



TEP Rocky Mountain LLC

Garfield County, CO NAD83

PA 22-25 Pad

PA 524-24

OH

Plan: Plan #1

Standard Planning Report

04 June, 2017



Database:	Grand Junction District	Local Co-ordinate Reference:	Well PA 524-24
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5247.99usft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5247.99usft (Original Well Elev)
Site:	PA 22-25 Pad	North Reference:	True
Well:	PA 524-24	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 22-25 Pad			
Site Position:		Northing:	1,615,186.77 usft	Latitude: 39.4968742
From: Map		Easting:	2,308,728.18 usft	Longitude: -107.9499045
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: -1.55 °

Well	PA 524-24, B14			
Well Position	+N/-S	13.64 usft	Northing:	1,615,197.65 usft
	+E/-W	101.99 usft	Easting:	2,308,830.50 usft
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft
			Ground Level:	5,224.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/23/2017	9.45	65.82	51,743

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	8.23

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,416.29	30.49	8.23	1,369.00	261.36	37.78	3.00	3.00	0.00	8.23	
4,759.54	30.49	8.23	4,249.98	1,940.18	280.45	0.00	0.00	0.00	0.00	
6,792.13	0.00	0.00	6,187.99	2,462.90	356.01	1.50	-1.50	0.00	180.00	
8,592.12	0.00	0.00	7,987.98	2,462.90	356.01	0.00	0.00	0.00	0.00	PBHL (PA 524-24)

Database:	Grand Junction District	Local Co-ordinate Reference:	Well PA 524-24
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5247.99usft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5247.99usft (Original Well Elev)
Site:	PA 22-25 Pad	North Reference:	True
Well:	PA 524-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (PA 524-24)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	3.00	8.23	499.95	2.59	0.37	2.62	3.00	3.00	0.00
600.00	6.00	8.23	599.63	10.35	1.50	10.46	3.00	3.00	0.00
700.00	9.00	8.23	698.77	23.27	3.36	23.51	3.00	3.00	0.00
800.00	12.00	8.23	797.08	41.31	5.97	41.74	3.00	3.00	0.00
900.00	15.00	8.23	894.31	64.41	9.31	65.08	3.00	3.00	0.00
1,000.00	18.00	8.23	990.18	92.51	13.37	93.48	3.00	3.00	0.00
1,100.00	21.00	8.23	1,084.43	125.55	18.15	126.85	3.00	3.00	0.00
9 5/8" @ 1100' MD									
1,200.00	24.00	8.23	1,176.81	163.42	23.62	165.12	3.00	3.00	0.00
1,300.00	27.00	8.23	1,267.06	206.02	29.78	208.16	3.00	3.00	0.00
1,400.00	30.00	8.23	1,354.93	253.24	36.61	255.87	3.00	3.00	0.00
1,416.29	30.49	8.23	1,369.00	261.36	37.78	264.08	3.00	3.00	0.00
1,500.00	30.49	8.23	1,441.14	303.40	43.86	306.55	0.00	0.00	0.00
1,600.00	30.49	8.23	1,527.31	353.61	51.11	357.29	0.00	0.00	0.00
1,700.00	30.49	8.23	1,613.48	403.83	58.37	408.02	0.00	0.00	0.00
1,800.00	30.49	8.23	1,699.66	454.04	65.63	458.76	0.00	0.00	0.00
1,900.00	30.49	8.23	1,785.83	504.26	72.89	509.50	0.00	0.00	0.00
2,000.00	30.49	8.23	1,872.00	554.47	80.15	560.23	0.00	0.00	0.00
2,100.00	30.49	8.23	1,958.18	604.69	87.41	610.97	0.00	0.00	0.00
2,200.00	30.49	8.23	2,044.35	654.90	94.66	661.71	0.00	0.00	0.00
2,300.00	30.49	8.23	2,130.52	705.12	101.92	712.44	0.00	0.00	0.00
2,400.00	30.49	8.23	2,216.69	755.33	109.18	763.18	0.00	0.00	0.00
2,500.00	30.49	8.23	2,302.87	805.55	116.44	813.92	0.00	0.00	0.00
2,600.00	30.49	8.23	2,389.04	855.76	123.70	864.66	0.00	0.00	0.00
2,700.00	30.49	8.23	2,475.21	905.98	130.96	915.39	0.00	0.00	0.00
2,800.00	30.49	8.23	2,561.39	956.19	138.22	966.13	0.00	0.00	0.00
2,900.00	30.49	8.23	2,647.56	1,006.41	145.47	1,016.87	0.00	0.00	0.00
3,000.00	30.49	8.23	2,733.73	1,056.62	152.73	1,067.60	0.00	0.00	0.00
3,100.00	30.49	8.23	2,819.90	1,106.84	159.99	1,118.34	0.00	0.00	0.00
3,200.00	30.49	8.23	2,906.08	1,157.05	167.25	1,169.08	0.00	0.00	0.00
3,300.00	30.49	8.23	2,992.25	1,207.27	174.51	1,219.81	0.00	0.00	0.00
3,400.00	30.49	8.23	3,078.42	1,257.48	181.77	1,270.55	0.00	0.00	0.00
3,500.00	30.49	8.23	3,164.60	1,307.70	189.02	1,321.29	0.00	0.00	0.00
3,600.00	30.49	8.23	3,250.77	1,357.91	196.28	1,372.02	0.00	0.00	0.00
3,700.00	30.49	8.23	3,336.94	1,408.13	203.54	1,422.76	0.00	0.00	0.00
3,800.00	30.49	8.23	3,423.11	1,458.34	210.80	1,473.50	0.00	0.00	0.00
3,900.00	30.49	8.23	3,509.29	1,508.56	218.06	1,524.23	0.00	0.00	0.00
4,000.00	30.49	8.23	3,595.46	1,558.77	225.32	1,574.97	0.00	0.00	0.00
4,100.00	30.49	8.23	3,681.63	1,608.99	232.58	1,625.71	0.00	0.00	0.00
4,200.00	30.49	8.23	3,767.81	1,659.20	239.83	1,676.45	0.00	0.00	0.00
4,300.00	30.49	8.23	3,853.98	1,709.42	247.09	1,727.18	0.00	0.00	0.00
4,400.00	30.49	8.23	3,940.15	1,759.63	254.35	1,777.92	0.00	0.00	0.00
4,500.00	30.49	8.23	4,026.32	1,809.85	261.61	1,828.66	0.00	0.00	0.00
4,600.00	30.49	8.23	4,112.50	1,860.06	268.87	1,879.39	0.00	0.00	0.00
4,700.00	30.49	8.23	4,198.67	1,910.28	276.13	1,930.13	0.00	0.00	0.00
4,759.54	30.49	8.23	4,249.98	1,940.18	280.45	1,960.34	0.00	0.00	0.00
4,800.00	29.88	8.23	4,284.95	1,960.31	283.36	1,980.68	1.50	-1.50	0.00
4,832.26	29.40	8.23	4,312.99	1,976.10	285.64	1,996.64	1.50	-1.50	0.00

Database:	Grand Junction District	Local Co-ordinate Reference:	Well PA 524-24
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5247.99usft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5247.99usft (Original Well Elev)
Site:	PA 22-25 Pad	North Reference:	True
Well:	PA 524-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Ohio Creek									
4,900.00	28.38	8.23	4,372.30	2,008.49	290.32	2,029.36	1.50	-1.50	0.00
4,917.81	28.11	8.23	4,387.99	2,016.83	291.53	2,037.79	1.50	-1.50	0.00
Upper MVRD									
5,000.00	26.88	8.23	4,460.89	2,054.39	296.96	2,075.74	1.50	-1.50	0.00
5,097.18	25.42	8.23	4,548.12	2,096.78	303.09	2,118.57	1.50	-1.50	0.00
PA 524-24 MVRD									
5,100.00	25.38	8.23	4,550.67	2,097.98	303.26	2,119.78	1.50	-1.50	0.00
5,200.00	23.88	8.23	4,641.56	2,139.23	309.22	2,161.46	1.50	-1.50	0.00
5,300.00	22.38	8.23	4,733.52	2,178.11	314.84	2,200.74	1.50	-1.50	0.00
5,400.00	20.88	8.23	4,826.48	2,214.59	320.11	2,237.61	1.50	-1.50	0.00
5,500.00	19.38	8.23	4,920.36	2,248.65	325.04	2,272.02	1.50	-1.50	0.00
5,600.00	17.88	8.23	5,015.12	2,280.27	329.61	2,303.97	1.50	-1.50	0.00
5,700.00	16.38	8.23	5,110.68	2,309.43	333.82	2,333.43	1.50	-1.50	0.00
5,800.00	14.88	8.23	5,206.98	2,336.09	337.68	2,360.37	1.50	-1.50	0.00
5,900.00	13.38	8.23	5,303.95	2,360.26	341.17	2,384.79	1.50	-1.50	0.00
6,000.00	11.88	8.23	5,401.53	2,381.90	344.30	2,406.66	1.50	-1.50	0.00
6,100.00	10.38	8.23	5,499.64	2,401.01	347.06	2,425.96	1.50	-1.50	0.00
6,138.95	9.80	8.23	5,537.99	2,407.76	348.04	2,432.79	1.50	-1.50	0.00
Top of Gas									
6,200.00	8.88	8.23	5,598.23	2,417.57	349.45	2,442.69	1.50	-1.50	0.00
6,300.00	7.38	8.23	5,697.22	2,431.57	351.48	2,456.84	1.50	-1.50	0.00
6,400.00	5.88	8.23	5,796.55	2,443.00	353.13	2,468.39	1.50	-1.50	0.00
6,500.00	4.38	8.23	5,896.15	2,451.85	354.41	2,477.33	1.50	-1.50	0.00
6,600.00	2.88	8.23	5,995.94	2,458.12	355.32	2,483.67	1.50	-1.50	0.00
6,700.00	1.38	8.23	6,095.87	2,461.80	355.85	2,487.39	1.50	-1.50	0.00
6,792.13	0.00	0.00	6,187.99	2,462.90	356.01	2,488.50	1.50	-1.50	0.00
6,800.00	0.00	0.00	6,195.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
6,900.00	0.00	0.00	6,295.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,000.00	0.00	0.00	6,395.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,100.00	0.00	0.00	6,495.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,200.00	0.00	0.00	6,595.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,300.00	0.00	0.00	6,695.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,400.00	0.00	0.00	6,795.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,442.12	0.00	0.00	6,837.99	2,462.90	356.01	2,488.50	0.00	0.00	0.00
Cameo									
7,500.00	0.00	0.00	6,895.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,600.00	0.00	0.00	6,995.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,700.00	0.00	0.00	7,095.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,800.00	0.00	0.00	7,195.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
7,900.00	0.00	0.00	7,295.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
8,000.00	0.00	0.00	7,395.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
8,100.00	0.00	0.00	7,495.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
8,200.00	0.00	0.00	7,595.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
8,300.00	0.00	0.00	7,695.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
8,400.00	0.00	0.00	7,795.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
8,442.12	0.00	0.00	7,837.98	2,462.90	356.01	2,488.50	0.00	0.00	0.00
RLNS									
8,500.00	0.00	0.00	7,895.86	2,462.90	356.01	2,488.50	0.00	0.00	0.00
8,592.12	0.00	0.00	7,987.98	2,462.90	356.01	2,488.50	0.00	0.00	0.00
PA 524-24 PBHL - PBHL (PA 524-24)									

Database:	Grand Junction District	Local Co-ordinate Reference:	Well PA 524-24
Company:	TEP Rocky Mountain LLC	TVD Reference:	WELL @ 5247.99usft (Original Well Elev)
Project:	Garfield County, CO NAD83	MD Reference:	WELL @ 5247.99usft (Original Well Elev)
Site:	PA 22-25 Pad	North Reference:	True
Well:	PA 524-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL (PA 524-24)	0.00	0.00	0.00	-3.31	-4.53	1,615,194.47	2,308,825.88	39.4969025	-107.9495592
- plan misses target center by 5.61usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
PBHL (PA 524-24)	0.00	0.00	7,987.98	2,462.90	356.01	1,617,650.06	2,309,252.78	39.5036734	-107.9482814
- plan hits target center									
- Circle (radius 50.00)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.00	1,084.43	9 5/8" @ 1100' MD	9.62	13.50	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,832.26	4,313.00	Ohio Creek		0.00		
4,917.81	4,388.00	Upper MVRD		0.00		
6,138.95	5,538.00	Top of Gas		0.00		
7,442.12	6,838.00	Cameo		0.00		
8,442.12	7,837.99	RLNS		0.00		