

TEP Rocky Mountain LLC

Garfield County, CO NAD83

PA 23-26 Pad

PA 421-26 - Slot A13

OH

Plan: Plan #1

Standard Planning Report

10 July, 2017

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 421-26 - Slot A13
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5658.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5658.0ft (Original Well Elev)
Site:	PA 23-26 Pad	North Reference:	True
Well:	PA 421-26	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 23-26 Pad					
Site Position:		Northing:	1,614,400.30 ft	Latitude:	39° 29' 39.674 N	
From:	Map	Easting:	2,303,981.10 ft	Longitude:	107° 57' 59.978 W	
Position Uncertainty:		0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.56 °

Well	PA 421-26 - Slot A13, A13					
Well Position	+N/-S	-3.7 ft	Northing:	1,614,399.06 ft	Latitude:	39° 29' 39.637 N
	+E/-W	-90.6 ft	Easting:	2,303,890.43 ft	Longitude:	107° 58' 1.134 W
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	5,637.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	12/31/2004	11.44	65.99	53,054.04619018

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	355.75

Plan Survey Tool Program	Date	7/10/2017			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	9,063.4 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	
180.0	0.00	0.00	180.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,680.0	30.00	345.00	1,612.4	370.7	-99.3	2.00	2.00	0.00	345.00	
2,180.0	30.00	345.00	2,045.4	612.2	-164.0	0.00	0.00	0.00	0.00	
2,422.5	30.00	359.58	2,255.7	731.6	-180.2	3.00	0.00	6.01	96.35	
5,154.0	30.00	359.58	4,621.3	2,097.1	-190.2	0.00	0.00	0.00	0.00	
7,153.8	0.00	0.00	6,531.0	2,608.7	-193.9	1.50	-1.50	0.00	180.00	
9,063.8	0.00	0.00	8,441.0	2,608.7	-193.9	0.00	0.00	0.00	0.00	PBHL(PA 421-26)

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 421-26 - Slot A13
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5658.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5658.0ft (Original Well Elev)
Site:	PA 23-26 Pad	North Reference:	True
Well:	PA 421-26	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
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.40	345.00	200.0	0.1	0.0	0.1	2.00	2.00	0.00
300.0	2.40	345.00	300.0	2.4	-0.7	2.5	2.00	2.00	0.00
400.0	4.40	345.00	399.8	8.2	-2.2	8.3	2.00	2.00	0.00
500.0	6.40	345.00	499.3	17.2	-4.6	17.5	2.00	2.00	0.00
600.0	8.40	345.00	598.5	29.7	-8.0	30.2	2.00	2.00	0.00
700.0	10.40	345.00	697.2	45.5	-12.2	46.2	2.00	2.00	0.00
800.0	12.40	345.00	795.2	64.6	-17.3	65.7	2.00	2.00	0.00
900.0	14.40	345.00	892.4	86.9	-23.3	88.4	2.00	2.00	0.00
1,000.0	16.40	345.00	988.9	112.6	-30.2	114.5	2.00	2.00	0.00
1,100.0	18.40	345.00	1,084.3	141.5	-37.9	143.9	2.00	2.00	0.00
9 5/8"									
1,200.0	20.40	345.00	1,178.6	173.6	-46.5	176.5	2.00	2.00	0.00
1,300.0	22.40	345.00	1,271.7	208.8	-55.9	212.4	2.00	2.00	0.00
1,400.0	24.40	345.00	1,363.5	247.2	-66.2	251.4	2.00	2.00	0.00
1,500.0	26.40	345.00	1,453.8	288.6	-77.3	293.5	2.00	2.00	0.00
1,600.0	28.40	345.00	1,542.6	333.0	-89.2	338.7	2.00	2.00	0.00
1,680.0	30.00	345.00	1,612.4	370.7	-99.3	377.1	2.00	2.00	0.00
1,700.0	30.00	345.00	1,629.7	380.4	-101.9	386.9	0.00	0.00	0.00
1,800.0	30.00	345.00	1,716.3	428.7	-114.9	436.0	0.00	0.00	0.00
1,900.0	30.00	345.00	1,802.9	477.0	-127.8	485.1	0.00	0.00	0.00
2,000.0	30.00	345.00	1,889.5	525.3	-140.7	534.3	0.00	0.00	0.00
2,100.0	30.00	345.00	1,976.1	573.6	-153.7	583.4	0.00	0.00	0.00
2,180.0	30.00	345.00	2,045.4	612.2	-164.0	622.7	0.00	0.00	0.00
2,200.0	29.94	346.19	2,062.7	621.9	-166.5	632.5	3.00	-0.30	5.97
2,300.0	29.80	352.21	2,149.5	670.8	-175.8	681.9	3.00	-0.14	6.02
2,400.0	29.93	358.24	2,236.2	720.3	-180.0	731.7	3.00	0.13	6.02
2,422.5	30.00	359.58	2,255.7	731.6	-180.2	742.9	3.00	0.30	5.98
2,500.0	30.00	359.58	2,322.8	770.3	-180.5	781.6	0.00	0.00	0.00
2,600.0	30.00	359.58	2,409.4	820.3	-180.8	831.4	0.00	0.00	0.00
2,700.0	30.00	359.58	2,496.0	870.3	-181.2	881.3	0.00	0.00	0.00
2,800.0	30.00	359.58	2,582.6	920.3	-181.6	931.2	0.00	0.00	0.00
2,900.0	30.00	359.58	2,669.3	970.3	-181.9	981.1	0.00	0.00	0.00
3,000.0	30.00	359.58	2,755.9	1,020.3	-182.3	1,031.0	0.00	0.00	0.00
3,002.5	30.00	359.58	2,758.0	1,021.5	-182.3	1,032.2	0.00	0.00	0.00
Wasatch G									
3,071.8	30.00	359.58	2,818.0	1,056.1	-182.6	1,066.8	0.00	0.00	0.00
Wasatch G base									
3,100.0	30.00	359.58	2,842.5	1,070.3	-182.7	1,080.9	0.00	0.00	0.00
3,200.0	30.00	359.58	2,929.1	1,120.3	-183.0	1,130.7	0.00	0.00	0.00
3,300.0	30.00	359.58	3,015.7	1,170.2	-183.4	1,180.6	0.00	0.00	0.00
3,400.0	30.00	359.58	3,102.3	1,220.2	-183.8	1,230.5	0.00	0.00	0.00
3,500.0	30.00	359.58	3,188.9	1,270.2	-184.1	1,280.4	0.00	0.00	0.00
3,600.0	30.00	359.58	3,275.5	1,320.2	-184.5	1,330.3	0.00	0.00	0.00
3,700.0	30.00	359.58	3,362.1	1,370.2	-184.9	1,380.2	0.00	0.00	0.00
3,800.0	30.00	359.58	3,448.7	1,420.2	-185.2	1,430.0	0.00	0.00	0.00
3,900.0	30.00	359.58	3,535.3	1,470.2	-185.6	1,479.9	0.00	0.00	0.00
4,000.0	30.00	359.58	3,621.9	1,520.2	-186.0	1,529.8	0.00	0.00	0.00
4,100.0	30.00	359.58	3,708.5	1,570.2	-186.3	1,579.7	0.00	0.00	0.00
4,200.0	30.00	359.58	3,795.1	1,620.2	-186.7	1,629.6	0.00	0.00	0.00
4,300.0	30.00	359.58	3,881.7	1,670.2	-187.1	1,679.5	0.00	0.00	0.00

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 421-26 - Slot A13
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5658.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5658.0ft (Original Well Elev)
Site:	PA 23-26 Pad	North Reference:	True
Well:	PA 421-26	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)
4,400.0	30.00	359.58	3,968.3	1,720.2	-187.4	1,729.3	0.00	0.00	0.00
4,500.0	30.00	359.58	4,054.9	1,770.2	-187.8	1,779.2	0.00	0.00	0.00
4,600.0	30.00	359.58	4,141.5	1,820.2	-188.2	1,829.1	0.00	0.00	0.00
4,700.0	30.00	359.58	4,228.2	1,870.2	-188.5	1,879.0	0.00	0.00	0.00
4,800.0	30.00	359.58	4,314.8	1,920.1	-188.9	1,928.9	0.00	0.00	0.00
4,900.0	30.00	359.58	4,401.4	1,970.1	-189.3	1,978.7	0.00	0.00	0.00
5,000.0	30.00	359.58	4,488.0	2,020.1	-189.6	2,028.6	0.00	0.00	0.00
5,100.0	30.00	359.58	4,574.6	2,070.1	-190.0	2,078.5	0.00	0.00	0.00
5,154.0	30.00	359.58	4,621.3	2,097.1	-190.2	2,105.4	0.00	0.00	0.00
5,200.0	29.31	359.58	4,661.3	2,119.9	-190.4	2,128.2	1.50	-1.50	0.00
5,300.0	27.81	359.58	4,749.2	2,167.7	-190.7	2,175.9	1.50	-1.50	0.00
5,355.0	26.98	359.58	4,798.0	2,193.0	-190.9	2,201.1	1.50	-1.50	0.00
Ohio Creek									
5,400.0	26.31	359.58	4,838.2	2,213.2	-191.0	2,221.2	1.50	-1.50	0.00
5,500.0	24.81	359.58	4,928.4	2,256.3	-191.4	2,264.3	1.50	-1.50	0.00
5,554.5	23.99	359.58	4,978.0	2,278.8	-191.5	2,286.7	1.50	-1.50	0.00
Upper MVRD									
5,600.0	23.31	359.58	5,019.7	2,297.1	-191.7	2,305.0	1.50	-1.50	0.00
5,700.0	21.81	359.58	5,112.1	2,335.4	-191.9	2,343.2	1.50	-1.50	0.00
5,800.0	20.31	359.58	5,205.4	2,371.3	-192.2	2,379.1	1.50	-1.50	0.00
5,900.0	18.81	359.58	5,299.6	2,404.8	-192.4	2,412.5	1.50	-1.50	0.00
6,000.0	17.31	359.58	5,394.7	2,435.8	-192.7	2,443.4	1.50	-1.50	0.00
6,100.0	15.81	359.58	5,490.6	2,464.3	-192.9	2,471.8	1.50	-1.50	0.00
6,200.0	14.31	359.58	5,587.1	2,490.3	-193.1	2,497.7	1.50	-1.50	0.00
6,300.0	12.81	359.58	5,684.3	2,513.7	-193.2	2,521.1	1.50	-1.50	0.00
6,400.0	11.31	359.58	5,782.1	2,534.6	-193.4	2,542.0	1.50	-1.50	0.00
6,500.0	9.81	359.58	5,880.4	2,552.9	-193.5	2,560.2	1.50	-1.50	0.00
6,600.0	8.31	359.58	5,979.2	2,568.7	-193.6	2,576.0	1.50	-1.50	0.00
6,619.0	8.02	359.58	5,998.0	2,571.4	-193.7	2,578.6	1.50	-1.50	0.00
Top of Gas									
6,700.0	6.81	359.58	6,078.3	2,581.8	-193.7	2,589.1	1.50	-1.50	0.00
6,800.0	5.31	359.58	6,177.7	2,592.4	-193.8	2,599.6	1.50	-1.50	0.00
6,900.0	3.81	359.58	6,277.4	2,600.3	-193.9	2,607.5	1.50	-1.50	0.00
7,000.0	2.31	359.58	6,377.3	2,605.6	-193.9	2,612.8	1.50	-1.50	0.00
7,100.0	0.81	359.58	6,477.2	2,608.4	-193.9	2,615.6	1.50	-1.50	0.00
7,153.8	0.00	0.00	6,531.0	2,608.7	-193.9	2,615.9	1.50	-1.50	0.00
7,200.0	0.00	0.00	6,577.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
7,300.0	0.00	0.00	6,677.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
7,400.0	0.00	0.00	6,777.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
7,500.0	0.00	0.00	6,877.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
7,600.0	0.00	0.00	6,977.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
7,700.0	0.00	0.00	7,077.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
7,800.0	0.00	0.00	7,177.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
7,900.0	0.00	0.00	7,277.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,000.0	0.00	0.00	7,377.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,100.0	0.00	0.00	7,477.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,200.0	0.00	0.00	7,577.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,200.8	0.00	0.00	7,578.0	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
Cameo									
8,300.0	0.00	0.00	7,677.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,400.0	0.00	0.00	7,777.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,500.0	0.00	0.00	7,877.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,600.0	0.00	0.00	7,977.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,700.0	0.00	0.00	8,077.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00

N/A
Planning Report

Database:	EDM_PRO	Local Co-ordinate Reference:	Well PA 421-26 - Slot A13
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5658.0ft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5658.0ft (Original Well Elev)
Site:	PA 23-26 Pad	North Reference:	True
Well:	PA 421-26	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)
8,800.0	0.00	0.00	8,177.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,900.0	0.00	0.00	8,277.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
8,910.8	0.00	0.00	8,288.0	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
RLNS									
9,000.0	0.00	0.00	8,377.2	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
9,063.8	0.00	0.00	8,441.0	2,608.7	-193.9	2,615.9	0.00	0.00	0.00
PBHL(PA 421-26)									

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(PA 421-26)	0.00	0.00	8,441.0	2,608.7	-193.9	1,617,012.10	2,303,767.40	39° 30' 5.421 N	107° 58' 3.608 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,100.0	1,084.3	9 5/8"		9.625	14.750

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,002.5	2,758.0	Wasatch G		0.00	
3,071.8	2,818.0	Wasatch G base		0.00	
5,355.0	4,798.0	Ohio Creek		0.00	
5,554.5	4,978.0	Upper MVRD		0.00	
6,619.0	5,998.0	Top of Gas		0.00	
8,200.8	7,578.0	Cameo		0.00	
8,910.8	8,288.0	RLNS		0.00	