

TEP Rocky Mountain LLC

Garfield County, CO NAD83

RWF 13-19

PA 32-24

OH

Plan: Plan #1

Standard Planning Report

21 June, 2017

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 32-24
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 32-24	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 32-24, B6					
Well Position	+N/-S	11.6 ft	Northing:	1,618,792.50 ft	Latitude:	39° 30' 25.350 N
	+E/-W	-4.7 ft	Easting:	2,312,535.60 ft	Longitude:	107° 56' 12.394 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	51,556.14451474

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	323.67

Plan Survey Tool Program	Date	6/21/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	9,319.0 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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
750.0	5.00	0.00	749.7	10.9	0.0	2.00	2.00	0.00	0.00	
1,701.2	32.39	323.04	1,643.6	261.1	-156.4	3.00	2.88	-3.89	-42.39	
5,799.6	32.39	323.04	5,104.5	2,015.4	-1,476.3	0.00	0.00	0.00	0.00	
7,419.0	0.00	0.00	6,639.0	2,371.5	-1,744.2	2.00	-2.00	0.00	180.00	
9,319.0	0.00	0.00	8,539.0	2,371.5	-1,744.2	0.00	0.00	0.00	0.00	PBHL (PA 32-24)

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 32-24
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 32-24	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 32-24)									
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	2.00	0.00	600.0	1.7	0.0	1.4	2.00	2.00	0.00
700.0	4.00	0.00	699.8	7.0	0.0	5.6	2.00	2.00	0.00
750.0	5.00	0.00	749.7	10.9	0.0	8.8	2.00	2.00	0.00
800.0	6.19	350.58	799.4	15.7	-0.4	12.9	3.00	2.38	-18.84
900.0	8.86	339.91	898.6	28.3	-4.0	25.1	3.00	2.67	-10.67
1,000.0	11.69	334.25	997.0	44.6	-11.0	42.5	3.00	2.83	-5.66
1,100.0	14.58	330.79	1,094.3	64.8	-21.6	64.9	3.00	2.90	-3.46
9 5/8"									
1,200.0	17.51	328.47	1,190.4	88.6	-35.6	92.4	3.00	2.93	-2.33
1,300.0	20.46	326.79	1,285.0	116.0	-53.0	124.9	3.00	2.95	-1.67
1,400.0	23.43	325.53	1,377.7	147.1	-73.9	162.2	3.00	2.96	-1.27
1,500.0	26.40	324.53	1,468.4	181.6	-98.0	204.3	3.00	2.97	-1.00
1,600.0	29.37	323.72	1,556.8	219.4	-125.4	251.1	3.00	2.98	-0.81
1,700.0	32.35	323.05	1,642.6	260.6	-156.0	302.4	3.00	2.98	-0.67
1,701.2	32.39	323.04	1,643.6	261.1	-156.4	303.0	3.00	2.98	-0.61
1,800.0	32.39	323.04	1,727.1	303.4	-188.2	356.0	0.00	0.00	0.00
1,900.0	32.39	323.04	1,811.5	346.2	-220.4	409.5	0.00	0.00	0.00
2,000.0	32.39	323.04	1,896.0	389.0	-252.6	463.1	0.00	0.00	0.00
2,100.0	32.39	323.04	1,980.4	431.8	-284.9	516.6	0.00	0.00	0.00
2,200.0	32.39	323.04	2,064.8	474.6	-317.1	570.2	0.00	0.00	0.00
2,300.0	32.39	323.04	2,149.3	517.4	-349.3	623.8	0.00	0.00	0.00
2,400.0	32.39	323.04	2,233.7	560.2	-381.5	677.3	0.00	0.00	0.00
2,500.0	32.39	323.04	2,318.2	603.0	-413.7	730.9	0.00	0.00	0.00
2,600.0	32.39	323.04	2,402.6	645.8	-445.9	784.5	0.00	0.00	0.00
2,690.5	32.39	323.04	2,479.0	684.6	-475.0	832.9	0.00	0.00	0.00
G Sand									
2,700.0	32.39	323.04	2,487.1	688.6	-478.1	838.0	0.00	0.00	0.00
2,800.0	32.39	323.04	2,571.5	731.4	-510.3	891.6	0.00	0.00	0.00
2,900.0	32.39	323.04	2,655.9	774.2	-542.5	945.1	0.00	0.00	0.00
3,000.0	32.39	323.04	2,740.4	817.1	-574.7	998.7	0.00	0.00	0.00
3,100.0	32.39	323.04	2,824.8	859.9	-606.9	1,052.3	0.00	0.00	0.00
3,200.0	32.39	323.04	2,909.3	902.7	-639.1	1,105.8	0.00	0.00	0.00
3,300.0	32.39	323.04	2,993.7	945.5	-671.3	1,159.4	0.00	0.00	0.00
3,400.0	32.39	323.04	3,078.2	988.3	-703.5	1,212.9	0.00	0.00	0.00
3,500.0	32.39	323.04	3,162.6	1,031.1	-735.7	1,266.5	0.00	0.00	0.00
3,600.0	32.39	323.04	3,247.1	1,073.9	-767.9	1,320.1	0.00	0.00	0.00
3,700.0	32.39	323.04	3,331.5	1,116.7	-800.1	1,373.6	0.00	0.00	0.00
3,800.0	32.39	323.04	3,415.9	1,159.5	-832.3	1,427.2	0.00	0.00	0.00
3,900.0	32.39	323.04	3,500.4	1,202.3	-864.5	1,480.8	0.00	0.00	0.00
4,000.0	32.39	323.04	3,584.8	1,245.1	-896.7	1,534.3	0.00	0.00	0.00
4,100.0	32.39	323.04	3,669.3	1,287.9	-928.9	1,587.9	0.00	0.00	0.00
4,200.0	32.39	323.04	3,753.7	1,330.7	-961.2	1,641.4	0.00	0.00	0.00
4,300.0	32.39	323.04	3,838.2	1,373.5	-993.4	1,695.0	0.00	0.00	0.00
4,400.0	32.39	323.04	3,922.6	1,416.3	-1,025.6	1,748.6	0.00	0.00	0.00
4,500.0	32.39	323.04	4,007.0	1,459.1	-1,057.8	1,802.1	0.00	0.00	0.00
4,600.0	32.39	323.04	4,091.5	1,501.9	-1,090.0	1,855.7	0.00	0.00	0.00

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 32-24
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 32-24	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	32.39	323.04	4,175.9	1,544.7	-1,122.2	1,909.3	0.00	0.00	0.00	
4,800.0	32.39	323.04	4,260.4	1,587.5	-1,154.4	1,962.8	0.00	0.00	0.00	
4,900.0	32.39	323.04	4,344.8	1,630.3	-1,186.6	2,016.4	0.00	0.00	0.00	
5,000.0	32.39	323.04	4,429.3	1,673.1	-1,218.8	2,069.9	0.00	0.00	0.00	
5,100.0	32.39	323.04	4,513.7	1,715.9	-1,251.0	2,123.5	0.00	0.00	0.00	
5,200.0	32.39	323.04	4,598.2	1,758.7	-1,283.2	2,177.1	0.00	0.00	0.00	
5,300.0	32.39	323.04	4,682.6	1,801.5	-1,315.4	2,230.6	0.00	0.00	0.00	
5,400.0	32.39	323.04	4,767.0	1,844.3	-1,347.6	2,284.2	0.00	0.00	0.00	
5,455.6	32.39	323.04	4,814.0	1,868.1	-1,365.5	2,314.0	0.00	0.00	0.00	
Ohio Creek										
5,500.0	32.39	323.04	4,851.5	1,887.1	-1,379.8	2,337.8	0.00	0.00	0.00	
5,544.4	32.39	323.04	4,889.0	1,906.1	-1,394.1	2,361.6	0.00	0.00	0.00	
Upper MVRD										
5,600.0	32.39	323.04	4,935.9	1,929.9	-1,412.0	2,391.3	0.00	0.00	0.00	
5,700.0	32.39	323.04	5,020.4	1,972.7	-1,444.2	2,444.9	0.00	0.00	0.00	
5,799.6	32.39	323.04	5,104.5	2,015.4	-1,476.3	2,498.2	0.00	0.00	0.00	
5,800.0	32.38	323.04	5,104.8	2,015.5	-1,476.4	2,498.4	2.00	-2.00	0.00	
5,900.0	30.38	323.04	5,190.2	2,057.1	-1,507.7	2,550.5	2.00	-2.00	0.00	
6,000.0	28.38	323.04	5,277.3	2,096.3	-1,537.2	2,599.6	2.00	-2.00	0.00	
6,100.0	26.38	323.04	5,366.1	2,133.1	-1,564.9	2,645.5	2.00	-2.00	0.00	
6,200.0	24.38	323.04	5,456.5	2,167.3	-1,590.6	2,688.4	2.00	-2.00	0.00	
6,300.0	22.38	323.04	5,548.2	2,199.0	-1,614.5	2,728.1	2.00	-2.00	0.00	
6,400.0	20.38	323.04	5,641.4	2,228.2	-1,636.4	2,764.5	2.00	-2.00	0.00	
6,500.0	18.38	323.04	5,735.7	2,254.7	-1,656.4	2,797.7	2.00	-2.00	0.00	
6,600.0	16.38	323.04	5,831.1	2,278.6	-1,674.3	2,827.6	2.00	-2.00	0.00	
6,700.0	14.38	323.04	5,927.5	2,299.8	-1,690.3	2,854.1	2.00	-2.00	0.00	
6,778.7	12.81	323.04	6,004.0	2,314.5	-1,701.4	2,872.6	2.00	-2.00	0.00	
Top of Gas										
6,800.0	12.38	323.04	6,024.8	2,318.2	-1,704.2	2,877.2	2.00	-2.00	0.00	
6,900.0	10.38	323.04	6,122.8	2,334.0	-1,716.0	2,897.0	2.00	-2.00	0.00	
7,000.0	8.38	323.04	6,221.5	2,347.0	-1,725.8	2,913.3	2.00	-2.00	0.00	
7,100.0	6.38	323.04	6,320.7	2,357.3	-1,733.6	2,926.1	2.00	-2.00	0.00	
7,200.0	4.38	323.04	6,420.2	2,364.8	-1,739.2	2,935.5	2.00	-2.00	0.00	
7,300.0	2.38	323.04	6,520.0	2,369.5	-1,742.7	2,941.4	2.00	-2.00	0.00	
7,400.0	0.38	323.04	6,620.0	2,371.4	-1,744.2	2,943.8	2.00	-2.00	0.00	
7,419.0	0.00	0.00	6,639.0	2,371.5	-1,744.2	2,943.8	2.00	-2.00	0.00	
7,500.0	0.00	0.00	6,720.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
7,600.0	0.00	0.00	6,820.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
7,700.0	0.00	0.00	6,920.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,020.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,120.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,220.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,100.0	0.00	0.00	7,320.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,200.0	0.00	0.00	7,420.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,219.0	0.00	0.00	7,439.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
Cameo										
8,300.0	0.00	0.00	7,520.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,400.0	0.00	0.00	7,620.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,500.0	0.00	0.00	7,720.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,600.0	0.00	0.00	7,820.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,700.0	0.00	0.00	7,920.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,800.0	0.00	0.00	8,020.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
8,900.0	0.00	0.00	8,120.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
9,000.0	0.00	0.00	8,220.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 32-24
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 32-24	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)	
9,100.0	0.00	0.00	8,320.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
9,169.0	0.00	0.00	8,389.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
RLNS										
9,200.0	0.00	0.00	8,420.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
9,300.0	0.00	0.00	8,520.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
9,319.0	0.00	0.00	8,539.0	2,371.5	-1,744.2	2,943.8	0.00	0.00	0.00	
PBHL (PA 32-24)										

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 32-24)	0.00	0.00	0.0	0.0	0.0	1,618,792.50	2,312,535.60	39° 30' 25.350 N		107° 56' 12.394 W
- plan hits target center										
- Point										
PBHL (PA 32-24)	0.00	0.00	8,539.0	2,371.5	-1,744.2	1,621,209.90	2,310,855.60	39° 30' 48.788 N		107° 56' 34.650 W
- plan hits target center										
- Point										

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name			Casing Diameter (in)	Hole Diameter (in)
1,100.0	1,094.3	9 5/8"			9.625	13.500

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,690.5	2,479.0	G Sand		0.00		
5,455.6	4,814.0	Ohio Creek		0.00		
5,544.4	4,889.0	Upper MVRD		0.00		
6,778.7	6,004.0	Top of Gas		0.00		
8,219.0	7,439.0	Cameo		0.00		
9,169.0	8,389.0	RLNS		0.00		