

TEP Rocky Mountain LLC

Garfield County, CO NAD83

PA 44-13

PA 32-13 - Slot B11

OH

Plan: Plan #1

Standard Planning Report

17 July, 2018

N/A
Planning Report

Database:	EDM_PROD	Local Co-ordinate Reference:	Well PA 32-13 - Slot B11
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 32-13	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 32-13 - Slot B11					
Well Position	+N/-S	28.8 ft	Northing:	1,623,811.10 ft	Latitude:	39° 31' 14.586 N
	+E/-W	-8.5 ft	Easting:	2,311,223.90 ft	Longitude:	107° 56' 30.844 W
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	53,064.37474927

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	339.79

Plan Survey Tool Program	Date	7/17/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	10,093.0 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	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.00	
949.0	24.87	339.79	923.2	166.2	-61.2	3.00	3.00	0.00	339.79	
6,585.0	24.87	339.79	6,036.6	2,390.6	-879.8	0.00	0.00	0.00	0.00	
8,243.0	0.00	0.00	7,643.0	2,722.9	-1,002.1	1.50	-1.50	0.00	180.00	
10,093.0	0.00	0.00	9,493.0	2,722.9	-1,002.1	0.00	0.00	0.00	0.00	PA 32-13 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 32-13	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
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	2.40	339.79	200.0	1.6	-0.6	1.7	3.00	3.00	0.00
300.0	5.40	339.79	299.7	8.0	-2.9	8.5	3.00	3.00	0.00
400.0	8.40	339.79	399.0	19.2	-7.1	20.5	3.00	3.00	0.00
500.0	11.40	339.79	497.5	35.4	-13.0	37.7	3.00	3.00	0.00
600.0	14.40	339.79	595.0	56.3	-20.7	60.0	3.00	3.00	0.00
700.0	17.40	339.79	691.1	82.0	-30.2	87.4	3.00	3.00	0.00
800.0	20.40	339.79	785.7	112.4	-41.4	119.8	3.00	3.00	0.00
900.0	23.40	339.79	878.5	147.4	-54.3	157.1	3.00	3.00	0.00
949.0	24.87	339.79	923.2	166.2	-61.2	177.1	3.00	3.00	0.00
1,000.0	24.87	339.79	969.5	186.3	-68.6	198.6	0.00	0.00	0.00
1,100.0	24.87	339.79	1,060.2	225.8	-83.1	240.6	0.00	0.00	0.00
9 5/8"									
1,200.0	24.87	339.79	1,150.9	265.3	-97.6	282.7	0.00	0.00	0.00
1,300.0	24.87	339.79	1,241.7	304.7	-112.2	324.7	0.00	0.00	0.00
1,400.0	24.87	339.79	1,332.4	344.2	-126.7	366.8	0.00	0.00	0.00
1,500.0	24.87	339.79	1,423.1	383.7	-141.2	408.8	0.00	0.00	0.00
1,600.0	24.87	339.79	1,513.8	423.1	-155.7	450.9	0.00	0.00	0.00
1,700.0	24.87	339.79	1,604.6	462.6	-170.3	492.9	0.00	0.00	0.00
1,800.0	24.87	339.79	1,695.3	502.1	-184.8	535.0	0.00	0.00	0.00
1,900.0	24.87	339.79	1,786.0	541.5	-199.3	577.1	0.00	0.00	0.00
2,000.0	24.87	339.79	1,876.8	581.0	-213.8	619.1	0.00	0.00	0.00
2,100.0	24.87	339.79	1,967.5	620.5	-228.4	661.2	0.00	0.00	0.00
2,200.0	24.87	339.79	2,058.2	659.9	-242.9	703.2	0.00	0.00	0.00
2,300.0	24.87	339.79	2,148.9	699.4	-257.4	745.3	0.00	0.00	0.00
2,400.0	24.87	339.79	2,239.7	738.9	-271.9	787.3	0.00	0.00	0.00
2,500.0	24.87	339.79	2,330.4	778.3	-286.5	829.4	0.00	0.00	0.00
2,600.0	24.87	339.79	2,421.1	817.8	-301.0	871.4	0.00	0.00	0.00
2,700.0	24.87	339.79	2,511.9	857.3	-315.5	913.5	0.00	0.00	0.00
2,800.0	24.87	339.79	2,602.6	896.7	-330.0	955.5	0.00	0.00	0.00
2,900.0	24.87	339.79	2,693.3	936.2	-344.6	997.6	0.00	0.00	0.00
3,000.0	24.87	339.79	2,784.0	975.7	-359.1	1,039.6	0.00	0.00	0.00
3,100.0	24.87	339.79	2,874.8	1,015.1	-373.6	1,081.7	0.00	0.00	0.00
3,200.0	24.87	339.79	2,965.5	1,054.6	-388.1	1,123.8	0.00	0.00	0.00
3,300.0	24.87	339.79	3,056.2	1,094.1	-402.7	1,165.8	0.00	0.00	0.00
3,400.0	24.87	339.79	3,146.9	1,133.5	-417.2	1,207.9	0.00	0.00	0.00
3,500.0	24.87	339.79	3,237.7	1,173.0	-431.7	1,249.9	0.00	0.00	0.00
3,600.0	24.87	339.79	3,328.4	1,212.5	-446.2	1,292.0	0.00	0.00	0.00
3,675.6	24.87	339.79	3,397.0	1,242.3	-457.2	1,323.8	0.00	0.00	0.00
G SAND									
3,700.0	24.87	339.79	3,419.1	1,251.9	-460.8	1,334.0	0.00	0.00	0.00
3,778.1	24.87	339.79	3,490.0	1,282.8	-472.1	1,366.9	0.00	0.00	0.00
G SAND BASE									
3,800.0	24.87	339.79	3,509.9	1,291.4	-475.3	1,376.1	0.00	0.00	0.00
3,900.0	24.87	339.79	3,600.6	1,330.9	-489.8	1,418.1	0.00	0.00	0.00
4,000.0	24.87	339.79	3,691.3	1,370.3	-504.3	1,460.2	0.00	0.00	0.00
4,100.0	24.87	339.79	3,782.0	1,409.8	-518.9	1,502.2	0.00	0.00	0.00
4,200.0	24.87	339.79	3,872.8	1,449.3	-533.4	1,544.3	0.00	0.00	0.00
4,300.0	24.87	339.79	3,963.5	1,488.7	-547.9	1,586.4	0.00	0.00	0.00
4,400.0	24.87	339.79	4,054.2	1,528.2	-562.4	1,628.4	0.00	0.00	0.00
4,500.0	24.87	339.79	4,144.9	1,567.7	-577.0	1,670.5	0.00	0.00	0.00

N/A
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Well:	PA 32-13	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	24.87	339.79	4,235.7	1,607.1	-591.5	1,712.5	0.00	0.00	0.00
4,700.0	24.87	339.79	4,326.4	1,646.6	-606.0	1,754.6	0.00	0.00	0.00
4,800.0	24.87	339.79	4,417.1	1,686.1	-620.5	1,796.6	0.00	0.00	0.00
4,900.0	24.87	339.79	4,507.9	1,725.5	-635.1	1,838.7	0.00	0.00	0.00
5,000.0	24.87	339.79	4,598.6	1,765.0	-649.6	1,880.7	0.00	0.00	0.00
5,100.0	24.87	339.79	4,689.3	1,804.5	-664.1	1,922.8	0.00	0.00	0.00
5,200.0	24.87	339.79	4,780.0	1,843.9	-678.6	1,964.8	0.00	0.00	0.00
5,300.0	24.87	339.79	4,870.8	1,883.4	-693.2	2,006.9	0.00	0.00	0.00
5,400.0	24.87	339.79	4,961.5	1,922.9	-707.7	2,049.0	0.00	0.00	0.00
5,500.0	24.87	339.79	5,052.2	1,962.3	-722.2	2,091.0	0.00	0.00	0.00
5,600.0	24.87	339.79	5,142.9	2,001.8	-736.7	2,133.1	0.00	0.00	0.00
5,700.0	24.87	339.79	5,233.7	2,041.3	-751.3	2,175.1	0.00	0.00	0.00
5,800.0	24.87	339.79	5,324.4	2,080.7	-765.8	2,217.2	0.00	0.00	0.00
5,900.0	24.87	339.79	5,415.1	2,120.2	-780.3	2,259.2	0.00	0.00	0.00
6,000.0	24.87	339.79	5,505.9	2,159.7	-794.8	2,301.3	0.00	0.00	0.00
6,100.0	24.87	339.79	5,596.6	2,199.1	-809.4	2,343.3	0.00	0.00	0.00
6,200.0	24.87	339.79	5,687.3	2,238.6	-823.9	2,385.4	0.00	0.00	0.00
6,300.0	24.87	339.79	5,778.0	2,278.1	-838.4	2,427.4	0.00	0.00	0.00
6,337.4	24.87	339.79	5,812.0	2,292.8	-843.8	2,443.2	0.00	0.00	0.00
MVRD									
6,399.2	24.87	339.79	5,868.0	2,317.2	-852.8	2,469.1	0.00	0.00	0.00
WFRK/UMVRD									
6,400.0	24.87	339.79	5,868.8	2,317.5	-852.9	2,469.5	0.00	0.00	0.00
6,500.0	24.87	339.79	5,959.5	2,357.0	-867.5	2,511.6	0.00	0.00	0.00
6,585.0	24.87	339.79	6,036.6	2,390.6	-879.8	2,547.3	0.00	0.00	0.00
6,600.0	24.64	339.79	6,050.2	2,396.4	-882.0	2,553.6	1.50	-1.50	0.00
6,700.0	23.14	339.79	6,141.7	2,434.4	-896.0	2,594.1	1.50	-1.50	0.00
6,800.0	21.64	339.79	6,234.1	2,470.2	-909.1	2,632.2	1.50	-1.50	0.00
6,900.0	20.14	339.79	6,327.5	2,503.7	-921.4	2,667.8	1.50	-1.50	0.00
7,000.0	18.64	339.79	6,421.9	2,534.8	-932.9	2,701.1	1.50	-1.50	0.00
7,100.0	17.14	339.79	6,517.0	2,563.7	-943.5	2,731.8	1.50	-1.50	0.00
7,200.0	15.64	339.79	6,613.0	2,590.2	-953.3	2,760.0	1.50	-1.50	0.00
7,300.0	14.14	339.79	6,709.6	2,614.3	-962.1	2,785.7	1.50	-1.50	0.00
7,400.0	12.64	339.79	6,806.9	2,636.0	-970.1	2,808.9	1.50	-1.50	0.00
7,500.0	11.14	339.79	6,904.7	2,655.4	-977.3	2,829.5	1.50	-1.50	0.00
7,579.6	9.95	339.79	6,983.0	2,669.0	-982.3	2,844.1	1.50	-1.50	0.00
TOP GAS									
7,600.0	9.64	339.79	7,003.1	2,672.3	-983.5	2,847.5	1.50	-1.50	0.00
7,700.0	8.14	339.79	7,101.9	2,686.8	-988.8	2,863.0	1.50	-1.50	0.00
7,800.0	6.64	339.79	7,201.0	2,698.9	-993.3	2,875.9	1.50	-1.50	0.00
7,900.0	5.14	339.79	7,300.5	2,708.5	-996.8	2,886.1	1.50	-1.50	0.00
8,000.0	3.64	339.79	7,400.2	2,715.7	-999.5	2,893.8	1.50	-1.50	0.00
8,100.0	2.14	339.79	7,500.1	2,720.4	-1,001.2	2,898.8	1.50	-1.50	0.00
8,200.0	0.64	339.79	7,600.0	2,722.7	-1,002.1	2,901.3	1.50	-1.50	0.00
8,243.0	0.00	0.00	7,643.0	2,722.9	-1,002.1	2,901.5	1.50	-1.50	0.00
8,300.0	0.00	0.00	7,700.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
8,400.0	0.00	0.00	7,800.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
8,500.0	0.00	0.00	7,900.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
8,600.0	0.00	0.00	8,000.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
8,700.0	0.00	0.00	8,100.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
8,800.0	0.00	0.00	8,200.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
8,900.0	0.00	0.00	8,300.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,000.0	0.00	0.00	8,400.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00

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 32-13	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)
9,047.0	0.00	0.00	8,447.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
CMEO									
9,100.0	0.00	0.00	8,500.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,200.0	0.00	0.00	8,600.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,300.0	0.00	0.00	8,700.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,400.0	0.00	0.00	8,800.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,500.0	0.00	0.00	8,900.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,600.0	0.00	0.00	9,000.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,700.0	0.00	0.00	9,100.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,800.0	0.00	0.00	9,200.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,900.0	0.00	0.00	9,300.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
9,943.0	0.00	0.00	9,343.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
RLNS									
10,000.0	0.00	0.00	9,400.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
10,093.0	0.00	0.00	9,493.0	2,722.9	-1,002.1	2,901.5	0.00	0.00	0.00
PA 32-13 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 32-13 TD - plan hits target center - Point	0.00	0.00	9,493.0	2,722.9	-1,002.1	1,626,560.00	2,310,295.30	39° 31' 41.498 N	107° 56' 43.635 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.0	1,060.2	9 5/8"	9.625	13.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,675.6	3,397.0	G SAND		0.00		
3,778.1	3,490.0	G SAND BASE		0.00		
6,337.4	5,812.0	MVRD		0.00		
6,399.2	5,868.0	WFRK/UMVRD		0.00		
7,579.6	6,983.0	TOP GAS		0.00		
9,047.0	8,447.0	CMEO		0.00		
9,943.0	9,343.0	RLNS		0.00		