

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 533-10 KMV - plan hits target center	4881.00	-1544.72	962.64	1598763.80	2267771.20	39.4486821	-108.0933205	Circle (Radius: 25.00)
GM 533-10 PBHL - plan hits target center	6784.00	-1544.72	962.64	1598763.80	2267771.20	39.4486821	-108.0933205	Point



## **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**MV 5-10 Pad**

**Federal GM 533-10 - Slot A5**

**OH**

**Plan: Plan #2 21Sept2016 jcsdi**

## **Standard Planning Report**

**22 September, 2016**



[www.scientificdrilling.com](http://www.scientificdrilling.com)



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 533-10 - Slot A5
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Site:</b>	MV 5-10 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal GM 533-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 21Sept2016 jcsdi		

<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 5-10 Pad			
Site Position:		Northing:	1,600,344.70 usft	Latitude:	39.4529509
From:	Map	Easting:	2,266,881.70 usft	Longitude:	-108.0966291
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.64 °

Well	Federal GM 533-10 - Slot A5					
Well Position	+N/-S	-10.11 usft	Northing:	1,600,335.40 usft	Latitude:	39.4529232
	+E/-W	-28.32 usft	Easting:	2,266,853.10 usft	Longitude:	-108.0967294
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,148.00 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>
	BGGM2016	9/13/2016	9.72	65.58	51,587

<b>Design</b>	Plan #2 21Sept2016 jcsdi			
<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	148.07

<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	
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,123.86	29.37	148.07	1,081.57	-208.27	129.79	3.00	3.00	0.00	148.07	
3,334.18	29.37	148.07	3,007.87	-1,128.17	703.06	0.00	0.00	0.00	0.00	
5,291.90	0.00	0.00	4,881.00	-1,544.72	962.64	1.50	-1.50	0.00	180.00	GM 533-10 KMV
7,194.90	0.00	0.00	6,784.00	-1,544.72	962.64	0.00	0.00	0.00	0.00	GM 533-10 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 533-10 - Slot A5
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Site:</b>	MV 5-10 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal GM 533-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 21Sept2016 jcsdi		

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
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	1.65	148.07	199.99	-0.67	0.42	0.79	3.00	3.00	0.00
300.00	4.65	148.07	299.83	-5.34	3.32	6.29	3.00	3.00	0.00
400.00	7.65	148.07	399.24	-14.43	8.99	17.00	3.00	3.00	0.00
500.00	10.65	148.07	497.96	-27.92	17.40	32.90	3.00	3.00	0.00
600.00	13.65	148.07	595.71	-45.78	28.53	53.94	3.00	3.00	0.00
700.00	16.65	148.07	692.22	-67.96	42.35	80.07	3.00	3.00	0.00
800.00	19.65	148.07	787.24	-94.39	58.82	111.22	3.00	3.00	0.00
900.00	22.65	148.07	880.49	-125.01	77.90	147.30	3.00	3.00	0.00
1,000.00	25.65	148.07	971.73	-159.73	99.54	188.21	3.00	3.00	0.00
1,100.00	28.65	148.07	1,060.70	-198.45	123.67	233.83	3.00	3.00	0.00
1,123.86	29.37	148.07	1,081.57	-208.27	129.79	245.40	3.00	3.00	0.00
1,173.86	29.37	148.07	1,125.14	-229.08	142.76	269.92	0.00	0.00	0.00
9 5/8" @ 1173' MD									
1,200.00	29.37	148.07	1,147.92	-239.96	149.54	282.74	0.00	0.00	0.00
1,300.00	29.37	148.07	1,235.07	-281.58	175.48	331.78	0.00	0.00	0.00
1,400.00	29.37	148.07	1,322.22	-323.20	201.41	380.82	0.00	0.00	0.00
1,500.00	29.37	148.07	1,409.37	-364.82	227.35	429.86	0.00	0.00	0.00
1,600.00	29.37	148.07	1,496.52	-406.43	253.28	478.90	0.00	0.00	0.00
1,700.00	29.37	148.07	1,583.67	-448.05	279.22	527.93	0.00	0.00	0.00
1,800.00	29.37	148.07	1,670.82	-489.67	305.15	576.97	0.00	0.00	0.00
1,900.00	29.37	148.07	1,757.97	-531.29	331.09	626.01	0.00	0.00	0.00
2,000.00	29.37	148.07	1,845.13	-572.91	357.03	675.05	0.00	0.00	0.00
2,100.00	29.37	148.07	1,932.28	-614.53	382.96	724.09	0.00	0.00	0.00
2,200.00	29.37	148.07	2,019.43	-656.15	408.90	773.13	0.00	0.00	0.00
2,271.80	29.37	148.07	2,082.00	-686.03	427.52	808.34	0.00	0.00	0.00
G_SAND									
2,300.00	29.37	148.07	2,106.58	-697.76	434.83	822.16	0.00	0.00	0.00
2,392.28	29.37	148.07	2,187.00	-736.17	458.77	867.42	0.00	0.00	0.00
G_SAND_BASE									
2,400.00	29.37	148.07	2,193.73	-739.38	460.77	871.20	0.00	0.00	0.00
2,500.00	29.37	148.07	2,280.88	-781.00	486.71	920.24	0.00	0.00	0.00
2,600.00	29.37	148.07	2,368.03	-822.62	512.64	969.28	0.00	0.00	0.00
2,700.00	29.37	148.07	2,455.18	-864.24	538.58	1,018.32	0.00	0.00	0.00
2,800.00	29.37	148.07	2,542.33	-905.86	564.51	1,067.36	0.00	0.00	0.00
2,900.00	29.37	148.07	2,629.48	-947.47	590.45	1,116.40	0.00	0.00	0.00
3,000.00	29.37	148.07	2,716.63	-989.09	616.39	1,165.43	0.00	0.00	0.00
3,100.00	29.37	148.07	2,803.78	-1,030.71	642.32	1,214.47	0.00	0.00	0.00
3,200.00	29.37	148.07	2,890.93	-1,072.33	668.26	1,263.51	0.00	0.00	0.00
3,300.00	29.37	148.07	2,978.08	-1,113.95	694.19	1,312.55	0.00	0.00	0.00
3,334.18	29.37	148.07	3,007.87	-1,128.17	703.06	1,329.31	0.00	0.00	0.00
3,400.00	28.38	148.07	3,065.51	-1,155.15	719.87	1,361.09	1.50	-1.50	0.00
3,500.00	26.88	148.07	3,154.10	-1,194.50	744.39	1,407.46	1.50	-1.50	0.00
3,600.00	25.38	148.07	3,243.88	-1,231.88	767.68	1,451.50	1.50	-1.50	0.00
3,700.00	23.88	148.07	3,334.78	-1,267.24	789.72	1,493.17	1.50	-1.50	0.00
3,800.00	22.38	148.07	3,426.74	-1,300.58	810.50	1,532.45	1.50	-1.50	0.00
3,900.00	20.88	148.07	3,519.70	-1,331.86	829.99	1,569.31	1.50	-1.50	0.00
4,000.00	19.38	148.07	3,613.59	-1,361.06	848.19	1,603.72	1.50	-1.50	0.00
4,100.00	17.88	148.07	3,708.35	-1,388.17	865.08	1,635.66	1.50	-1.50	0.00
4,118.53	17.60	148.07	3,726.00	-1,392.97	868.07	1,641.31	1.50	-1.50	0.00

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<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Site:</b>	MV 5-10 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal GM 533-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 21Sept2016 jcsdi		

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)
<b>MVRD</b>									
4,200.00	16.38	148.07	3,803.91	-1,413.17	880.66	1,665.11	1.50	-1.50	0.00
4,300.00	14.88	148.07	3,900.21	-1,436.03	894.91	1,692.05	1.50	-1.50	0.00
4,400.00	13.38	148.07	3,997.18	-1,456.75	907.82	1,716.46	1.50	-1.50	0.00
4,500.00	11.88	148.07	4,094.76	-1,475.30	919.38	1,738.32	1.50	-1.50	0.00
4,600.00	10.38	148.07	4,192.88	-1,491.68	929.59	1,757.63	1.50	-1.50	0.00
4,700.00	8.88	148.07	4,291.47	-1,505.88	938.43	1,774.35	1.50	-1.50	0.00
4,800.00	7.38	148.07	4,390.46	-1,517.88	945.91	1,788.49	1.50	-1.50	0.00
4,900.00	5.88	148.07	4,489.79	-1,527.67	952.02	1,800.03	1.50	-1.50	0.00
5,000.00	4.38	148.07	4,589.38	-1,535.26	956.75	1,808.97	1.50	-1.50	0.00
5,100.00	2.88	148.07	4,689.18	-1,540.63	960.09	1,815.30	1.50	-1.50	0.00
5,200.00	1.38	148.07	4,789.11	-1,543.78	962.06	1,819.01	1.50	-1.50	0.00
5,291.90	0.00	0.00	4,881.00	-1,544.72	962.64	1,820.12	1.50	-1.50	0.00
<b>KMVGAS - GM 533-10 KMV</b>									
5,300.00	0.00	0.00	4,889.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
5,400.00	0.00	0.00	4,989.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
5,500.00	0.00	0.00	5,089.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
5,600.00	0.00	0.00	5,189.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
5,700.00	0.00	0.00	5,289.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
5,800.00	0.00	0.00	5,389.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
5,900.00	0.00	0.00	5,489.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,000.00	0.00	0.00	5,589.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,100.00	0.00	0.00	5,689.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,200.00	0.00	0.00	5,789.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,300.00	0.00	0.00	5,889.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,400.00	0.00	0.00	5,989.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,500.00	0.00	0.00	6,089.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,557.90	0.00	0.00	6,147.00	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
<b>CME0</b>									
6,600.00	0.00	0.00	6,189.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,700.00	0.00	0.00	6,289.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,800.00	0.00	0.00	6,389.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
6,900.00	0.00	0.00	6,489.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
7,000.00	0.00	0.00	6,589.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
7,044.90	0.00	0.00	6,634.00	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
<b>RLNS</b>									
7,100.00	0.00	0.00	6,689.10	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
7,194.90	0.00	0.00	6,784.00	-1,544.72	962.64	1,820.12	0.00	0.00	0.00
<b>GM 533-10 PBHL</b>									

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<b>Site:</b>	MV 5-10 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal GM 533-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 21Sept2016 jcsdi		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
GM 533-10 KMV - plan hits target center - Circle (radius 25.00)	0.00	0.00	4,881.00	-1,544.72	962.64	1,598,763.80	2,267,771.20	39.4486821	-108.0933205
GM 533-10 PBHL - plan hits target center - Point	0.00	0.00	6,784.00	-1,544.72	962.64	1,598,763.80	2,267,771.20	39.4486821	-108.0933205

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,173.86	1,125.14	9 5/8" @ 1173' MD	9.62	9.62	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,271.80	2,082.00	G_SAND		0.00	0.00
2,392.28	2,187.00	G_SAND_BASE		0.00	0.00
4,118.53	3,726.00	MVRD		0.00	0.00
5,291.90	4,881.00	KMVGAS		0.00	0.00
6,557.90	6,147.00	CME0		0.00	0.00
7,044.90	6,634.00	RLNS		0.00	0.00