

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**RWF 13-19**

**PA 24-24**

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**09 May, 2017**

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 24-24
<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 24-24	<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 24-24, A7					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,618,780.80 ft	<b>Latitude:</b>	39° 30' 25.236 N
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,312,540.00 ft	<b>Longitude:</b>	107° 56' 12.334 W
<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	5/8/2017	9.69	65.61	51,556.43592482

<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	267.85

<b>Plan Survey Tool Program</b>	<b>Date</b>	5/9/2017		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.0	9,581.7 Plan #1 (OH)	SDI MWD	
			SDI MWD - Standard ver 1.0.1	

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,333.3	43.00	267.85	2,202.5	-19.3	-512.7	3.00	3.00	0.00	267.85	
4,847.1	43.00	267.85	4,041.0	-83.6	-2,225.8	0.00	0.00	0.00	0.00	
7,713.7	0.00	0.00	6,646.0	-122.1	-3,251.2	1.50	-1.50	0.00	180.00	
9,581.7	0.00	0.00	8,514.0	-122.1	-3,251.2	0.00	0.00	0.00	0.00	BHL (PA 24-24)

**N/A**  
**Planning Report**

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 24-24
<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 24-24	<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 24-24)</b>									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	3.00	267.85	1,000.0	-0.1	-2.6	2.6	3.00	3.00	0.00
1,100.0	6.00	267.85	1,099.6	-0.4	-10.5	10.5	3.00	3.00	0.00
<b>9 5/8"</b>									
1,200.0	9.00	267.85	1,198.8	-0.9	-23.5	23.5	3.00	3.00	0.00
1,300.0	12.00	267.85	1,297.1	-1.6	-41.7	41.7	3.00	3.00	0.00
1,400.0	15.00	267.85	1,394.3	-2.4	-65.0	65.1	3.00	3.00	0.00
1,500.0	18.00	267.85	1,490.2	-3.5	-93.4	93.5	3.00	3.00	0.00
1,600.0	21.00	267.85	1,584.4	-4.8	-126.8	126.9	3.00	3.00	0.00
1,700.0	24.00	267.85	1,676.8	-6.2	-165.0	165.1	3.00	3.00	0.00
1,800.0	27.00	267.85	1,767.1	-7.8	-208.0	208.2	3.00	3.00	0.00
1,900.0	30.00	267.85	1,854.9	-9.6	-255.7	255.9	3.00	3.00	0.00
2,000.0	33.00	267.85	1,940.2	-11.6	-307.9	308.1	3.00	3.00	0.00
2,100.0	36.00	267.85	2,022.6	-13.7	-364.5	364.7	3.00	3.00	0.00
2,200.0	39.00	267.85	2,101.9	-16.0	-425.3	425.6	3.00	3.00	0.00
2,300.0	42.00	267.85	2,177.9	-18.4	-490.2	490.6	3.00	3.00	0.00
2,333.3	43.00	267.85	2,202.5	-19.3	-512.7	513.0	3.00	3.00	0.00
2,400.0	43.00	267.85	2,251.3	-21.0	-558.1	558.5	0.00	0.00	0.00
2,500.0	43.00	267.85	2,324.4	-23.5	-626.3	626.7	0.00	0.00	0.00
2,600.0	43.00	267.85	2,397.6	-26.1	-694.4	694.9	0.00	0.00	0.00
2,700.0	43.00	267.85	2,470.7	-28.6	-762.6	763.1	0.00	0.00	0.00
2,711.4	43.00	267.85	2,479.0	-28.9	-770.3	770.9	0.00	0.00	0.00
<b>G Sand</b>									
2,800.0	43.00	267.85	2,543.8	-31.2	-830.7	831.3	0.00	0.00	0.00
2,900.0	43.00	267.85	2,617.0	-33.8	-898.9	899.5	0.00	0.00	0.00
3,000.0	43.00	267.85	2,690.1	-36.3	-967.0	967.7	0.00	0.00	0.00
3,100.0	43.00	267.85	2,763.2	-38.9	-1,035.2	1,035.9	0.00	0.00	0.00
3,200.0	43.00	267.85	2,836.4	-41.5	-1,103.3	1,104.1	0.00	0.00	0.00
3,300.0	43.00	267.85	2,909.5	-44.0	-1,171.5	1,172.3	0.00	0.00	0.00
3,400.0	43.00	267.85	2,982.7	-46.6	-1,239.6	1,240.5	0.00	0.00	0.00
3,500.0	43.00	267.85	3,055.8	-49.1	-1,307.8	1,308.7	0.00	0.00	0.00
3,600.0	43.00	267.85	3,128.9	-51.7	-1,375.9	1,376.9	0.00	0.00	0.00
3,700.0	43.00	267.85	3,202.1	-54.3	-1,444.1	1,445.1	0.00	0.00	0.00
3,800.0	43.00	267.85	3,275.2	-56.8	-1,512.2	1,513.3	0.00	0.00	0.00
3,900.0	43.00	267.85	3,348.3	-59.4	-1,580.4	1,581.5	0.00	0.00	0.00
4,000.0	43.00	267.85	3,421.5	-61.9	-1,648.5	1,649.7	0.00	0.00	0.00
4,100.0	43.00	267.85	3,494.6	-64.5	-1,716.7	1,717.9	0.00	0.00	0.00
4,200.0	43.00	267.85	3,567.8	-67.1	-1,784.8	1,786.1	0.00	0.00	0.00
4,300.0	43.00	267.85	3,640.9	-69.6	-1,853.0	1,854.3	0.00	0.00	0.00
4,400.0	43.00	267.85	3,714.0	-72.2	-1,921.1	1,922.5	0.00	0.00	0.00
4,500.0	43.00	267.85	3,787.2	-74.7	-1,989.3	1,990.7	0.00	0.00	0.00
4,600.0	43.00	267.85	3,860.3	-77.3	-2,057.4	2,058.9	0.00	0.00	0.00
4,700.0	43.00	267.85	3,933.4	-79.9	-2,125.6	2,127.1	0.00	0.00	0.00

**N/A**  
**Planning Report**

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 24-24
<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 24-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

<b>Planned Survey</b>										
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)	
4,800.0	43.00	267.85	4,006.6	-82.4	-2,193.7	2,195.3	0.00	0.00	0.00	
4,847.1	43.00	267.85	4,041.0	-83.6	-2,225.8	2,227.4	0.00	0.00	0.00	
4,900.0	42.20	267.85	4,080.0	-85.0	-2,261.6	2,263.2	1.50	-1.50	0.00	
5,000.0	40.70	267.85	4,154.9	-87.4	-2,327.8	2,329.4	1.50	-1.50	0.00	
5,100.0	39.20	267.85	4,231.6	-89.9	-2,391.9	2,393.6	1.50	-1.50	0.00	
5,200.0	37.70	267.85	4,309.9	-92.2	-2,454.1	2,455.8	1.50	-1.50	0.00	
5,300.0	36.20	267.85	4,389.8	-94.5	-2,514.2	2,515.9	1.50	-1.50	0.00	
5,400.0	34.70	267.85	4,471.2	-96.6	-2,572.1	2,573.9	1.50	-1.50	0.00	
5,500.0	33.20	267.85	4,554.2	-98.7	-2,627.9	2,629.8	1.50	-1.50	0.00	
5,600.0	31.70	267.85	4,638.6	-100.7	-2,681.6	2,683.5	1.50	-1.50	0.00	
5,700.0	30.20	267.85	4,724.3	-102.7	-2,733.0	2,734.9	1.50	-1.50	0.00	
5,774.4	29.09	267.85	4,789.0	-104.1	-2,769.7	2,771.7	1.50	-1.50	0.00	
<b>Ohio Creek</b>										
5,800.0	28.70	267.85	4,811.4	-104.5	-2,782.1	2,784.1	1.50	-1.50	0.00	
5,859.7	27.81	267.85	4,864.0	-105.6	-2,810.4	2,812.3	1.50	-1.50	0.00	
<b>Upper MVRD</b>										
5,900.0	27.20	267.85	4,899.7	-106.3	-2,828.9	2,830.9	1.50	-1.50	0.00	
6,000.0	25.70	267.85	4,989.2	-107.9	-2,873.5	2,875.5	1.50	-1.50	0.00	
6,100.0	24.20	267.85	5,079.9	-109.5	-2,915.6	2,917.7	1.50	-1.50	0.00	
6,200.0	22.70	267.85	5,171.6	-111.0	-2,955.4	2,957.5	1.50	-1.50	0.00	
6,300.0	21.20	267.85	5,264.4	-112.4	-2,992.8	2,994.9	1.50	-1.50	0.00	
6,400.0	19.71	267.85	5,358.1	-113.7	-3,027.7	3,029.8	1.50	-1.50	0.00	
6,500.0	18.21	267.85	5,452.6	-115.0	-3,060.1	3,062.3	1.50	-1.50	0.00	
6,600.0	16.71	267.85	5,548.0	-116.1	-3,090.1	3,092.3	1.50	-1.50	0.00	
6,700.0	15.21	267.85	5,644.2	-117.1	-3,117.6	3,119.8	1.50	-1.50	0.00	
6,800.0	13.71	267.85	5,741.0	-118.1	-3,142.5	3,144.7	1.50	-1.50	0.00	
6,900.0	12.21	267.85	5,838.5	-118.9	-3,164.9	3,167.2	1.50	-1.50	0.00	
7,000.0	10.71	267.85	5,936.5	-119.6	-3,184.8	3,187.0	1.50	-1.50	0.00	
7,043.2	10.06	267.85	5,979.0	-119.9	-3,192.5	3,194.8	1.50	-1.50	0.00	
<b>Top of Gas</b>										
7,100.0	9.21	267.85	6,035.0	-120.3	-3,202.0	3,204.3	1.50	-1.50	0.00	
7,200.0	7.71	267.85	6,133.9	-120.8	-3,216.7	3,219.0	1.50	-1.50	0.00	
7,300.0	6.21	267.85	6,233.1	-121.3	-3,228.8	3,231.1	1.50	-1.50	0.00	
7,400.0	4.71	267.85	6,332.7	-121.7	-3,238.3	3,240.6	1.50	-1.50	0.00	
7,500.0	3.21	267.85	6,432.4	-121.9	-3,245.2	3,247.5	1.50	-1.50	0.00	
7,600.0	1.71	267.85	6,532.3	-122.1	-3,249.5	3,251.8	1.50	-1.50	0.00	
7,700.0	0.21	267.85	6,632.3	-122.1	-3,251.2	3,253.5	1.50	-1.50	0.00	
7,713.7	0.00	0.00	6,646.0	-122.1	-3,251.2	3,253.5	1.50	-1.50	0.00	
7,800.0	0.00	0.00	6,732.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
7,900.0	0.00	0.00	6,832.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,000.0	0.00	0.00	6,932.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,100.0	0.00	0.00	7,032.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,200.0	0.00	0.00	7,132.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,300.0	0.00	0.00	7,232.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,400.0	0.00	0.00	7,332.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,481.7	0.00	0.00	7,414.0	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
<b>Cameo</b>										
8,500.0	0.00	0.00	7,432.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,600.0	0.00	0.00	7,532.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,700.0	0.00	0.00	7,632.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,800.0	0.00	0.00	7,732.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
8,900.0	0.00	0.00	7,832.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
9,000.0	0.00	0.00	7,932.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	
9,100.0	0.00	0.00	8,032.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00	

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 24-24
<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 24-24	<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)
9,200.0	0.00	0.00	8,132.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00
9,300.0	0.00	0.00	8,232.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00
9,400.0	0.00	0.00	8,332.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00
9,431.7	0.00	0.00	8,364.0	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00
<b>RLNS</b>									
9,500.0	0.00	0.00	8,432.3	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00
9,581.7	0.00	0.00	8,514.0	-122.1	-3,251.2	3,253.5	0.00	0.00	0.00
<b>BHL (PA 24-24)</b>									

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 24-24) - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	1,618,780.80	2,312,540.00	39° 30' 25.236 N	107° 56' 12.334 W
BHL (PA 24-24) - plan hits target center - Point	0.00	0.00	8,514.0	-122.1	-3,251.2	1,618,745.90	2,309,286.70	39° 30' 24.027 N	107° 56' 53.815 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.0	1,099.6	9 5/8"	9.625	12.250	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,711.4	2,479.0	G Sand		0.00	
5,774.4	4,789.0	Ohio Creek		0.00	
5,859.7	4,864.0	Upper MVRD		0.00	
7,043.2	5,979.0	Top of Gas		0.00	
8,481.7	7,414.0	Cameo		0.00	
9,431.7	8,364.0	RLNS		0.00	