

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**RU 23-17 Pad**

**RU 414-17 - Slot A13**

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**17 August, 2017**

**N/A**  
Planning Report

<b>Database:</b>	EDM_PROD	<b>Local Co-ordinate Reference:</b>	Well RU 414-17 - Slot A13
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 8378.0ft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 8378.0ft (Original Well Elev)
<b>Site:</b>	RU 23-17 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RU 414-17	<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		RU 23-17 Pad			
Site Position:		Northing:	1,594,652.10 ft	Latitude:	39° 26' 36.797 N
From:	Map	Easting:	2,351,218.90 ft	Longitude:	107° 47' 51.208 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.45 °

Well	RU 414-17 - Slot A13					
Well Position	+N/-S	-69.3 ft	Northing:	1,594,581.40 ft	Latitude:	39° 26' 36.113 N
	+E/-W	57.4 ft	Easting:	2,351,274.50 ft	Longitude:	107° 47' 50.476 W
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	8,368.6 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	11.35	65.98	53,027.99643899

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	240.66

Plan Survey Tool Program			Date	8/17/2017	
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	10,993.4	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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
866.6	20.00	240.66	853.2	-56.4	-100.4	3.00	3.00	0.00	240.66	
7,201.1	20.00	240.66	6,805.6	-1,118.0	-1,988.9	0.00	0.00	0.00	0.00	
8,534.3	0.00	0.00	8,112.0	-1,230.9	-2,189.7	1.50	-1.50	0.00	180.00	
10,994.3	0.00	0.00	10,572.0	-1,230.9	-2,189.7	0.00	0.00	0.00	0.00	PBHL(RU_414-17)

**N/A**  
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<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 8378.0ft (Original Well Elev)
<b>Site:</b>	RU 23-17 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RU 414-17	<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
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	3.00	240.66	300.0	-1.3	-2.3	2.6	3.00	3.00	0.00
400.0	6.00	240.66	399.6	-5.1	-9.1	10.5	3.00	3.00	0.00
500.0	9.00	240.66	498.8	-11.5	-20.5	23.5	3.00	3.00	0.00
600.0	12.00	240.66	597.1	-20.5	-36.4	41.7	3.00	3.00	0.00
700.0	15.00	240.66	694.3	-31.9	-56.7	65.1	3.00	3.00	0.00
800.0	18.00	240.66	790.2	-45.8	-81.5	93.5	3.00	3.00	0.00
866.6	20.00	240.66	853.2	-56.4	-100.4	115.2	3.00	3.00	0.00
900.0	20.00	240.66	884.5	-62.0	-110.3	126.6	0.00	0.00	0.00
1,000.0	20.00	240.66	978.5	-78.8	-140.2	160.8	0.00	0.00	0.00
1,100.0	20.00	240.66	1,072.5	-95.5	-170.0	195.0	0.00	0.00	0.00
9 5/8"									
1,200.0	20.00	240.66	1,166.4	-112.3	-199.8	229.2	0.00	0.00	0.00
1,300.0	20.00	240.66	1,260.4	-129.1	-229.6	263.4	0.00	0.00	0.00
1,400.0	20.00	240.66	1,354.4	-145.8	-259.4	297.6	0.00	0.00	0.00
1,500.0	20.00	240.66	1,448.4	-162.6	-289.2	331.8	0.00	0.00	0.00
1,600.0	20.00	240.66	1,542.3	-179.3	-319.0	366.0	0.00	0.00	0.00
1,700.0	20.00	240.66	1,636.3	-196.1	-348.8	400.2	0.00	0.00	0.00
1,800.0	20.00	240.66	1,730.3	-212.9	-378.7	434.4	0.00	0.00	0.00
1,900.0	20.00	240.66	1,824.2	-229.6	-408.5	468.6	0.00	0.00	0.00
2,000.0	20.00	240.66	1,918.2	-246.4	-438.3	502.8	0.00	0.00	0.00
2,100.0	20.00	240.66	2,012.2	-263.1	-468.1	537.0	0.00	0.00	0.00
2,200.0	20.00	240.66	2,106.1	-279.9	-497.9	571.2	0.00	0.00	0.00
2,300.0	20.00	240.66	2,200.1	-296.6	-527.7	605.4	0.00	0.00	0.00
2,400.0	20.00	240.66	2,294.1	-313.4	-557.5	639.6	0.00	0.00	0.00
2,500.0	20.00	240.66	2,388.1	-330.2	-587.4	673.8	0.00	0.00	0.00
2,600.0	20.00	240.66	2,482.0	-346.9	-617.2	708.0	0.00	0.00	0.00
2,700.0	20.00	240.66	2,576.0	-363.7	-647.0	742.2	0.00	0.00	0.00
2,800.0	20.00	240.66	2,670.0	-380.4	-676.8	776.4	0.00	0.00	0.00
2,900.0	20.00	240.66	2,763.9	-397.2	-706.6	810.6	0.00	0.00	0.00
3,000.0	20.00	240.66	2,857.9	-414.0	-736.4	844.8	0.00	0.00	0.00
3,100.0	20.00	240.66	2,951.9	-430.7	-766.2	879.0	0.00	0.00	0.00
3,200.0	20.00	240.66	3,045.8	-447.5	-796.0	913.2	0.00	0.00	0.00
3,300.0	20.00	240.66	3,139.8	-464.2	-825.9	947.4	0.00	0.00	0.00
3,400.0	20.00	240.66	3,233.8	-481.0	-855.7	981.6	0.00	0.00	0.00
3,500.0	20.00	240.66	3,327.7	-497.7	-885.5	1,015.8	0.00	0.00	0.00
3,600.0	20.00	240.66	3,421.7	-514.5	-915.3	1,050.0	0.00	0.00	0.00
3,700.0	20.00	240.66	3,515.7	-531.3	-945.1	1,084.2	0.00	0.00	0.00
3,800.0	20.00	240.66	3,609.7	-548.0	-974.9	1,118.4	0.00	0.00	0.00
3,900.0	20.00	240.66	3,703.6	-564.8	-1,004.7	1,152.6	0.00	0.00	0.00
4,000.0	20.00	240.66	3,797.6	-581.5	-1,034.5	1,186.8	0.00	0.00	0.00
4,100.0	20.00	240.66	3,891.6	-598.3	-1,064.4	1,221.0	0.00	0.00	0.00
4,200.0	20.00	240.66	3,985.5	-615.1	-1,094.2	1,255.2	0.00	0.00	0.00
4,300.0	20.00	240.66	4,079.5	-631.8	-1,124.0	1,289.4	0.00	0.00	0.00
4,400.0	20.00	240.66	4,173.5	-648.6	-1,153.8	1,323.6	0.00	0.00	0.00
4,446.3	20.00	240.66	4,217.0	-656.3	-1,167.6	1,339.4	0.00	0.00	0.00
G Sand									
4,500.0	20.00	240.66	4,267.4	-665.3	-1,183.6	1,357.8	0.00	0.00	0.00
4,515.5	20.00	240.66	4,282.0	-667.9	-1,188.2	1,363.1	0.00	0.00	0.00
G Sand Base									
4,600.0	20.00	240.66	4,361.4	-682.1	-1,213.4	1,392.0	0.00	0.00	0.00

**N/A**  
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<b>Well:</b>	RU 414-17	<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)	
4,700.0	20.00	240.66	4,455.4	-698.9	-1,243.2	1,426.2	0.00	0.00	0.00	
4,800.0	20.00	240.66	4,549.4	-715.6	-1,273.1	1,460.4	0.00	0.00	0.00	
4,900.0	20.00	240.66	4,643.3	-732.4	-1,302.9	1,494.6	0.00	0.00	0.00	
5,000.0	20.00	240.66	4,737.3	-749.1	-1,332.7	1,528.8	0.00	0.00	0.00	
5,100.0	20.00	240.66	4,831.3	-765.9	-1,362.5	1,563.0	0.00	0.00	0.00	
5,200.0	20.00	240.66	4,925.2	-782.6	-1,392.3	1,597.2	0.00	0.00	0.00	
5,300.0	20.00	240.66	5,019.2	-799.4	-1,422.1	1,631.4	0.00	0.00	0.00	
5,400.0	20.00	240.66	5,113.2	-816.2	-1,451.9	1,665.6	0.00	0.00	0.00	
5,500.0	20.00	240.66	5,207.1	-832.9	-1,481.7	1,699.8	0.00	0.00	0.00	
5,600.0	20.00	240.66	5,301.1	-849.7	-1,511.6	1,734.0	0.00	0.00	0.00	
5,700.0	20.00	240.66	5,395.1	-866.4	-1,541.4	1,768.2	0.00	0.00	0.00	
5,800.0	20.00	240.66	5,489.1	-883.2	-1,571.2	1,802.4	0.00	0.00	0.00	
5,900.0	20.00	240.66	5,583.0	-900.0	-1,601.0	1,836.6	0.00	0.00	0.00	
6,000.0	20.00	240.66	5,677.0	-916.7	-1,630.8	1,870.8	0.00	0.00	0.00	
6,100.0	20.00	240.66	5,771.0	-933.5	-1,660.6	1,905.0	0.00	0.00	0.00	
6,200.0	20.00	240.66	5,864.9	-950.2	-1,690.4	1,939.2	0.00	0.00	0.00	
6,300.0	20.00	240.66	5,958.9	-967.0	-1,720.3	1,973.4	0.00	0.00	0.00	
6,400.0	20.00	240.66	6,052.9	-983.7	-1,750.1	2,007.6	0.00	0.00	0.00	
6,500.0	20.00	240.66	6,146.8	-1,000.5	-1,779.9	2,041.8	0.00	0.00	0.00	
6,600.0	20.00	240.66	6,240.8	-1,017.3	-1,809.7	2,076.0	0.00	0.00	0.00	
6,675.8	20.00	240.66	6,312.0	-1,030.0	-1,832.3	2,101.9	0.00	0.00	0.00	
<b>Lower Wasatch</b>										
6,700.0	20.00	240.66	6,334.8	-1,034.0	-1,839.5	2,110.2	0.00	0.00	0.00	
6,800.0	20.00	240.66	6,428.8	-1,050.8	-1,869.3	2,144.4	0.00	0.00	0.00	
6,900.0	20.00	240.66	6,522.7	-1,067.5	-1,899.1	2,178.6	0.00	0.00	0.00	
7,000.0	20.00	240.66	6,616.7	-1,084.3	-1,928.9	2,212.8	0.00	0.00	0.00	
7,005.6	20.00	240.66	6,622.0	-1,085.2	-1,930.6	2,214.7	0.00	0.00	0.00	
<b>OCRK</b>										
7,100.0	20.00	240.66	6,710.7	-1,101.1	-1,958.8	2,247.0	0.00	0.00	0.00	
7,101.4	20.00	240.66	6,712.0	-1,101.3	-1,959.2	2,247.5	0.00	0.00	0.00	
<b>Upper MVRD</b>										
7,200.0	20.00	240.66	6,804.6	-1,117.8	-1,988.6	2,281.2	0.00	0.00	0.00	
7,201.1	20.00	240.66	6,805.6	-1,118.0	-1,988.9	2,281.6	0.00	0.00	0.00	
7,300.0	18.52	240.66	6,899.0	-1,134.0	-2,017.3	2,314.2	1.50	-1.50	0.00	
7,400.0	17.02	240.66	6,994.3	-1,148.9	-2,043.9	2,344.7	1.50	-1.50	0.00	
7,500.0	15.52	240.66	7,090.3	-1,162.7	-2,068.3	2,372.7	1.50	-1.50	0.00	
7,600.0	14.02	240.66	7,186.9	-1,175.1	-2,090.6	2,398.2	1.50	-1.50	0.00	
7,700.0	12.52	240.66	7,284.3	-1,186.4	-2,110.6	2,421.2	1.50	-1.50	0.00	
7,800.0	11.02	240.66	7,382.2	-1,196.4	-2,128.3	2,441.5	1.50	-1.50	0.00	
7,900.0	9.52	240.66	7,480.6	-1,205.1	-2,143.9	2,459.4	1.50	-1.50	0.00	
8,000.0	8.02	240.66	7,579.4	-1,212.6	-2,157.1	2,474.6	1.50	-1.50	0.00	
8,100.0	6.52	240.66	7,678.6	-1,218.8	-2,168.2	2,487.2	1.50	-1.50	0.00	
8,200.0	5.02	240.66	7,778.1	-1,223.7	-2,176.9	2,497.3	1.50	-1.50	0.00	
8,300.0	3.52	240.66	7,877.8	-1,227.3	-2,183.4	2,504.7	1.50	-1.50	0.00	
8,400.0	2.02	240.66	7,977.7	-1,229.7	-2,187.6	2,509.6	1.50	-1.50	0.00	
8,500.0	0.52	240.66	8,077.7	-1,230.8	-2,189.5	2,511.8	1.50	-1.50	0.00	
8,534.3	0.00	0.00	8,112.0	-1,230.9	-2,189.7	2,511.9	1.50	-1.50	0.00	
8,600.0	0.00	0.00	8,177.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,277.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00	
8,800.0	0.00	0.00	8,377.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00	
8,859.3	0.00	0.00	8,437.0	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00	
<b>Top of Gas</b>										
8,900.0	0.00	0.00	8,477.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00	
9,000.0	0.00	0.00	8,577.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00	

**N/A**  
Planning Report

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<b>Well:</b>	RU 414-17	<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)
9,100.0	0.00	0.00	8,677.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
9,200.0	0.00	0.00	8,777.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
9,300.0	0.00	0.00	8,877.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
9,400.0	0.00	0.00	8,977.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
9,500.0	0.00	0.00	9,077.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
9,600.0	0.00	0.00	9,177.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
9,700.0	0.00	0.00	9,277.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
9,800.0	0.00	0.00	9,377.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
9,879.3	0.00	0.00	9,457.0	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
<b>Cameo</b>									
9,900.0	0.00	0.00	9,477.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,000.0	0.00	0.00	9,577.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,100.0	0.00	0.00	9,677.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,200.0	0.00	0.00	9,777.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,300.0	0.00	0.00	9,877.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,400.0	0.00	0.00	9,977.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,500.0	0.00	0.00	10,077.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,600.0	0.00	0.00	10,177.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,679.3	0.00	0.00	10,257.0	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
<b>Rollins</b>									
10,700.0	0.00	0.00	10,277.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,800.0	0.00	0.00	10,377.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,900.0	0.00	0.00	10,477.7	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
10,994.3	0.00	0.00	10,572.0	-1,230.9	-2,189.7	2,511.9	0.00	0.00	0.00
<b>PBHL(RU_414-17)</b>									

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									
PBHL(RU_414-17)	0.00	0.00	10,572.0	-1,230.9	-2,189.7	1,593,406.30	2,349,054.40	39° 26' 23.946 N	107° 48' 18.387 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,100.0	1,072.5	9 5/8"		9.625	13.500

**N/A**  
Planning Report

<b>Database:</b>	EDM_PROD	<b>Local Co-ordinate Reference:</b>	Well RU 414-17 - Slot A13
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 8378.0ft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 8378.0ft (Original Well Elev)
<b>Site:</b>	RU 23-17 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RU 414-17	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,446.3	4,217.0	G Sand		0.00		
4,515.5	4,282.0	G Sand Base		0.00		
6,675.8	6,312.0	Lower Wasatch		0.00		
7,005.6	6,622.0	OCRK		0.00		
7,101.4	6,712.0	Upper MVRD		0.00		
8,859.3	8,437.0	Top of Gas		0.00		
9,879.3	9,457.0	Carneo		0.00		
10,679.3	10,257.0	Rollins		0.00		