

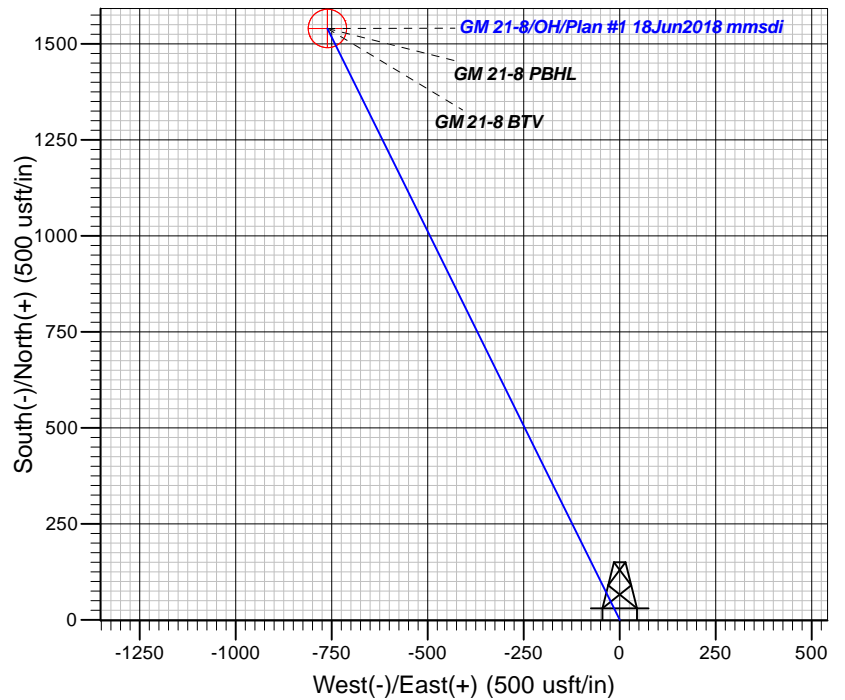
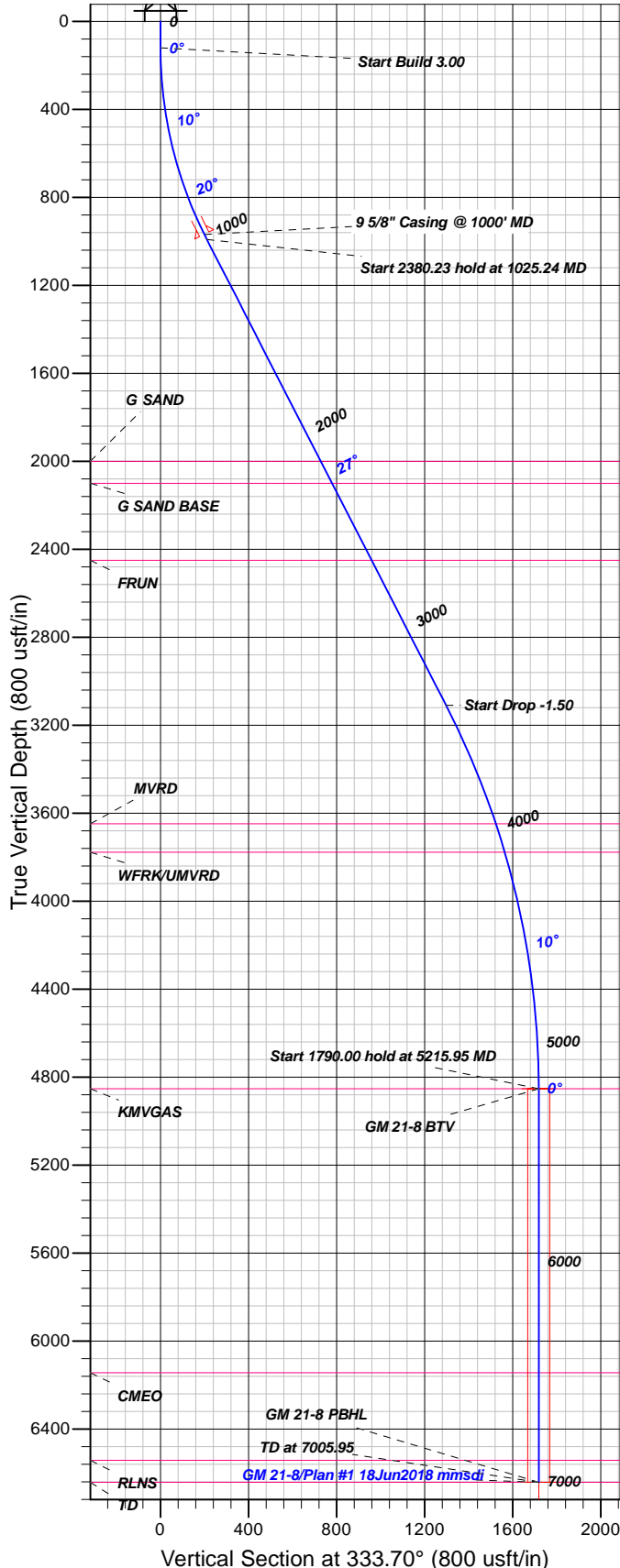


Azimuths to True North  
Magnetic North: 9.52°

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

## Well Details: GM 21-8

GL 6175' & RKB 24' @ 6199.00usft  
+N/-S 0.00 +E/-W 0.00 Northing 1601164.60 Easting 2257380.54 Latitude 39.4544507 Longitude -108.1303466 Slot GM 21-8 (A9)



## FORMATION TOP DETAILS

TVDPth	MDPath	Formation
2000.00	2158.44	G SAND
2100.00	2270.83	G SAND BASE
2450.40	2664.65	FRUN
3648.00	3990.01	MVRD
3778.00	4126.23	WFRK/UMVRD
4853.00	5215.95	KMVGAS
6144.00	6506.95	CMEO
6543.00	6905.95	RLNS
6643.00	7005.95	TD

Plan: Plan #1 18Jun2018 mmsdi

15:09, June 19 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	5/8" Casing @ 1000' MD	9.62

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	1025.24	27.16	333.70	991.72	188.76	-93.27	3.00	333.70	210.55	
4	3405.47	27.16	333.70	3109.55	1162.75	-574.56	0.00	0.001296.96		
5	5215.95	0.00	0.00	4853.00	1540.27	-761.11	1.50	180.001718.06		GM 21-8 BTM
6	7005.95	0.00	0.00	6643.00	1540.27	-761.11	0.00	0.001718.06		GM 21-8 PBHL

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 21-8 BTM	4853.00	1540.27	-761.11	1602726.26	2256664.34	39.4586794	-108.1330422	Circle (Radius: 50.00)
- plan hits target center								
GM 21-8 PBHL	6643.00	1540.27	-761.11	1602726.26	2256664.34	39.4586794	-108.1330422	Point
- plan hits target center								



## **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**MV 60-8D Pad**

**GM 21-8 - Slot GM 21-8 (A9)**

**OH**

**Plan: Plan #1 18Jun2018 mmsdi**

## **Standard Planning Report**

**19 June, 2018**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 21-8 - Slot GM 21-8 (A9)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6175' & RKB 24' @ 6199.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6175' & RKB 24' @ 6199.00usft
<b>Site:</b>	MV 60-8D Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 21-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 18Jun2018 mmsdi		

<b>Project</b>	Garfield County, CO NAD83		
<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 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 21-8 - Slot GM 21-8 (A9)					
Well Position	+N/-S	-7.46 usft	Northing:	1,601,164.60 usft	Latitude:	39.4544507
	+E/-W	-0.81 usft	Easting:	2,257,380.54 usft	Longitude:	-108.1303466
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,175.00 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>
	HDGM	6/18/2018	9.52	65.68	51,679

<b>Design</b>	Plan #1 18Jun2018 mmsdi			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<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	333.70

<b>Plan Sections</b>										
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	
1,025.24	27.16	333.70	991.72	188.76	-93.27	3.00	3.00	0.00	333.70	
3,405.47	27.16	333.70	3,109.55	1,162.75	-574.56	0.00	0.00	0.00	0.00	
5,215.95	0.00	0.00	4,853.00	1,540.27	-761.11	1.50	-1.50	0.00	180.00	GM 21-8 BTV
7,005.95	0.00	0.00	6,643.00	1,540.27	-761.11	0.00	0.00	0.00	0.00	GM 21-8 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 21-8 - Slot GM 21-8 (A9)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6175' & RKB 24' @ 6199.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6175' & RKB 24' @ 6199.00usft
<b>Site:</b>	MV 60-8D Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 21-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 18Jun2018 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
<b>Start Build 3.00</b>									
200.00	2.40	333.70	199.98	1.50	-0.74	1.68	3.00	3.00	0.00
300.00	5.40	333.70	299.73	7.60	-3.75	8.48	3.00	3.00	0.00
400.00	8.40	333.70	399.00	18.37	-9.08	20.49	3.00	3.00	0.00
500.00	11.40	333.70	497.50	33.78	-16.69	37.68	3.00	3.00	0.00
600.00	14.40	333.70	594.96	53.79	-26.58	60.00	3.00	3.00	0.00
700.00	17.40	333.70	691.13	78.35	-38.72	87.39	3.00	3.00	0.00
800.00	20.40	333.70	785.72	107.39	-53.06	119.78	3.00	3.00	0.00
900.00	23.40	333.70	878.50	140.82	-69.59	157.08	3.00	3.00	0.00
1,000.00	26.40	333.70	969.19	178.56	-88.24	199.18	3.00	3.00	0.00
<b>9 5/8" Casing @ 1000' MD</b>									
1,025.24	27.16	333.70	991.72	188.76	-93.27	210.55	3.00	3.00	0.00
<b>Start 2380.23 hold at 1025.24 MD</b>									
1,100.00	27.16	333.70	1,058.24	219.35	-108.39	244.67	0.00	0.00	0.00
1,200.00	27.16	333.70	1,147.22	260.27	-128.61	290.31	0.00	0.00	0.00
1,300.00	27.16	333.70	1,236.19	301.19	-148.83	335.96	0.00	0.00	0.00
1,400.00	27.16	333.70	1,325.17	342.11	-169.05	381.60	0.00	0.00	0.00
1,500.00	27.16	333.70	1,414.15	383.03	-189.27	427.24	0.00	0.00	0.00
1,600.00	27.16	333.70	1,503.12	423.95	-209.49	472.89	0.00	0.00	0.00
1,700.00	27.16	333.70	1,592.10	464.87	-229.71	518.53	0.00	0.00	0.00
1,800.00	27.16	333.70	1,681.07	505.79	-249.93	564.17	0.00	0.00	0.00
1,900.00	27.16	333.70	1,770.05	546.71	-270.15	609.82	0.00	0.00	0.00
2,000.00	27.16	333.70	1,859.02	587.63	-290.37	655.46	0.00	0.00	0.00
2,100.00	27.16	333.70	1,948.00	628.55	-310.59	701.10	0.00	0.00	0.00
2,158.44	27.16	333.70	2,000.00	652.47	-322.41	727.78	0.00	0.00	0.00
<b>G SAND</b>									
2,200.00	27.16	333.70	2,036.98	669.47	-330.81	746.75	0.00	0.00	0.00
2,270.83	27.16	333.70	2,100.00	698.46	-345.14	779.08	0.00	0.00	0.00
<b>G SAND BASE</b>									
2,300.00	27.16	333.70	2,125.95	710.39	-351.03	792.39	0.00	0.00	0.00
2,400.00	27.16	333.70	2,214.93	751.31	-371.25	838.03	0.00	0.00	0.00
2,500.00	27.16	333.70	2,303.90	792.23	-391.47	883.68	0.00	0.00	0.00
2,600.00	27.16	333.70	2,392.88	833.15	-411.69	929.32	0.00	0.00	0.00
2,664.65	27.16	333.70	2,450.40	859.61	-424.77	958.83	0.00	0.00	0.00
<b>FRUN</b>									
2,700.00	27.16	333.70	2,481.85	874.07	-431.91	974.96	0.00	0.00	0.00
2,800.00	27.16	333.70	2,570.83	914.99	-452.13	1,020.61	0.00	0.00	0.00
2,900.00	27.16	333.70	2,659.81	955.91	-472.35	1,066.25	0.00	0.00	0.00
3,000.00	27.16	333.70	2,748.78	996.83	-492.57	1,111.89	0.00	0.00	0.00
3,100.00	27.16	333.70	2,837.76	1,037.75	-512.80	1,157.54	0.00	0.00	0.00
3,200.00	27.16	333.70	2,926.73	1,078.67	-533.02	1,203.18	0.00	0.00	0.00
3,300.00	27.16	333.70	3,015.71	1,119.59	-553.24	1,248.82	0.00	0.00	0.00
3,400.00	27.16	333.70	3,104.68	1,160.51	-573.46	1,294.47	0.00	0.00	0.00
3,405.47	27.16	333.70	3,109.55	1,162.75	-574.56	1,296.96	0.00	0.00	0.00
<b>Start Drop -1.50</b>									
3,500.00	25.74	333.70	3,194.19	1,200.50	-593.21	1,339.06	1.50	-1.50	0.00
3,600.00	24.24	333.70	3,284.82	1,238.37	-611.93	1,381.31	1.50	-1.50	0.00
3,700.00	22.74	333.70	3,376.53	1,274.10	-629.58	1,421.16	1.50	-1.50	0.00
3,800.00	21.24	333.70	3,469.26	1,307.67	-646.17	1,458.61	1.50	-1.50	0.00
3,900.00	19.74	333.70	3,562.93	1,339.05	-661.68	1,493.61	1.50	-1.50	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 21-8 - Slot GM 21-8 (A9)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6175' & RKB 24' @ 6199.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6175' & RKB 24' @ 6199.00usft
<b>Site:</b>	MV 60-8D Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 21-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 18Jun2018 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)	
3,990.01	18.39	333.70	3,648.00	1,365.41	-674.70	1,523.01	1.50	-1.50	0.00	
<b>MVRD</b>										
4,000.00	18.24	333.70	3,657.48	1,368.22	-676.09	1,526.15	1.50	-1.50	0.00	
4,100.00	16.74	333.70	3,752.86	1,395.16	-689.40	1,556.20	1.50	-1.50	0.00	
4,126.23	16.35	333.70	3,778.00	1,401.86	-692.71	1,563.67	1.50	-1.50	0.00	
<b>WFRK/UMVRD</b>										
4,200.00	15.24	333.70	3,848.99	1,419.86	-701.61	1,583.74	1.50	-1.50	0.00	
4,300.00	13.74	333.70	3,945.80	1,442.29	-712.69	1,608.76	1.50	-1.50	0.00	
4,400.00	12.24	333.70	4,043.24	1,462.44	-722.65	1,631.24	1.50	-1.50	0.00	
4,500.00	10.74	333.70	4,141.23	1,480.29	-731.47	1,651.16	1.50	-1.50	0.00	
4,600.00	9.24	333.70	4,239.72	1,495.84	-739.16	1,668.50	1.50	-1.50	0.00	
4,700.00	7.74	333.70	4,338.62	1,509.08	-745.70	1,683.27	1.50	-1.50	0.00	
4,800.00	6.24	333.70	4,437.87	1,519.99	-751.09	1,695.43	1.50	-1.50	0.00	
4,900.00	4.74	333.70	4,537.41	1,528.56	-755.32	1,705.00	1.50	-1.50	0.00	
5,000.00	3.24	333.70	4,637.16	1,534.80	-758.41	1,711.96	1.50	-1.50	0.00	
5,100.00	1.74	333.70	4,737.07	1,538.69	-760.33	1,716.30	1.50	-1.50	0.00	
5,200.00	0.24	333.70	4,837.05	1,540.24	-761.09	1,718.03	1.50	-1.50	0.00	
5,215.95	0.00	0.00	4,853.00	1,540.27	-761.11	1,718.06	1.50	-1.50	164.85	
<b>Start 1790.00 hold at 5215.95 MD - KMGAS - GM 21-8 BTW</b>										
5,300.00	0.00	0.00	4,937.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,037.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,137.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,237.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,337.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,437.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,537.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,637.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,737.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,200.00	0.00	0.00	5,837.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,300.00	0.00	0.00	5,937.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,037.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,137.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,506.95	0.00	0.00	6,144.00	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
<b>CME0</b>										
6,600.00	0.00	0.00	6,237.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,337.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,437.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,537.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
6,905.95	0.00	0.00	6,543.00	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
<b>RLNS</b>										
7,000.00	0.00	0.00	6,637.05	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
7,005.95	0.00	0.00	6,643.00	1,540.27	-761.11	1,718.06	0.00	0.00	0.00	
<b>TD at 7005.95 - TD - GM 21-8 PBHL</b>										

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 21-8 - Slot GM 21-8 (A9)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6175' & RKB 24' @ 6199.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6175' & RKB 24' @ 6199.00usft
<b>Site:</b>	MV 60-8D Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 21-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 18Jun2018 mmsdi		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
GM 21-8 BTV - hit/miss target - Shape	0.00	0.00	4,853.00	1,540.27	-761.11	1,602,726.26	2,256,664.34	39.4586794	-108.1330423
GM 21-8 PBHL - plan hits target center - Point	0.00	0.00	6,643.00	1,540.27	-761.11	1,602,726.26	2,256,664.34	39.4586794	-108.1330423

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,000.00	969.19	9 5/8" Casing @ 1000' MD	9.62	13.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,158.44	2,000.00	G SAND		0.00	0.00
2,270.83	2,100.00	G SAND BASE		0.00	0.00
2,664.65	2,450.40	FRUN		0.00	0.00
3,990.01	3,648.00	MVRD		0.00	0.00
4,126.23	3,778.00	WFRK/UMVRD		0.00	0.00
5,215.95	4,853.00	KMVGAS		0.00	0.00
6,506.95	6,144.00	CME0		0.00	0.00
6,905.95	6,543.00	RLNS		0.00	0.00
7,005.95	6,643.00	TD		0.00	0.00

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
120.00	120.00	0.00	0.00	Start Build 3.00
1,025.24	991.72	188.76	-93.27	Start 2380.23 hold at 1025.24 MD
3,405.47	3,109.55	1,162.75	-574.56	Start Drop -1.50
5,215.95	4,853.00	1,540.27	-761.11	Start 1790.00 hold at 5215.95 MD
7,005.95	6,643.00	1,540.27	-761.11	TD at 7005.95