

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**PA 44-13**

**PA 434-13 - Slot A4**

**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 434-13 - Slot A4
<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 434-13	<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 434-13 - Slot A4			
<b>Well Position</b>	<b>+N/-S</b>	-18.7 ft	<b>Northing:</b>	1,623,763.00 ft
	<b>+E/-W</b>	16.0 ft	<b>Easting:</b>	2,311,247.10 ft
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	<b>Latitude:</b> 39° 31' 14.117 N
				<b>Longitude:</b> 107° 56' 30.532 W
				<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	53,064.31589628

<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	257.03

<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	9,522.5 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	
453.5	9.11	257.03	452.3	-5.4	-23.5	3.00	3.00	0.00	257.03	
6,455.4	9.11	257.03	6,378.5	-218.6	-949.1	0.00	0.00	0.00	0.00	
7,062.5	0.00	0.00	6,983.0	-229.5	-996.0	1.50	-1.50	0.00	180.00	
9,522.5	0.00	0.00	9,443.0	-229.5	-996.0	0.00	0.00	0.00	0.00	PA 434-13 TD

**N/A**  
Planning Report

<b>Database:</b>	EDM_PROD	<b>Local Co-ordinate Reference:</b>	Well PA 434-13 - Slot A4
<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 434-13	<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	257.03	200.0	-0.1	-0.6	0.7	3.00	3.00	0.00
300.0	4.50	257.03	299.8	-1.3	-5.7	5.9	3.00	3.00	0.00
400.0	7.50	257.03	399.3	-3.7	-15.9	16.3	3.00	3.00	0.00
453.5	9.11	257.03	452.3	-5.4	-23.5	24.1	3.00	3.00	0.00
500.0	9.11	257.03	498.1	-7.1	-30.6	31.4	0.00	0.00	0.00
600.0	9.11	257.03	596.9	-10.6	-46.0	47.2	0.00	0.00	0.00
700.0	9.11	257.03	695.6	-14.2	-61.5	63.1	0.00	0.00	0.00
800.0	9.11	257.03	794.4	-17.7	-76.9	78.9	0.00	0.00	0.00
900.0	9.11	257.03	893.1	-21.3	-92.3	94.7	0.00	0.00	0.00
1,000.0	9.11	257.03	991.8	-24.8	-107.7	110.6	0.00	0.00	0.00
1,100.0	9.11	257.03	1,090.6	-28.4	-123.2	126.4	0.00	0.00	0.00
<b>9 5/8"</b>									
1,200.0	9.11	257.03	1,189.3	-31.9	-138.6	142.2	0.00	0.00	0.00
1,300.0	9.11	257.03	1,288.1	-35.5	-154.0	158.0	0.00	0.00	0.00
1,400.0	9.11	257.03	1,386.8	-39.0	-169.4	173.9	0.00	0.00	0.00
1,500.0	9.11	257.03	1,485.5	-42.6	-184.8	189.7	0.00	0.00	0.00
1,600.0	9.11	257.03	1,584.3	-46.1	-200.3	205.5	0.00	0.00	0.00
1,700.0	9.11	257.03	1,683.0	-49.7	-215.7	221.3	0.00	0.00	0.00
1,800.0	9.11	257.03	1,781.8	-53.2	-231.1	237.2	0.00	0.00	0.00
1,900.0	9.11	257.03	1,880.5	-56.8	-246.5	253.0	0.00	0.00	0.00
2,000.0	9.11	257.03	1,979.2	-60.3	-262.0	268.8	0.00	0.00	0.00
2,100.0	9.11	257.03	2,078.0	-63.9	-277.4	284.6	0.00	0.00	0.00
2,200.0	9.11	257.03	2,176.7	-67.5	-292.8	300.5	0.00	0.00	0.00
2,300.0	9.11	257.03	2,275.5	-71.0	-308.2	316.3	0.00	0.00	0.00
2,400.0	9.11	257.03	2,374.2	-74.6	-323.6	332.1	0.00	0.00	0.00
2,500.0	9.11	257.03	2,472.9	-78.1	-339.1	347.9	0.00	0.00	0.00
2,600.0	9.11	257.03	2,571.7	-81.7	-354.5	363.8	0.00	0.00	0.00
2,700.0	9.11	257.03	2,670.4	-85.2	-369.9	379.6	0.00	0.00	0.00
2,800.0	9.11	257.03	2,769.2	-88.8	-385.3	395.4	0.00	0.00	0.00
2,900.0	9.11	257.03	2,867.9	-92.3	-400.8	411.3	0.00	0.00	0.00
3,000.0	9.11	257.03	2,966.6	-95.9	-416.2	427.1	0.00	0.00	0.00
3,100.0	9.11	257.03	3,065.4	-99.4	-431.6	442.9	0.00	0.00	0.00
3,200.0	9.11	257.03	3,164.1	-103.0	-447.0	458.7	0.00	0.00	0.00
3,300.0	9.11	257.03	3,262.9	-106.5	-462.4	474.6	0.00	0.00	0.00
3,385.2	9.11	257.03	3,347.0	-109.6	-475.6	488.0	0.00	0.00	0.00
<b>G SAND</b>									
3,400.0	9.11	257.03	3,361.6	-110.1	-477.9	490.4	0.00	0.00	0.00
3,479.4	9.11	257.03	3,440.0	-112.9	-490.1	503.0	0.00	0.00	0.00
<b>G SAND BASE</b>									
3,500.0	9.11	257.03	3,460.3	-113.6	-493.3	506.2	0.00	0.00	0.00
3,600.0	9.11	257.03	3,559.1	-117.2	-508.7	522.0	0.00	0.00	0.00
3,700.0	9.11	257.03	3,657.8	-120.7	-524.1	537.9	0.00	0.00	0.00
3,800.0	9.11	257.03	3,756.6	-124.3	-539.6	553.7	0.00	0.00	0.00
3,900.0	9.11	257.03	3,855.3	-127.9	-555.0	569.5	0.00	0.00	0.00
4,000.0	9.11	257.03	3,954.0	-131.4	-570.4	585.3	0.00	0.00	0.00
4,100.0	9.11	257.03	4,052.8	-135.0	-585.8	601.2	0.00	0.00	0.00
4,200.0	9.11	257.03	4,151.5	-138.5	-601.2	617.0	0.00	0.00	0.00
4,300.0	9.11	257.03	4,250.3	-142.1	-616.7	632.8	0.00	0.00	0.00
4,400.0	9.11	257.03	4,349.0	-145.6	-632.1	648.6	0.00	0.00	0.00
4,500.0	9.11	257.03	4,447.7	-149.2	-647.5	664.5	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 434-13	<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	9.11	257.03	4,546.5	-152.7	-662.9	680.3	0.00	0.00	0.00
4,700.0	9.11	257.03	4,645.2	-156.3	-678.4	696.1	0.00	0.00	0.00
4,800.0	9.11	257.03	4,744.0	-159.8	-693.8	712.0	0.00	0.00	0.00
4,900.0	9.11	257.03	4,842.7	-163.4	-709.2	727.8	0.00	0.00	0.00
5,000.0	9.11	257.03	4,941.4	-166.9	-724.6	743.6	0.00	0.00	0.00
5,100.0	9.11	257.03	5,040.2	-170.5	-740.0	759.4	0.00	0.00	0.00
5,200.0	9.11	257.03	5,138.9	-174.0	-755.5	775.3	0.00	0.00	0.00
5,300.0	9.11	257.03	5,237.7	-177.6	-770.9	791.1	0.00	0.00	0.00
5,400.0	9.11	257.03	5,336.4	-181.1	-786.3	806.9	0.00	0.00	0.00
5,500.0	9.11	257.03	5,435.1	-184.7	-801.7	822.7	0.00	0.00	0.00
5,600.0	9.11	257.03	5,533.9	-188.3	-817.2	838.6	0.00	0.00	0.00
5,700.0	9.11	257.03	5,632.6	-191.8	-832.6	854.4	0.00	0.00	0.00
5,800.0	9.11	257.03	5,731.4	-195.4	-848.0	870.2	0.00	0.00	0.00
5,831.0	9.11	257.03	5,762.0	-196.5	-852.8	875.1	0.00	0.00	0.00
<b>MVRD</b>									
5,887.8	9.11	257.03	5,818.0	-198.5	-861.5	884.1	0.00	0.00	0.00
<b>WFRK/UMVRD</b>									
5,900.0	9.11	257.03	5,830.1	-198.9	-863.4	886.0	0.00	0.00	0.00
6,000.0	9.11	257.03	5,928.8	-202.5	-878.9	901.9	0.00	0.00	0.00
6,100.0	9.11	257.03	6,027.6	-206.0	-894.3	917.7	0.00	0.00	0.00
6,200.0	9.11	257.03	6,126.3	-209.6	-909.7	933.5	0.00	0.00	0.00
6,300.0	9.11	257.03	6,225.1	-213.1	-925.1	949.3	0.00	0.00	0.00
6,400.0	9.11	257.03	6,323.8	-216.7	-940.5	965.2	0.00	0.00	0.00
6,455.4	9.11	257.03	6,378.5	-218.6	-949.1	973.9	0.00	0.00	0.00
6,500.0	8.44	257.03	6,422.6	-220.2	-955.7	980.7	1.50	-1.50	0.00
6,600.0	6.94	257.03	6,521.7	-223.2	-968.7	994.1	1.50	-1.50	0.00
6,700.0	5.44	257.03	6,621.1	-225.6	-979.2	1,004.9	1.50	-1.50	0.00
6,800.0	3.94	257.03	6,720.7	-227.4	-987.2	1,013.1	1.50	-1.50	0.00
6,900.0	2.44	257.03	6,820.6	-228.7	-992.6	1,018.6	1.50	-1.50	0.00
7,000.0	0.94	257.03	6,920.5	-229.3	-995.5	1,021.6	1.50	-1.50	0.00
7,012.5	0.75	257.03	6,933.0	-229.4	-995.7	1,021.8	1.50	-1.50	0.00
<b>TOP GAS</b>									
7,062.5	0.00	0.00	6,983.0	-229.5	-996.0	1,022.1	1.50	-1.50	0.00
7,100.0	0.00	0.00	7,020.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
7,200.0	0.00	0.00	7,120.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
7,300.0	0.00	0.00	7,220.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
7,400.0	0.00	0.00	7,320.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
7,500.0	0.00	0.00	7,420.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
7,600.0	0.00	0.00	7,520.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
7,700.0	0.00	0.00	7,620.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
7,800.0	0.00	0.00	7,720.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
7,900.0	0.00	0.00	7,820.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,000.0	0.00	0.00	7,920.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,100.0	0.00	0.00	8,020.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,200.0	0.00	0.00	8,120.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,300.0	0.00	0.00	8,220.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,400.0	0.00	0.00	8,320.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,476.5	0.00	0.00	8,397.0	-229.5	-996.0	1,022.1	0.00	0.00	0.00
<b>CMEQ</b>									
8,500.0	0.00	0.00	8,420.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,600.0	0.00	0.00	8,520.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,700.0	0.00	0.00	8,620.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,800.0	0.00	0.00	8,720.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
8,900.0	0.00	0.00	8,820.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00

**N/A**  
Planning Report

<b>Database:</b>	EDM_PROD	<b>Local Co-ordinate Reference:</b>	Well PA 434-13 - Slot A4
<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 434-13	<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	8,920.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
9,100.0	0.00	0.00	9,020.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
9,200.0	0.00	0.00	9,120.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
9,300.0	0.00	0.00	9,220.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
9,372.5	0.00	0.00	9,293.0	-229.5	-996.0	1,022.1	0.00	0.00	0.00
RLNS									
9,400.0	0.00	0.00	9,320.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
9,500.0	0.00	0.00	9,420.5	-229.5	-996.0	1,022.1	0.00	0.00	0.00
9,522.5	0.00	0.00	9,443.0	-229.5	-996.0	1,022.1	0.00	0.00	0.00
PA 434-13 TD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PA 434-13 TD - plan hits target center - Point	0.00	0.00	9,443.0	-229.5	-996.0	1,623,560.40	2,310,245.30	39° 31' 11.849 N	107° 56' 43.242 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.0	1,090.6	9 5/8"	9.625	13.500	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,385.2	3,347.0	G SAND		0.00	
3,479.4	3,440.0	G SAND BASE		0.00	
5,831.0	5,762.0	MVRD		0.00	
5,887.8	5,818.0	WFRK/UMVRD		0.00	
7,012.5	6,933.0	TOP GAS		0.00	
8,476.5	8,397.0	CMEO		0.00	
9,372.5	9,293.0	RLNS		0.00	