

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**PA 44-13**

**PA 524-13 - Slot B3**

**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 524-13 - Slot B3
<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 524-13	<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		

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

<b>Well</b>	PA 524-13 - Slot B3			
<b>Well Position</b>	<b>+N/-S</b>	-28.7 ft	<b>Northing:</b>	1,623,753.20 ft
	<b>+E/-W</b>	8.6 ft	<b>Easting:</b>	2,311,239.40 ft
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 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	53,064.29711873

<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	244.42

<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	9,939.2 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	
150.0	0.00	0.00	150.0	0.0	0.0	0.00	0.00	0.00	0.00	
936.1	23.58	244.42	914.1	-68.9	-143.9	3.00	3.00	0.00	244.42	
5,907.0	23.58	244.42	5,469.8	-927.4	-1,937.7	0.00	0.00	0.00	0.00	
7,479.2	0.00	0.00	6,998.0	-1,065.1	-2,225.5	1.50	-1.50	0.00	180.00	
9,939.2	0.00	0.00	9,458.0	-1,065.1	-2,225.5	0.00	0.00	0.00	0.00	PA 524-13 TD

**N/A**  
Planning Report

<b>Database:</b>	EDM_PROD	<b>Local Co-ordinate Reference:</b>	Well PA 524-13 - Slot B3
<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 524-13	<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
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	1.50	244.42	200.0	-0.3	-0.6	0.7	3.00	3.00	0.00
300.0	4.50	244.42	299.8	-2.5	-5.3	5.9	3.00	3.00	0.00
400.0	7.50	244.42	399.3	-7.1	-14.7	16.3	3.00	3.00	0.00
500.0	10.50	244.42	498.0	-13.8	-28.8	32.0	3.00	3.00	0.00
600.0	13.50	244.42	595.8	-22.8	-47.6	52.8	3.00	3.00	0.00
700.0	16.50	244.42	692.4	-34.0	-70.9	78.6	3.00	3.00	0.00
800.0	19.50	244.42	787.5	-47.3	-98.8	109.5	3.00	3.00	0.00
900.0	22.50	244.42	880.9	-62.8	-131.1	145.4	3.00	3.00	0.00
936.1	23.58	244.42	914.1	-68.9	-143.9	159.5	3.00	3.00	0.00
1,000.0	23.58	244.42	972.7	-79.9	-166.9	185.1	0.00	0.00	0.00
1,100.0	23.58	244.42	1,064.3	-97.2	-203.0	225.1	0.00	0.00	0.00
9 5/8"									
1,200.0	23.58	244.42	1,156.0	-114.4	-239.1	265.1	0.00	0.00	0.00
1,300.0	23.58	244.42	1,247.6	-131.7	-275.2	305.1	0.00	0.00	0.00
1,400.0	23.58	244.42	1,339.3	-149.0	-311.3	345.1	0.00	0.00	0.00
1,500.0	23.58	244.42	1,430.9	-166.3	-347.4	385.1	0.00	0.00	0.00
1,600.0	23.58	244.42	1,522.5	-183.5	-383.5	425.1	0.00	0.00	0.00
1,700.0	23.58	244.42	1,614.2	-200.8	-419.5	465.1	0.00	0.00	0.00
1,800.0	23.58	244.42	1,705.8	-218.1	-455.6	505.1	0.00	0.00	0.00
1,900.0	23.58	244.42	1,797.5	-235.3	-491.7	545.1	0.00	0.00	0.00
2,000.0	23.58	244.42	1,889.1	-252.6	-527.8	585.1	0.00	0.00	0.00
2,100.0	23.58	244.42	1,980.8	-269.9	-563.9	625.2	0.00	0.00	0.00
2,200.0	23.58	244.42	2,072.4	-287.1	-600.0	665.2	0.00	0.00	0.00
2,300.0	23.58	244.42	2,164.1	-304.4	-636.1	705.2	0.00	0.00	0.00
2,400.0	23.58	244.42	2,255.7	-321.7	-672.2	745.2	0.00	0.00	0.00
2,500.0	23.58	244.42	2,347.4	-339.0	-708.2	785.2	0.00	0.00	0.00
2,600.0	23.58	244.42	2,439.0	-356.2	-744.3	825.2	0.00	0.00	0.00
2,700.0	23.58	244.42	2,530.7	-373.5	-780.4	865.2	0.00	0.00	0.00
2,800.0	23.58	244.42	2,622.3	-390.8	-816.5	905.2	0.00	0.00	0.00
2,900.0	23.58	244.42	2,714.0	-408.0	-852.6	945.2	0.00	0.00	0.00
3,000.0	23.58	244.42	2,805.6	-425.3	-888.7	985.2	0.00	0.00	0.00
3,100.0	23.58	244.42	2,897.3	-442.6	-924.8	1,025.2	0.00	0.00	0.00
3,200.0	23.58	244.42	2,988.9	-459.9	-960.9	1,065.2	0.00	0.00	0.00
3,300.0	23.58	244.42	3,080.6	-477.1	-996.9	1,105.2	0.00	0.00	0.00
3,400.0	23.58	244.42	3,172.2	-494.4	-1,033.0	1,145.2	0.00	0.00	0.00
3,500.0	23.58	244.42	3,263.9	-511.7	-1,069.1	1,185.3	0.00	0.00	0.00
3,600.0	23.58	244.42	3,355.5	-528.9	-1,105.2	1,225.3	0.00	0.00	0.00
3,607.1	23.58	244.42	3,362.0	-530.2	-1,107.8	1,228.1	0.00	0.00	0.00
G SAND									
3,700.0	23.58	244.42	3,447.2	-546.2	-1,141.3	1,265.3	0.00	0.00	0.00
3,708.6	23.58	244.42	3,455.0	-547.7	-1,144.4	1,268.7	0.00	0.00	0.00
G SAND BASE									
3,800.0	23.58	244.42	3,538.8	-563.5	-1,177.4	1,305.3	0.00	0.00	0.00
3,900.0	23.58	244.42	3,630.5	-580.8	-1,213.5	1,345.3	0.00	0.00	0.00
4,000.0	23.58	244.42	3,722.1	-598.0	-1,249.6	1,385.3	0.00	0.00	0.00
4,100.0	23.58	244.42	3,813.8	-615.3	-1,285.6	1,425.3	0.00	0.00	0.00
4,200.0	23.58	244.42	3,905.4	-632.6	-1,321.7	1,465.3	0.00	0.00	0.00
4,300.0	23.58	244.42	3,997.1	-649.8	-1,357.8	1,505.3	0.00	0.00	0.00
4,400.0	23.58	244.42	4,088.7	-667.1	-1,393.9	1,545.3	0.00	0.00	0.00
4,500.0	23.58	244.42	4,180.4	-684.4	-1,430.0	1,585.3	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 524-13	<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	23.58	244.42	4,272.0	-701.7	-1,466.1	1,625.3	0.00	0.00	0.00
4,700.0	23.58	244.42	4,363.7	-718.9	-1,502.2	1,665.3	0.00	0.00	0.00
4,800.0	23.58	244.42	4,455.3	-736.2	-1,538.3	1,705.3	0.00	0.00	0.00
4,900.0	23.58	244.42	4,547.0	-753.5	-1,574.3	1,745.4	0.00	0.00	0.00
5,000.0	23.58	244.42	4,638.6	-770.7	-1,610.4	1,785.4	0.00	0.00	0.00
5,100.0	23.58	244.42	4,730.3	-788.0	-1,646.5	1,825.4	0.00	0.00	0.00
5,200.0	23.58	244.42	4,821.9	-805.3	-1,682.6	1,865.4	0.00	0.00	0.00
5,300.0	23.58	244.42	4,913.5	-822.5	-1,718.7	1,905.4	0.00	0.00	0.00
5,400.0	23.58	244.42	5,005.2	-839.8	-1,754.8	1,945.4	0.00	0.00	0.00
5,500.0	23.58	244.42	5,096.8	-857.1	-1,790.9	1,985.4	0.00	0.00	0.00
5,600.0	23.58	244.42	5,188.5	-874.4	-1,826.9	2,025.4	0.00	0.00	0.00
5,700.0	23.58	244.42	5,280.1	-891.6	-1,863.0	2,065.4	0.00	0.00	0.00
5,800.0	23.58	244.42	5,371.8	-908.9	-1,899.1	2,105.4	0.00	0.00	0.00
5,900.0	23.58	244.42	5,463.4	-926.2	-1,935.2	2,145.4	0.00	0.00	0.00
5,907.0	23.58	244.42	5,469.8	-927.4	-1,937.7	2,148.2	0.00	0.00	0.00
6,000.0	22.19	244.42	5,555.5	-943.0	-1,970.4	2,184.4	1.50	-1.50	0.00
6,100.0	20.69	244.42	5,648.6	-958.8	-2,003.3	2,220.9	1.50	-1.50	0.00
6,200.0	19.19	244.42	5,742.6	-973.5	-2,034.1	2,255.0	1.50	-1.50	0.00
6,236.4	18.64	244.42	5,777.0	-978.6	-2,044.7	2,266.8	1.50	-1.50	0.00
<b>MVRD</b>									
6,295.3	17.76	244.42	5,833.0	-986.5	-2,061.3	2,285.2	1.50	-1.50	0.00
<b>WFRK/UMVRD</b>									
6,300.0	17.69	244.42	5,837.5	-987.1	-2,062.6	2,286.7	1.50	-1.50	0.00
6,400.0	16.19	244.42	5,933.1	-999.7	-2,088.9	2,315.8	1.50	-1.50	0.00
6,500.0	14.69	244.42	6,029.5	-1,011.2	-2,112.9	2,342.4	1.50	-1.50	0.00
6,600.0	13.19	244.42	6,126.6	-1,021.6	-2,134.6	2,366.5	1.50	-1.50	0.00
6,700.0	11.69	244.42	6,224.2	-1,030.9	-2,154.0	2,388.0	1.50	-1.50	0.00
6,800.0	10.19	244.42	6,322.4	-1,039.1	-2,171.2	2,407.0	1.50	-1.50	0.00
6,900.0	8.69	244.42	6,421.1	-1,046.2	-2,185.9	2,423.4	1.50	-1.50	0.00
7,000.0	7.19	244.42	6,520.1	-1,052.1	-2,198.4	2,437.2	1.50	-1.50	0.00
7,100.0	5.69	244.42	6,619.5	-1,057.0	-2,208.5	2,448.4	1.50	-1.50	0.00
7,200.0	4.19	244.42	6,719.1	-1,060.7	-2,216.3	2,457.0	1.50	-1.50	0.00
7,300.0	2.69	244.42	6,818.9	-1,063.3	-2,221.7	2,463.0	1.50	-1.50	0.00
7,400.0	1.19	244.42	6,918.8	-1,064.7	-2,224.7	2,466.4	1.50	-1.50	0.00
7,429.2	0.75	244.42	6,948.0	-1,065.0	-2,225.2	2,466.9	1.50	-1.50	0.00
<b>TOP GAS</b>									
7,479.2	0.00	0.00	6,998.0	-1,065.1	-2,225.5	2,467.2	1.50	-1.50	0.00
7,500.0	0.00	0.00	7,018.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
7,600.0	0.00	0.00	7,118.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
7,700.0	0.00	0.00	7,218.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
7,800.0	0.00	0.00	7,318.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
7,900.0	0.00	0.00	7,418.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,000.0	0.00	0.00	7,518.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,100.0	0.00	0.00	7,618.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,200.0	0.00	0.00	7,718.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,300.0	0.00	0.00	7,818.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,400.0	0.00	0.00	7,918.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,500.0	0.00	0.00	8,018.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,600.0	0.00	0.00	8,118.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,700.0	0.00	0.00	8,218.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,800.0	0.00	0.00	8,318.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
8,893.2	0.00	0.00	8,412.0	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
<b>CMEO</b>									
8,900.0	0.00	0.00	8,418.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00

**N/A**  
Planning Report

<b>Database:</b>	EDM_PROD	<b>Local Co-ordinate Reference:</b>	Well PA 524-13 - Slot B3
<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 524-13	<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)
9,000.0	0.00	0.00	8,518.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,100.0	0.00	0.00	8,618.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,200.0	0.00	0.00	8,718.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,300.0	0.00	0.00	8,818.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,400.0	0.00	0.00	8,918.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,500.0	0.00	0.00	9,018.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,600.0	0.00	0.00	9,118.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,700.0	0.00	0.00	9,218.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,789.2	0.00	0.00	9,308.0	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
RLNS									
9,800.0	0.00	0.00	9,318.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,900.0	0.00	0.00	9,418.8	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
9,939.2	0.00	0.00	9,458.0	-1,065.1	-2,225.5	2,467.2	0.00	0.00	0.00
PA 524-13 TD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PA 524-13 TD	0.00	0.00	9,458.0	-1,065.1	-2,225.5	1,622,748.30	2,308,986.10	39° 31' 3.490 N	107° 56' 59.026 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Casing Points						Casing Diameter (in)	Hole Diameter (in)
Measured Depth (ft)	Vertical Depth (ft)	Name					
1,100.0	1,064.3	9 5/8"				9.625	13.500

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,607.1	3,362.0	G SAND		0.00		
3,708.6	3,455.0	G SAND BASE		0.00		
6,236.4	5,777.0	MVRD		0.00		
6,295.3	5,833.0	WFRK/UMVRD		0.00		
7,429.2	6,948.0	TOP GAS		0.00		
8,893.2	8,412.0	CME0		0.00		
9,789.2	9,308.0	RLNS		0.00		