

TEP Rocky Mountain LLC

Garfield County, CO NAD83

RWF 13-19

PA 423-24

OH

Plan: Plan #1

Standard Planning Report

21 June, 2017

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 423-24
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 423-24	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 423-24, A3					
Well Position	+N/-S	7.6 ft	Northing:	1,618,789.20 ft	Latitude:	39° 30' 25.311 N
	+E/-W	-29.0 ft	Easting:	2,312,511.20 ft	Longitude:	107° 56' 12.704 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	51,556.12774118

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	281.10

Plan Survey Tool Program	Date	6/21/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	9,498.3 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	
450.0	0.00	0.00	450.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,716.6	38.00	281.10	1,625.8	77.9	-397.3	3.00	3.00	0.00	281.10	
5,077.7	38.00	281.10	4,274.4	476.3	-2,427.8	0.00	0.00	0.00	0.00	
7,611.0	0.00	0.00	6,626.0	632.2	-3,222.3	1.50	-1.50	0.00	180.00	
9,499.0	0.00	0.00	8,514.0	632.2	-3,222.3	0.00	0.00	0.00	0.00	PBHL (PA 423-24)

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 423-24
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 423-24	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 423-24)									
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
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	1.50	281.10	500.0	0.1	-0.6	0.7	3.00	3.00	0.00
600.0	4.50	281.10	599.8	1.1	-5.8	5.9	3.00	3.00	0.00
700.0	7.50	281.10	699.3	3.1	-16.0	16.3	3.00	3.00	0.00
800.0	10.50	281.10	798.0	6.2	-31.4	32.0	3.00	3.00	0.00
900.0	13.50	281.10	895.8	10.2	-51.8	52.8	3.00	3.00	0.00
1,000.0	16.50	281.10	992.4	15.1	-77.2	78.6	3.00	3.00	0.00
1,100.0	19.50	281.10	1,087.5	21.1	-107.5	109.5	3.00	3.00	0.00
9 5/8"									
1,200.0	22.50	281.10	1,180.9	28.0	-142.7	145.4	3.00	3.00	0.00
1,300.0	25.50	281.10	1,272.2	35.8	-182.6	186.0	3.00	3.00	0.00
1,400.0	28.50	281.10	1,361.3	44.6	-227.1	231.4	3.00	3.00	0.00
1,500.0	31.50	281.10	1,447.9	54.2	-276.2	281.4	3.00	3.00	0.00
1,600.0	34.50	281.10	1,531.8	64.7	-329.6	335.9	3.00	3.00	0.00
1,700.0	37.50	281.10	1,612.6	76.0	-387.3	394.7	3.00	3.00	0.00
1,716.6	38.00	281.10	1,625.8	77.9	-397.3	404.8	3.00	3.00	0.00
1,800.0	38.00	281.10	1,691.5	87.8	-447.6	456.2	0.00	0.00	0.00
1,900.0	38.00	281.10	1,770.3	99.7	-508.1	517.7	0.00	0.00	0.00
2,000.0	38.00	281.10	1,849.1	111.5	-568.5	579.3	0.00	0.00	0.00
2,100.0	38.00	281.10	1,927.9	123.4	-628.9	640.9	0.00	0.00	0.00
2,200.0	38.00	281.10	2,006.7	135.2	-689.3	702.4	0.00	0.00	0.00
2,300.0	38.00	281.10	2,085.5	147.1	-749.7	764.0	0.00	0.00	0.00
2,400.0	38.00	281.10	2,164.3	158.9	-810.1	825.6	0.00	0.00	0.00
2,500.0	38.00	281.10	2,243.1	170.8	-870.5	887.1	0.00	0.00	0.00
2,600.0	38.00	281.10	2,321.9	182.6	-930.9	948.7	0.00	0.00	0.00
2,700.0	38.00	281.10	2,400.7	194.5	-991.3	1,010.2	0.00	0.00	0.00
2,799.3	38.00	281.10	2,479.0	206.3	-1,051.4	1,071.4	0.00	0.00	0.00
G Sand									
2,800.0	38.00	281.10	2,479.5	206.4	-1,051.8	1,071.8	0.00	0.00	0.00
2,900.0	38.00	281.10	2,558.3	218.2	-1,112.2	1,133.4	0.00	0.00	0.00
3,000.0	38.00	281.10	2,637.1	230.1	-1,172.6	1,194.9	0.00	0.00	0.00
3,100.0	38.00	281.10	2,715.9	241.9	-1,233.0	1,256.5	0.00	0.00	0.00
3,200.0	38.00	281.10	2,794.7	253.8	-1,293.4	1,318.1	0.00	0.00	0.00
3,300.0	38.00	281.10	2,873.5	265.6	-1,353.8	1,379.6	0.00	0.00	0.00
3,400.0	38.00	281.10	2,952.3	277.5	-1,414.2	1,441.2	0.00	0.00	0.00
3,500.0	38.00	281.10	3,031.1	289.3	-1,474.6	1,502.8	0.00	0.00	0.00
3,600.0	38.00	281.10	3,109.9	301.2	-1,535.1	1,564.3	0.00	0.00	0.00
3,700.0	38.00	281.10	3,188.7	313.0	-1,595.5	1,625.9	0.00	0.00	0.00
3,800.0	38.00	281.10	3,267.5	324.9	-1,655.9	1,687.5	0.00	0.00	0.00
3,900.0	38.00	281.10	3,346.4	336.7	-1,716.3	1,749.0	0.00	0.00	0.00
4,000.0	38.00	281.10	3,425.2	348.6	-1,776.7	1,810.6	0.00	0.00	0.00
4,100.0	38.00	281.10	3,504.0	360.4	-1,837.1	1,872.1	0.00	0.00	0.00
4,200.0	38.00	281.10	3,582.8	372.3	-1,897.5	1,933.7	0.00	0.00	0.00
4,300.0	38.00	281.10	3,661.6	384.1	-1,957.9	1,995.3	0.00	0.00	0.00
4,400.0	38.00	281.10	3,740.4	396.0	-2,018.4	2,056.8	0.00	0.00	0.00
4,500.0	38.00	281.10	3,819.2	407.8	-2,078.8	2,118.4	0.00	0.00	0.00
4,600.0	38.00	281.10	3,898.0	419.7	-2,139.2	2,180.0	0.00	0.00	0.00

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 423-24
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 423-24	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	38.00	281.10	3,976.8	431.6	-2,199.6	2,241.5	0.00	0.00	0.00	
4,800.0	38.00	281.10	4,055.6	443.4	-2,260.0	2,303.1	0.00	0.00	0.00	
4,900.0	38.00	281.10	4,134.4	455.3	-2,320.4	2,364.7	0.00	0.00	0.00	
5,000.0	38.00	281.10	4,213.2	467.1	-2,380.8	2,426.2	0.00	0.00	0.00	
5,077.7	38.00	281.10	4,274.4	476.3	-2,427.8	2,474.1	0.00	0.00	0.00	
5,100.0	37.66	281.10	4,292.0	479.0	-2,441.2	2,487.7	1.50	-1.50	0.00	
5,200.0	36.16	281.10	4,372.0	490.5	-2,500.1	2,547.8	1.50	-1.50	0.00	
5,300.0	34.66	281.10	4,453.5	501.7	-2,557.0	2,605.7	1.50	-1.50	0.00	
5,400.0	33.16	281.10	4,536.5	512.4	-2,611.7	2,661.5	1.50	-1.50	0.00	
5,500.0	31.66	281.10	4,620.9	522.7	-2,664.3	2,715.1	1.50	-1.50	0.00	
5,600.0	30.16	281.10	4,706.7	532.6	-2,714.8	2,766.5	1.50	-1.50	0.00	
5,694.6	28.75	281.10	4,789.0	541.6	-2,760.4	2,813.0	1.50	-1.50	0.00	
Ohio Creek										
5,700.0	28.66	281.10	4,793.8	542.1	-2,762.9	2,815.6	1.50	-1.50	0.00	
5,779.6	27.47	281.10	4,864.0	549.3	-2,799.7	2,853.1	1.50	-1.50	0.00	
Upper MVRD										
5,800.0	27.16	281.10	4,882.1	551.1	-2,808.9	2,862.4	1.50	-1.50	0.00	
5,900.0	25.66	281.10	4,971.7	559.7	-2,852.5	2,906.9	1.50	-1.50	0.00	
6,000.0	24.16	281.10	5,062.4	567.8	-2,893.9	2,949.0	1.50	-1.50	0.00	
6,100.0	22.66	281.10	5,154.1	575.4	-2,932.9	2,988.8	1.50	-1.50	0.00	
6,200.0	21.16	281.10	5,246.9	582.6	-2,969.5	3,026.1	1.50	-1.50	0.00	
6,300.0	19.66	281.10	5,340.6	589.3	-3,003.7	3,061.0	1.50	-1.50	0.00	
6,400.0	18.16	281.10	5,435.2	595.6	-3,035.5	3,093.4	1.50	-1.50	0.00	
6,500.0	16.66	281.10	5,530.6	601.3	-3,064.9	3,123.3	1.50	-1.50	0.00	
6,600.0	15.16	281.10	5,626.8	606.6	-3,091.8	3,150.7	1.50	-1.50	0.00	
6,700.0	13.66	281.10	5,723.7	611.4	-3,116.2	3,175.6	1.50	-1.50	0.00	
6,800.0	12.16	281.10	5,821.1	615.7	-3,138.2	3,198.0	1.50	-1.50	0.00	
6,900.0	10.66	281.10	5,919.1	619.5	-3,157.6	3,217.8	1.50	-1.50	0.00	
6,960.8	9.75	281.10	5,979.0	621.6	-3,168.2	3,228.6	1.50	-1.50	0.00	
Top of Gas										
7,000.0	9.16	281.10	6,017.7	622.8	-3,174.5	3,235.0	1.50	-1.50	0.00	
7,100.0	7.66	281.10	6,116.6	625.6	-3,188.8	3,249.6	1.50	-1.50	0.00	
7,200.0	6.16	281.10	6,215.8	628.0	-3,200.6	3,261.7	1.50	-1.50	0.00	
7,300.0	4.66	281.10	6,315.4	629.8	-3,209.9	3,271.1	1.50	-1.50	0.00	
7,400.0	3.16	281.10	6,415.2	631.1	-3,216.6	3,277.9	1.50	-1.50	0.00	
7,500.0	1.66	281.10	6,515.1	631.9	-3,220.7	3,282.1	1.50	-1.50	0.00	
7,600.0	0.16	281.10	6,615.0	632.2	-3,222.3	3,283.7	1.50	-1.50	0.00	
7,611.0	0.00	0.00	6,626.0	632.2	-3,222.3	3,283.7	1.50	-1.50	0.00	
7,700.0	0.00	0.00	6,715.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
7,800.0	0.00	0.00	6,815.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
7,900.0	0.00	0.00	6,915.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,015.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,100.0	0.00	0.00	7,115.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,200.0	0.00	0.00	7,215.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,300.0	0.00	0.00	7,315.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,399.0	0.00	0.00	7,414.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
Cameo										
8,400.0	0.00	0.00	7,415.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,500.0	0.00	0.00	7,515.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,600.0	0.00	0.00	7,615.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,700.0	0.00	0.00	7,715.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,800.0	0.00	0.00	7,815.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
8,900.0	0.00	0.00	7,915.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
9,000.0	0.00	0.00	8,015.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 423-24
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 423-24	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	8,115.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
9,200.0	0.00	0.00	8,215.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
9,300.0	0.00	0.00	8,315.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
9,349.0	0.00	0.00	8,364.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
RLNS										
9,400.0	0.00	0.00	8,415.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
9,499.0	0.00	0.00	8,514.0	632.2	-3,222.3	3,283.7	0.00	0.00	0.00	
PBHL (PA 423-24)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
SHL (PA 423-24) - hit/miss target - Shape - Point	0.00	0.00	0.0	0.0	0.0	1,618,789.20	2,312,511.20	39° 30' 25.311 N	107° 56' 12.704 W	
PBHL (PA 423-24) - plan hits target center - Point	0.00	0.00	8,514.0	632.2	-3,222.3	1,619,507.60	2,309,307.00	39° 30' 31.558 N	107° 56' 53.818 W	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
1,100.0	1,087.5	9 5/8"	9.625	13.500		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,799.3	2,479.0	G Sand		0.00		
5,694.6	4,789.0	Ohio Creek		0.00		
5,779.6	4,864.0	Upper MVRD		0.00		
6,960.8	5,979.0	Top of Gas		0.00		
8,399.0	7,414.0	Cameo		0.00		
9,349.0	8,364.0	RLNS		0.00		