

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**RWF 13-19**

**PA 533-24**

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**22 June, 2017**

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 533-24
<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 533-24	<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		

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

Well	PA 533-24, A5					
Well Position	+N/-S	3.8 ft	Northing:	1,618,785.00 ft	Latitude:	39° 30' 25.274 N
	+E/-W	-14.5 ft	Easting:	2,312,525.60 ft	Longitude:	107° 56' 12.519 W
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	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	51,556.12863827

<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)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	278.40

<b>Plan Survey Tool Program</b>	<b>Date</b>	6/22/2017		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.0	8,782.7 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	
750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,083.3	10.00	260.00	1,081.6	-5.0	-28.6	3.00	3.00	0.00	260.00	
1,515.2	22.00	279.12	1,496.3	1.3	-145.9	3.00	2.78	4.43	33.18	
5,070.8	22.00	279.12	4,792.8	212.3	-1,461.3	0.00	0.00	0.00	0.00	
6,537.7	0.00	0.00	6,224.0	256.4	-1,736.0	1.50	-1.50	0.00	180.00	
8,782.7	0.00	0.00	8,469.0	256.4	-1,736.0	0.00	0.00	0.00	0.00	PBHL (PA 533-24)

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 533-24
<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 533-24	<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 533-24)</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
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	1.50	260.00	800.0	-0.1	-0.6	0.6	3.00	3.00	0.00
900.0	4.50	260.00	899.8	-1.0	-5.8	5.6	3.00	3.00	0.00
1,000.0	7.50	260.00	999.3	-2.8	-16.1	15.5	3.00	3.00	0.00
1,083.3	10.00	260.00	1,081.6	-5.0	-28.6	27.5	3.00	3.00	0.00
1,100.0	10.42	261.51	1,098.0	-5.5	-31.5	30.3	3.00	2.53	9.08
<b>9 5/8"</b>									
1,200.0	13.07	268.50	1,195.9	-7.1	-51.7	50.1	3.00	2.65	6.98
1,300.0	15.84	273.12	1,292.8	-6.7	-76.7	74.9	3.00	2.77	4.62
1,400.0	18.68	276.38	1,388.3	-4.2	-106.2	104.5	3.00	2.84	3.26
1,500.0	21.56	278.80	1,482.2	0.4	-140.3	138.9	3.00	2.88	2.42
1,515.2	22.00	279.12	1,496.3	1.3	-145.9	144.5	3.00	2.90	2.07
1,600.0	22.00	279.12	1,574.9	6.3	-177.3	176.3	0.00	0.00	0.00
1,700.0	22.00	279.12	1,667.6	12.3	-214.3	213.7	0.00	0.00	0.00
1,800.0	22.00	279.12	1,760.3	18.2	-251.2	251.2	0.00	0.00	0.00
1,900.0	22.00	279.12	1,853.0	24.1	-288.2	288.7	0.00	0.00	0.00
2,000.0	22.00	279.12	1,945.8	30.1	-325.2	326.1	0.00	0.00	0.00
2,100.0	22.00	279.12	2,038.5	36.0	-362.2	363.6	0.00	0.00	0.00
2,200.0	22.00	279.12	2,131.2	41.9	-399.2	401.1	0.00	0.00	0.00
2,300.0	22.00	279.12	2,223.9	47.9	-436.2	438.5	0.00	0.00	0.00
2,400.0	22.00	279.12	2,316.6	53.8	-473.2	476.0	0.00	0.00	0.00
2,500.0	22.00	279.12	2,409.3	59.8	-510.2	513.5	0.00	0.00	0.00
2,575.1	22.00	279.12	2,479.0	64.2	-538.0	541.6	0.00	0.00	0.00
<b>G Sand</b>									
2,600.0	22.00	279.12	2,502.0	65.7	-547.2	550.9	0.00	0.00	0.00
2,700.0	22.00	279.12	2,594.8	71.6	-584.2	588.4	0.00	0.00	0.00
2,800.0	22.00	279.12	2,687.5	77.6	-621.2	625.9	0.00	0.00	0.00
2,900.0	22.00	279.12	2,780.2	83.5	-658.2	663.3	0.00	0.00	0.00
3,000.0	22.00	279.12	2,872.9	89.4	-695.2	700.8	0.00	0.00	0.00
3,100.0	22.00	279.12	2,965.6	95.4	-732.2	738.3	0.00	0.00	0.00
3,200.0	22.00	279.12	3,058.3	101.3	-769.2	775.7	0.00	0.00	0.00
3,300.0	22.00	279.12	3,151.1	107.2	-806.2	813.2	0.00	0.00	0.00
3,400.0	22.00	279.12	3,243.8	113.2	-843.2	850.7	0.00	0.00	0.00
3,500.0	22.00	279.12	3,336.5	119.1	-880.2	888.1	0.00	0.00	0.00
3,600.0	22.00	279.12	3,429.2	125.0	-917.2	925.6	0.00	0.00	0.00
3,700.0	22.00	279.12	3,521.9	131.0	-954.2	963.0	0.00	0.00	0.00
3,800.0	22.00	279.12	3,614.6	136.9	-991.1	1,000.5	0.00	0.00	0.00
3,900.0	22.00	279.12	3,707.3	142.9	-1,028.1	1,038.0	0.00	0.00	0.00
4,000.0	22.00	279.12	3,800.1	148.8	-1,065.1	1,075.4	0.00	0.00	0.00
4,100.0	22.00	279.12	3,892.8	154.7	-1,102.1	1,112.9	0.00	0.00	0.00
4,200.0	22.00	279.12	3,985.5	160.7	-1,139.1	1,150.4	0.00	0.00	0.00
4,300.0	22.00	279.12	4,078.2	166.6	-1,176.1	1,187.8	0.00	0.00	0.00
4,400.0	22.00	279.12	4,170.9	172.5	-1,213.1	1,225.3	0.00	0.00	0.00
4,500.0	22.00	279.12	4,263.6	178.5	-1,250.1	1,262.8	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 533-24	<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)
4,600.0	22.00	279.12	4,356.4	184.4	-1,287.1	1,300.2	0.00	0.00	0.00
4,700.0	22.00	279.12	4,449.1	190.3	-1,324.1	1,337.7	0.00	0.00	0.00
4,800.0	22.00	279.12	4,541.8	196.3	-1,361.1	1,375.2	0.00	0.00	0.00
4,900.0	22.00	279.12	4,634.5	202.2	-1,398.1	1,412.6	0.00	0.00	0.00
5,000.0	22.00	279.12	4,727.2	208.1	-1,435.1	1,450.1	0.00	0.00	0.00
5,018.1	22.00	279.12	4,744.0	209.2	-1,441.8	1,456.9	0.00	0.00	0.00
<b>Ohio Creek</b>									
5,070.8	22.00	279.12	4,792.8	212.3	-1,461.3	1,476.6	0.00	0.00	0.00
5,099.0	21.58	279.12	4,819.0	214.0	-1,471.6	1,487.1	1.50	-1.50	0.00
<b>Upper MVRD</b>									
5,100.0	21.57	279.12	4,820.0	214.1	-1,472.0	1,487.5	1.50	-1.50	0.00
5,200.0	20.07	279.12	4,913.4	219.7	-1,507.1	1,523.0	1.50	-1.50	0.00
5,300.0	18.57	279.12	5,007.8	224.9	-1,539.7	1,556.1	1.50	-1.50	0.00
5,400.0	17.07	279.12	5,103.0	229.8	-1,569.9	1,586.7	1.50	-1.50	0.00
5,500.0	15.57	279.12	5,199.0	234.2	-1,597.7	1,614.7	1.50	-1.50	0.00
5,600.0	14.07	279.12	5,295.7	238.3	-1,622.9	1,640.3	1.50	-1.50	0.00
5,700.0	12.57	279.12	5,393.0	241.9	-1,645.7	1,663.3	1.50	-1.50	0.00
5,800.0	11.07	279.12	5,490.8	245.2	-1,665.9	1,683.8	1.50	-1.50	0.00
5,900.0	9.57	279.12	5,589.2	248.0	-1,683.6	1,701.7	1.50	-1.50	0.00
6,000.0	8.07	279.12	5,688.0	250.4	-1,698.7	1,717.1	1.50	-1.50	0.00
6,100.0	6.57	279.12	5,787.2	252.5	-1,711.3	1,729.8	1.50	-1.50	0.00
6,200.0	5.07	279.12	5,886.7	254.1	-1,721.3	1,739.9	1.50	-1.50	0.00
6,247.5	4.35	279.12	5,934.0	254.7	-1,725.1	1,743.8	1.50	-1.50	0.00
<b>Top of Gas</b>									
6,300.0	3.57	279.12	5,986.4	255.3	-1,728.7	1,747.4	1.50	-1.50	0.00
6,400.0	2.07	279.12	6,086.3	256.0	-1,733.6	1,752.4	1.50	-1.50	0.00
6,500.0	0.57	279.12	6,186.3	256.4	-1,735.8	1,754.7	1.50	-1.50	0.00
6,537.7	0.00	0.00	6,224.0	256.4	-1,736.0	1,754.8	1.50	-1.50	0.00
6,600.0	0.00	0.00	6,286.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
6,700.0	0.00	0.00	6,386.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
6,800.0	0.00	0.00	6,486.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
6,900.0	0.00	0.00	6,586.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,000.0	0.00	0.00	6,686.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,100.0	0.00	0.00	6,786.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,200.0	0.00	0.00	6,886.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,300.0	0.00	0.00	6,986.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,400.0	0.00	0.00	7,086.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,500.0	0.00	0.00	7,186.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,600.0	0.00	0.00	7,286.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,682.7	0.00	0.00	7,369.0	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
<b>Cameo</b>									
7,700.0	0.00	0.00	7,386.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,800.0	0.00	0.00	7,486.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
7,900.0	0.00	0.00	7,586.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
8,000.0	0.00	0.00	7,686.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
8,100.0	0.00	0.00	7,786.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
8,200.0	0.00	0.00	7,886.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
8,300.0	0.00	0.00	7,986.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
8,400.0	0.00	0.00	8,086.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
8,500.0	0.00	0.00	8,186.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
8,600.0	0.00	0.00	8,286.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
8,632.7	0.00	0.00	8,319.0	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
<b>RLNS</b>									
8,700.0	0.00	0.00	8,386.3	256.4	-1,736.0	1,754.8	0.00	0.00	0.00

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 533-24
<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 533-24	<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)
8,782.7	0.00	0.00	8,469.0	256.4	-1,736.0	1,754.8	0.00	0.00	0.00
PBHL (PA 533-24)									

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 533-24) - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	1,618,785.00	2,312,525.60	39° 30' 25.274 N	107° 56' 12.519 W
PBHL (PA 533-24) - plan hits target center - Point	0.00	0.00	8,469.0	256.4	-1,736.0	1,619,087.90	2,310,797.10	39° 30' 27.807 N	107° 56' 34.668 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.0	1,098.0	9 5/8"	9.625	13.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,575.1	2,479.0	G Sand		0.00		
5,018.1	4,744.0	Ohio Creek		0.00		
5,099.0	4,819.0	Upper MVRD		0.00		
6,247.5	5,934.0	Top of Gas		0.00		
7,682.7	7,369.0	Cameo		0.00		
8,632.7	8,319.0	RLNS		0.00		