





# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**RWF 13-19 Pad**

**PA 432-24 - Slot PA 432-24 (B2)**

**OH**

**Plan: Plan #1 23May2018 mmsdi**

## **Standard Planning Report**

**04 June, 2018**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well PA 432-24 - Slot PA 432-24 (B2)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5733' & RKB 24' @ 5757.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5733' & RKB 24' @ 5757.00usft
<b>Site:</b>	RWF 13-19 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 432-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 23May2018 mmsdi		

<b>Project</b>	Garfield County, CO NAD83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

Site		RWF 13-19 Pad			
Site Position:		Northing:	1,618,792.50 usft	Latitude:	39.5070510
From:	Map	Easting:	2,312,535.60 usft	Longitude:	-107.9367600
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.54 °

Well	PA 432-24 - Slot PA 432-24 (B2)					
Well Position	+N/-S	7.62 usft	Northing:	1,618,800.90 usft	Latitude:	39.5070719
	+E/-W	-29.01 usft	Easting:	2,312,506.80 usft	Longitude:	-107.9368628
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,733.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	5/23/2018	9.38	65.77	51,610

<b>Design</b>	Plan #1 23May2018 mmsdi			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	298.53

<b>Plan Sections</b>										
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	
135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	0.00	
235.00	3.00	270.00	234.95	0.00	-2.62	3.00	3.00	0.00	270.00	
310.00	3.00	270.00	309.85	0.00	-6.54	0.00	0.00	0.00	0.00	
1,412.39	35.67	298.91	1,336.74	159.85	-325.65	3.00	2.96	2.62	31.11	
4,078.49	35.67	298.91	3,502.66	911.44	-1,686.56	0.00	0.00	0.00	0.00	
6,456.50	0.00	0.00	5,730.00	1,257.89	-2,313.87	1.50	-1.50	0.00	180.00	PA 432-24 KMV
9,239.50	0.00	0.00	8,513.00	1,257.89	-2,313.87	0.00	0.00	0.00	0.00	PA 432-24 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well PA 432-24 - Slot PA 432-24 (B2)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5733' & RKB 24' @ 5757.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5733' & RKB 24' @ 5757.00usft
<b>Site:</b>	RWF 13-19 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 432-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 23May2018 mmsdi		

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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 3.00</b>									
200.00	1.95	270.00	199.99	0.00	-1.11	0.97	3.00	3.00	0.00
235.00	3.00	270.00	234.95	0.00	-2.62	2.30	3.00	3.00	0.00
<b>Start 75.00 hold at 235.00 MD</b>									
300.00	3.00	270.00	299.87	0.00	-6.02	5.29	0.00	0.00	0.00
310.00	3.00	270.00	309.85	0.00	-6.54	5.75	0.00	0.00	0.00
<b>Start DLS 3.00 TFO 31.11</b>									
400.00	5.49	284.73	399.60	1.10	-13.06	12.00	3.00	2.77	16.37
500.00	8.41	290.53	498.86	4.88	-24.54	23.89	3.00	2.92	5.80
600.00	11.37	293.34	597.36	11.35	-40.45	40.96	3.00	2.96	2.81
700.00	14.35	295.00	694.84	20.50	-60.74	63.16	3.00	2.98	1.66
800.00	17.34	296.10	791.03	32.30	-85.36	90.42	3.00	2.99	1.10
900.00	20.33	296.88	885.66	46.71	-114.24	122.67	3.00	2.99	0.78
1,000.00	23.32	297.47	978.49	63.69	-147.30	159.83	3.00	2.99	0.59
1,100.00	26.31	297.93	1,069.25	83.21	-184.44	201.79	3.00	2.99	0.46
<b>9 5/8" Casing @ 1100' MD</b>									
1,200.00	29.31	298.31	1,157.69	105.21	-225.58	248.44	3.00	2.99	0.37
1,300.00	32.30	298.62	1,243.57	129.61	-270.59	299.64	3.00	3.00	0.31
1,400.00	35.30	298.88	1,326.66	156.37	-319.36	355.26	3.00	3.00	0.26
1,412.39	35.67	298.91	1,336.74	159.85	-325.65	362.45	3.00	3.00	0.24
<b>Start 2666.11 hold at 1412.39 MD</b>									
1,500.00	35.67	298.91	1,407.92	184.55	-370.38	413.54	0.00	0.00	0.00
1,600.00	35.67	298.91	1,489.16	212.74	-421.42	471.85	0.00	0.00	0.00
1,700.00	35.67	298.91	1,570.40	240.93	-472.46	530.16	0.00	0.00	0.00
1,800.00	35.67	298.91	1,651.64	269.12	-523.51	588.47	0.00	0.00	0.00
1,900.00	35.67	298.91	1,732.87	297.31	-574.55	646.78	0.00	0.00	0.00
2,000.00	35.67	298.91	1,814.11	325.50	-625.60	705.09	0.00	0.00	0.00
2,100.00	35.67	298.91	1,895.35	353.69	-676.64	763.41	0.00	0.00	0.00
2,200.00	35.67	298.91	1,976.59	381.88	-727.69	821.72	0.00	0.00	0.00
2,300.00	35.67	298.91	2,057.83	410.07	-778.73	880.03	0.00	0.00	0.00
2,400.00	35.67	298.91	2,139.07	438.26	-829.78	938.34	0.00	0.00	0.00
2,500.00	35.67	298.91	2,220.31	466.45	-880.82	996.65	0.00	0.00	0.00
2,600.00	35.67	298.91	2,301.55	494.64	-931.87	1,054.96	0.00	0.00	0.00
2,700.00	35.67	298.91	2,382.78	522.83	-982.91	1,113.27	0.00	0.00	0.00
2,800.00	35.67	298.91	2,464.02	551.03	-1,033.95	1,171.58	0.00	0.00	0.00
2,840.59	35.67	298.91	2,497.00	562.47	-1,054.67	1,195.25	0.00	0.00	0.00
<b>GSAND</b>									
2,900.00	35.67	298.91	2,545.26	579.22	-1,085.00	1,229.89	0.00	0.00	0.00
2,902.14	35.67	298.91	2,547.00	579.82	-1,086.09	1,231.14	0.00	0.00	0.00
<b>GSAND BASE</b>									
3,000.00	35.67	298.91	2,626.50	607.41	-1,136.04	1,288.20	0.00	0.00	0.00
3,100.00	35.67	298.91	2,707.74	635.60	-1,187.09	1,346.51	0.00	0.00	0.00
3,200.00	35.67	298.91	2,788.98	663.79	-1,238.13	1,404.82	0.00	0.00	0.00
3,300.00	35.67	298.91	2,870.22	691.98	-1,289.18	1,463.13	0.00	0.00	0.00
3,400.00	35.67	298.91	2,951.46	720.17	-1,340.22	1,521.44	0.00	0.00	0.00
3,500.00	35.67	298.91	3,032.69	748.36	-1,391.27	1,579.75	0.00	0.00	0.00
3,600.00	35.67	298.91	3,113.93	776.55	-1,442.31	1,638.06	0.00	0.00	0.00
3,700.00	35.67	298.91	3,195.17	804.74	-1,493.36	1,696.37	0.00	0.00	0.00
3,800.00	35.67	298.91	3,276.41	832.93	-1,544.40	1,754.68	0.00	0.00	0.00
3,900.00	35.67	298.91	3,357.65	861.12	-1,595.44	1,812.99	0.00	0.00	0.00

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<b>Well:</b>	PA 432-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 23May2018 mmsdi		

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)
4,000.00	35.67	298.91	3,438.89	889.31	-1,646.49	1,871.30	0.00	0.00	0.00
4,078.49	35.67	298.91	3,502.66	911.44	-1,686.56	1,917.07	0.00	0.00	0.00
<b>Start Drop -1.50</b>									
4,100.00	35.35	298.91	3,520.16	917.48	-1,697.49	1,929.57	1.50	-1.50	0.00
4,200.00	33.85	298.91	3,602.48	944.93	-1,747.19	1,986.34	1.50	-1.50	0.00
4,300.00	32.35	298.91	3,686.25	971.33	-1,794.99	2,040.95	1.50	-1.50	0.00
4,400.00	30.85	298.91	3,771.42	996.66	-1,840.86	2,093.34	1.50	-1.50	0.00
4,500.00	29.35	298.91	3,857.94	1,020.90	-1,884.75	2,143.48	1.50	-1.50	0.00
4,600.00	27.85	298.91	3,945.73	1,044.04	-1,926.65	2,191.35	1.50	-1.50	0.00
4,700.00	26.35	298.91	4,034.75	1,066.06	-1,966.52	2,236.90	1.50	-1.50	0.00
4,800.00	24.85	298.91	4,124.94	1,086.95	-2,004.34	2,280.10	1.50	-1.50	0.00
4,900.00	23.35	298.91	4,216.22	1,106.69	-2,040.08	2,320.92	1.50	-1.50	0.00
5,000.00	21.85	298.91	4,308.54	1,125.26	-2,073.72	2,359.35	1.50	-1.50	0.00
5,100.00	20.35	298.91	4,401.83	1,142.66	-2,105.23	2,395.34	1.50	-1.50	0.00
5,200.00	18.85	298.91	4,496.04	1,158.88	-2,134.59	2,428.88	1.50	-1.50	0.00
5,300.00	17.35	298.91	4,591.09	1,173.90	-2,161.78	2,459.94	1.50	-1.50	0.00
5,400.00	15.85	298.91	4,686.92	1,187.71	-2,186.78	2,488.51	1.50	-1.50	0.00
5,500.00	14.35	298.91	4,783.46	1,200.30	-2,209.58	2,514.55	1.50	-1.50	0.00
5,580.85	13.13	298.91	4,862.00	1,209.58	-2,226.39	2,533.76	1.50	-1.50	0.00
<b>MVRD</b>									
5,600.00	12.85	298.91	4,880.66	1,211.66	-2,230.16	2,538.06	1.50	-1.50	0.00
5,700.00	11.35	298.91	4,978.44	1,221.79	-2,248.51	2,559.02	1.50	-1.50	0.00
5,800.00	9.85	298.91	5,076.73	1,230.69	-2,264.61	2,577.41	1.50	-1.50	0.00
5,900.00	8.35	298.91	5,175.47	1,238.33	-2,278.45	2,593.22	1.50	-1.50	0.00
6,000.00	6.85	298.91	5,274.59	1,244.72	-2,290.02	2,606.44	1.50	-1.50	0.00
6,100.00	5.35	298.91	5,374.02	1,249.86	-2,299.32	2,617.06	1.50	-1.50	0.00
6,200.00	3.85	298.91	5,473.69	1,253.73	-2,306.33	2,625.07	1.50	-1.50	0.00
6,300.00	2.35	298.91	5,573.54	1,256.34	-2,311.06	2,630.48	1.50	-1.50	0.00
6,400.00	0.85	298.91	5,673.50	1,257.69	-2,313.50	2,633.27	1.50	-1.50	0.00
6,456.50	0.00	0.00	5,730.00	1,257.89	-2,313.87	2,633.68	1.50	-1.50	0.00
<b>Start 2783.00 hold at 6456.50 MD - KMGAS - PA 432-24 KMV</b>									
6,500.00	0.00	0.00	5,773.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
6,600.00	0.00	0.00	5,873.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
6,700.00	0.00	0.00	5,973.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
6,800.00	0.00	0.00	6,073.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
6,900.00	0.00	0.00	6,173.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,000.00	0.00	0.00	6,273.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,100.00	0.00	0.00	6,373.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,200.00	0.00	0.00	6,473.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,300.00	0.00	0.00	6,573.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,400.00	0.00	0.00	6,673.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,500.00	0.00	0.00	6,773.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,600.00	0.00	0.00	6,873.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,700.00	0.00	0.00	6,973.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,800.00	0.00	0.00	7,073.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
7,900.00	0.00	0.00	7,173.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
8,000.00	0.00	0.00	7,273.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
8,100.00	0.00	0.00	7,373.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
8,200.00	0.00	0.00	7,473.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
8,300.00	0.00	0.00	7,573.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
8,400.00	0.00	0.00	7,673.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
8,500.00	0.00	0.00	7,773.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
8,600.00	0.00	0.00	7,873.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00

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<b>Well:</b>	PA 432-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 23May2018 mmsdi		

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)
8,636.50	0.00	0.00	7,910.00	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
<b>CMEO</b>									
8,700.00	0.00	0.00	7,973.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
8,800.00	0.00	0.00	8,073.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
8,900.00	0.00	0.00	8,173.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
9,000.00	0.00	0.00	8,273.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
9,094.50	0.00	0.00	8,368.00	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
<b>RLNS</b>									
9,100.00	0.00	0.00	8,373.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
9,200.00	0.00	0.00	8,473.50	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
9,239.50	0.00	0.00	8,513.00	1,257.89	-2,313.87	2,633.68	0.00	0.00	0.00
<b>TD at 9239.50 - TD - PA 432-24 PBHL</b>									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PA 432-24 KMV - plan hits target center - Circle (radius 50.00)	0.00	0.00	5,730.00	1,257.89	-2,313.87	1,620,120.40	2,310,227.50	39.5105251	-107.9450639
PA 432-24 PBHL - plan hits target center - Point	0.00	0.00	8,513.00	1,257.89	-2,313.87	1,620,120.40	2,310,227.50	39.5105251	-107.9450639

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.00	1,069.25	9 5/8" Casing @ 1100' MD	9.62	13.50	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,840.59	2,497.00	GSAND		0.00	0.00
2,902.14	2,547.00	GSAND BASE		0.00	0.00
5,580.85	4,862.00	MVRD		0.00	0.00
6,456.50	5,730.00	KMVGAS		0.00	0.00
8,636.50	7,910.00	CMEO		0.00	0.00
9,094.50	8,368.00	RLNS		0.00	0.00
9,239.50	8,513.00	TD		0.00	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well PA 432-24 - Slot PA 432-24 (B2)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5733' & RKB 24' @ 5757.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5733' & RKB 24' @ 5757.00usft
<b>Site:</b>	RWF 13-19 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 432-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 23May2018 mmsdi		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
135.00	135.00	0.00	0.00	Start Build 3.00	
235.00	234.95	0.00	-2.62	Start 75.00 hold at 235.00 MD	
310.00	309.85	0.00	-6.54	Start DLS 3.00 TFO 31.11	
1,412.39	1,336.74	159.85	-325.65	Start 2666.11 hold at 1412.39 MD	
4,078.49	3,502.66	911.44	-1,686.56	Start Drop -1.50	
6,456.50	5,730.00	1,257.89	-2,313.87	Start 2783.00 hold at 6456.50 MD	
9,239.50	8,513.00	1,257.89	-2,313.87	TD at 9239.50	