

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**RWF 13-19**

**PA 334-24**

**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 334-24
<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 334-24	<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 334-24, A12					
Well Position	+N/-S	-9.5 ft	Northing:	1,618,770.31 ft	Latitude:	39° 30' 25.142 N
	+E/-W	36.3 ft	Easting:	2,312,575.99 ft	Longitude:	107° 56' 11.871 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	51,556.13178762

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	251.67

<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	8,813.2 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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,012.3	24.37	251.67	1,988.0	-53.5	-161.5	3.00	3.00	0.00	251.67	
5,338.5	24.37	251.67	5,017.9	-485.2	-1,464.3	0.00	0.00	0.00	0.00	
6,963.2	0.00	0.00	6,594.0	-592.3	-1,787.3	1.50	-1.50	0.00	180.00	
8,813.2	0.00	0.00	8,444.0	-592.3	-1,787.3	0.00	0.00	0.00	0.00	PBHL (PA 334-24)

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 334-24
<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 334-24	<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 334-24)</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	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>9 5/8"</b>									
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	3.00	251.67	1,300.0	-0.8	-2.5	2.6	3.00	3.00	0.00
1,400.0	6.00	251.67	1,399.6	-3.3	-9.9	10.5	3.00	3.00	0.00
1,500.0	9.00	251.67	1,498.8	-7.4	-22.3	23.5	3.00	3.00	0.00
1,600.0	12.00	251.67	1,597.1	-13.1	-39.6	41.7	3.00	3.00	0.00
1,700.0	15.00	251.67	1,694.3	-20.5	-61.8	65.1	3.00	3.00	0.00
1,800.0	18.00	251.67	1,790.2	-29.4	-88.7	93.5	3.00	3.00	0.00
1,900.0	21.00	251.67	1,884.4	-39.9	-120.4	126.9	3.00	3.00	0.00
2,000.0	24.00	251.67	1,976.8	-51.9	-156.7	165.1	3.00	3.00	0.00
2,012.3	24.37	251.67	1,988.0	-53.5	-161.5	170.2	3.00	3.00	0.00
2,100.0	24.37	251.67	2,067.9	-64.9	-195.9	206.3	0.00	0.00	0.00
2,200.0	24.37	251.67	2,159.0	-77.9	-235.0	247.6	0.00	0.00	0.00
2,300.0	24.37	251.67	2,250.1	-90.9	-274.2	288.9	0.00	0.00	0.00
2,400.0	24.37	251.67	2,341.2	-103.8	-313.4	330.1	0.00	0.00	0.00
2,500.0	24.37	251.67	2,432.3	-116.8	-352.5	371.4	0.00	0.00	0.00
2,551.3	24.37	251.67	2,479.0	-123.5	-372.6	392.5	0.00	0.00	0.00
<b>G Sand</b>									
2,600.0	24.37	251.67	2,523.4	-129.8	-391.7	412.6	0.00	0.00	0.00
2,700.0	24.37	251.67	2,614.5	-142.8	-430.9	453.9	0.00	0.00	0.00
2,800.0	24.37	251.67	2,705.6	-155.8	-470.0	495.2	0.00	0.00	0.00
2,900.0	24.37	251.67	2,796.6	-168.7	-509.2	536.4	0.00	0.00	0.00
3,000.0	24.37	251.67	2,887.7	-181.7	-548.4	577.7	0.00	0.00	0.00
3,100.0	24.37	251.67	2,978.8	-194.7	-587.5	619.0	0.00	0.00	0.00
3,200.0	24.37	251.67	3,069.9	-207.7	-626.7	660.2	0.00	0.00	0.00
3,300.0	24.37	251.67	3,161.0	-220.6	-665.9	701.5	0.00	0.00	0.00
3,400.0	24.37	251.67	3,252.1	-233.6	-705.0	742.7	0.00	0.00	0.00
3,500.0	24.37	251.67	3,343.2	-246.6	-744.2	784.0	0.00	0.00	0.00
3,600.0	24.37	251.67	3,434.3	-259.6	-783.4	825.3	0.00	0.00	0.00
3,700.0	24.37	251.67	3,525.4	-272.6	-822.5	866.5	0.00	0.00	0.00
3,800.0	24.37	251.67	3,616.5	-285.5	-861.7	907.8	0.00	0.00	0.00
3,900.0	24.37	251.67	3,707.5	-298.5	-900.9	949.0	0.00	0.00	0.00
4,000.0	24.37	251.67	3,798.6	-311.5	-940.0	990.3	0.00	0.00	0.00
4,100.0	24.37	251.67	3,889.7	-324.5	-979.2	1,031.6	0.00	0.00	0.00
4,200.0	24.37	251.67	3,980.8	-337.4	-1,018.4	1,072.8	0.00	0.00	0.00
4,300.0	24.37	251.67	4,071.9	-350.4	-1,057.5	1,114.1	0.00	0.00	0.00
4,400.0	24.37	251.67	4,163.0	-363.4	-1,096.7	1,155.3	0.00	0.00	0.00
4,500.0	24.37	251.67	4,254.1	-376.4	-1,135.9	1,196.6	0.00	0.00	0.00
4,600.0	24.37	251.67	4,345.2	-389.4	-1,175.0	1,237.9	0.00	0.00	0.00
4,700.0	24.37	251.67	4,436.3	-402.3	-1,214.2	1,279.1	0.00	0.00	0.00

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 334-24
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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 334-24	<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)
4,800.0	24.37	251.67	4,527.4	-415.3	-1,253.4	1,320.4	0.00	0.00	0.00
4,900.0	24.37	251.67	4,618.5	-428.3	-1,292.5	1,361.7	0.00	0.00	0.00
5,000.0	24.37	251.67	4,709.5	-441.3	-1,331.7	1,402.9	0.00	0.00	0.00
5,010.4	24.37	251.67	4,719.0	-442.6	-1,335.8	1,407.2	0.00	0.00	0.00
<b>Ohio Creek</b>									
5,092.7	24.37	251.67	4,794.0	-453.3	-1,368.0	1,441.2	0.00	0.00	0.00
<b>Upper MVRD</b>									
5,100.0	24.37	251.67	4,800.6	-454.3	-1,370.9	1,444.2	0.00	0.00	0.00
5,200.0	24.37	251.67	4,891.7	-467.2	-1,410.0	1,485.4	0.00	0.00	0.00
5,300.0	24.37	251.67	4,982.8	-480.2	-1,449.2	1,526.7	0.00	0.00	0.00
5,338.5	24.37	251.67	5,017.9	-485.2	-1,464.3	1,542.6	0.00	0.00	0.00
5,400.0	23.45	251.67	5,074.1	-493.0	-1,488.0	1,567.5	1.50	-1.50	0.00
5,500.0	21.95	251.67	5,166.4	-505.2	-1,524.6	1,606.1	1.50	-1.50	0.00
5,600.0	20.45	251.67	5,259.6	-516.6	-1,558.9	1,642.3	1.50	-1.50	0.00
5,700.0	18.95	251.67	5,353.7	-527.2	-1,590.9	1,676.0	1.50	-1.50	0.00
5,800.0	17.45	251.67	5,448.7	-537.0	-1,620.5	1,707.2	1.50	-1.50	0.00
5,900.0	15.95	251.67	5,544.5	-546.0	-1,647.8	1,735.9	1.50	-1.50	0.00
6,000.0	14.45	251.67	5,641.0	-554.3	-1,672.7	1,762.1	1.50	-1.50	0.00
6,100.0	12.95	251.67	5,738.2	-561.7	-1,695.2	1,785.8	1.50	-1.50	0.00
6,200.0	11.45	251.67	5,835.9	-568.4	-1,715.2	1,806.9	1.50	-1.50	0.00
6,274.4	10.33	251.67	5,909.0	-572.8	-1,728.6	1,821.0	1.50	-1.50	0.00
<b>Top of Gas</b>									
6,300.0	9.95	251.67	5,934.2	-574.2	-1,732.8	1,825.5	1.50	-1.50	0.00
6,400.0	8.45	251.67	6,032.9	-579.2	-1,748.0	1,841.5	1.50	-1.50	0.00
6,500.0	6.95	251.67	6,132.0	-583.4	-1,760.7	1,854.9	1.50	-1.50	0.00
6,600.0	5.45	251.67	6,231.4	-586.8	-1,771.0	1,865.7	1.50	-1.50	0.00
6,700.0	3.95	251.67	6,331.1	-589.4	-1,778.7	1,873.9	1.50	-1.50	0.00
6,800.0	2.45	251.67	6,430.9	-591.2	-1,784.0	1,879.4	1.50	-1.50	0.00
6,900.0	0.95	251.67	6,530.8	-592.1	-1,786.9	1,882.4	1.50	-1.50	0.00
6,963.2	0.00	0.00	6,594.0	-592.3	-1,787.3	1,882.9	1.50	-1.50	0.00
7,000.0	0.00	0.00	6,630.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
7,100.0	0.00	0.00	6,730.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
7,200.0	0.00	0.00	6,830.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
7,300.0	0.00	0.00	6,930.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,030.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
7,500.0	0.00	0.00	7,130.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
7,600.0	0.00	0.00	7,230.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
7,700.0	0.00	0.00	7,330.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
7,713.2	0.00	0.00	7,344.0	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
<b>Cameo</b>									
7,800.0	0.00	0.00	7,430.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
7,900.0	0.00	0.00	7,530.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,000.0	0.00	0.00	7,630.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,100.0	0.00	0.00	7,730.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,200.0	0.00	0.00	7,830.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,300.0	0.00	0.00	7,930.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,400.0	0.00	0.00	8,030.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,500.0	0.00	0.00	8,130.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,600.0	0.00	0.00	8,230.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,663.2	0.00	0.00	8,294.0	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
<b>RLNS</b>									
8,700.0	0.00	0.00	8,330.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,800.0	0.00	0.00	8,430.8	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00
8,813.2	0.00	0.00	8,444.0	-592.3	-1,787.3	1,882.9	0.00	0.00	0.00

**N/A**  
Planning Report

<b>Database:</b>	EDM_PRO	<b>Local Co-ordinate Reference:</b>	Well PA 334-24
<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 334-24	<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)
PBHL (PA 334-24)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL (PA 334-24)	0.00	0.00	0.0	0.0	0.0	1,618,770.31	2,312,575.99	39° 30' 25.142 N	107° 56' 11.871 W
- plan hits target center									
- Point									
PBHL (PA 334-24)	0.00	0.00	8,444.0	-592.3	-1,787.3	1,618,226.20	2,310,773.40	39° 30' 19.288 N	107° 56' 34.675 W
- plan hits target center									
- Point									

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

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,551.3	2,479.0	G Sand		0.00		
5,010.4	4,719.0	Ohio Creek		0.00		
5,092.7	4,794.0	Upper MVRD		0.00		
6,274.4	5,909.0	Top of Gas		0.00		
7,713.2	7,344.0	Cameo		0.00		
8,663.2	8,294.0	RLNS		0.00		