

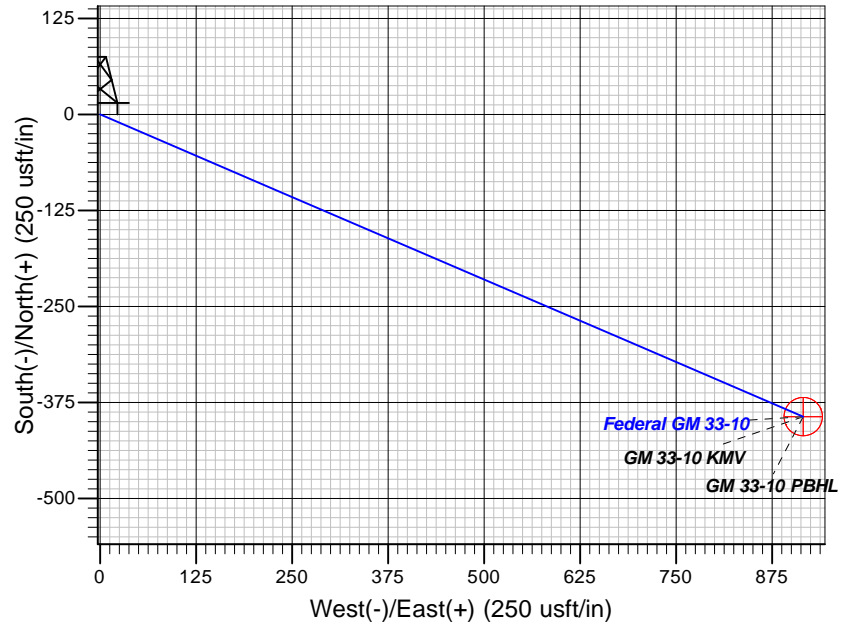
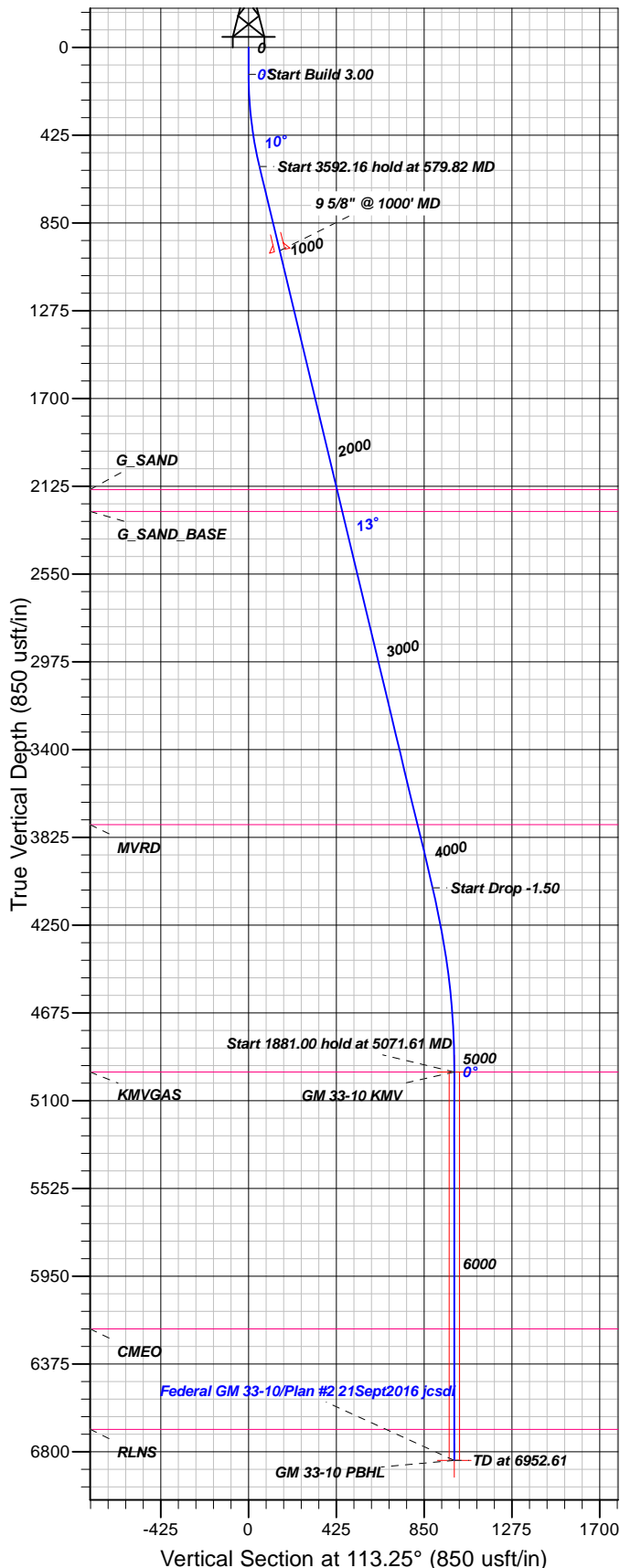
## Well Details: Federal GM 33-10

GL 6148' & RKB 24' @ 6172.00usft (H&P 318)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600356.30	2266917.30	39.4529855	-108.0965042	A14

**T M** Azimuths to True North  
 Magnetic North: 9.71°

Magnetic Field  
 Strength: 51587.4snT  
 Dip Angle: 65.58°  
 Date: 9/13/2016  
 Model: BGGM2016



### FORMATION TOP DETAILS

TVDPth	MDPath	Formation
2141.00	2189.59	G_SAND
2246.00	2297.57	G_SAND_BASE
3763.00	3857.64	MVRD
4960.00	5071.61	KMGAS
6205.00	6316.61	CMEQ
6691.00	6802.61	RLNS

Plan: Plan #2 21Sept2016 jcsdi

10:13, September 23 2016  
 Created By: Janie Collins

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

TVDP	MD	Name	Size
984.25	1000.00	9 5/8" @ 1000' MD	9.62

### 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	130.00	0.00	0.00	130.00	0.00	0.00	0.00	0.00	0.00	
3	579.82	13.49	113.25	575.67	-20.81	48.45	3.00	113.25	52.73	
4	4171.98	13.49	113.25	4068.66	-351.67	818.62	0.00	0.00	890.96	
5	5071.61	0.00	0.00	4960.00	-393.30	915.51	1.50	180.00	996.42	GM 33-10 KMV
6	6952.61	0.00	0.00	6841.00	-393.30	915.51	0.00	0.00	996.42	GM 33-10 PBHL

### DESIGN TARGET DETAILS

Name	TVDP	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 33-10 KMV	4960.00	-393.30	915.51	1599937.00	2267821.20	39.4519057	-108.0932621	Circle (Radius: 25.00)
- plan hits target center								
GM 33-10 PBHL	6841.00	-393.30	915.51	1599937.00	2267821.20	39.4519057	-108.0932621	Point
- plan hits target center								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**MV 5-10 Pad**

**Federal GM 33-10 - Slot A14**

**OH**

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

## **Standard Planning Report**

**23 September, 2016**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 33-10 - Slot A14
<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 33-10	<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		

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

<b>Well</b>	Federal GM 33-10 - Slot A14			
<b>Well Position</b>	<b>+N/-S</b>	12.61 usft	<b>Northing:</b>	1,600,356.30 usft
	<b>+E/-W</b>	35.25 usft	<b>Easting:</b>	2,266,917.30 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	0.00 usft
			<b>Ground Level:</b>	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	113.25

<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	
130.00	0.00	0.00	130.00	0.00	0.00	0.00	0.00	0.00	0.00	
579.82	13.49	113.25	575.67	-20.81	48.45	3.00	3.00	0.00	113.25	
4,171.98	13.49	113.25	4,068.66	-351.67	818.62	0.00	0.00	0.00	0.00	
5,071.61	0.00	0.00	4,960.00	-393.30	915.51	1.50	-1.50	0.00	180.00	GM 33-10 KMV
6,952.61	0.00	0.00	6,841.00	-393.30	915.51	0.00	0.00	0.00	0.00	GM 33-10 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 33-10 - Slot A14
<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 33-10	<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	
130.00	0.00	0.00	130.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	2.10	113.25	199.98	-0.51	1.18	1.28	3.00	3.00	0.00	
300.00	5.10	113.25	299.78	-2.98	6.95	7.56	3.00	3.00	0.00	
400.00	8.10	113.25	399.10	-7.52	17.51	19.05	3.00	3.00	0.00	
500.00	11.10	113.25	497.69	-14.10	32.83	35.73	3.00	3.00	0.00	
579.82	13.49	113.25	575.67	-20.81	48.45	52.73	3.00	3.00	0.00	
600.00	13.49	113.25	595.30	-22.67	52.77	57.44	0.00	0.00	0.00	
700.00	13.49	113.25	692.53	-31.88	74.21	80.77	0.00	0.00	0.00	
800.00	13.49	113.25	789.77	-41.09	95.65	104.11	0.00	0.00	0.00	
900.00	13.49	113.25	887.01	-50.30	117.09	127.44	0.00	0.00	0.00	
1,000.00	13.49	113.25	984.25	-59.51	138.53	150.78	0.00	0.00	0.00	
<b>9 5/8" @ 1000' MD</b>										
1,100.00	13.49	113.25	1,081.49	-68.72	159.98	174.11	0.00	0.00	0.00	
1,200.00	13.49	113.25	1,178.73	-77.93	181.42	197.45	0.00	0.00	0.00	
1,300.00	13.49	113.25	1,275.97	-87.15	202.86	220.78	0.00	0.00	0.00	
1,400.00	13.49	113.25	1,373.21	-96.36	224.30	244.12	0.00	0.00	0.00	
1,500.00	13.49	113.25	1,470.45	-105.57	245.74	267.45	0.00	0.00	0.00	
1,600.00	13.49	113.25	1,567.69	-114.78	267.18	290.79	0.00	0.00	0.00	
1,700.00	13.49	113.25	1,664.93	-123.99	288.62	314.12	0.00	0.00	0.00	
1,800.00	13.49	113.25	1,762.17	-133.20	310.06	337.46	0.00	0.00	0.00	
1,900.00	13.49	113.25	1,859.41	-142.41	331.50	360.79	0.00	0.00	0.00	
2,000.00	13.49	113.25	1,956.65	-151.62	352.94	384.13	0.00	0.00	0.00	
2,100.00	13.49	113.25	2,053.88	-160.83	374.38	407.46	0.00	0.00	0.00	
2,189.59	13.49	113.25	2,141.00	-169.08	393.59	428.37	0.00	0.00	0.00	
<b>G_SAND</b>										
2,200.00	13.49	113.25	2,151.12	-170.04	395.82	430.80	0.00	0.00	0.00	
2,297.57	13.49	113.25	2,246.00	-179.03	416.74	453.57	0.00	0.00	0.00	
<b>G_SAND_BASE</b>										
2,300.00	13.49	113.25	2,248.36	-179.25	417.26	454.13	0.00	0.00	0.00	
2,400.00	13.49	113.25	2,345.60	-188.46	438.70	477.47	0.00	0.00	0.00	
2,500.00	13.49	113.25	2,442.84	-197.67	460.14	500.80	0.00	0.00	0.00	
2,600.00	13.49	113.25	2,540.08	-206.88	481.58	524.14	0.00	0.00	0.00	
2,700.00	13.49	113.25	2,637.32	-216.09	503.02	547.48	0.00	0.00	0.00	
2,800.00	13.49	113.25	2,734.56	-225.31	524.46	570.81	0.00	0.00	0.00	
2,900.00	13.49	113.25	2,831.80	-234.52	545.90	594.15	0.00	0.00	0.00	
3,000.00	13.49	113.25	2,929.04	-243.73	567.34	617.48	0.00	0.00	0.00	
3,100.00	13.49	113.25	3,026.28	-252.94	588.78	640.82	0.00	0.00	0.00	
3,200.00	13.49	113.25	3,123.52	-262.15	610.23	664.15	0.00	0.00	0.00	
3,300.00	13.49	113.25	3,220.76	-271.36	631.67	687.49	0.00	0.00	0.00	
3,400.00	13.49	113.25	3,317.99	-280.57	653.11	710.82	0.00	0.00	0.00	
3,500.00	13.49	113.25	3,415.23	-289.78	674.55	734.16	0.00	0.00	0.00	
3,600.00	13.49	113.25	3,512.47	-298.99	695.99	757.49	0.00	0.00	0.00	
3,700.00	13.49	113.25	3,609.71	-308.20	717.43	780.83	0.00	0.00	0.00	
3,800.00	13.49	113.25	3,706.95	-317.41	738.87	804.16	0.00	0.00	0.00	
3,857.64	13.49	113.25	3,763.00	-322.72	751.23	817.61	0.00	0.00	0.00	
<b>MVRD</b>										
3,900.00	13.49	113.25	3,804.19	-326.62	760.31	827.50	0.00	0.00	0.00	
4,000.00	13.49	113.25	3,901.43	-335.83	781.75	850.83	0.00	0.00	0.00	
4,100.00	13.49	113.25	3,998.67	-345.04	803.19	874.17	0.00	0.00	0.00	
4,171.98	13.49	113.25	4,068.66	-351.67	818.62	890.96	0.00	0.00	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 33-10	<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)
4,200.00	13.07	113.25	4,095.93	-354.22	824.54	897.40	1.50	-1.50	0.00
4,300.00	11.57	113.25	4,193.62	-362.64	844.15	918.75	1.50	-1.50	0.00
4,400.00	10.07	113.25	4,291.84	-370.05	861.40	937.53	1.50	-1.50	0.00
4,500.00	8.57	113.25	4,390.52	-376.45	876.29	953.73	1.50	-1.50	0.00
4,600.00	7.07	113.25	4,489.59	-381.82	888.80	967.34	1.50	-1.50	0.00
4,700.00	5.57	113.25	4,588.97	-386.17	898.92	978.36	1.50	-1.50	0.00
4,800.00	4.07	113.25	4,688.62	-389.49	906.64	986.76	1.50	-1.50	0.00
4,900.00	2.57	113.25	4,788.45	-391.78	911.97	992.56	1.50	-1.50	0.00
5,000.00	1.07	113.25	4,888.39	-393.03	914.90	995.75	1.50	-1.50	0.00
5,071.61	0.00	0.00	4,960.00	-393.30	915.51	996.42	1.50	-1.50	-158.14
KMGAS - GM 33-10 KMV									
5,100.00	0.00	0.00	4,988.39	-393.30	915.51	996.42	0.00	0.00	0.00
5,200.00	0.00	0.00	5,088.39	-393.30	915.51	996.42	0.00	0.00	0.00
5,300.00	0.00	0.00	5,188.39	-393.30	915.51	996.42	0.00	0.00	0.00
5,400.00	0.00	0.00	5,288.39	-393.30	915.51	996.42	0.00	0.00	0.00
5,500.00	0.00	0.00	5,388.39	-393.30	915.51	996.42	0.00	0.00	0.00
5,600.00	0.00	0.00	5,488.39	-393.30	915.51	996.42	0.00	0.00	0.00
5,700.00	0.00	0.00	5,588.39	-393.30	915.51	996.42	0.00	0.00	0.00
5,800.00	0.00	0.00	5,688.39	-393.30	915.51	996.42	0.00	0.00	0.00
5,900.00	0.00	0.00	5,788.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,000.00	0.00	0.00	5,888.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,100.00	0.00	0.00	5,988.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,200.00	0.00	0.00	6,088.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,300.00	0.00	0.00	6,188.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,316.61	0.00	0.00	6,205.00	-393.30	915.51	996.42	0.00	0.00	0.00
CMEO									
6,400.00	0.00	0.00	6,288.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,500.00	0.00	0.00	6,388.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,600.00	0.00	0.00	6,488.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,700.00	0.00	0.00	6,588.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,800.00	0.00	0.00	6,688.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,802.61	0.00	0.00	6,691.00	-393.30	915.51	996.42	0.00	0.00	0.00
RLNS									
6,900.00	0.00	0.00	6,788.39	-393.30	915.51	996.42	0.00	0.00	0.00
6,952.61	0.00	0.00	6,841.00	-393.30	915.51	996.42	0.00	0.00	0.00
GM 33-10 PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
GM 33-10 KMV	0.00	0.00	4,960.00	-393.30	915.51	1,599,937.00	2,267,821.20	39.4519057	-108.0932621
- plan hits target center									
- Circle (radius 25.00)									
GM 33-10 PBHL	0.00	0.00	6,841.00	-393.30	915.51	1,599,937.00	2,267,821.20	39.4519057	-108.0932621
- plan hits target center									
- Point									

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<b>Site:</b>	MV 5-10 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal GM 33-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 21Sept2016 jcsdi		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	984.25	9 5/8" @ 1000' MD	9.62	9.62	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,189.59	2,141.00	G_SAND		0.00	0.00	
2,297.57	2,246.00	G_SAND_BASE		0.00	0.00	
3,857.64	3,763.00	MVRD		0.00	0.00	
5,071.61	4,960.00	KMVGAS		0.00	0.00	
6,316.61	6,205.00	CMEO		0.00	0.00	
6,802.61	6,691.00	RLNS		0.00	0.00	