

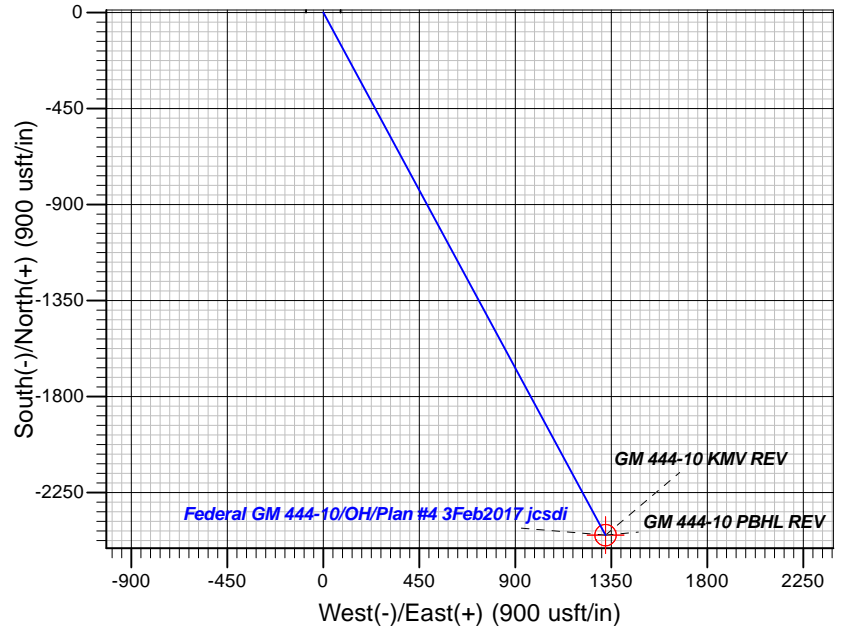
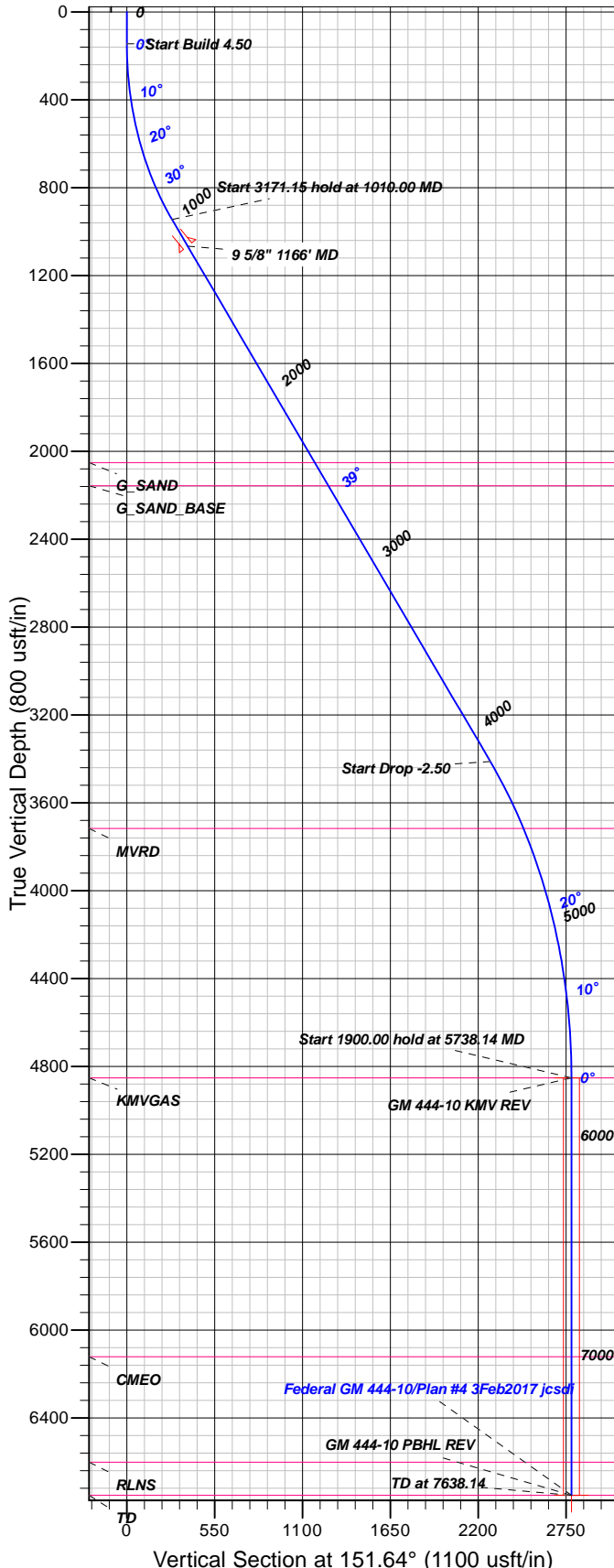
## Well Details: Federal GM 444-10

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600344.70	2266881.70	39.4529509	-108.0966291	A9

**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

TVDP	MD	Formation
2052.00	2432.96	G_SAND
2157.00	2567.93	G_SAND_BASE
3717.00	4550.73	MVRD
4852.00	5738.14	KMGAS
6122.00	7008.14	CMEQ
6602.00	7488.14	RLNS
6752.00	7638.14	TD

Plan: Plan #4 3Feb2017 jcsdi

13:24, February 03 2017  
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

TVD	MD	Name	Size
1067.07	1166.94	9 5/8" 1166' 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	145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	
3	1010.00	38.92	151.64	944.98	-248.76	134.30	4.50	151.64	282.70	
4	4181.15	38.92	151.64	3412.04	-2002.01	1080.83	0.00	0.00	2275.13	
5	5738.14	0.00	0.00	4852.00	-2449.78	1322.56	2.50	180.00	2783.99	GM 444-10 KMV REV
6	7638.14	0.00	0.00	6752.00	-2449.78	1322.56	0.00	0.00	2783.99	GM 444-10 PBHL REV

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 444-10 KMV REV 4852.00	-2449.78	1322.56	1597858.12	2268133.71	39.4462250	-108.0919458	Circle (Radius: 50.00)	
- plan hits target center								
GM 444-10 PBHL REV 6752.00	-2449.77	1322.56	1597858.12	2268133.71	39.4462250	-108.0919458	Point	
- plan hits target center								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**MV 5-10 Pad**

**Federal GM 444-10 - Slot A9**

**OH**

**Plan: Plan #4 3Feb2017 jcsdi**

## **Standard Planning Report**

**03 February, 2017**



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



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 444-10 - Slot A9
<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 444-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4 3Feb2017 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 444-10 - Slot A9			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,600,344.70 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	2,266,881.70 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 #4 3Feb2017 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	151.64

<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	
1,010.00	38.92	151.64	944.98	-248.76	134.30	4.50	4.50	0.00	151.64	
4,181.15	38.92	151.64	3,412.04	-2,002.01	1,080.83	0.00	0.00	0.00	0.00	
5,738.14	0.00	0.00	4,852.00	-2,449.78	1,322.56	2.50	-2.50	0.00	180.00	GM 444-10 KMV REV
7,638.14	0.00	0.00	6,752.00	-2,449.78	1,322.56	0.00	0.00	0.00	0.00	GM 444-10 PBHL RE'

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 444-10 - Slot A9
<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 444-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4 3Feb2017 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	2.48	151.64	199.98	-1.05	0.56	1.19	4.50	4.50	0.00	
300.00	6.98	151.64	299.62	-8.29	4.48	9.42	4.50	4.50	0.00	
400.00	11.48	151.64	398.30	-22.39	12.09	25.45	4.50	4.50	0.00	
500.00	15.98	151.64	495.42	-43.27	23.36	49.17	4.50	4.50	0.00	
600.00	20.48	151.64	590.38	-70.78	38.21	80.44	4.50	4.50	0.00	
700.00	24.98	151.64	682.59	-104.77	56.56	119.06	4.50	4.50	0.00	
800.00	29.48	151.64	771.49	-145.01	78.29	164.79	4.50	4.50	0.00	
900.00	33.98	151.64	856.53	-191.27	103.26	217.37	4.50	4.50	0.00	
1,000.00	38.48	151.64	937.18	-243.26	131.33	276.45	4.50	4.50	0.00	
1,010.00	38.92	151.64	944.98	-248.76	134.30	282.70	4.50	4.50	0.00	
1,100.00	38.92	151.64	1,015.00	-298.52	161.16	339.25	0.00	0.00	0.00	
1,166.94	38.92	151.64	1,067.07	-335.53	181.14	381.30	0.00	0.00	0.00	
9 5/8" 1166' MD										
1,200.00	38.92	151.64	1,092.79	-353.81	191.01	402.08	0.00	0.00	0.00	
1,300.00	38.92	151.64	1,170.59	-409.10	220.86	464.91	0.00	0.00	0.00	
1,400.00	38.92	151.64	1,248.39	-464.38	250.71	527.74	0.00	0.00	0.00	
1,500.00	38.92	151.64	1,326.19	-519.67	280.55	590.57	0.00	0.00	0.00	
1,600.00	38.92	151.64	1,403.98	-574.96	310.40	653.40	0.00	0.00	0.00	
1,700.00	38.92	151.64	1,481.78	-630.25	340.25	716.23	0.00	0.00	0.00	
1,800.00	38.92	151.64	1,559.58	-685.53	370.10	779.06	0.00	0.00	0.00	
1,900.00	38.92	151.64	1,637.37	-740.82	399.95	841.89	0.00	0.00	0.00	
2,000.00	38.92	151.64	1,715.17	-796.11	429.79	904.72	0.00	0.00	0.00	
2,100.00	38.92	151.64	1,792.97	-851.40	459.64	967.55	0.00	0.00	0.00	
2,200.00	38.92	151.64	1,870.76	-906.68	489.49	1,030.38	0.00	0.00	0.00	
2,300.00	38.92	151.64	1,948.56	-961.97	519.34	1,093.21	0.00	0.00	0.00	
2,400.00	38.92	151.64	2,026.36	-1,017.26	549.19	1,156.04	0.00	0.00	0.00	
2,432.96	38.92	151.64	2,052.00	-1,035.48	559.02	1,176.74	0.00	0.00	0.00	
G_SAND										
2,500.00	38.92	151.64	2,104.16	-1,072.55	579.04	1,218.87	0.00	0.00	0.00	
2,567.93	38.92	151.64	2,157.00	-1,110.10	599.31	1,261.54	0.00	0.00	0.00	
G_SAND_BASE										
2,600.00	38.92	151.64	2,181.95	-1,127.83	608.88	1,281.70	0.00	0.00	0.00	
2,700.00	38.92	151.64	2,259.75	-1,183.12	638.73	1,344.53	0.00	0.00	0.00	
2,800.00	38.92	151.64	2,337.55	-1,238.41	668.58	1,407.36	0.00	0.00	0.00	
2,900.00	38.92	151.64	2,415.34	-1,293.70	698.43	1,470.19	0.00	0.00	0.00	
3,000.00	38.92	151.64	2,493.14	-1,348.98	728.28	1,533.02	0.00	0.00	0.00	
3,100.00	38.92	151.64	2,570.94	-1,404.27	758.12	1,595.85	0.00	0.00	0.00	
3,200.00	38.92	151.64	2,648.74	-1,459.56	787.97	1,658.68	0.00	0.00	0.00	
3,300.00	38.92	151.64	2,726.53	-1,514.85	817.82	1,721.51	0.00	0.00	0.00	
3,400.00	38.92	151.64	2,804.33	-1,570.13	847.67	1,784.34	0.00	0.00	0.00	
3,500.00	38.92	151.64	2,882.13	-1,625.42	877.52	1,847.17	0.00	0.00	0.00	
3,600.00	38.92	151.64	2,959.92	-1,680.71	907.36	1,910.00	0.00	0.00	0.00	
3,700.00	38.92	151.64	3,037.72	-1,736.00	937.21	1,972.83	0.00	0.00	0.00	
3,800.00	38.92	151.64	3,115.52	-1,791.28	967.06	2,035.66	0.00	0.00	0.00	
3,900.00	38.92	151.64	3,193.32	-1,846.57	996.91	2,098.49	0.00	0.00	0.00	
4,000.00	38.92	151.64	3,271.11	-1,901.86	1,026.76	2,161.32	0.00	0.00	0.00	
4,100.00	38.92	151.64	3,348.91	-1,957.15	1,056.60	2,224.15	0.00	0.00	0.00	
4,181.15	38.92	151.64	3,412.04	-2,002.01	1,080.83	2,275.13	0.00	0.00	0.00	
4,200.00	38.45	151.64	3,426.75	-2,012.38	1,086.42	2,286.92	2.50	-2.50	0.00	

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 444-10 - Slot A9
<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 444-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4 3Feb2017 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)
4,300.00	35.95	151.64	3,506.40	-2,065.58	1,115.15	2,347.38	2.50	-2.50	0.00
4,400.00	33.45	151.64	3,588.60	-2,115.68	1,142.19	2,404.31	2.50	-2.50	0.00
4,500.00	30.95	151.64	3,673.21	-2,162.57	1,167.51	2,457.59	2.50	-2.50	0.00
4,550.73	29.69	151.64	3,717.00	-2,185.10	1,179.67	2,483.20	2.50	-2.50	0.00
<b>MVRD</b>									
4,600.00	28.45	151.64	3,760.06	-2,206.17	1,191.04	2,507.14	2.50	-2.50	0.00
4,700.00	25.95	151.64	3,849.00	-2,246.39	1,212.76	2,552.85	2.50	-2.50	0.00
4,800.00	23.45	151.64	3,939.84	-2,283.16	1,232.61	2,594.64	2.50	-2.50	0.00
4,900.00	20.95	151.64	4,032.41	-2,316.41	1,250.56	2,632.43	2.50	-2.50	0.00
5,000.00	18.45	151.64	4,126.55	-2,346.08	1,266.58	2,666.14	2.50	-2.50	0.00
5,100.00	15.95	151.64	4,222.07	-2,372.10	1,280.63	2,695.72	2.50	-2.50	0.00
5,200.00	13.45	151.64	4,318.79	-2,394.44	1,292.69	2,721.10	2.50	-2.50	0.00
5,300.00	10.95	151.64	4,416.52	-2,413.04	1,302.73	2,742.23	2.50	-2.50	0.00
5,400.00	8.45	151.64	4,515.08	-2,427.87	1,310.73	2,759.09	2.50	-2.50	0.00
5,500.00	5.95	151.64	4,614.28	-2,438.90	1,316.69	2,771.63	2.50	-2.50	0.00
5,600.00	3.45	151.64	4,713.94	-2,446.12	1,320.58	2,779.83	2.50	-2.50	0.00
5,700.00	0.95	151.64	4,813.86	-2,449.50	1,322.41	2,783.67	2.50	-2.50	0.00
5,738.14	0.00	0.00	4,852.00	-2,449.78	1,322.56	2,783.99	2.50	-2.50	0.00
<b>KMVGAS - GM 444-10 KMV REV</b>									
5,787.14	0.00	0.00	4,901.00	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
<b>GM 444-10 KMV</b>									
5,800.00	0.00	0.00	4,913.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
5,900.00	0.00	0.00	5,013.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,000.00	0.00	0.00	5,113.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,100.00	0.00	0.00	5,213.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,200.00	0.00	0.00	5,313.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,300.00	0.00	0.00	5,413.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,400.00	0.00	0.00	5,513.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,500.00	0.00	0.00	5,613.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,600.00	0.00	0.00	5,713.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,700.00	0.00	0.00	5,813.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,800.00	0.00	0.00	5,913.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
6,900.00	0.00	0.00	6,013.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
7,000.00	0.00	0.00	6,113.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
7,008.14	0.00	0.00	6,122.00	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
<b>CME0</b>									
7,100.00	0.00	0.00	6,213.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
7,200.00	0.00	0.00	6,313.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
7,300.00	0.00	0.00	6,413.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
7,400.00	0.00	0.00	6,513.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
7,488.14	0.00	0.00	6,602.00	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
<b>RLNS</b>									
7,500.00	0.00	0.00	6,613.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
7,600.00	0.00	0.00	6,713.86	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
7,638.14	0.00	0.00	6,752.00	-2,449.78	1,322.56	2,783.99	0.00	0.00	0.00
<b>TD - GM 444-10 PBHL - GM 444-10 PBHL REV</b>									

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 444-10 - Slot A9
<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 444-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4 3Feb2017 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 444-10 KMV REV - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,852.00	-2,449.78	1,322.56	1,597,858.12	2,268,133.71	39.4462250	-108.0919458
GM 444-10 PBHL REV - plan hits target center - Point	0.00	0.00	6,752.00	-2,449.77	1,322.56	1,597,858.12	2,268,133.71	39.4462250	-108.0919458

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,166.94	1,067.07	9 5/8" 1166' MD	9.62	9.62	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,432.96	2,052.00	G_SAND		0.00	0.00
2,567.93	2,157.00	G_SAND_BASE		0.00	0.00
4,550.73	3,717.00	MVRD		0.00	0.00
5,738.14	4,852.00	KMVGAS		0.00	0.00
7,008.14	6,122.00	CME0		0.00	0.00
7,488.14	6,602.00	RLNS		0.00	0.00
7,638.14	6,752.00	TD		0.00	0.00