617.91	-2,258.11	TD at 7200.03