

TEP Rocky Mountain LLC

Garfield County, CO NAD83

RWF 13-19

PA 433-24

OH

Plan: Plan #1

Standard Planning Report

21 June, 2017

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 433-24
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 433-24	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 433-24, A4					
Well Position	+N/-S	5.7 ft	Northing:	1,618,787.10 ft	Latitude:	39° 30' 25.292 N
	+E/-W	-21.8 ft	Easting:	2,312,518.40 ft	Longitude:	107° 56' 12.611 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	51,556.12818973

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	290.19

Plan Survey Tool Program	Date	6/21/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	8,801.2 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	
650.0	0.00	0.00	650.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,350.1	21.00	290.19	1,334.5	43.8	-119.1	3.00	3.00	0.00	290.19	
5,426.4	21.00	290.19	5,140.0	548.0	-1,490.3	0.00	0.00	0.00	0.00	
6,826.5	0.00	0.00	6,509.0	635.6	-1,728.5	1.50	-1.50	0.00	180.00	
8,801.5	0.00	0.00	8,484.0	635.6	-1,728.5	0.00	0.00	0.00	0.00	PBHL (PA 433-24)

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 433-24
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 433-24	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 433-24)									
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
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	1.50	290.19	700.0	0.2	-0.6	0.7	3.00	3.00	0.00
800.0	4.50	290.19	799.8	2.0	-5.5	5.9	3.00	3.00	0.00
900.0	7.50	290.19	899.3	5.6	-15.3	16.3	3.00	3.00	0.00
1,000.0	10.50	290.19	998.0	11.0	-30.0	32.0	3.00	3.00	0.00
1,100.0	13.50	290.19	1,095.8	18.2	-49.5	52.8	3.00	3.00	0.00
9 5/8"									
1,200.0	16.50	290.19	1,192.4	27.1	-73.8	78.6	3.00	3.00	0.00
1,300.0	19.50	290.19	1,287.5	37.8	-102.8	109.5	3.00	3.00	0.00
1,350.1	21.00	290.19	1,334.5	43.8	-119.1	126.9	3.00	3.00	0.00
1,400.0	21.00	290.19	1,381.1	50.0	-135.9	144.8	0.00	0.00	0.00
1,500.0	21.00	290.19	1,474.5	62.3	-169.5	180.6	0.00	0.00	0.00
1,600.0	21.00	290.19	1,567.8	74.7	-203.2	216.5	0.00	0.00	0.00
1,700.0	21.00	290.19	1,661.2	87.1	-236.8	252.3	0.00	0.00	0.00
1,800.0	21.00	290.19	1,754.5	99.4	-270.4	288.1	0.00	0.00	0.00
1,900.0	21.00	290.19	1,847.9	111.8	-304.1	324.0	0.00	0.00	0.00
2,000.0	21.00	290.19	1,941.2	124.2	-337.7	359.8	0.00	0.00	0.00
2,100.0	21.00	290.19	2,034.6	136.5	-371.3	395.7	0.00	0.00	0.00
2,200.0	21.00	290.19	2,128.0	148.9	-405.0	431.5	0.00	0.00	0.00
2,300.0	21.00	290.19	2,221.3	161.3	-438.6	467.3	0.00	0.00	0.00
2,400.0	21.00	290.19	2,314.7	173.7	-472.3	503.2	0.00	0.00	0.00
2,500.0	21.00	290.19	2,408.0	186.0	-505.9	539.0	0.00	0.00	0.00
2,576.0	21.00	290.19	2,479.0	195.4	-531.5	566.3	0.00	0.00	0.00
G Sand									
2,600.0	21.00	290.19	2,501.4	198.4	-539.5	574.9	0.00	0.00	0.00
2,700.0	21.00	290.19	2,594.7	210.8	-573.2	610.7	0.00	0.00	0.00
2,800.0	21.00	290.19	2,688.1	223.1	-606.8	646.5	0.00	0.00	0.00
2,900.0	21.00	290.19	2,781.5	235.5	-640.5	682.4	0.00	0.00	0.00
3,000.0	21.00	290.19	2,874.8	247.9	-674.1	718.2	0.00	0.00	0.00
3,100.0	21.00	290.19	2,968.2	260.2	-707.7	754.1	0.00	0.00	0.00
3,200.0	21.00	290.19	3,061.5	272.6	-741.4	789.9	0.00	0.00	0.00
3,300.0	21.00	290.19	3,154.9	285.0	-775.0	825.7	0.00	0.00	0.00
3,400.0	21.00	290.19	3,248.2	297.3	-808.7	861.6	0.00	0.00	0.00
3,500.0	21.00	290.19	3,341.6	309.7	-842.3	897.4	0.00	0.00	0.00
3,600.0	21.00	290.19	3,435.0	322.1	-875.9	933.3	0.00	0.00	0.00
3,700.0	21.00	290.19	3,528.3	334.5	-909.6	969.1	0.00	0.00	0.00
3,800.0	21.00	290.19	3,621.7	346.8	-943.2	1,005.0	0.00	0.00	0.00
3,900.0	21.00	290.19	3,715.0	359.2	-976.8	1,040.8	0.00	0.00	0.00
4,000.0	21.00	290.19	3,808.4	371.6	-1,010.5	1,076.6	0.00	0.00	0.00
4,100.0	21.00	290.19	3,901.7	383.9	-1,044.1	1,112.5	0.00	0.00	0.00
4,200.0	21.00	290.19	3,995.1	396.3	-1,077.8	1,148.3	0.00	0.00	0.00
4,300.0	21.00	290.19	4,088.4	408.7	-1,111.4	1,184.2	0.00	0.00	0.00
4,400.0	21.00	290.19	4,181.8	421.0	-1,145.0	1,220.0	0.00	0.00	0.00
4,500.0	21.00	290.19	4,275.2	433.4	-1,178.7	1,255.8	0.00	0.00	0.00
4,600.0	21.00	290.19	4,368.5	445.8	-1,212.3	1,291.7	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 433-24	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)
4,700.0	21.00	290.19	4,461.9	458.1	-1,246.0	1,327.5	0.00	0.00	0.00
4,800.0	21.00	290.19	4,555.2	470.5	-1,279.6	1,363.4	0.00	0.00	0.00
4,900.0	21.00	290.19	4,648.6	482.9	-1,313.2	1,399.2	0.00	0.00	0.00
5,000.0	21.00	290.19	4,741.9	495.3	-1,346.9	1,435.0	0.00	0.00	0.00
5,018.3	21.00	290.19	4,759.0	497.5	-1,353.0	1,441.6	0.00	0.00	0.00
Ohio Creek									
5,098.6	21.00	290.19	4,834.0	507.5	-1,380.0	1,470.4	0.00	0.00	0.00
Upper MVRD									
5,100.0	21.00	290.19	4,835.3	507.6	-1,380.5	1,470.9	0.00	0.00	0.00
5,200.0	21.00	290.19	4,928.7	520.0	-1,414.2	1,506.7	0.00	0.00	0.00
5,300.0	21.00	290.19	5,022.0	532.4	-1,447.8	1,542.6	0.00	0.00	0.00
5,400.0	21.00	290.19	5,115.4	544.7	-1,481.4	1,578.4	0.00	0.00	0.00
5,426.4	21.00	290.19	5,140.0	548.0	-1,490.3	1,587.9	0.00	0.00	0.00
5,500.0	19.90	290.19	5,209.0	556.9	-1,514.4	1,613.6	1.50	-1.50	0.00
5,600.0	18.40	290.19	5,303.4	568.2	-1,545.2	1,646.4	1.50	-1.50	0.00
5,700.0	16.90	290.19	5,398.7	578.7	-1,573.7	1,676.7	1.50	-1.50	0.00
5,800.0	15.40	290.19	5,494.8	588.3	-1,599.8	1,704.5	1.50	-1.50	0.00
5,900.0	13.90	290.19	5,591.5	597.0	-1,623.5	1,729.8	1.50	-1.50	0.00
6,000.0	12.40	290.19	5,688.9	604.8	-1,644.9	1,752.5	1.50	-1.50	0.00
6,100.0	10.90	290.19	5,786.8	611.8	-1,663.8	1,772.7	1.50	-1.50	0.00
6,200.0	9.40	290.19	5,885.3	617.9	-1,680.4	1,790.3	1.50	-1.50	0.00
6,264.5	8.43	290.19	5,949.0	621.3	-1,689.7	1,800.3	1.50	-1.50	0.00
Top of Gas									
6,300.0	7.90	290.19	5,984.1	623.1	-1,694.5	1,805.4	1.50	-1.50	0.00
6,400.0	6.40	290.19	6,083.4	627.4	-1,706.1	1,817.8	1.50	-1.50	0.00
6,500.0	4.90	290.19	6,182.9	630.8	-1,715.4	1,827.7	1.50	-1.50	0.00
6,600.0	3.40	290.19	6,282.6	633.3	-1,722.2	1,834.9	1.50	-1.50	0.00
6,700.0	1.90	290.19	6,382.5	634.8	-1,726.5	1,839.5	1.50	-1.50	0.00
6,800.0	0.40	290.19	6,482.5	635.5	-1,728.4	1,841.5	1.50	-1.50	0.00
6,826.5	0.00	0.00	6,509.0	635.6	-1,728.5	1,841.6	1.50	-1.50	0.00
6,900.0	0.00	0.00	6,582.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,000.0	0.00	0.00	6,682.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,100.0	0.00	0.00	6,782.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,200.0	0.00	0.00	6,882.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,300.0	0.00	0.00	6,982.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,400.0	0.00	0.00	7,082.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,500.0	0.00	0.00	7,182.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,600.0	0.00	0.00	7,282.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,700.0	0.00	0.00	7,382.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,701.5	0.00	0.00	7,384.0	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
Cameo									
7,800.0	0.00	0.00	7,482.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
7,900.0	0.00	0.00	7,582.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
8,000.0	0.00	0.00	7,682.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
8,100.0	0.00	0.00	7,782.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
8,200.0	0.00	0.00	7,882.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
8,300.0	0.00	0.00	7,982.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
8,400.0	0.00	0.00	8,082.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
8,500.0	0.00	0.00	8,182.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
8,600.0	0.00	0.00	8,282.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
8,651.5	0.00	0.00	8,334.0	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
RLNS									
8,700.0	0.00	0.00	8,382.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
8,800.0	0.00	0.00	8,482.5	635.6	-1,728.5	1,841.6	0.00	0.00	0.00

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 433-24
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 433-24	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)
8,801.5	0.00	0.00	8,484.0	635.6	-1,728.5	1,841.6	0.00	0.00	0.00
PBHL (PA 433-24)									

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 433-24) - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	1,618,787.10	2,312,518.40	39° 30' 25.292 N	107° 56' 12.611 W
PBHL (PA 433-24) - plan hits target center - Point	0.00	0.00	8,484.0	635.6	-1,728.5	1,619,468.80	2,310,807.60	39° 30' 31.574 N	107° 56' 34.665 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.0	1,095.8	9 5/8"	9.625	13.500	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,576.0	2,479.0	G Sand		0.00	
5,018.3	4,759.0	Ohio Creek		0.00	
5,098.6	4,834.0	Upper MVRD		0.00	
6,264.5	5,949.0	Top of Gas		0.00	
7,701.5	7,384.0	Cameo		0.00	
8,651.5	8,334.0	RLNS		0.00	