

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 311-8 BTV	4854.00	1180.04	-2723.80	61026431.81	2254683.17	39.4577135	-108.1400257	Circle (Radius: 50.00)
- plan misses target center by 42.88usft at 5781.89usft MVD (4861.26 TVD, 1163.24 N, -2685.03 E)								
GM 311-8 PBHL	6606.00	0180.04	-2723.80	61026431.81	2254683.17	39.4577135	-108.1400257	Point
- plan misses target center by 0.01usft at 7529.05usft MVD (6606.00 TVD, 1180.04 N, -2723.80 E)								



## **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**MV 60-8D Pad**

**GM 311-8 - Slot GM 311-8 (B10)**

**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 311-8 - Slot GM 311-8 (B10)
<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 311-8	<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 311-8 - Slot GM 311-8 (B10)					
Well Position	+N/-S	1.09 usft	Northing:	1,601,173.41 usft	Latitude:	39.4544742
	+E/-W	-9.94 usft	Easting:	2,257,371.67 usft	Longitude:	-108.1303789
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	293.42

<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	
1,082.77	38.51	293.42	1,011.90	123.86	-285.89	4.00	4.00	0.00	293.42	
4,348.97	38.51	293.42	3,567.66	932.33	-2,152.03	0.00	0.00	0.00	0.00	
5,774.52	10.00	293.42	4,854.00	1,162.74	-2,683.86	2.00	-2.00	0.00	180.00	
6,274.52	0.00	0.00	5,351.47	1,180.04	-2,723.80	2.00	-2.00	13.32	180.00	
7,529.05	0.00	0.00	6,606.00	1,180.04	-2,723.80	0.00	0.00	0.00	0.00	GM 311-8 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 311-8 - Slot GM 311-8 (B10)
<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 311-8	<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	293.42	199.96	0.89	-2.05	2.23	4.00	4.00	0.00
300.00	7.20	293.42	299.53	4.49	-10.36	11.29	4.00	4.00	0.00
400.00	11.20	293.42	398.22	10.84	-25.03	27.28	4.00	4.00	0.00
500.00	15.20	293.42	495.56	19.92	-45.98	50.11	4.00	4.00	0.00
600.00	19.20	293.42	591.07	31.67	-73.11	79.67	4.00	4.00	0.00
700.00	23.20	293.42	684.28	46.05	-106.28	115.83	4.00	4.00	0.00
800.00	27.20	293.42	774.74	62.97	-145.35	158.40	4.00	4.00	0.00
900.00	31.20	293.42	862.02	82.36	-190.10	207.18	4.00	4.00	0.00
1,000.00	35.20	293.42	945.68	104.12	-240.34	261.92	4.00	4.00	0.00
<b>9 5/8" Casing @ 1000' MD</b>									
1,082.77	38.51	293.42	1,011.90	123.86	-285.89	311.56	4.00	4.00	0.00
<b>Start 3266.20 hold at 1082.77 MD</b>									
1,100.00	38.51	293.42	1,025.38	128.12	-295.73	322.29	0.00	0.00	0.00
1,200.00	38.51	293.42	1,103.63	152.87	-352.86	384.55	0.00	0.00	0.00
1,300.00	38.51	293.42	1,181.88	177.62	-410.00	446.82	0.00	0.00	0.00
1,400.00	38.51	293.42	1,260.13	202.38	-467.13	509.09	0.00	0.00	0.00
1,500.00	38.51	293.42	1,338.38	227.13	-524.27	571.35	0.00	0.00	0.00
1,600.00	38.51	293.42	1,416.62	251.88	-581.40	633.62	0.00	0.00	0.00
1,700.00	38.51	293.42	1,494.87	276.64	-638.54	695.89	0.00	0.00	0.00
1,800.00	38.51	293.42	1,573.12	301.39	-695.67	758.15	0.00	0.00	0.00
1,900.00	38.51	293.42	1,651.37	326.14	-752.81	820.42	0.00	0.00	0.00
2,000.00	38.51	293.42	1,729.62	350.89	-809.94	882.69	0.00	0.00	0.00
2,100.00	38.51	293.42	1,807.87	375.65	-867.08	944.95	0.00	0.00	0.00
2,200.00	38.51	293.42	1,886.12	400.40	-924.21	1,007.22	0.00	0.00	0.00
2,300.00	38.51	293.42	1,964.37	425.15	-981.35	1,069.48	0.00	0.00	0.00
2,400.00	38.51	293.42	2,042.62	449.91	-1,038.48	1,131.75	0.00	0.00	0.00
2,403.05	38.51	293.42	2,045.00	450.66	-1,040.22	1,133.65	0.00	0.00	0.00
<b>G SAND</b>									
2,500.00	38.51	293.42	2,120.86	474.66	-1,095.62	1,194.02	0.00	0.00	0.00
2,530.84	38.51	293.42	2,145.00	482.29	-1,113.24	1,213.22	0.00	0.00	0.00
<b>G SAND BASE</b>									
2,600.00	38.51	293.42	2,199.11	499.41	-1,152.75	1,256.28	0.00	0.00	0.00
2,700.00	38.51	293.42	2,277.36	524.16	-1,209.89	1,318.55	0.00	0.00	0.00
2,800.00	38.51	293.42	2,355.61	548.92	-1,267.02	1,380.82	0.00	0.00	0.00
2,900.00	38.51	293.42	2,433.86	573.67	-1,324.16	1,443.08	0.00	0.00	0.00
2,977.89	38.51	293.42	2,494.81	592.95	-1,368.66	1,491.58	0.00	0.00	0.00
<b>FRUN</b>									
3,000.00	38.51	293.42	2,512.11	598.42	-1,381.29	1,505.35	0.00	0.00	0.00
3,100.00	38.51	293.42	2,590.36	623.18	-1,438.43	1,567.62	0.00	0.00	0.00
3,200.00	38.51	293.42	2,668.61	647.93	-1,495.56	1,629.88	0.00	0.00	0.00
3,300.00	38.51	293.42	2,746.86	672.68	-1,552.70	1,692.15	0.00	0.00	0.00
3,400.00	38.51	293.42	2,825.11	697.43	-1,609.83	1,754.42	0.00	0.00	0.00
3,500.00	38.51	293.42	2,903.35	722.19	-1,666.97	1,816.68	0.00	0.00	0.00
3,600.00	38.51	293.42	2,981.60	746.94	-1,724.10	1,878.95	0.00	0.00	0.00
3,700.00	38.51	293.42	3,059.85	771.69	-1,781.24	1,941.21	0.00	0.00	0.00
3,800.00	38.51	293.42	3,138.10	796.45	-1,838.37	2,003.48	0.00	0.00	0.00
3,900.00	38.51	293.42	3,216.35	821.20	-1,895.51	2,065.75	0.00	0.00	0.00
4,000.00	38.51	293.42	3,294.60	845.95	-1,952.64	2,128.01	0.00	0.00	0.00
4,100.00	38.51	293.42	3,372.85	870.70	-2,009.78	2,190.28	0.00	0.00	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 311-8 - Slot GM 311-8 (B10)
<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 311-8	<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	38.51	293.42	3,451.10	895.46	-2,066.91	2,252.55	0.00	0.00	0.00	
4,300.00	38.51	293.42	3,529.35	920.21	-2,124.05	2,314.81	0.00	0.00	0.00	
4,348.97	38.51	293.42	3,567.66	932.33	-2,152.03	2,345.30	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
4,400.00	37.49	293.42	3,607.88	944.82	-2,180.85	2,376.72	2.00	-2.00	0.00	
4,451.48	36.46	293.42	3,649.00	957.13	-2,209.26	2,407.68	2.00	-2.00	0.00	
<b>MVRD</b>										
4,500.00	35.49	293.42	3,688.27	968.46	-2,235.42	2,436.19	2.00	-2.00	0.00	
4,600.00	33.49	293.42	3,770.68	990.97	-2,287.38	2,492.81	2.00	-2.00	0.00	
4,609.96	33.29	293.42	3,779.00	993.15	-2,292.41	2,498.29	2.00	-2.00	0.00	
<b>WFRK/UMVRD</b>										
4,700.00	31.49	293.42	3,855.03	1,012.32	-2,336.66	2,546.52	2.00	-2.00	0.00	
4,800.00	29.49	293.42	3,941.20	1,032.49	-2,383.22	2,597.26	2.00	-2.00	0.00	
4,900.00	27.49	293.42	4,029.08	1,051.45	-2,426.99	2,644.96	2.00	-2.00	0.00	
5,000.00	25.49	293.42	4,118.58	1,069.18	-2,467.91	2,689.56	2.00	-2.00	0.00	
5,100.00	23.49	293.42	4,209.58	1,085.66	-2,505.95	2,731.01	2.00	-2.00	0.00	
5,200.00	21.49	293.42	4,301.97	1,100.87	-2,541.05	2,769.27	2.00	-2.00	0.00	
5,300.00	19.49	293.42	4,395.63	1,114.78	-2,573.17	2,804.27	2.00	-2.00	0.00	
5,400.00	17.49	293.42	4,490.47	1,127.39	-2,602.26	2,835.98	2.00	-2.00	0.00	
5,500.00	15.49	293.42	4,586.35	1,138.67	-2,628.31	2,864.37	2.00	-2.00	0.00	
5,600.00	13.49	293.42	4,683.16	1,148.62	-2,651.27	2,889.39	2.00	-2.00	0.00	
5,700.00	11.49	293.42	4,780.79	1,157.22	-2,671.11	2,911.01	2.00	-2.00	0.00	
5,774.52	10.00	293.42	4,854.00	1,162.74	-2,683.86	2,924.90	2.00	-2.00	0.00	
<b>Start DLS 2.00 TFO 180.00 - KMGAS</b>										
5,781.89	9.85	293.42	4,861.26	1,163.24	-2,685.03	2,926.18	2.00	-2.00	0.00	
<b>GM 311-8 BTV</b>										
5,800.00	9.49	293.42	4,879.11	1,164.45	-2,687.82	2,929.22	2.00	-2.00	0.00	
5,900.00	7.49	293.42	4,978.01	1,170.32	-2,701.36	2,943.98	2.00	-2.00	0.00	
6,000.00	5.49	293.42	5,077.37	1,174.82	-2,711.74	2,955.28	2.00	-2.00	0.00	
6,100.00	3.49	293.42	5,177.06	1,177.93	-2,718.92	2,963.11	2.00	-2.00	0.00	
6,200.00	1.49	293.42	5,276.96	1,179.66	-2,722.91	2,967.46	2.00	-2.00	0.00	
6,274.52	0.00	0.00	5,351.47	1,180.04	-2,723.80	2,968.43	2.00	-2.00	89.34	
<b>Start 1254.53 hold at 6274.52 MD</b>										
6,300.00	0.00	0.00	5,376.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
6,400.00	0.00	0.00	5,476.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
6,500.00	0.00	0.00	5,576.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
6,600.00	0.00	0.00	5,676.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
6,700.00	0.00	0.00	5,776.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
6,800.00	0.00	0.00	5,876.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
6,900.00	0.00	0.00	5,976.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,076.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
7,058.05	0.00	0.00	6,135.00	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
<b>CME0</b>										
7,100.00	0.00	0.00	6,176.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
7,200.00	0.00	0.00	6,276.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
7,300.00	0.00	0.00	6,376.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
7,400.00	0.00	0.00	6,476.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
7,429.05	0.00	0.00	6,506.00	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
<b>RLNS</b>										
7,500.00	0.00	0.00	6,576.95	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
7,529.05	0.00	0.00	6,606.00	1,180.04	-2,723.80	2,968.43	0.00	0.00	0.00	
<b>TD at 7529.05 - TD - GM 311-8 PBHL</b>										

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well GM 311-8 - Slot GM 311-8 (B10)
<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 311-8	<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 311-8 BTV	0.00	0.00	4,854.00	1,180.04	-2,723.80	1,602,431.81	2,254,683.17	39.4577135	-108.1400257
- plan misses target center by 42.88usft at 5781.89usft MD (4861.26 TVD, 1163.24 N, -2685.03 E)									
- Circle (radius 50.00)									
GM 311-8 PBHL	0.00	0.00	6,606.00	1,180.04	-2,723.80	1,602,431.81	2,254,683.17	39.4577135	-108.1400257
- plan misses target center by 0.01usft at 7529.05usft MD (6606.00 TVD, 1180.04 N, -2723.80 E)									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	945.68	9 5/8" Casing @ 1000' MD	9.62	13.50	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,403.05	2,045.00	G SAND		0.00	0.00
2,530.84	2,145.00	G SAND BASE		0.00	0.00
2,977.89	2,494.81	FRUN		0.00	0.00
4,451.48	3,649.00	MVRD		0.00	0.00
4,609.96	3,779.00	WFRK/UMVRD		0.00	0.00
5,774.52	4,854.00	KMVGAS		0.00	0.00
7,058.05	6,135.00	CME0		0.00	0.00
7,429.05	6,506.00	RLNS		0.00	0.00
7,529.05	6,606.00	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
1,082.77	1,011.90	123.86	-285.89	Start 3266.20 hold at 1082.77 MD
4,348.97	3,567.66	932.33	-2,152.03	Start Drop -2.00
5,774.52	4,854.00	1,162.74	-2,683.86	Start DLS 2.00 TFO 180.00
6,274.52	5,351.47	1,180.04	-2,723.80	Start 1254.53 hold at 6274.52 MD
7,529.05	6,606.00	1,180.04	-2,723.80	TD at 7529.05