

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**PA 44-13**

**PA 421-24 - Slot A2**

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**17 July, 2018**

**N/A**  
Planning Report

<b>Database:</b>	EDM_PROD	<b>Local Co-ordinate Reference:</b>	Well PA 421-24 - Slot A2
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 6594.0ft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 6594.0ft (Original Well Elev)
<b>Site:</b>	PA 44-13	<b>North Reference:</b>	True
<b>Well:</b>	PA 421-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

<b>Project</b>	Garfield County, CO NAD83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

Site		PA 44-13			
Site Position:		Northing:	1,623,782.10 ft	Latitude:	39° 31' 14.301 N
From:	Map	Easting:	2,311,231.60 ft	Longitude:	107° 56' 30.736 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.54 °

Well	PA 421-24 - Slot A2					
Well Position	+N/-S	-33.1 ft	Northing:	1,623,748.50 ft	Latitude:	39° 31' 13.975 N
	+E/-W	20.3 ft	Easting:	2,311,251.00 ft	Longitude:	107° 56' 30.477 W
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	6,570.0 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2000	12/31/2004	11.43	66.02	53,064.29646508

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	228.49

<b>Plan Survey Tool Program</b>	<b>Date</b>	7/17/2018		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.0	10,066.8 Plan #1 (OH)	SDI MWD	
			SDI MWD - Standard ver 1.0.1	

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
135.0	0.00	0.00	135.0	0.0	0.0	0.00	0.00	0.00	0.00	
982.3	25.42	228.49	954.8	-122.5	-138.5	3.00	3.00	0.00	228.49	
6,572.1	25.42	228.49	6,003.4	-1,712.8	-1,935.2	0.00	0.00	0.00	0.00	
8,266.8	0.00	0.00	7,643.0	-1,957.9	-2,212.2	1.50	-1.50	0.00	180.00	
10,066.8	0.00	0.00	9,443.0	-1,957.9	-2,212.2	0.00	0.00	0.00	0.00	PA 421-24 TD

**N/A**  
Planning Report

<b>Database:</b>	EDM_PROD	<b>Local Co-ordinate Reference:</b>	Well PA 421-24 - Slot A2
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 6594.0ft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 6594.0ft (Original Well Elev)
<b>Site:</b>	PA 44-13	<b>North Reference:</b>	True
<b>Well:</b>	PA 421-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
135.0	0.00	0.00	135.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	1.95	228.49	200.0	-0.7	-0.8	1.1	3.00	3.00	0.00
300.0	4.95	228.49	299.8	-4.7	-5.3	7.1	3.00	3.00	0.00
400.0	7.95	228.49	399.2	-12.2	-13.7	18.4	3.00	3.00	0.00
500.0	10.95	228.49	497.8	-23.0	-26.0	34.8	3.00	3.00	0.00
600.0	13.95	228.49	595.4	-37.3	-42.2	56.3	3.00	3.00	0.00
700.0	16.95	228.49	691.8	-55.0	-62.1	83.0	3.00	3.00	0.00
800.0	19.95	228.49	786.6	-76.0	-85.8	114.6	3.00	3.00	0.00
900.0	22.95	228.49	879.7	-100.2	-113.2	151.2	3.00	3.00	0.00
982.3	25.42	228.49	954.8	-122.5	-138.5	184.9	3.00	3.00	0.00
1,000.0	25.42	228.49	970.8	-127.6	-144.1	192.5	0.00	0.00	0.00
1,100.0	25.42	228.49	1,061.1	-156.0	-176.3	235.4	0.00	0.00	0.00
<b>9 5/8"</b>									
1,200.0	25.42	228.49	1,151.4	-184.5	-208.4	278.3	0.00	0.00	0.00
1,300.0	25.42	228.49	1,241.7	-212.9	-240.6	321.3	0.00	0.00	0.00
1,400.0	25.42	228.49	1,332.0	-241.4	-272.7	364.2	0.00	0.00	0.00
1,500.0	25.42	228.49	1,422.4	-269.8	-304.9	407.1	0.00	0.00	0.00
1,600.0	25.42	228.49	1,512.7	-298.3	-337.0	450.0	0.00	0.00	0.00
1,700.0	25.42	228.49	1,603.0	-326.7	-369.2	493.0	0.00	0.00	0.00
1,800.0	25.42	228.49	1,693.3	-355.2	-401.3	535.9	0.00	0.00	0.00
1,900.0	25.42	228.49	1,783.6	-383.6	-433.4	578.8	0.00	0.00	0.00
2,000.0	25.42	228.49	1,874.0	-412.1	-465.6	621.7	0.00	0.00	0.00
2,100.0	25.42	228.49	1,964.3	-440.5	-497.7	664.7	0.00	0.00	0.00
2,200.0	25.42	228.49	2,054.6	-469.0	-529.9	707.6	0.00	0.00	0.00
2,300.0	25.42	228.49	2,144.9	-497.4	-562.0	750.5	0.00	0.00	0.00
2,400.0	25.42	228.49	2,235.2	-525.9	-594.2	793.4	0.00	0.00	0.00
2,500.0	25.42	228.49	2,325.5	-554.3	-626.3	836.4	0.00	0.00	0.00
2,600.0	25.42	228.49	2,415.9	-582.8	-658.5	879.3	0.00	0.00	0.00
2,700.0	25.42	228.49	2,506.2	-611.2	-690.6	922.2	0.00	0.00	0.00
2,800.0	25.42	228.49	2,596.5	-639.7	-722.7	965.1	0.00	0.00	0.00
2,900.0	25.42	228.49	2,686.8	-668.1	-754.9	1,008.1	0.00	0.00	0.00
3,000.0	25.42	228.49	2,777.1	-696.6	-787.0	1,051.0	0.00	0.00	0.00
3,100.0	25.42	228.49	2,867.5	-725.0	-819.2	1,093.9	0.00	0.00	0.00
3,200.0	25.42	228.49	2,957.8	-753.4	-851.3	1,136.9	0.00	0.00	0.00
3,300.0	25.42	228.49	3,048.1	-781.9	-883.5	1,179.8	0.00	0.00	0.00
3,400.0	25.42	228.49	3,138.4	-810.3	-915.6	1,222.7	0.00	0.00	0.00
3,500.0	25.42	228.49	3,228.7	-838.8	-947.8	1,265.6	0.00	0.00	0.00
3,600.0	25.42	228.49	3,319.0	-867.2	-979.9	1,308.6	0.00	0.00	0.00
3,631.0	25.42	228.49	3,347.0	-876.0	-989.8	1,321.8	0.00	0.00	0.00
<b>G SAND</b>									
3,700.0	25.42	228.49	3,409.4	-895.7	-1,012.0	1,351.5	0.00	0.00	0.00
3,733.9	25.42	228.49	3,440.0	-905.3	-1,022.9	1,366.0	0.00	0.00	0.00
<b>G SAND BASE</b>									
3,800.0	25.42	228.49	3,499.7	-924.1	-1,044.2	1,394.4	0.00	0.00	0.00
3,900.0	25.42	228.49	3,590.0	-952.6	-1,076.3	1,437.3	0.00	0.00	0.00
4,000.0	25.42	228.49	3,680.3	-981.0	-1,108.5	1,480.3	0.00	0.00	0.00
4,100.0	25.42	228.49	3,770.6	-1,009.5	-1,140.6	1,523.2	0.00	0.00	0.00
4,200.0	25.42	228.49	3,861.0	-1,037.9	-1,172.8	1,566.1	0.00	0.00	0.00
4,300.0	25.42	228.49	3,951.3	-1,066.4	-1,204.9	1,609.0	0.00	0.00	0.00
4,400.0	25.42	228.49	4,041.6	-1,094.8	-1,237.1	1,652.0	0.00	0.00	0.00
4,500.0	25.42	228.49	4,131.9	-1,123.3	-1,269.2	1,694.9	0.00	0.00	0.00

**N/A**  
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<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 6594.0ft (Original Well Elev)
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<b>Well:</b>	PA 421-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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	25.42	228.49	4,222.2	-1,151.7	-1,301.3	1,737.8	0.00	0.00	0.00
4,700.0	25.42	228.49	4,312.5	-1,180.2	-1,333.5	1,780.7	0.00	0.00	0.00
4,800.0	25.42	228.49	4,402.9	-1,208.6	-1,365.6	1,823.7	0.00	0.00	0.00
4,900.0	25.42	228.49	4,493.2	-1,237.1	-1,397.8	1,866.6	0.00	0.00	0.00
5,000.0	25.42	228.49	4,583.5	-1,265.5	-1,429.9	1,909.5	0.00	0.00	0.00
5,100.0	25.42	228.49	4,673.8	-1,294.0	-1,462.1	1,952.4	0.00	0.00	0.00
5,200.0	25.42	228.49	4,764.1	-1,322.4	-1,494.2	1,995.4	0.00	0.00	0.00
5,300.0	25.42	228.49	4,854.5	-1,350.9	-1,526.4	2,038.3	0.00	0.00	0.00
5,400.0	25.42	228.49	4,944.8	-1,379.3	-1,558.5	2,081.2	0.00	0.00	0.00
5,500.0	25.42	228.49	5,035.1	-1,407.8	-1,590.6	2,124.1	0.00	0.00	0.00
5,600.0	25.42	228.49	5,125.4	-1,436.2	-1,622.8	2,167.1	0.00	0.00	0.00
5,700.0	25.42	228.49	5,215.7	-1,464.7	-1,654.9	2,210.0	0.00	0.00	0.00
5,800.0	25.42	228.49	5,306.1	-1,493.1	-1,687.1	2,252.9	0.00	0.00	0.00
5,900.0	25.42	228.49	5,396.4	-1,521.6	-1,719.2	2,295.8	0.00	0.00	0.00
6,000.0	25.42	228.49	5,486.7	-1,550.0	-1,751.4	2,338.8	0.00	0.00	0.00
6,100.0	25.42	228.49	5,577.0	-1,578.5	-1,783.5	2,381.7	0.00	0.00	0.00
6,200.0	25.42	228.49	5,667.3	-1,606.9	-1,815.7	2,424.6	0.00	0.00	0.00
6,300.0	25.42	228.49	5,757.6	-1,635.4	-1,847.8	2,467.5	0.00	0.00	0.00
6,304.8	25.42	228.49	5,762.0	-1,636.7	-1,849.3	2,469.6	0.00	0.00	0.00
<b>MVRD</b>									
6,366.8	25.42	228.49	5,818.0	-1,654.4	-1,869.3	2,496.2	0.00	0.00	0.00
<b>WFRK/UMVRD</b>									
6,400.0	25.42	228.49	5,848.0	-1,663.8	-1,879.9	2,510.5	0.00	0.00	0.00
6,500.0	25.42	228.49	5,938.3	-1,692.3	-1,912.1	2,553.4	0.00	0.00	0.00
6,572.1	25.42	228.49	6,003.4	-1,712.8	-1,935.2	2,584.3	0.00	0.00	0.00
6,600.0	25.00	228.49	6,028.6	-1,720.7	-1,944.2	2,596.2	1.50	-1.50	0.00
6,700.0	23.50	228.49	6,119.8	-1,747.9	-1,974.9	2,637.3	1.50	-1.50	0.00
6,800.0	22.00	228.49	6,212.0	-1,773.5	-2,003.9	2,676.0	1.50	-1.50	0.00
6,900.0	20.50	228.49	6,305.2	-1,797.5	-2,031.0	2,712.2	1.50	-1.50	0.00
7,000.0	19.00	228.49	6,399.3	-1,819.9	-2,056.3	2,746.0	1.50	-1.50	0.00
7,100.0	17.50	228.49	6,494.3	-1,840.7	-2,079.8	2,777.3	1.50	-1.50	0.00
7,200.0	16.00	228.49	6,590.1	-1,859.8	-2,101.4	2,806.2	1.50	-1.50	0.00
7,300.0	14.50	228.49	6,686.5	-1,877.2	-2,121.1	2,832.5	1.50	-1.50	0.00
7,400.0	13.00	228.49	6,783.7	-1,893.0	-2,138.9	2,856.2	1.50	-1.50	0.00
7,500.0	11.50	228.49	6,881.4	-1,907.0	-2,154.7	2,877.4	1.50	-1.50	0.00
7,552.6	10.71	228.49	6,933.0	-1,913.7	-2,162.3	2,887.6	1.50	-1.50	0.00
<b>TOP GAS</b>									
7,600.0	10.00	228.49	6,979.6	-1,919.4	-2,168.7	2,896.1	1.50	-1.50	0.00
7,700.0	8.50	228.49	7,078.3	-1,930.0	-2,180.8	2,912.2	1.50	-1.50	0.00
7,800.0	7.00	228.49	7,177.4	-1,939.0	-2,190.9	2,925.7	1.50	-1.50	0.00
7,900.0	5.50	228.49	7,276.8	-1,946.2	-2,199.0	2,936.6	1.50	-1.50	0.00
8,000.0	4.00	228.49	7,376.5	-1,951.7	-2,205.2	2,944.8	1.50	-1.50	0.00
8,100.0	2.50	228.49	7,476.3	-1,955.4	-2,209.5	2,950.5	1.50	-1.50	0.00
8,200.0	1.00	228.49	7,576.3	-1,957.5	-2,211.7	2,953.6	1.50	-1.50	0.00
8,266.8	0.00	0.00	7,643.0	-1,957.9	-2,212.2	2,954.1	1.50	-1.50	0.00
8,300.0	0.00	0.00	7,676.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00
8,400.0	0.00	0.00	7,776.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00
8,500.0	0.00	0.00	7,876.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00
8,600.0	0.00	0.00	7,976.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00
8,700.0	0.00	0.00	8,076.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00
8,800.0	0.00	0.00	8,176.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00
8,900.0	0.00	0.00	8,276.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00
9,000.0	0.00	0.00	8,376.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00

**N/A**  
Planning Report

<b>Database:</b>	EDM_PROD	<b>Local Co-ordinate Reference:</b>	Well PA 421-24 - Slot A2
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 6594.0ft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 6594.0ft (Original Well Elev)
<b>Site:</b>	PA 44-13	<b>North Reference:</b>	True
<b>Well:</b>	PA 421-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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)	
9,020.8	0.00	0.00	8,397.0	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
<b>CMEO</b>										
9,100.0	0.00	0.00	8,476.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
9,200.0	0.00	0.00	8,576.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
9,300.0	0.00	0.00	8,676.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
9,400.0	0.00	0.00	8,776.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
9,500.0	0.00	0.00	8,876.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
9,600.0	0.00	0.00	8,976.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
9,700.0	0.00	0.00	9,076.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
9,800.0	0.00	0.00	9,176.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
9,900.0	0.00	0.00	9,276.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
9,916.8	0.00	0.00	9,293.0	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
<b>RLNS</b>										
10,000.0	0.00	0.00	9,376.3	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
10,066.8	0.00	0.00	9,443.0	-1,957.9	-2,212.2	2,954.1	0.00	0.00	0.00	
<b>PA 421-24 TD</b>										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
PA 421-24 TD	0.00	0.00	9,443.0	-1,957.9	-2,212.2	1,621,850.80	2,308,987.00	39° 30' 54.623 N	107° 56' 58.705 W	
- hit/miss target										
- Shape										
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.0	1,061.1	9 5/8"	9.625	13.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,631.0	3,347.0	G SAND		0.00		
3,733.9	3,440.0	G SAND BASE		0.00		
6,304.8	5,762.0	MVRD		0.00		
6,366.8	5,818.0	WFRK/UMVRD		0.00		
7,552.6	6,933.0	TOP GAS		0.00		
9,020.8	8,397.0	CMEO		0.00		
9,916.8	9,293.0	RLNS		0.00		