

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PA 413-24 BTV	5639.00	835.47	-2873.06	1619283.60	2307616.10	39.5080352	-107.9542360	Circle (Radius: 50.00)
- plan misses target center by 57.16usft at 6457.58usft MD (5648.54 TVD, 819.74 N, -2818.94 E)								
PA 413-24 PBHL	8195.00	835.47	-2873.06	1619283.60	2307616.10	39.5080352	-107.9542360	Point
- plan misses target center by 0.01usft at 9007.27usft MD (8195.00 TVD, 835.47 N, -2873.06 E)								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**PA 34-24 Pad**

**PA 413-24 - Slot PA 413-24 (B3)**

**OH**

**Plan: Plan #2 9Aug2018 mmsdi**

## **Standard Planning Report**

**13 August, 2018**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well PA 413-24 - Slot PA 413-24 (B3)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 5371.00usft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 5371.00usft (Original Well Elev)
<b>Site:</b>	PA 34-24 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 413-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 9Aug2018 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		

<b>Site</b>	PA 34-24 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,618,371.20 usft	<b>Latitude:</b> 39.5057421
<b>From:</b> Map		<b>Easting:</b>	2,310,465.70 usft	<b>Longitude:</b> -107.9440532
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in	<b>Grid Convergence:</b> -1.54 °

<b>Well</b>	PA 413-24 - Slot PA 413-24 (B3)			
<b>Well Position</b>	<b>+N/-S</b>	-0.05 usft	<b>Northing:</b>	1,618,371.15 usft
	<b>+E/-W</b>	-0.05 usft	<b>Easting:</b>	2,310,465.65 usft
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft
			<b>Ground Level:</b>	5,371.00 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	8/9/2018	9.37	65.77	51,591

<b>Design</b>	Plan #2 9Aug2018 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	286.21

<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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,254.92	34.05	286.21	1,189.30	91.42	-314.38	3.00	3.00	0.00	286.21	
4,844.71	34.05	286.21	4,163.69	652.63	-2,244.30	0.00	0.00	0.00	0.00	
6,447.89	10.00	286.21	5,639.00	819.27	-2,817.34	1.50	-1.50	0.00	180.00	
7,114.56	0.00	0.00	6,302.29	835.47	-2,873.06	1.50	-1.50	0.00	180.00	
9,007.27	0.00	0.00	8,195.00	835.47	-2,873.06	0.00	0.00	0.00	0.00	PA 413-24 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well PA 413-24 - Slot PA 413-24 (B3)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 5371.00usft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 5371.00usft (Original Well Elev)
<b>Site:</b>	PA 34-24 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 413-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 9Aug2018 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
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 3.00</b>									
200.00	2.40	286.21	199.98	0.47	-1.61	1.68	3.00	3.00	0.00
300.00	5.40	286.21	299.73	2.37	-8.14	8.48	3.00	3.00	0.00
400.00	8.40	286.21	399.00	5.72	-19.67	20.49	3.00	3.00	0.00
500.00	11.40	286.21	497.50	10.52	-36.18	37.68	3.00	3.00	0.00
600.00	14.40	286.21	594.96	16.75	-57.62	60.00	3.00	3.00	0.00
700.00	17.40	286.21	691.13	24.40	-83.92	87.39	3.00	3.00	0.00
800.00	20.40	286.21	785.72	33.45	-115.02	119.78	3.00	3.00	0.00
900.00	23.40	286.21	878.50	43.86	-150.83	157.08	3.00	3.00	0.00
1,000.00	26.40	286.21	969.19	55.62	-191.25	199.18	3.00	3.00	0.00
1,100.00	29.40	286.21	1,057.56	68.68	-236.18	245.96	3.00	3.00	0.00
<b>9 5/8" Casing @ 1100' MD</b>									
1,200.00	32.40	286.21	1,143.35	83.02	-285.49	297.31	3.00	3.00	0.00
1,254.92	34.05	286.21	1,189.30	91.42	-314.38	327.40	3.00	3.00	0.00
<b>Start 3589.78 hold at 1254.92 MD</b>									
1,300.00	34.05	286.21	1,226.65	98.47	-338.62	352.64	0.00	0.00	0.00
1,400.00	34.05	286.21	1,309.50	114.10	-392.38	408.63	0.00	0.00	0.00
1,500.00	34.05	286.21	1,392.36	129.73	-446.14	464.62	0.00	0.00	0.00
1,600.00	34.05	286.21	1,475.22	145.37	-499.90	520.61	0.00	0.00	0.00
1,700.00	34.05	286.21	1,558.08	161.00	-553.66	576.59	0.00	0.00	0.00
1,800.00	34.05	286.21	1,640.93	176.64	-607.42	632.58	0.00	0.00	0.00
1,900.00	34.05	286.21	1,723.79	192.27	-661.18	688.57	0.00	0.00	0.00
2,000.00	34.05	286.21	1,806.65	207.90	-714.94	744.56	0.00	0.00	0.00
2,100.00	34.05	286.21	1,889.50	223.54	-768.71	800.55	0.00	0.00	0.00
2,200.00	34.05	286.21	1,972.36	239.17	-822.47	856.54	0.00	0.00	0.00
2,300.00	34.05	286.21	2,055.22	254.80	-876.23	912.52	0.00	0.00	0.00
2,400.00	34.05	286.21	2,138.08	270.44	-929.99	968.51	0.00	0.00	0.00
2,500.00	34.05	286.21	2,220.93	286.07	-983.75	1,024.50	0.00	0.00	0.00
2,510.94	34.05	286.21	2,230.00	287.78	-989.63	1,030.63	0.00	0.00	0.00
<b>GSAND</b>									
2,595.43	34.05	286.21	2,300.00	300.99	-1,035.05	1,077.93	0.00	0.00	0.00
<b>GSAND Base</b>									
2,600.00	34.05	286.21	2,303.79	301.70	-1,037.51	1,080.49	0.00	0.00	0.00
2,700.00	34.05	286.21	2,386.65	317.34	-1,091.27	1,136.48	0.00	0.00	0.00
2,800.00	34.05	286.21	2,469.50	332.97	-1,145.04	1,192.47	0.00	0.00	0.00
2,900.00	34.05	286.21	2,552.36	348.60	-1,198.80	1,248.45	0.00	0.00	0.00
3,000.00	34.05	286.21	2,635.22	364.24	-1,252.56	1,304.44	0.00	0.00	0.00
3,100.00	34.05	286.21	2,718.08	379.87	-1,306.32	1,360.43	0.00	0.00	0.00
3,200.00	34.05	286.21	2,800.93	395.51	-1,360.08	1,416.42	0.00	0.00	0.00
3,300.00	34.05	286.21	2,883.79	411.14	-1,413.84	1,472.41	0.00	0.00	0.00
3,400.00	34.05	286.21	2,966.65	426.77	-1,467.60	1,528.40	0.00	0.00	0.00
3,500.00	34.05	286.21	3,049.50	442.41	-1,521.37	1,584.38	0.00	0.00	0.00
3,600.00	34.05	286.21	3,132.36	458.04	-1,575.13	1,640.37	0.00	0.00	0.00
3,700.00	34.05	286.21	3,215.22	473.67	-1,628.89	1,696.36	0.00	0.00	0.00
3,800.00	34.05	286.21	3,298.08	489.31	-1,682.65	1,752.35	0.00	0.00	0.00
3,900.00	34.05	286.21	3,380.93	504.94	-1,736.41	1,808.34	0.00	0.00	0.00
4,000.00	34.05	286.21	3,463.79	520.57	-1,790.17	1,864.33	0.00	0.00	0.00
4,100.00	34.05	286.21	3,546.65	536.21	-1,843.93	1,920.31	0.00	0.00	0.00
4,200.00	34.05	286.21	3,629.50	551.84	-1,897.69	1,976.30	0.00	0.00	0.00
4,300.00	34.05	286.21	3,712.36	567.47	-1,951.46	2,032.29	0.00	0.00	0.00
4,400.00	34.05	286.21	3,795.22	583.11	-2,005.22	2,088.28	0.00	0.00	0.00

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<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 5371.00usft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 5371.00usft (Original Well Elev)
<b>Site:</b>	PA 34-24 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 413-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 9Aug2018 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)
4,410.60	34.05	286.21	3,804.00	584.77	-2,010.92	2,094.21	0.00	0.00	0.00
<b>Lower Wasatch</b>									
4,500.00	34.05	286.21	3,878.08	598.74	-2,058.98	2,144.27	0.00	0.00	0.00
4,600.00	34.05	286.21	3,960.93	614.38	-2,112.74	2,200.26	0.00	0.00	0.00
4,700.00	34.05	286.21	4,043.79	630.01	-2,166.50	2,256.24	0.00	0.00	0.00
4,800.00	34.05	286.21	4,126.65	645.64	-2,220.26	2,312.23	0.00	0.00	0.00
4,844.71	34.05	286.21	4,163.69	652.63	-2,244.30	2,337.26	0.00	0.00	0.00
<b>Start Drop -1.50</b>									
4,900.00	33.22	286.21	4,209.73	661.18	-2,273.70	2,367.89	1.50	-1.50	0.00
5,000.00	31.72	286.21	4,294.09	676.17	-2,325.25	2,421.57	1.50	-1.50	0.00
5,100.00	30.22	286.21	4,379.84	690.54	-2,374.66	2,473.03	1.50	-1.50	0.00
5,200.00	28.72	286.21	4,466.90	704.28	-2,421.90	2,522.22	1.50	-1.50	0.00
5,237.65	28.15	286.21	4,500.00	709.28	-2,439.11	2,540.14	1.50	-1.50	0.00
<b>OCRK - MVRD - WRFK/UMVRD</b>									
5,300.00	27.22	286.21	4,555.21	717.37	-2,466.93	2,569.12	1.50	-1.50	0.00
5,400.00	25.72	286.21	4,644.73	729.82	-2,509.72	2,613.68	1.50	-1.50	0.00
5,500.00	24.22	286.21	4,735.38	741.60	-2,550.26	2,655.90	1.50	-1.50	0.00
5,600.00	22.72	286.21	4,827.11	752.72	-2,588.49	2,695.72	1.50	-1.50	0.00
5,700.00	21.22	286.21	4,919.84	763.17	-2,624.42	2,733.13	1.50	-1.50	0.00
5,800.00	19.72	286.21	5,013.53	772.93	-2,657.99	2,768.09	1.50	-1.50	0.00
5,900.00	18.22	286.21	5,108.09	782.01	-2,689.20	2,800.60	1.50	-1.50	0.00
6,000.00	16.72	286.21	5,203.48	790.39	-2,718.03	2,830.62	1.50	-1.50	0.00
6,100.00	15.22	286.21	5,299.62	798.07	-2,744.44	2,858.13	1.50	-1.50	0.00
6,200.00	13.72	286.21	5,396.44	805.05	-2,768.43	2,883.11	1.50	-1.50	0.00
6,300.00	12.22	286.21	5,493.89	811.31	-2,789.98	2,905.55	1.50	-1.50	0.00
6,400.00	10.72	286.21	5,591.89	816.87	-2,809.07	2,925.43	1.50	-1.50	0.00
6,447.89	10.00	286.21	5,639.00	819.27	-2,817.34	2,934.04	1.50	-1.50	0.00
<b>Start Drop -1.50 - KMGAS</b>									
6,457.58	9.85	286.21	5,648.54	819.74	-2,818.94	2,935.71	1.50	-1.50	0.00
<b>PA 413-24 BTV</b>									
6,500.00	9.22	286.21	5,690.38	821.70	-2,825.69	2,942.74	1.50	-1.50	0.00
6,600.00	7.72	286.21	5,789.29	825.81	-2,839.83	2,957.47	1.50	-1.50	0.00
6,700.00	6.22	286.21	5,888.54	829.20	-2,851.48	2,969.60	1.50	-1.50	0.00
6,800.00	4.72	286.21	5,988.09	831.86	-2,860.63	2,979.13	1.50	-1.50	0.00
6,900.00	3.22	286.21	6,087.84	833.79	-2,867.28	2,986.05	1.50	-1.50	0.00
7,000.00	1.72	286.21	6,187.75	834.99	-2,871.41	2,990.36	1.50	-1.50	0.00
7,100.00	0.22	286.21	6,287.73	835.47	-2,873.04	2,992.05	1.50	-1.50	0.00
7,114.56	0.00	0.00	6,302.29	835.47	-2,873.06	2,992.07	1.50	-1.50	0.00
<b>Start 1892.71 hold at 7114.56 MD</b>									
7,200.00	0.00	0.00	6,387.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
7,300.00	0.00	0.00	6,487.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
7,400.00	0.00	0.00	6,587.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
7,500.00	0.00	0.00	6,687.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
7,600.00	0.00	0.00	6,787.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
7,700.00	0.00	0.00	6,887.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
7,800.00	0.00	0.00	6,987.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
7,900.00	0.00	0.00	7,087.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
8,000.00	0.00	0.00	7,187.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
8,100.00	0.00	0.00	7,287.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
8,200.00	0.00	0.00	7,387.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
8,300.00	0.00	0.00	7,487.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
8,400.00	0.00	0.00	7,587.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
8,500.00	0.00	0.00	7,687.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well PA 413-24 - Slot PA 413-24 (B3)
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<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 5371.00usft (Original Well Elev)
<b>Site:</b>	PA 34-24 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 413-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 9Aug2018 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)
8,510.27	0.00	0.00	7,698.00	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
<b>CMEO</b>									
8,600.00	0.00	0.00	7,787.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
8,700.00	0.00	0.00	7,887.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
8,800.00	0.00	0.00	7,987.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
8,857.27	0.00	0.00	8,045.00	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
<b>RLNS</b>									
8,900.00	0.00	0.00	8,087.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
9,000.00	0.00	0.00	8,187.73	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
9,007.27	0.00	0.00	8,195.00	835.47	-2,873.06	2,992.07	0.00	0.00	0.00
<b>TD at 9007.27 - TD - PA 413-24 PBHL</b>									

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									
PA 413-24 BTV	0.00	0.00	5,639.00	835.47	-2,873.06	1,619,283.60	2,307,616.10	39.5080353	-107.9542360
- plan misses target center by 57.16usft at 6457.58usft MD (5648.54 TVD, 819.74 N, -2818.94 E)									
- Circle (radius 50.00)									
PA 413-24 PBHL	0.00	0.00	8,195.00	835.47	-2,873.06	1,619,283.60	2,307,616.10	39.5080353	-107.9542360
- plan misses target center by 0.01usft at 9007.27usft MD (8195.00 TVD, 835.47 N, -2873.06 E)									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,100.00	1,057.56	9 5/8" Casing @ 1100' MD	9.62	13.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,510.94	2,230.00	GSAND		0.00	0.00
2,595.43	2,300.00	GSAND Base		0.00	0.00
4,410.60	3,804.00	Lower Wasatch		0.00	0.00
5,237.65	4,500.00	OCRK		0.00	0.00
5,237.65	4,500.00	MVRD		0.00	0.00
5,237.65	4,500.00	WRFK/UMVRD		0.00	0.00
6,447.89	5,639.00	KMVGAS		0.00	0.00
8,510.27	7,698.00	CMEO		0.00	0.00
8,857.27	8,045.00	RLNS		0.00	0.00
9,007.27	8,195.00	TD		0.00	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well PA 413-24 - Slot PA 413-24 (B3)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	WELL @ 5371.00usft (Original Well Elev)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	WELL @ 5371.00usft (Original Well Elev)
<b>Site:</b>	PA 34-24 Pad	<b>North Reference:</b>	True
<b>Well:</b>	PA 413-24	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 9Aug2018 mmsdi		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.00	120.00	0.00	0.00	Start Build 3.00
1,254.92	1,189.30	91.42	-314.38	Start 3589.78 hold at 1254.92 MD
4,844.71	4,163.69	652.63	-2,244.30	Start Drop -1.50
6,447.89	5,639.00	819.27	-2,817.34	Start Drop -1.50
7,114.56	6,302.29	835.47	-2,873.06	Start 1892.71 hold at 7114.56 MD
9,007.27	8,195.00	835.47	-2,873.06	TD at 9007.27