

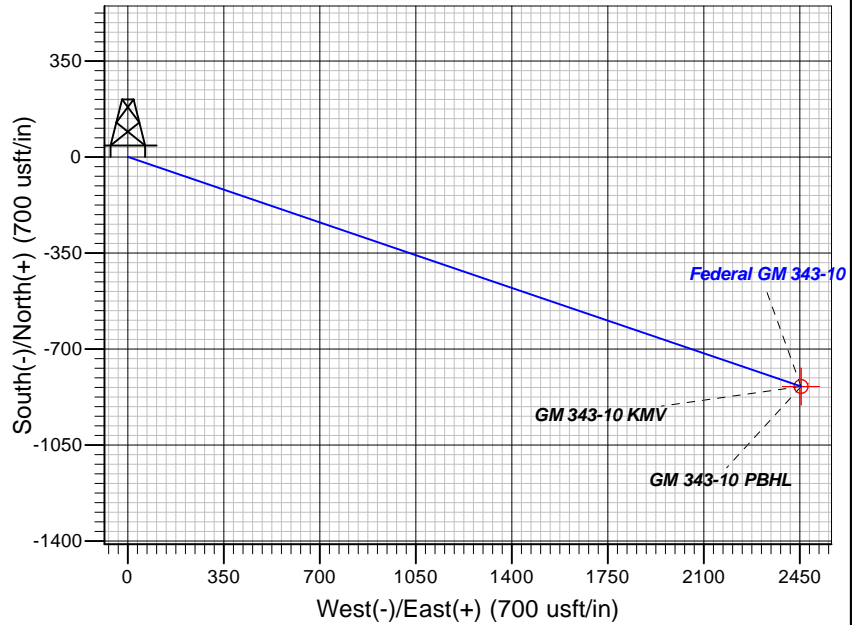
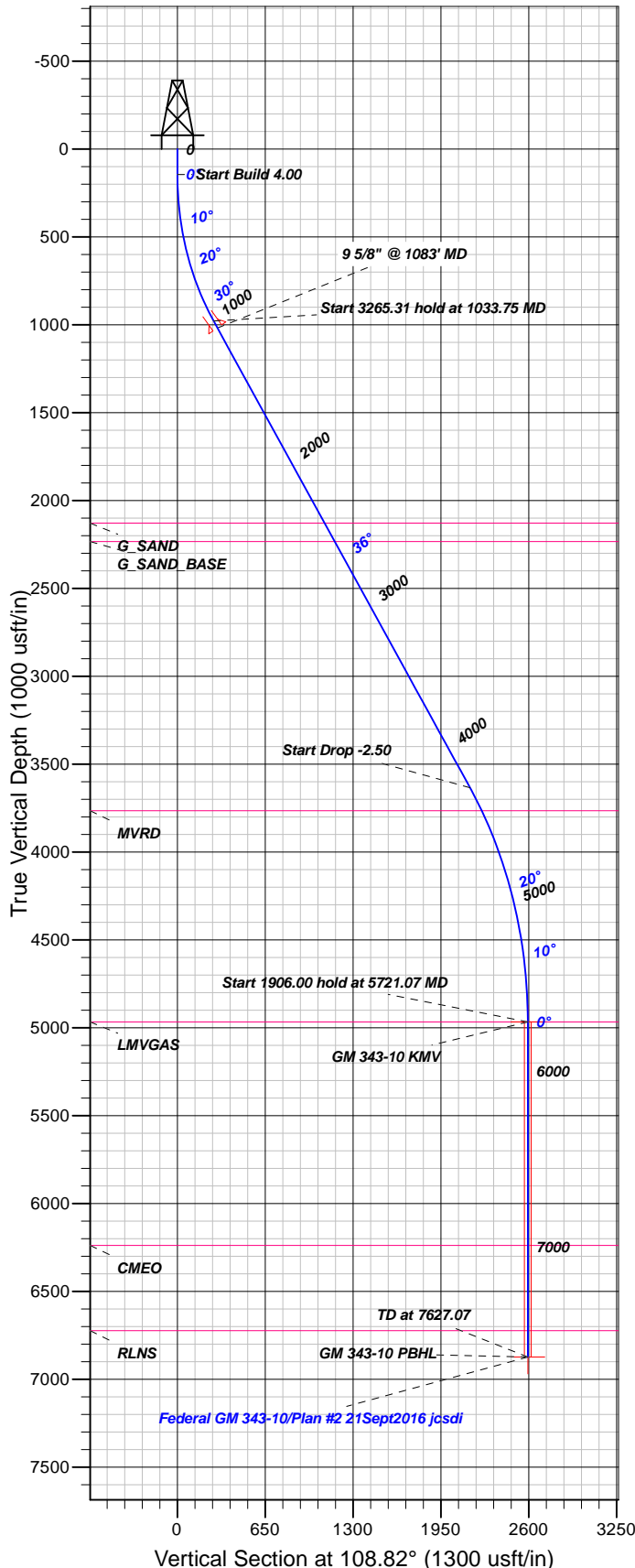
## Well Details: Federal GM 343-10

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600358.70	2266924.40	39.4529927	-108.0964794	A15

**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
2128.00	2447.44	G_SAND
2233.00	2576.49	G_SAND_BASE
3765.00	4455.76	MVRD
4967.00	5721.07	LMVGAS
6238.00	6992.07	CMEQ
6723.00	7477.07	RLNS

Plan: Plan #2 21Sept2016 jcsdi

10:20, 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

TVD	MD	Name	Size
1018.49	1083.75	9 5/8" @ 1083' 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	1033.75	35.55	108.82	977.81	-86.14	252.71	4.00	108.82	266.99	
4	4299.06	35.55	108.82	3634.50	-698.69	2049.67	0.00	0.00	2165.48	
5	5721.07	0.00	0.00	4967.00	-836.51	2454.01	2.50	180.00	2592.66	GM 343-10 KMV
6	7627.07	0.00	0.00	6873.00	-836.51	2454.01	0.00	0.00	2592.66	GM 343-10 PBHL

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 343-10 KMV	4967.00	-836.51	2454.01	1599452.40	2269353.50	39.4506957	-108.0877890	Circle (Radius: 25.00)
- plan hits target center								
GM 343-10 PBHL	6873.00	-836.51	2454.01	1599452.40	2269353.50	39.4506957	-108.0877890	Point
- plan hits target center								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**MV 5-10 Pad**

**Federal GM 343-10 - Slot A15**

**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 343-10 - Slot A15
<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 343-10	<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 343-10 - Slot A15			
<b>Well Position</b>	<b>+N/-S</b>	15.21 usft	<b>Northing:</b>	1,600,358.70 usft
	<b>+E/-W</b>	42.28 usft	<b>Easting:</b>	2,266,924.40 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	108.82

<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	
1,033.75	35.55	108.82	977.81	-86.14	252.71	4.00	4.00	0.00	108.82	
4,299.06	35.55	108.82	3,634.50	-698.69	2,049.67	0.00	0.00	0.00	0.00	
5,721.07	0.00	0.00	4,967.00	-836.51	2,454.01	2.50	-2.50	0.00	180.00	GM 343-10 KMV
7,627.07	0.00	0.00	6,873.00	-836.51	2,454.01	0.00	0.00	0.00	0.00	GM 343-10 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 343-10 - Slot A15
<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 343-10	<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	2.20	108.82	199.99	-0.34	1.00	1.06	4.00	4.00	0.00	
300.00	6.20	108.82	299.70	-2.70	7.93	8.38	4.00	4.00	0.00	
400.00	10.20	108.82	398.66	-7.30	21.43	22.64	4.00	4.00	0.00	
500.00	14.20	108.82	496.38	-14.12	41.43	43.77	4.00	4.00	0.00	
600.00	18.20	108.82	592.39	-23.12	67.83	71.66	4.00	4.00	0.00	
700.00	22.20	108.82	686.22	-34.26	100.50	106.18	4.00	4.00	0.00	
800.00	26.20	108.82	777.41	-47.48	139.30	147.17	4.00	4.00	0.00	
900.00	30.20	108.82	865.52	-62.73	184.01	194.41	4.00	4.00	0.00	
1,000.00	34.20	108.82	950.13	-79.92	234.44	247.69	4.00	4.00	0.00	
1,033.75	35.55	108.82	977.81	-86.14	252.71	266.99	4.00	4.00	0.00	
1,083.75	35.55	108.82	1,018.49	-95.52	280.22	296.06	0.00	0.00	0.00	
9 5/8" @ 1083' MD										
1,100.00	35.55	108.82	1,031.71	-98.57	289.17	305.50	0.00	0.00	0.00	
1,200.00	35.55	108.82	1,113.08	-117.33	344.20	363.65	0.00	0.00	0.00	
1,300.00	35.55	108.82	1,194.44	-136.09	399.23	421.79	0.00	0.00	0.00	
1,400.00	35.55	108.82	1,275.80	-154.85	454.26	479.93	0.00	0.00	0.00	
1,500.00	35.55	108.82	1,357.16	-173.61	509.29	538.07	0.00	0.00	0.00	
1,600.00	35.55	108.82	1,438.52	-192.37	564.33	596.21	0.00	0.00	0.00	
1,700.00	35.55	108.82	1,519.88	-211.12	619.36	654.35	0.00	0.00	0.00	
1,800.00	35.55	108.82	1,601.24	-229.88	674.39	712.49	0.00	0.00	0.00	
1,900.00	35.55	108.82	1,682.60	-248.64	729.42	770.64	0.00	0.00	0.00	
2,000.00	35.55	108.82	1,763.96	-267.40	784.45	828.78	0.00	0.00	0.00	
2,100.00	35.55	108.82	1,845.32	-286.16	839.49	886.92	0.00	0.00	0.00	
2,200.00	35.55	108.82	1,926.68	-304.92	894.52	945.06	0.00	0.00	0.00	
2,300.00	35.55	108.82	2,008.04	-323.68	949.55	1,003.20	0.00	0.00	0.00	
2,400.00	35.55	108.82	2,089.40	-342.44	1,004.58	1,061.34	0.00	0.00	0.00	
2,447.44	35.55	108.82	2,128.00	-351.34	1,030.69	1,088.92	0.00	0.00	0.00	
G_SAND										
2,500.00	35.55	108.82	2,170.77	-361.20	1,059.61	1,119.48	0.00	0.00	0.00	
2,576.49	35.55	108.82	2,233.00	-375.55	1,101.71	1,163.96	0.00	0.00	0.00	
G_SAND_BASE										
2,600.00	35.55	108.82	2,252.13	-379.96	1,114.65	1,177.63	0.00	0.00	0.00	
2,700.00	35.55	108.82	2,333.49	-398.72	1,169.68	1,235.77	0.00	0.00	0.00	
2,800.00	35.55	108.82	2,414.85	-417.47	1,224.71	1,293.91	0.00	0.00	0.00	
2,900.00	35.55	108.82	2,496.21	-436.23	1,279.74	1,352.05	0.00	0.00	0.00	
3,000.00	35.55	108.82	2,577.57	-454.99	1,334.77	1,410.19	0.00	0.00	0.00	
3,100.00	35.55	108.82	2,658.93	-473.75	1,389.81	1,468.33	0.00	0.00	0.00	
3,200.00	35.55	108.82	2,740.29	-492.51	1,444.84	1,526.47	0.00	0.00	0.00	
3,300.00	35.55	108.82	2,821.65	-511.27	1,499.87	1,584.62	0.00	0.00	0.00	
3,400.00	35.55	108.82	2,903.01	-530.03	1,554.90	1,642.76	0.00	0.00	0.00	
3,500.00	35.55	108.82	2,984.37	-548.79	1,609.93	1,700.90	0.00	0.00	0.00	
3,600.00	35.55	108.82	3,065.73	-567.55	1,664.97	1,759.04	0.00	0.00	0.00	
3,700.00	35.55	108.82	3,147.10	-586.31	1,720.00	1,817.18	0.00	0.00	0.00	
3,800.00	35.55	108.82	3,228.46	-605.07	1,775.03	1,875.32	0.00	0.00	0.00	
3,900.00	35.55	108.82	3,309.82	-623.82	1,830.06	1,933.46	0.00	0.00	0.00	
4,000.00	35.55	108.82	3,391.18	-642.58	1,885.09	1,991.61	0.00	0.00	0.00	
4,100.00	35.55	108.82	3,472.54	-661.34	1,940.13	2,049.75	0.00	0.00	0.00	
4,200.00	35.55	108.82	3,553.90	-680.10	1,995.16	2,107.89	0.00	0.00	0.00	
4,299.06	35.55	108.82	3,634.50	-698.69	2,049.67	2,165.48	0.00	0.00	0.00	

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 343-10 - Slot A15
<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 343-10	<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)
4,300.00	35.53	108.82	3,635.26	-698.86	2,050.19	2,166.03	2.50	-2.50	0.00
4,400.00	33.03	108.82	3,717.89	-717.03	2,103.49	2,222.34	2.50	-2.50	0.00
4,455.76	31.63	108.82	3,765.00	-726.65	2,131.72	2,252.16	2.50	-2.50	0.00
<b>MVRD</b>									
4,500.00	30.53	108.82	3,802.89	-734.02	2,153.33	2,275.00	2.50	-2.50	0.00
4,600.00	28.03	108.82	3,890.11	-749.80	2,199.62	2,323.90	2.50	-2.50	0.00
4,700.00	25.53	108.82	3,979.38	-764.33	2,242.26	2,368.95	2.50	-2.50	0.00
4,800.00	23.03	108.82	4,070.53	-777.60	2,281.17	2,410.06	2.50	-2.50	0.00
4,900.00	20.53	108.82	4,163.39	-789.56	2,316.28	2,447.15	2.50	-2.50	0.00
5,000.00	18.03	108.82	4,257.77	-800.22	2,347.52	2,480.16	2.50	-2.50	0.00
5,100.00	15.53	108.82	4,353.51	-809.53	2,374.84	2,509.03	2.50	-2.50	0.00
5,200.00	13.03	108.82	4,450.41	-817.48	2,398.18	2,533.68	2.50	-2.50	0.00
5,300.00	10.53	108.82	4,548.30	-824.07	2,417.50	2,554.09	2.50	-2.50	0.00
5,400.00	8.03	108.82	4,646.98	-829.27	2,432.76	2,570.21	2.50	-2.50	0.00
5,500.00	5.53	108.82	4,746.28	-833.08	2,443.92	2,582.01	2.50	-2.50	0.00
5,600.00	3.03	108.82	4,845.99	-835.48	2,450.98	2,589.47	2.50	-2.50	0.00
5,700.00	0.53	108.82	4,945.94	-836.48	2,453.92	2,592.57	2.50	-2.50	0.00
5,721.07	0.00	0.00	4,967.00	-836.51	2,454.01	2,592.66	2.50	-2.50	-516.60
<b>LMVGAS - GM 343-10 KMV</b>									
5,800.00	0.00	0.00	5,045.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
5,900.00	0.00	0.00	5,145.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,000.00	0.00	0.00	5,245.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,100.00	0.00	0.00	5,345.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,200.00	0.00	0.00	5,445.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,300.00	0.00	0.00	5,545.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,400.00	0.00	0.00	5,645.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,500.00	0.00	0.00	5,745.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,600.00	0.00	0.00	5,845.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,700.00	0.00	0.00	5,945.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,800.00	0.00	0.00	6,045.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,900.00	0.00	0.00	6,145.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
6,992.07	0.00	0.00	6,238.00	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
<b>CME0</b>									
7,000.00	0.00	0.00	6,245.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
7,100.00	0.00	0.00	6,345.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
7,200.00	0.00	0.00	6,445.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
7,300.00	0.00	0.00	6,545.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
7,400.00	0.00	0.00	6,645.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
7,477.07	0.00	0.00	6,723.00	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
<b>RLNS</b>									
7,500.00	0.00	0.00	6,745.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
7,600.00	0.00	0.00	6,845.94	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
7,627.07	0.00	0.00	6,873.00	-836.51	2,454.01	2,592.66	0.00	0.00	0.00
<b>GM 343-10 PBHL</b>									

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 343-10 - Slot A15
<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 343-10	<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 343-10 KMV - plan hits target center - Circle (radius 25.00)	0.00	0.00	4,967.00	-836.51	2,454.01	1,599,452.40	2,269,353.50	39.4506957	-108.0877890
GM 343-10 PBHL - plan hits target center - Point	0.00	0.00	6,873.00	-836.51	2,454.01	1,599,452.40	2,269,353.50	39.4506957	-108.0877890

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,083.75	1,018.49	9 5/8" @ 1083' MD	9.62	9.62	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,447.44	2,128.00	G_SAND		0.00	0.00
2,576.49	2,233.00	G_SAND_BASE		0.00	0.00
4,455.76	3,765.00	MVRD		0.00	0.00
5,721.07	4,967.00	LMVGAS		0.00	0.00
6,992.07	6,238.00	CME0		0.00	0.00
7,477.07	6,723.00	RLNS		0.00	0.00