

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**RWF 13-19**

**PA 34-24**

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**21 June, 2017**

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 34-24
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 5757.5ft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 5757.5ft (Original Well Elev)
<b>Site:</b>	RWF 13-19	<b>North Reference:</b>	True
<b>Well:</b>	PA 34-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

<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>	RWF 13-19			
<b>Site Position:</b>		<b>Northing:</b>	1,618,780.80 ft	<b>Latitude:</b> 39° 30' 25.236 N
<b>From:</b> Map		<b>Easting:</b>	2,312,540.00 ft	<b>Longitude:</b> 107° 56' 12.334 W
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.54 °

<b>Well</b>	PA 34-24, A8			
<b>Well Position</b>	<b>+N/-S</b>	-1.9 ft	<b>Northing:</b>	1,618,778.70 ft
	<b>+E/-W</b>	7.3 ft	<b>Easting:</b>	2,312,547.20 ft
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	
			<b>Ground Level:</b>	5,733.5 ft

<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>
	IGRF2015	5/9/2017	9.69	65.61	51,556.12998385

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	266.13

<b>Plan Survey Tool Program</b>	<b>Date</b>	6/21/2017		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.0	8,715.2 Plan #1 (OH)	SDI MWD	
			SDI MWD - Standard ver 1.0.1	

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.00	
386.7	8.00	235.00	385.8	-10.7	-15.2	3.00	3.00	0.00	235.00	
636.7	8.00	235.00	633.4	-30.6	-43.7	0.00	0.00	0.00	0.00	
1,035.8	17.94	267.56	1,022.3	-49.2	-128.2	3.00	2.49	8.16	53.04	
5,727.6	17.94	267.56	5,485.8	-110.9	-1,572.4	0.00	0.00	0.00	0.00	
6,923.9	0.00	0.00	6,662.7	-118.8	-1,758.0	1.50	-1.50	0.00	180.00	
8,715.2	0.00	0.00	8,454.0	-118.8	-1,758.0	0.00	0.00	0.00	0.00	PBHL (PA 34-24)

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 34-24
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 5754.0ft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 5754.0ft (Original Well Elev)
<b>Site:</b>	RWF 13-19	<b>North Reference:</b>	True
<b>Well:</b>	PA 34-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>SHL (PA 34-24)</b>									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	2.40	235.00	200.0	-1.0	-1.4	1.4	3.00	3.00	0.00
300.0	5.40	235.00	299.7	-4.9	-6.9	7.3	3.00	3.00	0.00
386.7	8.00	235.00	385.8	-10.7	-15.2	15.9	3.00	3.00	0.00
400.0	8.00	235.00	399.0	-11.7	-16.7	17.5	0.00	0.00	0.00
500.0	8.00	235.00	498.0	-19.7	-28.1	29.4	0.00	0.00	0.00
600.0	8.00	235.00	597.1	-27.7	-39.5	41.3	0.00	0.00	0.00
636.7	8.00	235.00	633.4	-30.6	-43.7	45.7	0.00	0.00	0.00
700.0	9.27	244.47	696.0	-35.3	-51.9	54.2	3.00	2.00	14.95
800.0	11.62	254.81	794.3	-41.5	-68.9	71.6	3.00	2.35	10.34
900.0	14.22	261.56	891.8	-45.9	-90.8	93.7	3.00	2.60	6.76
1,000.0	16.95	266.22	988.1	-48.7	-117.5	120.5	3.00	2.73	4.66
1,035.8	17.94	267.56	1,022.3	-49.2	-128.2	131.3	3.00	2.79	3.72
1,100.0	17.94	267.56	1,083.3	-50.1	-148.0	151.0	0.00	0.00	0.00
<b>9 5/8"</b>									
1,200.0	17.94	267.56	1,178.5	-51.4	-178.8	181.8	0.00	0.00	0.00
1,300.0	17.94	267.56	1,273.6	-52.7	-209.5	212.6	0.00	0.00	0.00
1,400.0	17.94	267.56	1,368.8	-54.0	-240.3	243.4	0.00	0.00	0.00
1,500.0	17.94	267.56	1,463.9	-55.3	-271.1	274.2	0.00	0.00	0.00
1,600.0	17.94	267.56	1,559.0	-56.7	-301.9	305.0	0.00	0.00	0.00
1,700.0	17.94	267.56	1,654.2	-58.0	-332.7	335.8	0.00	0.00	0.00
1,800.0	17.94	267.56	1,749.3	-59.3	-363.4	366.6	0.00	0.00	0.00
1,900.0	17.94	267.56	1,844.4	-60.6	-394.2	397.4	0.00	0.00	0.00
2,000.0	17.94	267.56	1,939.6	-61.9	-425.0	428.2	0.00	0.00	0.00
2,100.0	17.94	267.56	2,034.7	-63.2	-455.8	459.0	0.00	0.00	0.00
2,200.0	17.94	267.56	2,129.8	-64.5	-486.6	489.8	0.00	0.00	0.00
2,300.0	17.94	267.56	2,225.0	-65.8	-517.3	520.6	0.00	0.00	0.00
2,400.0	17.94	267.56	2,320.1	-67.2	-548.1	551.4	0.00	0.00	0.00
2,500.0	17.94	267.56	2,415.2	-68.5	-578.9	582.2	0.00	0.00	0.00
2,567.0	17.94	267.56	2,479.0	-69.4	-599.5	602.9	0.00	0.00	0.00
<b>G Sand</b>									
2,600.0	17.94	267.56	2,510.4	-69.8	-609.7	613.0	0.00	0.00	0.00
2,700.0	17.94	267.56	2,605.5	-71.1	-640.5	643.8	0.00	0.00	0.00
2,800.0	17.94	267.56	2,700.7	-72.4	-671.3	674.6	0.00	0.00	0.00
2,900.0	17.94	267.56	2,795.8	-73.7	-702.0	705.4	0.00	0.00	0.00
3,000.0	17.94	267.56	2,890.9	-75.0	-732.8	736.2	0.00	0.00	0.00
3,100.0	17.94	267.56	2,986.1	-76.4	-763.6	767.0	0.00	0.00	0.00
3,200.0	17.94	267.56	3,081.2	-77.7	-794.4	797.8	0.00	0.00	0.00
3,300.0	17.94	267.56	3,176.3	-79.0	-825.2	828.6	0.00	0.00	0.00
3,400.0	17.94	267.56	3,271.5	-80.3	-855.9	859.4	0.00	0.00	0.00
3,500.0	17.94	267.56	3,366.6	-81.6	-886.7	890.2	0.00	0.00	0.00
3,600.0	17.94	267.56	3,461.7	-82.9	-917.5	921.0	0.00	0.00	0.00
3,700.0	17.94	267.56	3,556.9	-84.2	-948.3	951.8	0.00	0.00	0.00
3,800.0	17.94	267.56	3,652.0	-85.5	-979.1	982.6	0.00	0.00	0.00
3,900.0	17.94	267.56	3,747.1	-86.9	-1,009.9	1,013.4	0.00	0.00	0.00
4,000.0	17.94	267.56	3,842.3	-88.2	-1,040.6	1,044.2	0.00	0.00	0.00
4,100.0	17.94	267.56	3,937.4	-89.5	-1,071.4	1,075.0	0.00	0.00	0.00
4,200.0	17.94	267.56	4,032.5	-90.8	-1,102.2	1,105.8	0.00	0.00	0.00
4,300.0	17.94	267.56	4,127.7	-92.1	-1,133.0	1,136.6	0.00	0.00	0.00
4,400.0	17.94	267.56	4,222.8	-93.4	-1,163.8	1,167.4	0.00	0.00	0.00

**N/A**  
Planning Report

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<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 5754.0ft (Original Well Elev)
<b>Site:</b>	RWF 13-19	<b>North Reference:</b>	True
<b>Well:</b>	PA 34-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.0	17.94	267.56	4,318.0	-94.7	-1,194.5	1,198.2	0.00	0.00	0.00
4,600.0	17.94	267.56	4,413.1	-96.1	-1,225.3	1,229.0	0.00	0.00	0.00
4,700.0	17.94	267.56	4,508.2	-97.4	-1,256.1	1,259.8	0.00	0.00	0.00
4,800.0	17.94	267.56	4,603.4	-98.7	-1,286.9	1,290.6	0.00	0.00	0.00
4,900.0	17.94	267.56	4,698.5	-100.0	-1,317.7	1,321.4	0.00	0.00	0.00
4,932.1	17.94	267.56	4,729.0	-100.4	-1,327.5	1,331.3	0.00	0.00	0.00
<b>Ohio Creek</b>									
5,000.0	17.94	267.56	4,793.6	-101.3	-1,348.4	1,352.2	0.00	0.00	0.00
5,010.9	17.94	267.56	4,804.0	-101.5	-1,351.8	1,355.6	0.00	0.00	0.00
<b>Upper MVRD</b>									
5,100.0	17.94	267.56	4,888.8	-102.6	-1,379.2	1,383.0	0.00	0.00	0.00
5,200.0	17.94	267.56	4,983.9	-103.9	-1,410.0	1,413.8	0.00	0.00	0.00
5,300.0	17.94	267.56	5,079.0	-105.3	-1,440.8	1,444.6	0.00	0.00	0.00
5,400.0	17.94	267.56	5,174.2	-106.6	-1,471.6	1,475.4	0.00	0.00	0.00
5,500.0	17.94	267.56	5,269.3	-107.9	-1,502.4	1,506.2	0.00	0.00	0.00
5,600.0	17.94	267.56	5,364.4	-109.2	-1,533.1	1,537.0	0.00	0.00	0.00
5,700.0	17.94	267.56	5,459.6	-110.5	-1,563.9	1,567.8	0.00	0.00	0.00
5,727.6	17.94	267.56	5,485.8	-110.9	-1,572.4	1,576.3	0.00	0.00	0.00
5,800.0	16.86	267.56	5,554.9	-111.8	-1,594.0	1,598.0	1.50	-1.50	0.00
5,900.0	15.36	267.56	5,651.0	-113.0	-1,621.8	1,625.7	1.50	-1.50	0.00
6,000.0	13.86	267.56	5,747.8	-114.1	-1,647.0	1,650.9	1.50	-1.50	0.00
6,100.0	12.36	267.56	5,845.2	-115.0	-1,669.6	1,673.6	1.50	-1.50	0.00
6,175.4	11.23	267.56	5,919.0	-115.7	-1,685.0	1,689.0	1.50	-1.50	0.00
<b>Top of Gas</b>									
6,200.0	10.86	267.56	5,943.1	-115.9	-1,689.7	1,693.7	1.50	-1.50	0.00
6,300.0	9.36	267.56	6,041.6	-116.6	-1,707.3	1,711.2	1.50	-1.50	0.00
6,400.0	7.86	267.56	6,140.4	-117.3	-1,722.2	1,726.2	1.50	-1.50	0.00
6,500.0	6.36	267.56	6,239.6	-117.8	-1,734.6	1,738.6	1.50	-1.50	0.00
6,600.0	4.86	267.56	6,339.2	-118.2	-1,744.3	1,748.3	1.50	-1.50	0.00
6,700.0	3.36	267.56	6,438.9	-118.5	-1,751.5	1,755.5	1.50	-1.50	0.00
6,800.0	1.86	267.56	6,538.8	-118.7	-1,756.0	1,760.0	1.50	-1.50	0.00
6,900.0	0.36	267.56	6,638.8	-118.8	-1,758.0	1,762.0	1.50	-1.50	0.00
6,923.9	0.00	0.00	6,662.7	-118.8	-1,758.0	1,762.1	1.50	-1.50	0.00
7,000.0	0.00	0.00	6,738.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
7,100.0	0.00	0.00	6,838.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
7,200.0	0.00	0.00	6,938.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
7,300.0	0.00	0.00	7,038.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
7,400.0	0.00	0.00	7,138.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
7,500.0	0.00	0.00	7,238.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
7,600.0	0.00	0.00	7,338.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
7,615.2	0.00	0.00	7,354.0	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
<b>Cameo</b>									
7,700.0	0.00	0.00	7,438.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
7,800.0	0.00	0.00	7,538.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
7,900.0	0.00	0.00	7,638.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
8,000.0	0.00	0.00	7,738.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
8,100.0	0.00	0.00	7,838.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
8,200.0	0.00	0.00	7,938.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
8,300.0	0.00	0.00	8,038.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
8,400.0	0.00	0.00	8,138.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
8,500.0	0.00	0.00	8,238.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
8,565.2	0.00	0.00	8,304.0	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00
<b>RLNS</b>									
8,600.0	0.00	0.00	8,338.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 34-24
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 5754.0ft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 5754.0ft (Original Well Elev)
<b>Site:</b>	RWF 13-19	<b>North Reference:</b>	True
<b>Well:</b>	PA 34-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,700.0	0.00	0.00	8,438.8	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00	
8,715.2	0.00	0.00	8,454.0	-118.8	-1,758.0	1,762.1	0.00	0.00	0.00	
PBHL (PA 34-24)										

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
SHL (PA 34-24) - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	1,618,778.70	2,312,547.20	39° 30' 25.217 N	107° 56' 12.241 W	
PBHL (PA 34-24) - plan hits target center - Point	0.00	0.00	8,454.0	-118.8	-1,758.0	1,618,707.10	2,310,786.60	39° 30' 24.042 N	107° 56' 34.672 W	

Casing Points									
Measured Depth (ft)	Vertical Depth (ft)	Name			Casing Diameter (in)	Hole Diameter (in)			
1,100.0	1,083.3	9 5/8"			9.625	13.500			

Formations									
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)				
2,567.0	2,479.0	G Sand		0.00					
4,932.1	4,729.0	Ohio Creek		0.00					
5,010.9	4,804.0	Upper MVRD		0.00					
6,175.4	5,919.0	Top of Gas		0.00					
7,615.2	7,354.0	Cameo		0.00					
8,565.2	8,304.0	RLNS		0.00					