

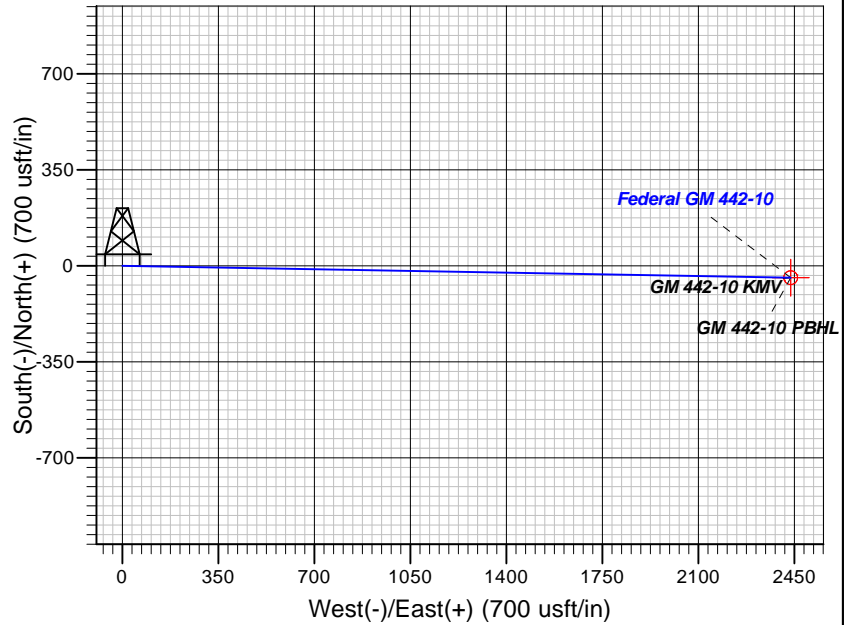
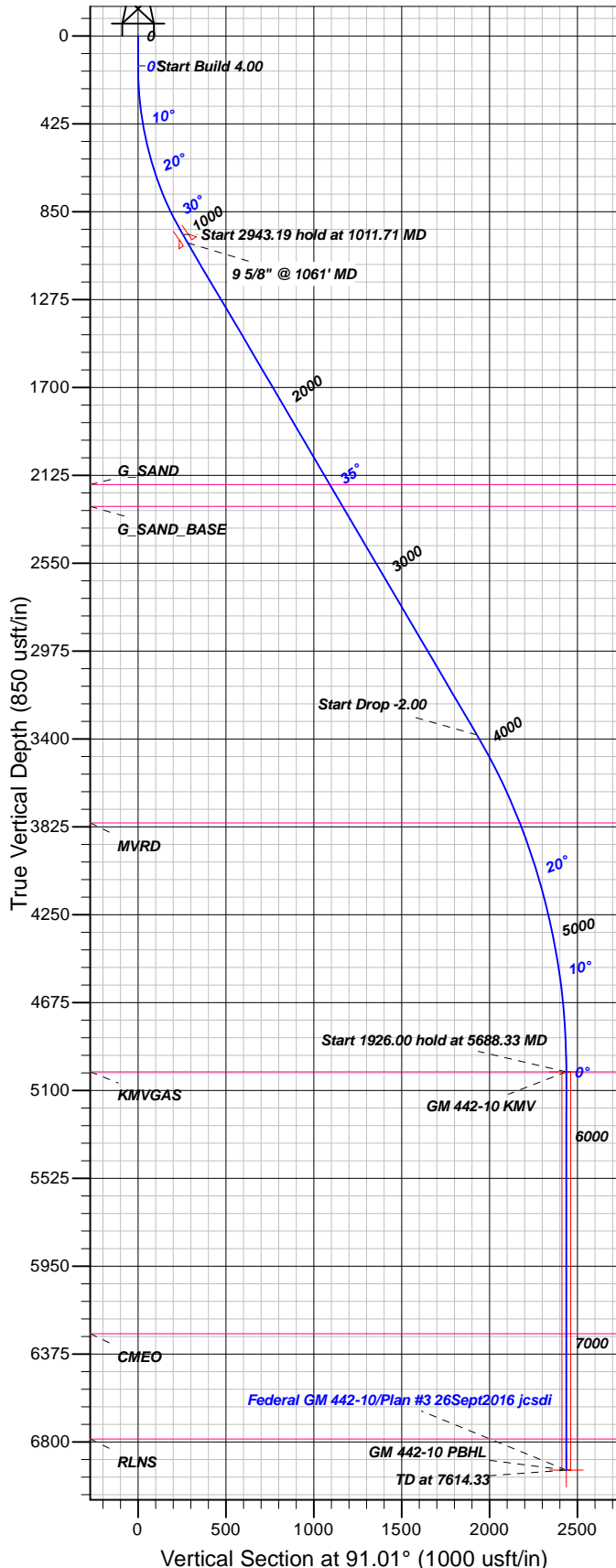
## Well Details: Federal GM 442-10

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600363.30	2266938.70	39.4530064	-108.0964292	A17

**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

TVDPath	MDPath	Formation
2170.00	2483.18	G_SAND
2275.00	2610.84	G_SAND_BASE
3806.00	4445.73	MVRD
5010.00	5688.33	KMVGAS
6277.00	6955.33	CMEO
6786.00	7464.33	RLNS

Plan: Plan #3 26Sept2016 jcsdi

21:15, September 26 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

TVD	MD	Name	Size
1000.91	1061.71	9 5/8" @ 1061' 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	1011.71	34.67	91.01	959.79	-4.49	254.27	4.00	91.01	254.31	
4	3954.90	34.67	91.01	3380.43	-34.01	1928.18	0.00	0.00	1928.48	
5	5688.33	0.00	0.00	5010.00	-42.98	2436.72	2.00	180.00	2437.10	GM 442-10 KMV
6	7614.33	0.00	0.00	6936.00	-42.98	2436.72	0.00	0.00	2437.10	GM 442-10 PBHL

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 442-10 KMV	5010.00	-42.98	2436.72	1600250.70	2269373.20	39.4528881	-108.0877998	Circle (Radius: 25.00)
- plan hits target center								
GM 442-10 PBHL	6936.00	-42.98	2436.72	1600250.70	2269373.20	39.4528881	-108.0877998	Point
- plan hits target center								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**MV 5-10 Pad**

**Federal GM 442-10 - Slot A17**

**OH**

**Plan: Plan #3 26Sept2016 jcsdi**

## **Standard Planning Report**

**26 September, 2016**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 442-10 - Slot A17
<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 442-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3 26Sept2016 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 442-10 - Slot A17			
<b>Well Position</b>	<b>+N/-S</b>	20.22 usft	<b>Northing:</b>	1,600,363.30 usft
	<b>+E/-W</b>	56.45 usft	<b>Easting:</b>	2,266,938.70 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 #3 26Sept2016 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	91.01

<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	
1,011.71	34.67	91.01	959.79	-4.49	254.27	4.00	4.00	0.00	91.01	
3,954.90	34.67	91.01	3,380.43	-34.01	1,928.18	0.00	0.00	0.00	0.00	
5,688.33	0.00	0.00	5,010.00	-42.98	2,436.72	2.00	-2.00	0.00	180.00	GM 442-10 KMV
7,614.33	0.00	0.00	6,936.00	-42.98	2,436.72	0.00	0.00	0.00	0.00	GM 442-10 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 442-10 - Slot A17
<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 442-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3 26Sept2016 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	2.20	91.01	199.99	-0.02	1.06	1.06	4.00	4.00	0.00	
300.00	6.20	91.01	299.70	-0.15	8.38	8.38	4.00	4.00	0.00	
400.00	10.20	91.01	398.66	-0.40	22.63	22.64	4.00	4.00	0.00	
500.00	14.20	91.01	496.38	-0.77	43.76	43.77	4.00	4.00	0.00	
600.00	18.20	91.01	592.39	-1.26	71.65	71.66	4.00	4.00	0.00	
700.00	22.20	91.01	686.22	-1.87	106.17	106.18	4.00	4.00	0.00	
800.00	26.20	91.01	777.41	-2.60	147.14	147.17	4.00	4.00	0.00	
900.00	30.20	91.01	865.52	-3.43	194.38	194.41	4.00	4.00	0.00	
1,000.00	34.20	91.01	950.13	-4.37	247.65	247.69	4.00	4.00	0.00	
1,011.71	34.67	91.01	959.79	-4.49	254.27	254.31	4.00	4.00	0.00	
1,061.71	34.67	91.01	1,000.91	-4.99	282.71	282.75	0.00	0.00	0.00	
9 5/8" @ 1061' MD										
1,100.00	34.67	91.01	1,032.40	-5.37	304.48	304.53	0.00	0.00	0.00	
1,200.00	34.67	91.01	1,114.64	-6.37	361.36	361.41	0.00	0.00	0.00	
1,300.00	34.67	91.01	1,196.89	-7.38	418.23	418.30	0.00	0.00	0.00	
1,400.00	34.67	91.01	1,279.13	-8.38	475.11	475.18	0.00	0.00	0.00	
1,500.00	34.67	91.01	1,361.38	-9.38	531.98	532.06	0.00	0.00	0.00	
1,600.00	34.67	91.01	1,443.63	-10.39	588.85	588.95	0.00	0.00	0.00	
1,700.00	34.67	91.01	1,525.87	-11.39	645.73	645.83	0.00	0.00	0.00	
1,800.00	34.67	91.01	1,608.12	-12.39	702.60	702.71	0.00	0.00	0.00	
1,900.00	34.67	91.01	1,690.36	-13.40	759.48	759.59	0.00	0.00	0.00	
2,000.00	34.67	91.01	1,772.61	-14.40	816.35	816.48	0.00	0.00	0.00	
2,100.00	34.67	91.01	1,854.85	-15.40	873.22	873.36	0.00	0.00	0.00	
2,200.00	34.67	91.01	1,937.10	-16.41	930.10	930.24	0.00	0.00	0.00	
2,300.00	34.67	91.01	2,019.35	-17.41	986.97	987.13	0.00	0.00	0.00	
2,400.00	34.67	91.01	2,101.59	-18.41	1,043.85	1,044.01	0.00	0.00	0.00	
2,483.18	34.67	91.01	2,170.00	-19.25	1,091.15	1,091.32	0.00	0.00	0.00	
G_SAND										
2,500.00	34.67	91.01	2,183.84	-19.42	1,100.72	1,100.89	0.00	0.00	0.00	
2,600.00	34.67	91.01	2,266.08	-20.42	1,157.59	1,157.77	0.00	0.00	0.00	
2,610.84	34.67	91.01	2,275.00	-20.53	1,163.76	1,163.94	0.00	0.00	0.00	
G_SAND_BASE										
2,700.00	34.67	91.01	2,348.33	-21.42	1,214.47	1,214.66	0.00	0.00	0.00	
2,800.00	34.67	91.01	2,430.57	-22.43	1,271.34	1,271.54	0.00	0.00	0.00	
2,900.00	34.67	91.01	2,512.82	-23.43	1,328.22	1,328.42	0.00	0.00	0.00	
3,000.00	34.67	91.01	2,595.07	-24.43	1,385.09	1,385.31	0.00	0.00	0.00	
3,100.00	34.67	91.01	2,677.31	-25.44	1,441.96	1,442.19	0.00	0.00	0.00	
3,200.00	34.67	91.01	2,759.56	-26.44	1,498.84	1,499.07	0.00	0.00	0.00	
3,300.00	34.67	91.01	2,841.80	-27.44	1,555.71	1,555.95	0.00	0.00	0.00	
3,400.00	34.67	91.01	2,924.05	-28.45	1,612.59	1,612.84	0.00	0.00	0.00	
3,500.00	34.67	91.01	3,006.29	-29.45	1,669.46	1,669.72	0.00	0.00	0.00	
3,600.00	34.67	91.01	3,088.54	-30.45	1,726.33	1,726.60	0.00	0.00	0.00	
3,700.00	34.67	91.01	3,170.79	-31.46	1,783.21	1,783.48	0.00	0.00	0.00	
3,800.00	34.67	91.01	3,253.03	-32.46	1,840.08	1,840.37	0.00	0.00	0.00	
3,900.00	34.67	91.01	3,335.28	-33.46	1,896.96	1,897.25	0.00	0.00	0.00	
3,954.90	34.67	91.01	3,380.43	-34.01	1,928.18	1,928.48	0.00	0.00	0.00	
4,000.00	33.77	91.01	3,417.72	-34.46	1,953.54	1,953.84	2.00	-2.00	0.00	
4,100.00	31.77	91.01	3,501.81	-35.42	2,007.65	2,007.96	2.00	-2.00	0.00	
4,200.00	29.77	91.01	3,587.73	-36.32	2,058.79	2,059.11	2.00	-2.00	0.00	

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 442-10 - Slot A17
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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 442-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3 26Sept2016 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	27.77	91.01	3,675.38	-37.17	2,106.90	2,107.23	2.00	-2.00	0.00
4,400.00	25.77	91.01	3,764.66	-37.96	2,151.93	2,152.27	2.00	-2.00	0.00
4,445.73	24.85	91.01	3,806.00	-38.31	2,171.48	2,171.81	2.00	-2.00	0.00
<b>MVRD</b>									
4,500.00	23.77	91.01	3,855.46	-38.70	2,193.81	2,194.16	2.00	-2.00	0.00
4,600.00	21.77	91.01	3,947.66	-39.38	2,232.50	2,232.85	2.00	-2.00	0.00
4,700.00	19.77	91.01	4,041.16	-40.01	2,267.95	2,268.31	2.00	-2.00	0.00
4,800.00	17.77	91.01	4,135.84	-40.57	2,300.12	2,300.47	2.00	-2.00	0.00
4,900.00	15.77	91.01	4,231.59	-41.08	2,328.96	2,329.32	2.00	-2.00	0.00
5,000.00	13.77	91.01	4,328.28	-41.53	2,354.44	2,354.81	2.00	-2.00	0.00
5,100.00	11.77	91.01	4,425.80	-41.92	2,376.53	2,376.90	2.00	-2.00	0.00
5,200.00	9.77	91.01	4,524.04	-42.25	2,395.21	2,395.58	2.00	-2.00	0.00
5,300.00	7.77	91.01	4,622.86	-42.52	2,410.45	2,410.82	2.00	-2.00	0.00
5,400.00	5.77	91.01	4,722.16	-42.73	2,422.23	2,422.61	2.00	-2.00	0.00
5,500.00	3.77	91.01	4,821.81	-42.88	2,430.54	2,430.91	2.00	-2.00	0.00
5,600.00	1.77	91.01	4,921.69	-42.96	2,435.36	2,435.74	2.00	-2.00	0.00
5,688.33	0.00	0.00	5,010.00	-42.98	2,436.72	2,437.10	2.00	-2.00	-103.04
<b>KMVGAS - GM 442-10 KMV</b>									
5,700.00	0.00	0.00	5,021.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
5,800.00	0.00	0.00	5,121.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
5,900.00	0.00	0.00	5,221.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,000.00	0.00	0.00	5,321.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,100.00	0.00	0.00	5,421.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,200.00	0.00	0.00	5,521.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,300.00	0.00	0.00	5,621.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,400.00	0.00	0.00	5,721.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,500.00	0.00	0.00	5,821.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,600.00	0.00	0.00	5,921.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,700.00	0.00	0.00	6,021.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,800.00	0.00	0.00	6,121.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,900.00	0.00	0.00	6,221.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
6,955.33	0.00	0.00	6,277.00	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
<b>CME0</b>									
7,000.00	0.00	0.00	6,321.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
7,100.00	0.00	0.00	6,421.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
7,200.00	0.00	0.00	6,521.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
7,300.00	0.00	0.00	6,621.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
7,400.00	0.00	0.00	6,721.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
7,464.33	0.00	0.00	6,786.00	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
<b>RLNS</b>									
7,500.00	0.00	0.00	6,821.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
7,600.00	0.00	0.00	6,921.67	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
7,614.33	0.00	0.00	6,936.00	-42.98	2,436.72	2,437.10	0.00	0.00	0.00
<b>GM 442-10 PBHL</b>									

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 442-10 - Slot A17
<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 442-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3 26Sept2016 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 442-10 KMV - plan hits target center - Circle (radius 25.00)	0.00	0.00	5,010.00	-42.98	2,436.72	1,600,250.70	2,269,373.20	39.4528881	-108.0877998
GM 442-10 PBHL - plan hits target center - Point	0.00	0.00	6,936.00	-42.98	2,436.72	1,600,250.70	2,269,373.20	39.4528881	-108.0877998

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,061.71	1,000.91	9 5/8" @ 1061' MD	9.62	9.62	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,483.18	2,170.00	G_SAND		0.00	0.00	
2,610.84	2,275.00	G_SAND_BASE		0.00	0.00	
4,445.73	3,806.00	MVRD		0.00	0.00	
5,688.33	5,010.00	KMVGAS		0.00	0.00	
6,955.33	6,277.00	CMEQ		0.00	0.00	
7,464.33	6,786.00	RLNS		0.00	0.00	