

TEP Rocky Mountain LLC

Garfield County, CO NAD83

PA 44-13

PA 324-13 - Slot B5

OH

Plan: Plan #1

Standard Planning Report

17 July, 2018

N/A
Planning Report

Database:	EDM_PROD	Local Co-ordinate Reference:	Well PA 324-13 - Slot B5
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 6594.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 6594.0ft (Original Well Elev)
Site:	PA 44-13	North Reference:	True
Well:	PA 324-13	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	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 324-13 - Slot B5			
Well Position	+N/-S	-14.4 ft	Northing:	1,623,767.60 ft
	+E/-W	4.3 ft	Easting:	2,311,235.50 ft
Position Uncertainty		0.0 ft	Wellhead Elevation:	Ground Level: 6,570.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	12/31/2004	11.43	66.02	53,064.31640122

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	258.23

Plan Survey Tool Program	Date	7/17/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	9,877.6 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	
135.0	0.00	0.00	135.0	0.0	0.0	0.00	0.00	0.00	0.00	
854.1	21.57	258.23	837.2	-27.3	-131.0	3.00	3.00	0.00	258.23	
5,979.5	21.57	258.23	5,603.6	-411.6	-1,975.8	0.00	0.00	0.00	0.00	
7,417.6	0.00	0.00	7,008.0	-466.2	-2,237.7	1.50	-1.50	0.00	180.00	
9,877.6	0.00	0.00	9,468.0	-466.2	-2,237.7	0.00	0.00	0.00	0.00	PA 324-13 TD

N/A
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Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 6594.0ft (Original Well Elev)
Site:	PA 44-13	North Reference:	True
Well:	PA 324-13	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
135.0	0.00	0.00	135.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	1.95	258.23	200.0	-0.2	-1.1	1.1	3.00	3.00	0.00
300.0	4.95	258.23	299.8	-1.5	-7.0	7.1	3.00	3.00	0.00
400.0	7.95	258.23	399.2	-3.7	-18.0	18.4	3.00	3.00	0.00
500.0	10.95	258.23	497.8	-7.1	-34.0	34.8	3.00	3.00	0.00
600.0	13.95	258.23	595.4	-11.5	-55.1	56.3	3.00	3.00	0.00
700.0	16.95	258.23	691.8	-16.9	-81.2	83.0	3.00	3.00	0.00
800.0	19.95	258.23	786.6	-23.4	-112.2	114.6	3.00	3.00	0.00
854.1	21.57	258.23	837.2	-27.3	-131.0	133.8	3.00	3.00	0.00
900.0	21.57	258.23	879.9	-30.7	-147.5	150.7	0.00	0.00	0.00
1,000.0	21.57	258.23	972.9	-38.2	-183.5	187.4	0.00	0.00	0.00
1,100.0	21.57	258.23	1,065.9	-45.7	-219.5	224.2	0.00	0.00	0.00
9 5/8"									
1,200.0	21.57	258.23	1,158.9	-53.2	-255.5	261.0	0.00	0.00	0.00
1,300.0	21.57	258.23	1,251.9	-60.7	-291.5	297.7	0.00	0.00	0.00
1,400.0	21.57	258.23	1,344.9	-68.2	-327.5	334.5	0.00	0.00	0.00
1,500.0	21.57	258.23	1,437.9	-75.7	-363.5	371.3	0.00	0.00	0.00
1,600.0	21.57	258.23	1,530.9	-83.2	-399.4	408.0	0.00	0.00	0.00
1,700.0	21.57	258.23	1,623.9	-90.7	-435.4	444.8	0.00	0.00	0.00
1,800.0	21.57	258.23	1,716.9	-98.2	-471.4	481.6	0.00	0.00	0.00
1,900.0	21.57	258.23	1,809.9	-105.7	-507.4	518.3	0.00	0.00	0.00
2,000.0	21.57	258.23	1,902.9	-113.2	-543.4	555.1	0.00	0.00	0.00
2,100.0	21.57	258.23	1,995.9	-120.7	-579.4	591.9	0.00	0.00	0.00
2,200.0	21.57	258.23	2,088.9	-128.2	-615.4	628.6	0.00	0.00	0.00
2,300.0	21.57	258.23	2,181.9	-135.7	-651.4	665.4	0.00	0.00	0.00
2,400.0	21.57	258.23	2,274.9	-143.2	-687.4	702.2	0.00	0.00	0.00
2,500.0	21.57	258.23	2,367.9	-150.7	-723.4	738.9	0.00	0.00	0.00
2,600.0	21.57	258.23	2,460.9	-158.2	-759.4	775.7	0.00	0.00	0.00
2,700.0	21.57	258.23	2,553.8	-165.7	-795.4	812.5	0.00	0.00	0.00
2,800.0	21.57	258.23	2,646.8	-173.2	-831.4	849.2	0.00	0.00	0.00
2,900.0	21.57	258.23	2,739.8	-180.7	-867.4	886.0	0.00	0.00	0.00
3,000.0	21.57	258.23	2,832.8	-188.2	-903.4	922.8	0.00	0.00	0.00
3,100.0	21.57	258.23	2,925.8	-195.7	-939.3	959.5	0.00	0.00	0.00
3,200.0	21.57	258.23	3,018.8	-203.2	-975.3	996.3	0.00	0.00	0.00
3,300.0	21.57	258.23	3,111.8	-210.7	-1,011.3	1,033.1	0.00	0.00	0.00
3,400.0	21.57	258.23	3,204.8	-218.2	-1,047.3	1,069.8	0.00	0.00	0.00
3,500.0	21.57	258.23	3,297.8	-225.7	-1,083.3	1,106.6	0.00	0.00	0.00
3,579.8	21.57	258.23	3,372.0	-231.7	-1,112.0	1,135.9	0.00	0.00	0.00
G SAND									
3,600.0	21.57	258.23	3,390.8	-233.2	-1,119.3	1,143.4	0.00	0.00	0.00
3,679.8	21.57	258.23	3,465.0	-239.2	-1,148.0	1,172.7	0.00	0.00	0.00
G SAND BASE									
3,700.0	21.57	258.23	3,483.8	-240.7	-1,155.3	1,180.1	0.00	0.00	0.00
3,800.0	21.57	258.23	3,576.8	-248.2	-1,191.3	1,216.9	0.00	0.00	0.00
3,900.0	21.57	258.23	3,669.8	-255.7	-1,227.3	1,253.6	0.00	0.00	0.00
4,000.0	21.57	258.23	3,762.8	-263.2	-1,263.3	1,290.4	0.00	0.00	0.00
4,100.0	21.57	258.23	3,855.8	-270.7	-1,299.3	1,327.2	0.00	0.00	0.00
4,200.0	21.57	258.23	3,948.8	-278.2	-1,335.3	1,363.9	0.00	0.00	0.00
4,300.0	21.57	258.23	4,041.8	-285.7	-1,371.3	1,400.7	0.00	0.00	0.00
4,400.0	21.57	258.23	4,134.8	-293.2	-1,407.3	1,437.5	0.00	0.00	0.00
4,500.0	21.57	258.23	4,227.8	-300.7	-1,443.3	1,474.2	0.00	0.00	0.00

N/A
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Site:	PA 44-13	North Reference:	True
Well:	PA 324-13	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)	
4,600.0	21.57	258.23	4,320.8	-308.2	-1,479.2	1,511.0	0.00	0.00	0.00	
4,700.0	21.57	258.23	4,413.8	-315.7	-1,515.2	1,547.8	0.00	0.00	0.00	
4,800.0	21.57	258.23	4,506.8	-323.2	-1,551.2	1,584.5	0.00	0.00	0.00	
4,900.0	21.57	258.23	4,599.8	-330.7	-1,587.2	1,621.3	0.00	0.00	0.00	
5,000.0	21.57	258.23	4,692.8	-338.2	-1,623.2	1,658.1	0.00	0.00	0.00	
5,100.0	21.57	258.23	4,785.8	-345.7	-1,659.2	1,694.8	0.00	0.00	0.00	
5,200.0	21.57	258.23	4,878.8	-353.2	-1,695.2	1,731.6	0.00	0.00	0.00	
5,300.0	21.57	258.23	4,971.7	-360.7	-1,731.2	1,768.4	0.00	0.00	0.00	
5,400.0	21.57	258.23	5,064.7	-368.2	-1,767.2	1,805.1	0.00	0.00	0.00	
5,500.0	21.57	258.23	5,157.7	-375.7	-1,803.2	1,841.9	0.00	0.00	0.00	
5,600.0	21.57	258.23	5,250.7	-383.2	-1,839.2	1,878.7	0.00	0.00	0.00	
5,700.0	21.57	258.23	5,343.7	-390.7	-1,875.2	1,915.4	0.00	0.00	0.00	
5,800.0	21.57	258.23	5,436.7	-398.2	-1,911.2	1,952.2	0.00	0.00	0.00	
5,900.0	21.57	258.23	5,529.7	-405.7	-1,947.2	1,989.0	0.00	0.00	0.00	
5,979.5	21.57	258.23	5,603.6	-411.6	-1,975.8	2,018.2	0.00	0.00	0.00	
6,000.0	21.26	258.23	5,622.7	-413.2	-1,983.1	2,025.7	1.50	-1.50	0.00	
6,100.0	19.76	258.23	5,716.4	-420.3	-2,017.4	2,060.7	1.50	-1.50	0.00	
6,174.8	18.64	258.23	5,787.0	-425.3	-2,041.5	2,085.3	1.50	-1.50	0.00	
MVRD										
6,200.0	18.26	258.23	5,810.9	-427.0	-2,049.3	2,093.3	1.50	-1.50	0.00	
6,233.7	17.76	258.23	5,843.0	-429.1	-2,059.5	2,103.7	1.50	-1.50	0.00	
WFRK/UMVRD										
6,300.0	16.76	258.23	5,906.3	-433.1	-2,078.8	2,123.4	1.50	-1.50	0.00	
6,400.0	15.26	258.23	6,002.4	-438.7	-2,105.8	2,151.0	1.50	-1.50	0.00	
6,500.0	13.76	258.23	6,099.2	-443.8	-2,130.3	2,176.0	1.50	-1.50	0.00	
6,600.0	12.26	258.23	6,196.7	-448.4	-2,152.3	2,198.6	1.50	-1.50	0.00	
6,700.0	10.76	258.23	6,294.6	-452.5	-2,171.9	2,218.5	1.50	-1.50	0.00	
6,800.0	9.26	258.23	6,393.1	-456.0	-2,188.9	2,235.9	1.50	-1.50	0.00	
6,900.0	7.76	258.23	6,492.0	-459.1	-2,203.4	2,250.7	1.50	-1.50	0.00	
7,000.0	6.26	258.23	6,591.3	-461.6	-2,215.4	2,262.9	1.50	-1.50	0.00	
7,100.0	4.76	258.23	6,690.8	-463.5	-2,224.8	2,272.5	1.50	-1.50	0.00	
7,200.0	3.26	258.23	6,790.5	-464.9	-2,231.6	2,279.5	1.50	-1.50	0.00	
7,300.0	1.76	258.23	6,890.4	-465.8	-2,235.9	2,283.9	1.50	-1.50	0.00	
7,367.6	0.75	258.23	6,958.0	-466.1	-2,237.4	2,285.4	1.50	-1.50	0.00	
TOP GAS										
7,400.0	0.26	258.23	6,990.4	-466.2	-2,237.6	2,285.7	1.50	-1.50	0.00	
7,417.6	0.00	0.00	7,008.0	-466.2	-2,237.7	2,285.7	1.50	-1.50	0.00	
7,500.0	0.00	0.00	7,090.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
7,600.0	0.00	0.00	7,190.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,290.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,390.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,490.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,590.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,100.0	0.00	0.00	7,690.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,200.0	0.00	0.00	7,790.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,300.0	0.00	0.00	7,890.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,400.0	0.00	0.00	7,990.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,090.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,600.0	0.00	0.00	8,190.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,290.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,800.0	0.00	0.00	8,390.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
8,831.6	0.00	0.00	8,422.0	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	
CME0										
8,900.0	0.00	0.00	8,490.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00	

N/A
Planning Report

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Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 6594.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 6594.0ft (Original Well Elev)
Site:	PA 44-13	North Reference:	True
Well:	PA 324-13	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)
9,000.0	0.00	0.00	8,590.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
9,100.0	0.00	0.00	8,690.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
9,200.0	0.00	0.00	8,790.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
9,300.0	0.00	0.00	8,890.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
9,400.0	0.00	0.00	8,990.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
9,500.0	0.00	0.00	9,090.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
9,600.0	0.00	0.00	9,190.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
9,700.0	0.00	0.00	9,290.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
9,727.6	0.00	0.00	9,318.0	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
RLNS									
9,800.0	0.00	0.00	9,390.4	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
9,877.6	0.00	0.00	9,468.0	-466.2	-2,237.7	2,285.7	0.00	0.00	0.00
PA 324-13 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 324-13 TD - plan hits target center - Point	0.00	0.00	9,468.0	-466.2	-2,237.7	1,623,361.70	2,308,986.10	39° 31' 9.550 N	107° 56' 59.237 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,100.0	1,065.9	9 5/8"		9.625	13.500

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,579.8	3,372.0	G SAND		0.00		
3,679.8	3,465.0	G SAND BASE		0.00		
6,174.8	5,787.0	MVRD		0.00		
6,233.7	5,843.0	WFRK/UMVRD		0.00		
7,367.6	6,958.0	TOP GAS		0.00		
8,831.6	8,422.0	CME0		0.00		
9,727.6	9,318.0	RLNS		0.00		