

TEP Rocky Mountain LLC

Garfield County, CO NAD83

RU 23-17 Pad

RU 513-17 - Slot A9

OH

Plan: Plan #1

Standard Planning Report

17 August, 2017

N/A
Planning Report

Database:	EDM_PROD	Local Co-ordinate Reference:	Well RU 513-17 - Slot A9
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 8378.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 8378.0ft (Original Well Elev)
Site:	RU 23-17 Pad	North Reference:	True
Well:	RU 513-17	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	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 513-17 - Slot A9			
Well Position	+N/-S	-46.1 ft	Northing:	1,594,605.00 ft
	+E/-W	38.3 ft	Easting:	2,351,256.00 ft
Position Uncertainty		0.0 ft	Wellhead Elevation:	Latitude: 39° 26' 36.341 N
				Longitude: 107° 47' 50.720 W
				Ground Level: 8,368.6 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/5/2017	9.60	65.58	51,501.48622342

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	262.62

Plan Survey Tool Program	Date	8/17/2017		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	10,908.3 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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.1	18.00	262.62	790.3	-12.0	-92.7	3.00	3.00	0.00	262.62	
7,088.1	18.00	262.62	6,770.5	-261.7	-2,020.0	0.00	0.00	0.00	0.00	
8,288.3	0.00	0.00	7,951.0	-285.8	-2,205.5	1.50	-1.50	0.00	180.00	
10,908.3	0.00	0.00	10,571.0	-285.8	-2,205.5	0.00	0.00	0.00	0.00	PBHL(RU_513-17)

N/A
Planning Report

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Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 8378.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 8378.0ft (Original Well Elev)
Site:	RU 23-17 Pad	North Reference:	True
Well:	RU 513-17	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
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	262.62	300.0	-0.3	-2.6	2.6	3.00	3.00	0.00
400.0	6.00	262.62	399.6	-1.3	-10.4	10.5	3.00	3.00	0.00
500.0	9.00	262.62	498.8	-3.0	-23.3	23.5	3.00	3.00	0.00
600.0	12.00	262.62	597.1	-5.4	-41.4	41.7	3.00	3.00	0.00
700.0	15.00	262.62	694.3	-8.4	-64.5	65.1	3.00	3.00	0.00
800.0	18.00	262.62	790.2	-12.0	-92.7	93.5	3.00	3.00	0.00
800.1	18.00	262.62	790.3	-12.0	-92.7	93.5	3.00	3.00	0.00
900.0	18.00	262.62	885.3	-16.0	-123.4	124.4	0.00	0.00	0.00
1,000.0	18.00	262.62	980.4	-20.0	-154.0	155.3	0.00	0.00	0.00
1,100.0	18.00	262.62	1,075.5	-23.9	-184.7	186.2	0.00	0.00	0.00
9 5/8"									
1,200.0	18.00	262.62	1,170.6	-27.9	-215.3	217.1	0.00	0.00	0.00
1,300.0	18.00	262.62	1,265.7	-31.9	-246.0	248.0	0.00	0.00	0.00
1,400.0	18.00	262.62	1,360.8	-35.8	-276.6	278.9	0.00	0.00	0.00
1,500.0	18.00	262.62	1,455.9	-39.8	-307.3	309.8	0.00	0.00	0.00
1,600.0	18.00	262.62	1,551.0	-43.8	-337.9	340.7	0.00	0.00	0.00
1,700.0	18.00	262.62	1,646.1	-47.8	-368.6	371.6	0.00	0.00	0.00
1,800.0	18.00	262.62	1,741.2	-51.7	-399.2	402.5	0.00	0.00	0.00
1,900.0	18.00	262.62	1,836.3	-55.7	-429.9	433.4	0.00	0.00	0.00
2,000.0	18.00	262.62	1,931.4	-59.7	-460.5	464.4	0.00	0.00	0.00
2,100.0	18.00	262.62	2,026.5	-63.6	-491.2	495.3	0.00	0.00	0.00
2,200.0	18.00	262.62	2,121.6	-67.6	-521.8	526.2	0.00	0.00	0.00
2,300.0	18.00	262.62	2,216.7	-71.6	-552.5	557.1	0.00	0.00	0.00
2,400.0	18.00	262.62	2,311.8	-75.6	-583.1	588.0	0.00	0.00	0.00
2,500.0	18.00	262.62	2,406.9	-79.5	-613.8	618.9	0.00	0.00	0.00
2,600.0	18.00	262.62	2,502.1	-83.5	-644.4	649.8	0.00	0.00	0.00
2,700.0	18.00	262.62	2,597.2	-87.5	-675.1	680.7	0.00	0.00	0.00
2,800.0	18.00	262.62	2,692.3	-91.4	-705.7	711.6	0.00	0.00	0.00
2,900.0	18.00	262.62	2,787.4	-95.4	-736.4	742.5	0.00	0.00	0.00
3,000.0	18.00	262.62	2,882.5	-99.4	-767.0	773.4	0.00	0.00	0.00
3,100.0	18.00	262.62	2,977.6	-103.4	-797.7	804.3	0.00	0.00	0.00
3,200.0	18.00	262.62	3,072.7	-107.3	-828.3	835.2	0.00	0.00	0.00
3,300.0	18.00	262.62	3,167.8	-111.3	-859.0	866.1	0.00	0.00	0.00
3,400.0	18.00	262.62	3,262.9	-115.3	-889.6	897.0	0.00	0.00	0.00
3,500.0	18.00	262.62	3,358.0	-119.2	-920.3	927.9	0.00	0.00	0.00
3,600.0	18.00	262.62	3,453.1	-123.2	-950.9	958.9	0.00	0.00	0.00
3,700.0	18.00	262.62	3,548.2	-127.2	-981.6	989.8	0.00	0.00	0.00
3,800.0	18.00	262.62	3,643.3	-131.1	-1,012.2	1,020.7	0.00	0.00	0.00
3,900.0	18.00	262.62	3,738.4	-135.1	-1,042.9	1,051.6	0.00	0.00	0.00
4,000.0	18.00	262.62	3,833.5	-139.1	-1,073.5	1,082.5	0.00	0.00	0.00
4,100.0	18.00	262.62	3,928.6	-143.1	-1,104.2	1,113.4	0.00	0.00	0.00
4,200.0	18.00	262.62	4,023.7	-147.0	-1,134.8	1,144.3	0.00	0.00	0.00
4,300.0	18.00	262.62	4,118.8	-151.0	-1,165.5	1,175.2	0.00	0.00	0.00
4,400.0	18.00	262.62	4,213.9	-155.0	-1,196.1	1,206.1	0.00	0.00	0.00
4,402.2	18.00	262.62	4,216.0	-155.1	-1,196.8	1,206.8	0.00	0.00	0.00
G Sand									
4,470.5	18.00	262.62	4,281.0	-157.8	-1,217.7	1,227.9	0.00	0.00	0.00
G Sand Base									
4,500.0	18.00	262.62	4,309.0	-158.9	-1,226.8	1,237.0	0.00	0.00	0.00
4,600.0	18.00	262.62	4,404.1	-162.9	-1,257.4	1,267.9	0.00	0.00	0.00

N/A
Planning Report

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Site:	RU 23-17 Pad	North Reference:	True
Well:	RU 513-17	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	18.00	262.62	4,499.2	-166.9	-1,288.1	1,298.8	0.00	0.00	0.00	
4,800.0	18.00	262.62	4,594.3	-170.9	-1,318.7	1,329.7	0.00	0.00	0.00	
4,900.0	18.00	262.62	4,689.4	-174.8	-1,349.4	1,360.6	0.00	0.00	0.00	
5,000.0	18.00	262.62	4,784.6	-178.8	-1,380.0	1,391.5	0.00	0.00	0.00	
5,100.0	18.00	262.62	4,879.7	-182.8	-1,410.7	1,422.4	0.00	0.00	0.00	
5,200.0	18.00	262.62	4,974.8	-186.7	-1,441.3	1,453.4	0.00	0.00	0.00	
5,300.0	18.00	262.62	5,069.9	-190.7	-1,472.0	1,484.3	0.00	0.00	0.00	
5,400.0	18.00	262.62	5,165.0	-194.7	-1,502.6	1,515.2	0.00	0.00	0.00	
5,500.0	18.00	262.62	5,260.1	-198.7	-1,533.3	1,546.1	0.00	0.00	0.00	
5,600.0	18.00	262.62	5,355.2	-202.6	-1,563.9	1,577.0	0.00	0.00	0.00	
5,700.0	18.00	262.62	5,450.3	-206.6	-1,594.6	1,607.9	0.00	0.00	0.00	
5,800.0	18.00	262.62	5,545.4	-210.6	-1,625.2	1,638.8	0.00	0.00	0.00	
5,900.0	18.00	262.62	5,640.5	-214.5	-1,655.9	1,669.7	0.00	0.00	0.00	
6,000.0	18.00	262.62	5,735.6	-218.5	-1,686.5	1,700.6	0.00	0.00	0.00	
6,100.0	18.00	262.62	5,830.7	-222.5	-1,717.2	1,731.5	0.00	0.00	0.00	
6,200.0	18.00	262.62	5,925.8	-226.5	-1,747.8	1,762.4	0.00	0.00	0.00	
6,300.0	18.00	262.62	6,020.9	-230.4	-1,778.5	1,793.3	0.00	0.00	0.00	
6,400.0	18.00	262.62	6,116.0	-234.4	-1,809.1	1,824.2	0.00	0.00	0.00	
6,500.0	18.00	262.62	6,211.1	-238.4	-1,839.8	1,855.1	0.00	0.00	0.00	
6,600.0	18.00	262.62	6,306.2	-242.3	-1,870.4	1,886.0	0.00	0.00	0.00	
6,605.0	18.00	262.62	6,311.0	-242.5	-1,871.9	1,887.6	0.00	0.00	0.00	
Lower Wasatch										
6,700.0	18.00	262.62	6,401.3	-246.3	-1,901.1	1,916.9	0.00	0.00	0.00	
6,800.0	18.00	262.62	6,496.4	-250.3	-1,931.7	1,947.9	0.00	0.00	0.00	
6,900.0	18.00	262.62	6,591.5	-254.3	-1,962.4	1,978.8	0.00	0.00	0.00	
6,931.0	18.00	262.62	6,621.0	-255.5	-1,971.9	1,988.3	0.00	0.00	0.00	
OCRK										
7,000.0	18.00	262.62	6,686.6	-258.2	-1,993.0	2,009.7	0.00	0.00	0.00	
7,025.6	18.00	262.62	6,711.0	-259.2	-2,000.9	2,017.6	0.00	0.00	0.00	
Upper MVRD										
7,088.1	18.00	262.62	6,770.5	-261.7	-2,020.0	2,036.9	0.00	0.00	0.00	
7,100.0	17.82	262.62	6,781.7	-262.2	-2,023.6	2,040.6	1.50	-1.50	0.00	
7,200.0	16.32	262.62	6,877.3	-266.0	-2,052.8	2,069.9	1.50	-1.50	0.00	
7,300.0	14.82	262.62	6,973.7	-269.4	-2,079.4	2,096.8	1.50	-1.50	0.00	
7,400.0	13.32	262.62	7,070.7	-272.5	-2,103.5	2,121.1	1.50	-1.50	0.00	
7,500.0	11.82	262.62	7,168.3	-275.3	-2,125.1	2,142.9	1.50	-1.50	0.00	
7,600.0	10.32	262.62	7,266.4	-277.8	-2,144.1	2,162.1	1.50	-1.50	0.00	
7,700.0	8.82	262.62	7,365.0	-279.9	-2,160.6	2,178.7	1.50	-1.50	0.00	
7,800.0	7.32	262.62	7,464.0	-281.8	-2,174.6	2,192.7	1.50	-1.50	0.00	
7,900.0	5.82	262.62	7,563.3	-283.2	-2,185.9	2,204.2	1.50	-1.50	0.00	
8,000.0	4.32	262.62	7,662.9	-284.4	-2,194.7	2,213.0	1.50	-1.50	0.00	
8,100.0	2.82	262.62	7,762.7	-285.2	-2,200.9	2,219.3	1.50	-1.50	0.00	
8,200.0	1.32	262.62	7,862.7	-285.6	-2,204.5	2,222.9	1.50	-1.50	0.00	
8,288.3	0.00	0.00	7,951.0	-285.8	-2,205.5	2,223.9	1.50	-1.50	0.00	
8,300.0	0.00	0.00	7,962.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00	
8,400.0	0.00	0.00	8,062.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,162.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00	
8,600.0	0.00	0.00	8,262.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,362.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00	
8,773.3	0.00	0.00	8,436.0	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00	
Top of Gas										
8,800.0	0.00	0.00	8,462.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00	
8,900.0	0.00	0.00	8,562.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00	
9,000.0	0.00	0.00	8,662.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00	

N/A
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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	8,762.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
9,200.0	0.00	0.00	8,862.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
9,300.0	0.00	0.00	8,962.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
9,400.0	0.00	0.00	9,062.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
9,500.0	0.00	0.00	9,162.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
9,600.0	0.00	0.00	9,262.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
9,700.0	0.00	0.00	9,362.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
9,793.3	0.00	0.00	9,456.0	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
Cameo									
9,800.0	0.00	0.00	9,462.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
9,900.0	0.00	0.00	9,562.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,000.0	0.00	0.00	9,662.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,100.0	0.00	0.00	9,762.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,200.0	0.00	0.00	9,862.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,300.0	0.00	0.00	9,962.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,400.0	0.00	0.00	10,062.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,500.0	0.00	0.00	10,162.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,593.3	0.00	0.00	10,256.0	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
Rollins									
10,600.0	0.00	0.00	10,262.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,700.0	0.00	0.00	10,362.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,800.0	0.00	0.00	10,462.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,900.0	0.00	0.00	10,562.7	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
10,908.3	0.00	0.00	10,571.0	-285.8	-2,205.5	2,223.9	0.00	0.00	0.00
PBHL(RU_513-17)									

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_513-17)	0.00	0.00	10,571.0	-285.8	-2,205.5	1,594,375.10	2,349,044.00	39° 26' 33.516 N	107° 48' 18.833 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,100.0	1,075.5	9 5/8"		9.625	13.500

N/A
Planning Report

Database:	EDM_PROD	Local Co-ordinate Reference:	Well RU 513-17 - Slot A9
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 8378.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 8378.0ft (Original Well Elev)
Site:	RU 23-17 Pad	North Reference:	True
Well:	RU 513-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,402.2	4,216.0	G Sand		0.00		
4,470.5	4,281.0	G Sand Base		0.00		
6,605.0	6,311.0	Lower Wasatch		0.00		
6,931.0	6,621.0	OCRK		0.00		
7,025.6	6,711.0	Upper MVRD		0.00		
8,773.3	8,436.0	Top of Gas		0.00		
9,793.3	9,456.0	Carneo		0.00		
10,593.3	10,256.0	Rollins		0.00		