TEP Rocky Mountain LLC

Garfield County, CO NAD83
PA 44-13
PA 432-13 - Slot B10

OH

Plan: Plan #1

Standard Planning Report

17 July, 2018

Database:	EDM_PROD	**Local Co-ordinate Reference:**	Well PA 432-13 - Slot B10
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 432-13	**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 432-13 - Slot B10

Well Position	**+N/-S**	21.6 ft	**Northing:**	1,623,803.90 ft	**Latitude:**	39° 31' 14.515 N
	+E/-W	-6.4 ft	**Easting:**	2,311,225.80 ft	**Longitude:**	107° 56' 30.818 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	53,064.36508076

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	334.67

Plan Survey Tool Program **Date** 7/17/2018

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	9,918.0	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	
135.0	0.00	0.00	135.0	0.0	0.0	0.00	0.00	0.00	0.00	
876.6	22.25	334.67	858.1	128.5	-60.8	3.00	3.00	0.00	334.67	
5,974.8	22.25	334.67	5,576.8	1,873.3	-886.5	0.00	0.00	0.00	0.00	
7,458.0	0.00	0.00	7,023.0	2,130.3	-1,008.1	1.50	-1.50	0.00	180.00	
9,918.0	0.00	0.00	9,483.0	2,130.3	-1,008.1	0.00	0.00	0.00	0.00	PA 432-13 TD

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Site:	PA 44-13	**North Reference:**	True
Well:	PA 432-13	**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	334.67	200.0	1.0	-0.5	1.1	3.00	3.00	0.00
300.0	4.95	334.67	299.8	6.4	-3.0	7.1	3.00	3.00	0.00
400.0	7.95	334.67	399.2	16.6	-7.9	18.4	3.00	3.00	0.00
500.0	10.95	334.67	497.8	31.4	-14.9	34.8	3.00	3.00	0.00
600.0	13.95	334.67	595.4	50.9	-24.1	56.3	3.00	3.00	0.00
700.0	16.95	334.67	691.8	75.0	-35.5	83.0	3.00	3.00	0.00
800.0	19.95	334.67	786.6	103.6	-49.0	114.6	3.00	3.00	0.00
876.6	22.25	334.67	858.1	128.5	-60.8	142.2	3.00	3.00	0.00
900.0	22.25	334.67	879.8	136.5	-64.6	151.0	0.00	0.00	0.00
1,000.0	22.25	334.67	972.3	170.7	-80.8	188.9	0.00	0.00	0.00
1,100.0	22.25	334.67	1,064.9	205.0	-97.0	226.8	0.00	0.00	0.00
9 5/8"									
1,200.0	22.25	334.67	1,157.4	239.2	-113.2	264.6	0.00	0.00	0.00
1,300.0	22.25	334.67	1,250.0	273.4	-129.4	302.5	0.00	0.00	0.00
1,400.0	22.25	334.67	1,342.5	307.6	-145.6	340.3	0.00	0.00	0.00
1,500.0	22.25	334.67	1,435.1	341.9	-161.8	378.2	0.00	0.00	0.00
1,600.0	22.25	334.67	1,527.7	376.1	-178.0	416.1	0.00	0.00	0.00
1,700.0	22.25	334.67	1,620.2	410.3	-194.2	453.9	0.00	0.00	0.00
1,800.0	22.25	334.67	1,712.8	444.5	-210.4	491.8	0.00	0.00	0.00
1,900.0	22.25	334.67	1,805.3	478.7	-226.6	529.7	0.00	0.00	0.00
2,000.0	22.25	334.67	1,897.9	513.0	-242.8	567.5	0.00	0.00	0.00
2,100.0	22.25	334.67	1,990.4	547.2	-259.0	605.4	0.00	0.00	0.00
2,200.0	22.25	334.67	2,083.0	581.4	-275.1	643.2	0.00	0.00	0.00
2,300.0	22.25	334.67	2,175.5	615.6	-291.3	681.1	0.00	0.00	0.00
2,400.0	22.25	334.67	2,268.1	649.9	-307.5	719.0	0.00	0.00	0.00
2,500.0	22.25	334.67	2,360.7	684.1	-323.7	756.8	0.00	0.00	0.00
2,600.0	22.25	334.67	2,453.2	718.3	-339.9	794.7	0.00	0.00	0.00
2,700.0	22.25	334.67	2,545.8	752.5	-356.1	832.5	0.00	0.00	0.00
2,800.0	22.25	334.67	2,638.3	786.7	-372.3	870.4	0.00	0.00	0.00
2,900.0	22.25	334.67	2,730.9	821.0	-388.5	908.3	0.00	0.00	0.00
3,000.0	22.25	334.67	2,823.4	855.2	-404.7	946.1	0.00	0.00	0.00
3,100.0	22.25	334.67	2,916.0	889.4	-420.9	984.0	0.00	0.00	0.00
3,200.0	22.25	334.67	3,008.5	923.6	-437.1	1,021.8	0.00	0.00	0.00
3,300.0	22.25	334.67	3,101.1	957.9	-453.3	1,059.7	0.00	0.00	0.00
3,400.0	22.25	334.67	3,193.7	992.1	-469.5	1,097.6	0.00	0.00	0.00
3,500.0	22.25	334.67	3,286.2	1,026.3	-485.7	1,135.4	0.00	0.00	0.00
3,600.0	22.25	334.67	3,378.8	1,060.5	-501.9	1,173.3	0.00	0.00	0.00
3,608.9	22.25	334.67	3,387.0	1,063.6	-503.3	1,176.7	0.00	0.00	0.00
G SAND									
3,700.0	22.25	334.67	3,471.3	1,094.8	-518.1	1,211.1	0.00	0.00	0.00
3,709.4	22.25	334.67	3,480.0	1,098.0	-519.6	1,214.7	0.00	0.00	0.00
G SAND BASE									
3,800.0	22.25	334.67	3,563.9	1,129.0	-534.3	1,249.0	0.00	0.00	0.00
3,900.0	22.25	334.67	3,656.4	1,163.2	-550.5	1,286.9	0.00	0.00	0.00
4,000.0	22.25	334.67	3,749.0	1,197.4	-566.7	1,324.7	0.00	0.00	0.00
4,100.0	22.25	334.67	3,841.6	1,231.6	-582.9	1,362.6	0.00	0.00	0.00
4,200.0	22.25	334.67	3,934.1	1,265.9	-599.0	1,400.5	0.00	0.00	0.00
4,300.0	22.25	334.67	4,026.7	1,300.1	-615.2	1,438.3	0.00	0.00	0.00
4,400.0	22.25	334.67	4,119.2	1,334.3	-631.4	1,476.2	0.00	0.00	0.00
4,500.0	22.25	334.67	4,211.8	1,368.5	-647.6	1,514.0	0.00	0.00	0.00

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Well:	PA 432-13	**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	22.25	334.67	4,304.3	1,402.8	-663.8	1,551.9	0.00	0.00	0.00
4,700.0	22.25	334.67	4,396.9	1,437.0	-680.0	1,589.8	0.00	0.00	0.00
4,800.0	22.25	334.67	4,489.4	1,471.2	-696.2	1,627.6	0.00	0.00	0.00
4,900.0	22.25	334.67	4,582.0	1,505.4	-712.4	1,665.5	0.00	0.00	0.00
5,000.0	22.25	334.67	4,674.6	1,539.6	-728.6	1,703.3	0.00	0.00	0.00
5,100.0	22.25	334.67	4,767.1	1,573.9	-744.8	1,741.2	0.00	0.00	0.00
5,200.0	22.25	334.67	4,859.7	1,608.1	-761.0	1,779.1	0.00	0.00	0.00
5,300.0	22.25	334.67	4,952.2	1,642.3	-777.2	1,816.9	0.00	0.00	0.00
5,400.0	22.25	334.67	5,044.8	1,676.5	-793.4	1,854.8	0.00	0.00	0.00
5,500.0	22.25	334.67	5,137.3	1,710.8	-809.6	1,892.6	0.00	0.00	0.00
5,600.0	22.25	334.67	5,229.9	1,745.0	-825.8	1,930.5	0.00	0.00	0.00
5,700.0	22.25	334.67	5,322.4	1,779.2	-842.0	1,968.4	0.00	0.00	0.00
5,800.0	22.25	334.67	5,415.0	1,813.4	-858.2	2,006.2	0.00	0.00	0.00
5,900.0	22.25	334.67	5,507.6	1,847.6	-874.4	2,044.1	0.00	0.00	0.00
5,974.8	22.25	334.67	5,576.8	1,873.3	-886.5	2,072.4	0.00	0.00	0.00
6,000.0	21.87	334.67	5,600.1	1,881.8	-890.5	2,081.9	1.50	-1.50	0.00
6,100.0	20.37	334.67	5,693.4	1,914.4	-905.9	2,117.9	1.50	-1.50	0.00
6,200.0	18.87	334.67	5,787.6	1,944.7	-920.3	2,151.5	1.50	-1.50	0.00
6,215.2	18.64	334.67	5,802.0	1,949.1	-922.4	2,156.4	1.50	-1.50	0.00
MVRD									
6,274.2	17.76	334.67	5,858.0	1,965.8	-930.3	2,174.8	1.50	-1.50	0.00
WFRK/UMVRD									
6,300.0	17.37	334.67	5,882.7	1,972.8	-933.6	2,182.6	1.50	-1.50	0.00
6,400.0	15.87	334.67	5,978.5	1,998.7	-945.8	2,211.2	1.50	-1.50	0.00
6,500.0	14.37	334.67	6,075.0	2,022.3	-957.0	2,237.3	1.50	-1.50	0.00
6,600.0	12.87	334.67	6,172.2	2,043.5	-967.1	2,260.8	1.50	-1.50	0.00
6,700.0	11.37	334.67	6,270.0	2,062.5	-976.1	2,281.8	1.50	-1.50	0.00
6,800.0	9.87	334.67	6,368.2	2,079.2	-983.9	2,300.2	1.50	-1.50	0.00
6,900.0	8.37	334.67	6,467.0	2,093.5	-990.7	2,316.1	1.50	-1.50	0.00
7,000.0	6.87	334.67	6,566.1	2,105.5	-996.4	2,329.3	1.50	-1.50	0.00
7,100.0	5.37	334.67	6,665.5	2,115.1	-1,000.9	2,340.0	1.50	-1.50	0.00
7,200.0	3.87	334.67	6,765.2	2,122.4	-1,004.4	2,348.1	1.50	-1.50	0.00
7,300.0	2.37	334.67	6,865.0	2,127.3	-1,006.7	2,353.5	1.50	-1.50	0.00
7,400.0	0.87	334.67	6,965.0	2,129.9	-1,007.9	2,356.3	1.50	-1.50	0.00
7,408.0	0.75	334.67	6,973.0	2,130.0	-1,008.0	2,356.4	1.50	-1.50	0.00
TOP GAS									
7,458.0	0.00	0.00	7,023.0	2,130.3	-1,008.1	2,356.8	1.50	-1.50	0.00
7,500.0	0.00	0.00	7,065.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
7,600.0	0.00	0.00	7,165.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
7,700.0	0.00	0.00	7,265.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
7,800.0	0.00	0.00	7,365.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
7,900.0	0.00	0.00	7,465.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,000.0	0.00	0.00	7,565.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,100.0	0.00	0.00	7,665.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,200.0	0.00	0.00	7,765.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,300.0	0.00	0.00	7,865.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,400.0	0.00	0.00	7,965.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,500.0	0.00	0.00	8,065.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,600.0	0.00	0.00	8,165.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,700.0	0.00	0.00	8,265.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,800.0	0.00	0.00	8,365.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
8,872.0	0.00	0.00	8,437.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
CMEO									
8,900.0	0.00	0.00	8,465.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00

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Well:	PA 432-13	**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	8,565.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,100.0	0.00	0.00	8,665.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,200.0	0.00	0.00	8,765.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,300.0	0.00	0.00	8,865.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,400.0	0.00	0.00	8,965.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,500.0	0.00	0.00	9,065.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,600.0	0.00	0.00	9,165.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,700.0	0.00	0.00	9,265.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,768.0	0.00	0.00	9,333.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
RLNS									
9,800.0	0.00	0.00	9,365.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,900.0	0.00	0.00	9,465.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
9,918.0	0.00	0.00	9,483.0	2,130.3	-1,008.1	2,356.8	0.00	0.00	0.00
PA 432-13 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 432-13 TD - plan hits target center - Point	0.00	0.00	9,483.0	2,130.3	-1,008.1	1,625,960.50	2,310,275.30	39° 31' 35.570 N	107° 56' 43.684 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,100.0	1,064.9	9 5/8"	9.625	13.500

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,608.9	3,387.0	G SAND		0.00	
3,709.4	3,480.0	G SAND BASE		0.00	
6,215.2	5,802.0	MVRD		0.00	
6,274.2	5,858.0	WFRK/UMVRD		0.00	
7,408.0	6,973.0	TOP GAS		0.00	
8,872.0	8,437.0	CMEO		0.00	
9,768.0	9,333.0	RLNS		0.00	