

TEP Rocky Mountain LLC

Garfield County, CO NAD83

RWF 13-19

PA 332-24

OH

Plan: Plan #1

Standard Planning Report

21 June, 2017

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 332-24
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5757.5ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5757.5ft (Original Well Elev)
Site:	RWF 13-19	North Reference:	True
Well:	PA 332-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Garfield County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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 332-24					
Well Position	+N/-S	15.4 ft	Northing:	1,618,796.70 ft	Latitude:	39° 30' 25.388 N
	+E/-W	-19.2 ft	Easting:	2,312,521.20 ft	Longitude:	107° 56' 12.579 W
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	5,733.5 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/9/2017	9.69	65.61	51,556.14361767

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	319.66

Plan Survey Tool Program	Date	6/21/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	9,265.9 Plan #1 (OH)	SDI MWD	
			SDI MWD - Standard ver 1.0.1	

Plan Sections										
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	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
850.0	5.00	319.66	849.7	8.3	-7.1	2.00	2.00	0.00	319.66	
1,350.0	5.00	319.66	1,347.8	41.5	-35.3	0.00	0.00	0.00	0.00	
2,395.2	36.36	319.66	2,313.5	319.3	-271.2	3.00	3.00	0.00	0.00	
4,942.2	36.36	319.66	4,364.7	1,470.1	-1,248.6	0.00	0.00	0.00	0.00	
7,365.9	0.00	0.00	6,629.0	2,036.7	-1,729.9	1.50	-1.50	0.00	180.00	
9,265.9	0.00	0.00	8,529.0	2,036.7	-1,729.9	0.00	0.00	0.00	0.00	PBHL (PA 332-24)

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 332-24
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5754.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5754.0ft (Original Well Elev)
Site:	RWF 13-19	North Reference:	True
Well:	PA 332-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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
SHL (PA 332-24)									
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	2.00	319.66	700.0	1.3	-1.1	1.7	2.00	2.00	0.00
800.0	4.00	319.66	799.8	5.3	-4.5	7.0	2.00	2.00	0.00
850.0	5.00	319.66	849.7	8.3	-7.1	10.9	2.00	2.00	0.00
900.0	5.00	319.66	899.5	11.6	-9.9	15.3	0.00	0.00	0.00
1,000.0	5.00	319.66	999.1	18.3	-15.5	24.0	0.00	0.00	0.00
1,100.0	5.00	319.66	1,098.7	24.9	-21.2	32.7	0.00	0.00	0.00
9 5/8"									
1,200.0	5.00	319.66	1,198.4	31.6	-26.8	41.4	0.00	0.00	0.00
1,300.0	5.00	319.66	1,298.0	38.2	-32.4	50.1	0.00	0.00	0.00
1,350.0	5.00	319.66	1,347.8	41.5	-35.3	54.5	0.00	0.00	0.00
1,400.0	6.50	319.66	1,397.5	45.3	-38.5	59.5	3.00	3.00	0.00
1,500.0	9.50	319.66	1,496.5	55.9	-47.5	73.4	3.00	3.00	0.00
1,600.0	12.50	319.66	1,594.7	70.5	-59.9	92.5	3.00	3.00	0.00
1,700.0	15.50	319.66	1,691.7	88.9	-75.5	116.7	3.00	3.00	0.00
1,800.0	18.50	319.66	1,787.3	111.2	-94.5	145.9	3.00	3.00	0.00
1,900.0	21.50	319.66	1,881.3	137.3	-116.6	180.1	3.00	3.00	0.00
2,000.0	24.50	319.66	1,973.3	167.1	-141.9	219.2	3.00	3.00	0.00
2,100.0	27.50	319.66	2,063.2	200.5	-170.3	263.0	3.00	3.00	0.00
2,200.0	30.50	319.66	2,150.7	237.4	-201.6	311.5	3.00	3.00	0.00
2,300.0	33.50	319.66	2,235.4	277.8	-235.9	364.5	3.00	3.00	0.00
2,395.2	36.36	319.66	2,313.5	319.3	-271.2	419.0	3.00	3.00	0.00
2,400.0	36.36	319.66	2,317.4	321.5	-273.1	421.8	0.00	0.00	0.00
2,500.0	36.36	319.66	2,397.9	366.7	-311.4	481.1	0.00	0.00	0.00
2,600.0	36.36	319.66	2,478.4	411.9	-349.8	540.4	0.00	0.00	0.00
2,600.7	36.36	319.66	2,479.0	412.2	-350.1	540.8	0.00	0.00	0.00
G Sand									
2,700.0	36.36	319.66	2,559.0	457.0	-388.2	599.6	0.00	0.00	0.00
2,800.0	36.36	319.66	2,639.5	502.2	-426.6	658.9	0.00	0.00	0.00
2,900.0	36.36	319.66	2,720.0	547.4	-464.9	718.2	0.00	0.00	0.00
3,000.0	36.36	319.66	2,800.6	592.6	-503.3	777.5	0.00	0.00	0.00
3,100.0	36.36	319.66	2,881.1	637.8	-541.7	836.8	0.00	0.00	0.00
3,200.0	36.36	319.66	2,961.6	682.9	-580.1	896.0	0.00	0.00	0.00
3,300.0	36.36	319.66	3,042.2	728.1	-618.4	955.3	0.00	0.00	0.00
3,400.0	36.36	319.66	3,122.7	773.3	-656.8	1,014.6	0.00	0.00	0.00
3,500.0	36.36	319.66	3,203.2	818.5	-695.2	1,073.9	0.00	0.00	0.00
3,600.0	36.36	319.66	3,283.8	863.7	-733.6	1,133.2	0.00	0.00	0.00
3,700.0	36.36	319.66	3,364.3	908.9	-771.9	1,192.4	0.00	0.00	0.00
3,800.0	36.36	319.66	3,444.9	954.0	-810.3	1,251.7	0.00	0.00	0.00
3,900.0	36.36	319.66	3,525.4	999.2	-848.7	1,311.0	0.00	0.00	0.00
4,000.0	36.36	319.66	3,605.9	1,044.4	-887.1	1,370.3	0.00	0.00	0.00
4,100.0	36.36	319.66	3,686.5	1,089.6	-925.5	1,429.6	0.00	0.00	0.00
4,200.0	36.36	319.66	3,767.0	1,134.8	-963.8	1,488.8	0.00	0.00	0.00
4,300.0	36.36	319.66	3,847.5	1,179.9	-1,002.2	1,548.1	0.00	0.00	0.00
4,400.0	36.36	319.66	3,928.1	1,225.1	-1,040.6	1,607.4	0.00	0.00	0.00
4,500.0	36.36	319.66	4,008.6	1,270.3	-1,079.0	1,666.7	0.00	0.00	0.00

N/A
Planning Report

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Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5754.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5754.0ft (Original Well Elev)
Site:	RWF 13-19	North Reference:	True
Well:	PA 332-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	36.36	319.66	4,089.1	1,315.5	-1,117.3	1,726.0	0.00	0.00	0.00
4,700.0	36.36	319.66	4,169.7	1,360.7	-1,155.7	1,785.2	0.00	0.00	0.00
4,800.0	36.36	319.66	4,250.2	1,405.8	-1,194.1	1,844.5	0.00	0.00	0.00
4,900.0	36.36	319.66	4,330.7	1,451.0	-1,232.5	1,903.8	0.00	0.00	0.00
4,942.2	36.36	319.66	4,364.7	1,470.1	-1,248.6	1,928.8	0.00	0.00	0.00
5,000.0	35.49	319.66	4,411.5	1,495.9	-1,270.6	1,962.7	1.50	-1.50	0.00
5,100.0	33.99	319.66	4,493.7	1,539.4	-1,307.5	2,019.7	1.50	-1.50	0.00
5,200.0	32.49	319.66	4,577.4	1,581.1	-1,343.0	2,074.5	1.50	-1.50	0.00
5,300.0	30.99	319.66	4,662.4	1,621.2	-1,377.0	2,127.1	1.50	-1.50	0.00
5,400.0	29.49	319.66	4,748.8	1,659.6	-1,409.6	2,177.5	1.50	-1.50	0.00
5,463.1	28.54	319.66	4,804.0	1,682.9	-1,429.5	2,208.1	1.50	-1.50	0.00
Ohio Creek									
5,500.0	27.99	319.66	4,836.5	1,696.3	-1,440.8	2,225.5	1.50	-1.50	0.00
5,548.0	27.27	319.66	4,879.0	1,713.2	-1,455.2	2,247.8	1.50	-1.50	0.00
Upper MVRD									
5,600.0	26.49	319.66	4,925.4	1,731.1	-1,470.4	2,271.3	1.50	-1.50	0.00
5,700.0	24.99	319.66	5,015.5	1,764.2	-1,498.5	2,314.7	1.50	-1.50	0.00
5,800.0	23.49	319.66	5,106.6	1,795.5	-1,525.1	2,355.8	1.50	-1.50	0.00
5,900.0	21.99	319.66	5,198.9	1,825.0	-1,550.1	2,394.4	1.50	-1.50	0.00
6,000.0	20.49	319.66	5,292.1	1,852.6	-1,573.5	2,430.7	1.50	-1.50	0.00
6,100.0	18.99	319.66	5,386.2	1,878.3	-1,595.4	2,464.4	1.50	-1.50	0.00
6,200.0	17.49	319.66	5,481.2	1,902.2	-1,615.7	2,495.7	1.50	-1.50	0.00
6,300.0	15.99	319.66	5,576.9	1,924.1	-1,634.3	2,524.5	1.50	-1.50	0.00
6,400.0	14.49	319.66	5,673.4	1,944.2	-1,651.3	2,550.8	1.50	-1.50	0.00
6,500.0	12.99	319.66	5,770.5	1,962.3	-1,666.7	2,574.6	1.50	-1.50	0.00
6,600.0	11.49	319.66	5,868.3	1,978.4	-1,680.4	2,595.7	1.50	-1.50	0.00
6,700.0	9.99	319.66	5,966.5	1,992.6	-1,692.5	2,614.4	1.50	-1.50	0.00
6,727.9	9.57	319.66	5,994.0	1,996.2	-1,695.5	2,619.1	1.50	-1.50	0.00
Top of Gas									
6,800.0	8.49	319.66	6,065.2	2,004.8	-1,702.9	2,630.4	1.50	-1.50	0.00
6,900.0	6.99	319.66	6,164.3	2,015.1	-1,711.6	2,643.9	1.50	-1.50	0.00
7,000.0	5.49	319.66	6,263.7	2,023.4	-1,718.6	2,654.8	1.50	-1.50	0.00
7,100.0	3.99	319.66	6,363.4	2,029.7	-1,724.0	2,663.0	1.50	-1.50	0.00
7,200.0	2.49	319.66	6,463.2	2,034.0	-1,727.6	2,668.7	1.50	-1.50	0.00
7,300.0	0.99	319.66	6,563.2	2,036.3	-1,729.6	2,671.7	1.50	-1.50	0.00
7,365.9	0.00	0.00	6,629.0	2,036.7	-1,729.9	2,672.3	1.50	-1.50	0.00
7,400.0	0.00	0.00	6,663.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
7,500.0	0.00	0.00	6,763.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
7,600.0	0.00	0.00	6,863.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
7,700.0	0.00	0.00	6,963.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
7,800.0	0.00	0.00	7,063.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
7,900.0	0.00	0.00	7,163.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,000.0	0.00	0.00	7,263.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,100.0	0.00	0.00	7,363.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,165.9	0.00	0.00	7,429.0	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
Cameo									
8,200.0	0.00	0.00	7,463.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,300.0	0.00	0.00	7,563.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,400.0	0.00	0.00	7,663.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,500.0	0.00	0.00	7,763.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,600.0	0.00	0.00	7,863.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,700.0	0.00	0.00	7,963.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,800.0	0.00	0.00	8,063.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00
8,900.0	0.00	0.00	8,163.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 332-24
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5754.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5754.0ft (Original Well Elev)
Site:	RWF 13-19	North Reference:	True
Well:	PA 332-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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)	
9,000.0	0.00	0.00	8,263.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00	
9,100.0	0.00	0.00	8,363.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00	
9,115.9	0.00	0.00	8,379.0	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00	
RLNS										
9,200.0	0.00	0.00	8,463.1	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00	
9,265.9	0.00	0.00	8,529.0	2,036.7	-1,729.9	2,672.3	0.00	0.00	0.00	
PBHL (PA 332-24)										

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 332-24)	0.00	0.00	0.0	0.0	0.0	1,618,796.70	2,312,521.20	39° 30' 25.388 N	107° 56' 12.579 W	
- plan hits target center										
- Point										
PBHL (PA 332-24)	0.00	0.00	8,529.0	2,036.7	-1,729.9	1,620,879.10	2,310,846.50	39° 30' 45.518 N	107° 56' 34.653 W	
- plan hits target center										
- Point										

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name			Casing Diameter (in)	Hole Diameter (in)
1,100.0	1,098.7	9 5/8"			9.625	13.500

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,600.7	2,479.0	G Sand		0.00		
5,463.1	4,804.0	Ohio Creek		0.00		
5,548.0	4,879.0	Upper MVRD		0.00		
6,727.9	5,994.0	Top of Gas		0.00		
8,165.9	7,429.0	Cameo		0.00		
9,115.9	8,379.0	RLNS		0.00		