

TEP Rocky Mountain LLC

Garfield County, CO NAD83

RWF 13-19

PA 432-24

OH

Plan: Plan #1

Standard Planning Report

21 June, 2017

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 432-24
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 432-24	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 432-24, B2					
Well Position	+N/-S	19.2 ft	Northing:	1,618,800.90 ft	Latitude:	39° 30' 25.426 N
	+E/-W	-33.7 ft	Easting:	2,312,506.80 ft	Longitude:	107° 56' 12.764 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	51,556.14272056

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	314.77

Plan Survey Tool Program	Date	6/21/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	9,022.1 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	
180.0	0.00	0.00	180.0	0.0	0.0	0.00	0.00	0.00	0.00	
380.0	4.00	337.50	379.8	6.4	-2.7	2.00	2.00	0.00	337.50	
1,109.2	25.50	314.47	1,081.1	141.5	-125.9	3.00	2.95	-3.16	-26.88	
5,418.3	25.50	314.47	4,970.4	1,441.2	-1,450.0	0.00	0.00	0.00	0.00	
7,118.5	0.00	0.00	6,615.0	1,701.9	-1,715.7	1.50	-1.50	0.00	180.00	
9,022.5	0.00	0.00	8,519.0	1,701.9	-1,715.7	0.00	0.00	0.00	0.00	PBHL (PA 432-24)

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 432-24
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 432-24	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 432-24)									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.40	337.50	200.0	0.1	0.0	0.1	2.00	2.00	0.00
300.0	2.40	337.50	300.0	2.3	-1.0	2.3	2.00	2.00	0.00
380.0	4.00	337.50	379.8	6.4	-2.7	6.4	2.00	2.00	0.00
400.0	4.54	334.07	399.8	7.8	-3.3	7.8	3.00	2.72	-17.14
500.0	7.39	324.75	499.2	16.6	-8.7	17.9	3.00	2.85	-9.32
600.0	10.33	320.65	598.0	28.8	-18.1	33.2	3.00	2.93	-4.10
700.0	13.29	318.35	695.9	44.3	-31.5	53.6	3.00	2.96	-2.30
800.0	16.27	316.88	792.6	63.1	-48.7	79.0	3.00	2.98	-1.47
900.0	19.25	315.86	887.8	85.2	-69.7	109.5	3.00	2.98	-1.02
1,000.0	22.24	315.10	981.3	110.4	-94.6	144.9	3.00	2.99	-0.76
1,100.0	25.23	314.51	1,072.8	138.8	-123.1	185.2	3.00	2.99	-0.59
9 5/8"									
1,109.2	25.50	314.47	1,081.1	141.5	-125.9	189.1	3.00	2.99	-0.52
1,200.0	25.50	314.47	1,163.1	168.9	-153.8	228.2	0.00	0.00	0.00
1,300.0	25.50	314.47	1,253.4	199.1	-184.6	271.3	0.00	0.00	0.00
1,400.0	25.50	314.47	1,343.6	229.3	-215.3	314.3	0.00	0.00	0.00
1,500.0	25.50	314.47	1,433.9	259.4	-246.0	357.4	0.00	0.00	0.00
1,600.0	25.50	314.47	1,524.1	289.6	-276.8	400.4	0.00	0.00	0.00
1,700.0	25.50	314.47	1,614.4	319.7	-307.5	443.5	0.00	0.00	0.00
1,800.0	25.50	314.47	1,704.6	349.9	-338.2	486.5	0.00	0.00	0.00
1,900.0	25.50	314.47	1,794.9	380.1	-368.9	529.6	0.00	0.00	0.00
2,000.0	25.50	314.47	1,885.2	410.2	-399.7	572.6	0.00	0.00	0.00
2,100.0	25.50	314.47	1,975.4	440.4	-430.4	615.7	0.00	0.00	0.00
2,200.0	25.50	314.47	2,065.7	470.5	-461.1	658.8	0.00	0.00	0.00
2,300.0	25.50	314.47	2,155.9	500.7	-491.9	701.8	0.00	0.00	0.00
2,400.0	25.50	314.47	2,246.2	530.9	-522.6	744.9	0.00	0.00	0.00
2,500.0	25.50	314.47	2,336.4	561.0	-553.3	787.9	0.00	0.00	0.00
2,600.0	25.50	314.47	2,426.7	591.2	-584.0	831.0	0.00	0.00	0.00
2,657.9	25.50	314.47	2,479.0	608.7	-601.8	855.9	0.00	0.00	0.00
G Sand									
2,700.0	25.50	314.47	2,517.0	621.3	-614.8	874.0	0.00	0.00	0.00
2,800.0	25.50	314.47	2,607.2	651.5	-645.5	917.1	0.00	0.00	0.00
2,900.0	25.50	314.47	2,697.5	681.7	-676.2	960.1	0.00	0.00	0.00
3,000.0	25.50	314.47	2,787.7	711.8	-707.0	1,003.2	0.00	0.00	0.00
3,100.0	25.50	314.47	2,878.0	742.0	-737.7	1,046.3	0.00	0.00	0.00
3,200.0	25.50	314.47	2,968.2	772.1	-768.4	1,089.3	0.00	0.00	0.00
3,300.0	25.50	314.47	3,058.5	802.3	-799.1	1,132.4	0.00	0.00	0.00
3,400.0	25.50	314.47	3,148.7	832.5	-829.9	1,175.4	0.00	0.00	0.00
3,500.0	25.50	314.47	3,239.0	862.6	-860.6	1,218.5	0.00	0.00	0.00
3,600.0	25.50	314.47	3,329.3	892.8	-891.3	1,261.5	0.00	0.00	0.00
3,700.0	25.50	314.47	3,419.5	922.9	-922.0	1,304.6	0.00	0.00	0.00
3,800.0	25.50	314.47	3,509.8	953.1	-952.8	1,347.7	0.00	0.00	0.00
3,900.0	25.50	314.47	3,600.0	983.3	-983.5	1,390.7	0.00	0.00	0.00
4,000.0	25.50	314.47	3,690.3	1,013.4	-1,014.2	1,433.8	0.00	0.00	0.00
4,100.0	25.50	314.47	3,780.5	1,043.6	-1,045.0	1,476.8	0.00	0.00	0.00
4,200.0	25.50	314.47	3,870.8	1,073.7	-1,075.7	1,519.9	0.00	0.00	0.00
4,300.0	25.50	314.47	3,961.0	1,103.9	-1,106.4	1,562.9	0.00	0.00	0.00
4,400.0	25.50	314.47	4,051.3	1,134.1	-1,137.1	1,606.0	0.00	0.00	0.00
4,500.0	25.50	314.47	4,141.6	1,164.2	-1,167.9	1,649.0	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 432-24	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	25.50	314.47	4,231.8	1,194.4	-1,198.6	1,692.1	0.00	0.00	0.00	
4,700.0	25.50	314.47	4,322.1	1,224.5	-1,229.3	1,735.2	0.00	0.00	0.00	
4,800.0	25.50	314.47	4,412.3	1,254.7	-1,260.1	1,778.2	0.00	0.00	0.00	
4,900.0	25.50	314.47	4,502.6	1,284.9	-1,290.8	1,821.3	0.00	0.00	0.00	
5,000.0	25.50	314.47	4,592.8	1,315.0	-1,321.5	1,864.3	0.00	0.00	0.00	
5,100.0	25.50	314.47	4,683.1	1,345.2	-1,352.2	1,907.4	0.00	0.00	0.00	
5,200.0	25.50	314.47	4,773.4	1,375.3	-1,383.0	1,950.4	0.00	0.00	0.00	
5,222.9	25.50	314.47	4,794.0	1,382.2	-1,390.0	1,960.3	0.00	0.00	0.00	
Ohio Creek										
5,300.0	25.50	314.47	4,863.6	1,405.5	-1,413.7	1,993.5	0.00	0.00	0.00	
5,306.0	25.50	314.47	4,869.0	1,407.3	-1,415.5	1,996.1	0.00	0.00	0.00	
Upper MVRD										
5,400.0	25.50	314.47	4,953.9	1,435.7	-1,444.4	2,036.5	0.00	0.00	0.00	
5,418.3	25.50	314.47	4,970.4	1,441.2	-1,450.0	2,044.4	0.00	0.00	0.00	
5,500.0	24.28	314.47	5,044.5	1,465.3	-1,474.6	2,078.8	1.50	-1.50	0.00	
5,600.0	22.78	314.47	5,136.2	1,493.2	-1,503.1	2,118.7	1.50	-1.50	0.00	
5,700.0	21.28	314.47	5,228.9	1,519.5	-1,529.8	2,156.2	1.50	-1.50	0.00	
5,800.0	19.78	314.47	5,322.5	1,544.1	-1,554.9	2,191.3	1.50	-1.50	0.00	
5,900.0	18.28	314.47	5,417.1	1,566.9	-1,578.1	2,223.9	1.50	-1.50	0.00	
6,000.0	16.78	314.47	5,512.4	1,588.0	-1,599.6	2,254.0	1.50	-1.50	0.00	
6,100.0	15.28	314.47	5,608.5	1,607.3	-1,619.3	2,281.6	1.50	-1.50	0.00	
6,200.0	13.78	314.47	5,705.3	1,624.9	-1,637.2	2,306.7	1.50	-1.50	0.00	
6,300.0	12.28	314.47	5,802.7	1,640.7	-1,653.3	2,329.2	1.50	-1.50	0.00	
6,400.0	10.78	314.47	5,900.7	1,654.7	-1,667.6	2,349.2	1.50	-1.50	0.00	
6,484.6	9.51	314.47	5,984.0	1,665.1	-1,678.2	2,364.1	1.50	-1.50	0.00	
Top of Gas										
6,500.0	9.28	314.47	5,999.2	1,666.9	-1,680.0	2,366.6	1.50	-1.50	0.00	
6,600.0	7.78	314.47	6,098.1	1,677.3	-1,690.6	2,381.5	1.50	-1.50	0.00	
6,700.0	6.28	314.47	6,197.3	1,685.9	-1,699.3	2,393.7	1.50	-1.50	0.00	
6,800.0	4.78	314.47	6,296.9	1,692.6	-1,706.2	2,403.3	1.50	-1.50	0.00	
6,900.0	3.28	314.47	6,396.6	1,697.5	-1,711.2	2,410.4	1.50	-1.50	0.00	
7,000.0	1.78	314.47	6,496.5	1,700.6	-1,714.4	2,414.8	1.50	-1.50	0.00	
7,100.0	0.28	314.47	6,596.5	1,701.9	-1,715.6	2,416.6	1.50	-1.50	0.00	
7,118.5	0.00	0.00	6,615.0	1,701.9	-1,715.7	2,416.6	1.50	-1.50	0.00	
7,200.0	0.00	0.00	6,696.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
7,300.0	0.00	0.00	6,796.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
7,400.0	0.00	0.00	6,896.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
7,500.0	0.00	0.00	6,996.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
7,600.0	0.00	0.00	7,096.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,196.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,296.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,396.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
7,922.5	0.00	0.00	7,419.0	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
Cameo										
8,000.0	0.00	0.00	7,496.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
8,100.0	0.00	0.00	7,596.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
8,200.0	0.00	0.00	7,696.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
8,300.0	0.00	0.00	7,796.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
8,400.0	0.00	0.00	7,896.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
8,500.0	0.00	0.00	7,996.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
8,600.0	0.00	0.00	8,096.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,196.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
8,800.0	0.00	0.00	8,296.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
8,872.5	0.00	0.00	8,369.0	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 432-24
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 432-24	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)	
RLNS										
8,900.0	0.00	0.00	8,396.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
9,000.0	0.00	0.00	8,496.5	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
9,022.5	0.00	0.00	8,519.0	1,701.9	-1,715.7	2,416.6	0.00	0.00	0.00	
PBHL (PA 432-24)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
SHL (PA 432-24) - hit/miss target - Shape - Point	0.00	0.00	0.0	0.0	0.0	1,618,800.90	2,312,506.80	39° 30' 25.426 N	107° 56' 12.764 W	
PBHL (PA 432-24) - plan hits target center - Point	0.00	0.00	8,519.0	1,701.9	-1,715.7	1,620,548.20	2,310,837.40	39° 30' 42.246 N	107° 56' 34.655 W	

Casing Points										
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)						
1,100.0	1,072.8	9 5/8"	9.625	13.500						

Formations										
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)					
2,657.9	2,479.0	G Sand		0.00						
5,222.9	4,794.0	Ohio Creek		0.00						
5,306.0	4,869.0	Upper MVRD		0.00						
6,484.6	5,984.0	Top of Gas		0.00						
7,922.5	7,419.0	Cameo		0.00						
8,872.5	8,369.0	RLNS		0.00						