

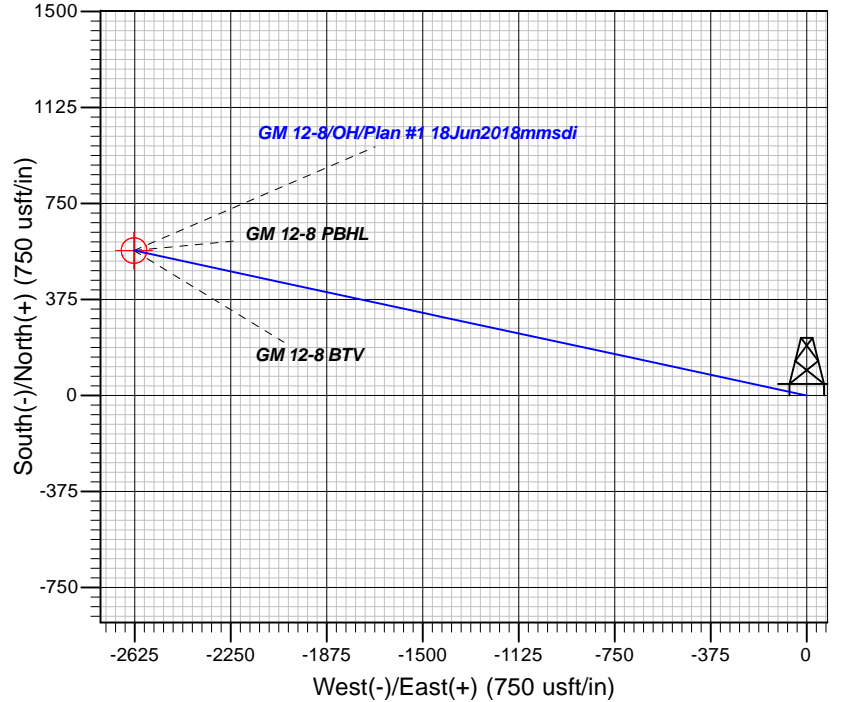
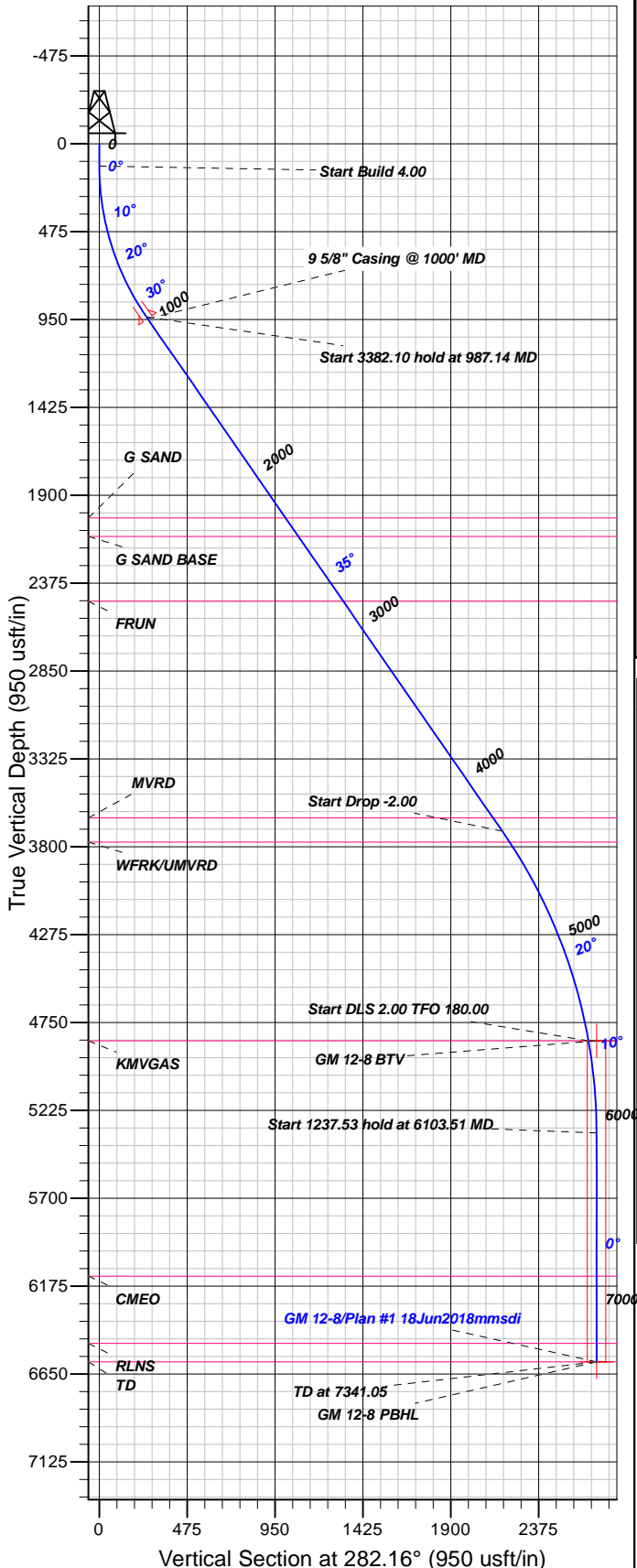


Azimuths to True North  
Magnetic North: 9.52°

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

TVDPPath	MDPath	Formation
2022.00	2308.90	G SAND
2122.00	2430.51	G SAND BASE
2472.49	2856.74	FRUN
3644.00	4281.44	MVRD
3774.00	4438.96	WFRK/UMVRD
4849.00	5603.51	KMVGAS
6121.00	6878.05	CMEO
6484.00	7241.05	RLNS
6584.00	7341.05	TD

Plan: Plan #1 18Jun2018mmsdi

14:53, 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
945.71	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	987.14	34.69	282.16	935.14	53.60	-248.85	4.00	282.16	254.55	
4	4369.24	34.69	282.16	3716.19	458.91	-2130.34	0.00	0.00	0.00	
5	5603.51	10.00	282.16	4849.00	556.95	-2585.49	2.00	180.00	2644.80	
6	6103.51	0.00	0.00	5346.47	566.12	-2628.04	2.00	180.00	2688.32	
7	7341.05	0.00	0.00	6584.00	566.12	-2628.04	0.00	0.00	2688.32	GM 12-8 PBHL

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 12-8 BTV	4849.00	566.12	-2628.04	1601800.52	2254759.06	39.4559871	-108.1396920	Circle (Radius: 50.00)
- plan misses target center by 42.88usft at 5610.35usft MD (4855.73 TVD, 557.20 N, -2586.64 E)								
GM 12-8 PBHL	6584.00	566.12	-2628.04	1601800.52	2254759.06	39.4559871	-108.1396920	Point
- plan misses target center by 0.01usft at 7341.05usft MD (6584.00 TVD, 566.12 N, -2628.04 E)								



## **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**MV 60-8D Pad**

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

**OH**

**Plan: Plan #1 18Jun2018mmsdi**

## **Standard Planning Report**

**19 June, 2018**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 12-8 - Slot GM 12-8 (B8)
<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 12-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 18Jun2018mmsdi		

<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 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

<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 18Jun2018mmsdi			
<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	282.16

<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	
987.14	34.69	282.16	935.14	53.60	-248.85	4.00	4.00	0.00	282.16	
4,369.24	34.69	282.16	3,716.19	458.91	-2,130.34	0.00	0.00	0.00	0.00	
5,603.51	10.00	282.16	4,849.00	556.95	-2,585.49	2.00	-2.00	0.00	180.00	
6,103.51	0.00	0.00	5,346.47	566.12	-2,628.04	2.00	-2.00	15.57	180.00	
7,341.05	0.00	0.00	6,584.00	566.12	-2,628.04	0.00	0.00	0.00	0.00	GM 12-8 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 12-8 - Slot GM 12-8 (B8)
<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 12-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 18Jun2018mmsdi		

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 4.00</b>									
200.00	3.20	282.16	199.96	0.47	-2.18	2.23	4.00	4.00	0.00
300.00	7.20	282.16	299.53	2.38	-11.04	11.29	4.00	4.00	0.00
400.00	11.20	282.16	398.22	5.74	-26.67	27.28	4.00	4.00	0.00
500.00	15.20	282.16	495.56	10.55	-48.99	50.11	4.00	4.00	0.00
600.00	19.20	282.16	591.07	16.78	-77.89	79.67	4.00	4.00	0.00
700.00	23.20	282.16	684.28	24.39	-113.23	115.83	4.00	4.00	0.00
800.00	27.20	282.16	774.74	33.36	-154.85	158.40	4.00	4.00	0.00
900.00	31.20	282.16	862.02	43.63	-202.53	207.18	4.00	4.00	0.00
987.14	34.69	282.16	935.14	53.60	-248.85	254.55	4.00	4.00	0.00
<b>Start 3382.10 hold at 987.14 MD</b>									
1,000.00	34.69	282.16	945.71	55.15	-256.00	261.87	0.00	0.00	0.00
<b>9 5/8" Casing @ 1000' MD</b>									
1,100.00	34.69	282.16	1,027.94	67.13	-311.63	318.78	0.00	0.00	0.00
1,200.00	34.69	282.16	1,110.17	79.11	-367.26	375.69	0.00	0.00	0.00
1,300.00	34.69	282.16	1,192.40	91.10	-422.89	432.59	0.00	0.00	0.00
1,400.00	34.69	282.16	1,274.63	103.08	-478.53	489.50	0.00	0.00	0.00
1,500.00	34.69	282.16	1,356.86	115.06	-534.16	546.41	0.00	0.00	0.00
1,600.00	34.69	282.16	1,439.08	127.05	-589.79	603.32	0.00	0.00	0.00
1,700.00	34.69	282.16	1,521.31	139.03	-645.42	660.22	0.00	0.00	0.00
1,800.00	34.69	282.16	1,603.54	151.02	-701.05	717.13	0.00	0.00	0.00
1,900.00	34.69	282.16	1,685.77	163.00	-756.68	774.04	0.00	0.00	0.00
2,000.00	34.69	282.16	1,768.00	174.98	-812.31	830.95	0.00	0.00	0.00
2,100.00	34.69	282.16	1,850.23	186.97	-867.94	887.85	0.00	0.00	0.00
2,200.00	34.69	282.16	1,932.46	198.95	-923.57	944.76	0.00	0.00	0.00
2,300.00	34.69	282.16	2,014.69	210.93	-979.21	1,001.67	0.00	0.00	0.00
2,308.90	34.69	282.16	2,022.00	212.00	-984.15	1,006.73	0.00	0.00	0.00
<b>G SAND</b>									
2,400.00	34.69	282.16	2,096.91	222.92	-1,034.84	1,058.57	0.00	0.00	0.00
2,430.51	34.69	282.16	2,122.00	226.57	-1,051.81	1,075.93	0.00	0.00	0.00
<b>G SAND BASE</b>									
2,500.00	34.69	282.16	2,179.14	234.90	-1,090.47	1,115.48	0.00	0.00	0.00
2,600.00	34.69	282.16	2,261.37	246.89	-1,146.10	1,172.39	0.00	0.00	0.00
2,700.00	34.69	282.16	2,343.60	258.87	-1,201.73	1,229.30	0.00	0.00	0.00
2,800.00	34.69	282.16	2,425.83	270.85	-1,257.36	1,286.20	0.00	0.00	0.00
2,856.74	34.69	282.16	2,472.49	277.65	-1,288.93	1,318.49	0.00	0.00	0.00
<b>FRUN</b>									
2,900.00	34.69	282.16	2,508.06	282.84	-1,312.99	1,343.11	0.00	0.00	0.00
3,000.00	34.69	282.16	2,590.29	294.82	-1,368.62	1,400.02	0.00	0.00	0.00
3,100.00	34.69	282.16	2,672.52	306.80	-1,424.25	1,456.92	0.00	0.00	0.00
3,200.00	34.69	282.16	2,754.74	318.79	-1,479.89	1,513.83	0.00	0.00	0.00
3,300.00	34.69	282.16	2,836.97	330.77	-1,535.52	1,570.74	0.00	0.00	0.00
3,400.00	34.69	282.16	2,919.20	342.75	-1,591.15	1,627.65	0.00	0.00	0.00
3,500.00	34.69	282.16	3,001.43	354.74	-1,646.78	1,684.55	0.00	0.00	0.00
3,600.00	34.69	282.16	3,083.66	366.72	-1,702.41	1,741.46	0.00	0.00	0.00
3,700.00	34.69	282.16	3,165.89	378.71	-1,758.04	1,798.37	0.00	0.00	0.00
3,800.00	34.69	282.16	3,248.12	390.69	-1,813.67	1,855.27	0.00	0.00	0.00
3,900.00	34.69	282.16	3,330.35	402.67	-1,869.30	1,912.18	0.00	0.00	0.00
4,000.00	34.69	282.16	3,412.57	414.66	-1,924.93	1,969.09	0.00	0.00	0.00
4,100.00	34.69	282.16	3,494.80	426.64	-1,980.57	2,026.00	0.00	0.00	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 12-8 - Slot GM 12-8 (B8)
<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 12-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 18Jun2018mmsdi		

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)
4,200.00	34.69	282.16	3,577.03	438.62	-2,036.20	2,082.90	0.00	0.00	0.00
4,281.44	34.69	282.16	3,644.00	448.38	-2,081.50	2,129.25	0.00	0.00	0.00
<b>MVRD</b>									
4,300.00	34.69	282.16	3,659.26	450.61	-2,091.83	2,139.81	0.00	0.00	0.00
4,369.24	34.69	282.16	3,716.19	458.91	-2,130.34	2,179.21	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
4,400.00	34.07	282.16	3,741.58	462.56	-2,147.33	2,196.58	2.00	-2.00	0.00
4,438.96	33.29	282.16	3,774.00	467.11	-2,168.44	2,218.18	2.00	-2.00	0.00
<b>WFRK/UMVRD</b>									
4,500.00	32.07	282.16	3,825.38	474.05	-2,200.67	2,251.15	2.00	-2.00	0.00
4,600.00	30.07	282.16	3,911.03	484.92	-2,251.11	2,302.75	2.00	-2.00	0.00
4,700.00	28.07	282.16	3,998.43	495.15	-2,298.61	2,351.34	2.00	-2.00	0.00
4,800.00	26.07	282.16	4,087.47	504.74	-2,343.10	2,396.84	2.00	-2.00	0.00
4,900.00	24.07	282.16	4,178.04	513.66	-2,384.52	2,439.21	2.00	-2.00	0.00
5,000.00	22.07	282.16	4,270.04	521.91	-2,422.82	2,478.40	2.00	-2.00	0.00
5,100.00	20.07	282.16	4,363.35	529.48	-2,457.97	2,514.35	2.00	-2.00	0.00
5,200.00	18.07	282.16	4,457.86	536.36	-2,489.90	2,547.02	2.00	-2.00	0.00
5,300.00	16.07	282.16	4,553.45	542.54	-2,518.60	2,576.37	2.00	-2.00	0.00
5,400.00	14.07	282.16	4,650.00	548.02	-2,544.02	2,602.37	2.00	-2.00	0.00
5,500.00	12.07	282.16	4,747.41	552.78	-2,566.12	2,624.98	2.00	-2.00	0.00
5,600.00	10.07	282.16	4,845.54	556.82	-2,584.89	2,644.18	2.00	-2.00	0.00
5,603.51	10.00	282.16	4,849.00	556.95	-2,585.49	2,644.80	2.00	-2.00	0.00
<b>Start DLS 2.00 TFO 180.00 - KMGAS</b>									
5,610.35	9.86	282.16	4,855.73	557.20	-2,586.64	2,645.98	2.00	-2.00	0.00
<b>GM 12-8 BTV</b>									
5,700.00	8.07	282.16	4,944.28	560.14	-2,600.30	2,659.95	2.00	-2.00	0.00
5,800.00	6.07	282.16	5,043.52	562.73	-2,612.33	2,672.26	2.00	-2.00	0.00
5,900.00	4.07	282.16	5,143.12	564.59	-2,620.97	2,681.09	2.00	-2.00	0.00
6,000.00	2.07	282.16	5,242.97	565.72	-2,626.21	2,686.45	2.00	-2.00	0.00
6,100.00	0.07	282.16	5,342.95	566.11	-2,628.03	2,688.32	2.00	-2.00	0.00
6,103.51	0.00	0.00	5,346.47	566.12	-2,628.04	2,688.32	2.00	-2.00	2,215.03
<b>Start 1237.53 hold at 6103.51 MD</b>									
6,200.00	0.00	0.00	5,442.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
6,300.00	0.00	0.00	5,542.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
6,400.00	0.00	0.00	5,642.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
6,500.00	0.00	0.00	5,742.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
6,600.00	0.00	0.00	5,842.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
6,700.00	0.00	0.00	5,942.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
6,800.00	0.00	0.00	6,042.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
6,878.05	0.00	0.00	6,121.00	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
<b>CMEO</b>									
6,900.00	0.00	0.00	6,142.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
7,000.00	0.00	0.00	6,242.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
7,100.00	0.00	0.00	6,342.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
7,200.00	0.00	0.00	6,442.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
7,241.05	0.00	0.00	6,484.00	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
<b>RLNS</b>									
7,300.00	0.00	0.00	6,542.95	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
7,341.05	0.00	0.00	6,584.00	566.12	-2,628.04	2,688.32	0.00	0.00	0.00
<b>TD at 7341.05 - TD - GM 12-8 PBHL</b>									

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 12-8 - Slot GM 12-8 (B8)
<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 12-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 18Jun2018mmsdi		

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	566.12	-2,628.04	1,601,800.52	2,254,759.06	39.4559871	-108.1396921
- plan misses target center by 42.88usft at 5610.35usft MD (4855.73 TVD, 557.20 N, -2586.64 E)									
- Circle (radius 50.00)									
GM 12-8 PBHL	0.00	0.00	6,584.00	566.12	-2,628.04	1,601,800.52	2,254,759.06	39.4559871	-108.1396921
- plan misses target center by 0.01usft at 7341.05usft MD (6584.00 TVD, 566.12 N, -2628.04 E)									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,000.00	945.71	9 5/8" Casing @ 1000' MD	9.62	13.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,308.90	2,022.00	G SAND		0.00	0.00
2,430.51	2,122.00	G SAND BASE		0.00	0.00
2,856.74	2,472.49	FRUN		0.00	0.00
4,281.44	3,644.00	MVRD		0.00	0.00
4,438.96	3,774.00	WFRK/UMVRD		0.00	0.00
5,603.51	4,849.00	KMVGAS		0.00	0.00
6,878.05	6,121.00	CMEO		0.00	0.00
7,241.05	6,484.00	RLNS		0.00	0.00
7,341.05	6,584.00	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 4.00
987.14	935.14	53.60	-248.85	Start 3382.10 hold at 987.14 MD
4,369.24	3,716.19	458.91	-2,130.34	Start Drop -2.00
5,603.51	4,849.00	556.95	-2,585.49	Start DLS 2.00 TFO 180.00
6,103.51	5,346.47	566.12	-2,628.04	Start 1237.53 hold at 6103.51 MD
7,341.05	6,584.00	566.12	-2,628.04	TD at 7341.05