

Project: Garfield Co., CO (NAD83)  
 Site: PA Pad  
 Well: PA 44-23  
 Wellbore: OH  
 Design: Plan #5  
 Lat: 39.499942  
 Long: -107.964151  
 GL: 5486.00  
 KB: KB=24' @ 5510.00usf (H&P 318)

## WELL DETAILS: PA 44-23

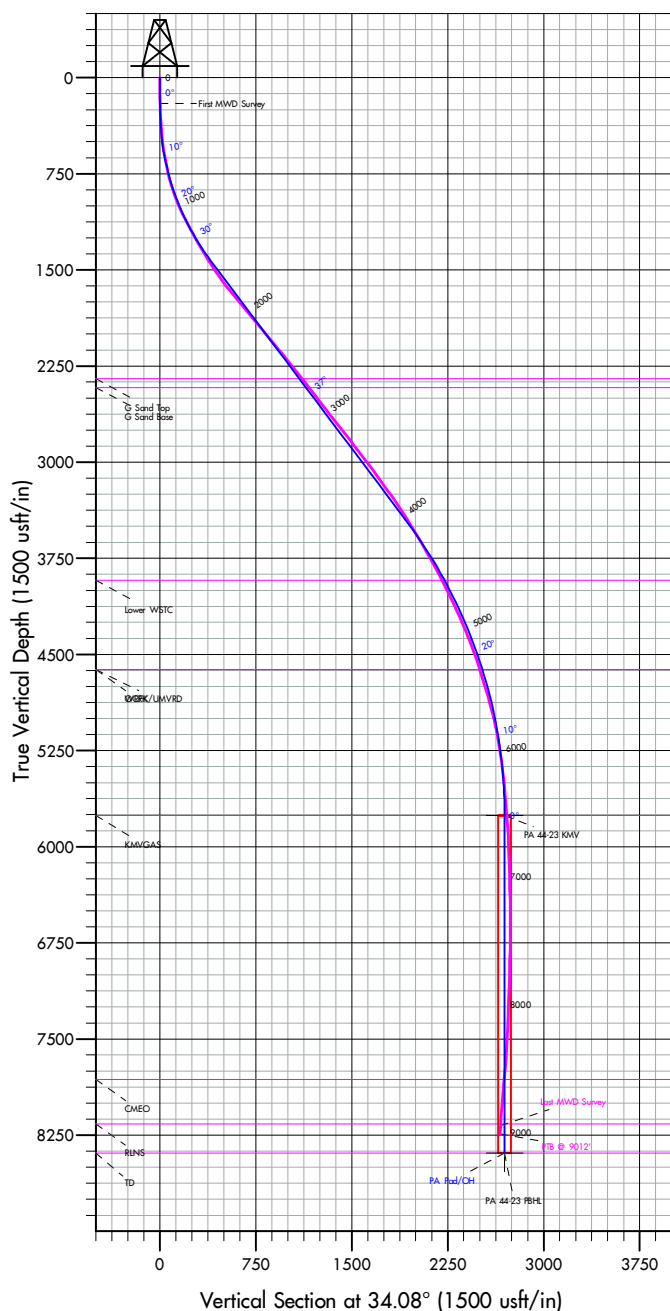
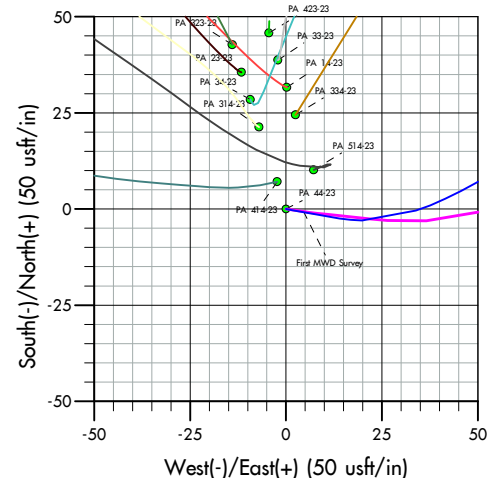
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1616412.70	2304739.60	39.499942	-107.964151

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PA 44-23 KMW	5757.00	2231.76	1509.63	1618602.70	2306309.20	Circle (Radius: 50.00)
PA 44-23 PBHL	8391.00	2231.76	1509.63	1618602.70	2306309.20	Point

## SECTION DETAILS

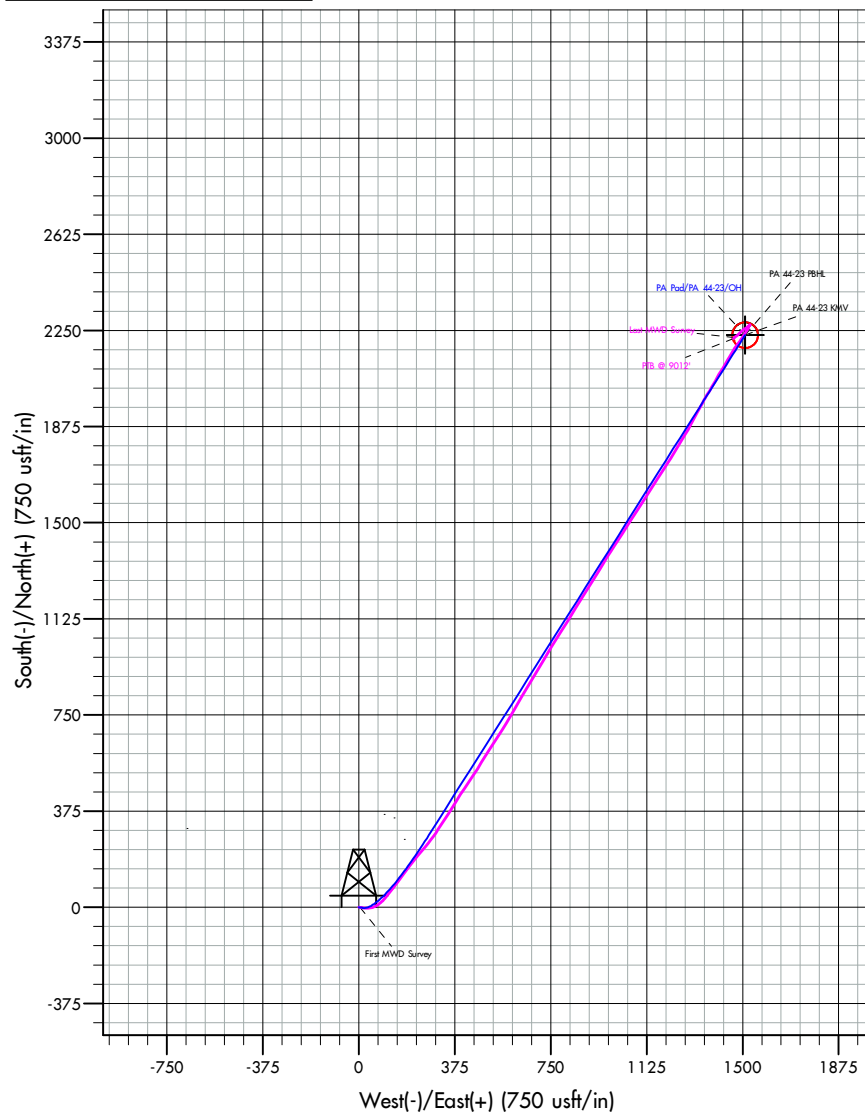
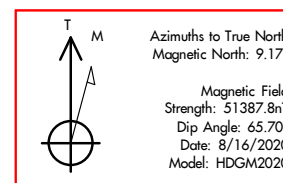
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	Start Build 3.00
353.33	7.00	100.00	352.75	-2.47	14.02	3.00	100.00	5.81	Start DLS 3.00 TFO -76.87
1514.70	36.98	32.36	1426.25	289.37	278.90	3.00	-76.87	395.95	Start 2544.86 hold at 1514.70 MD
4059.56	36.98	32.36	3459.09	1582.60	1098.30	0.00	0.00	1926.23	Start Drop -1.50
6525.15	0.00	0.00	5757.00	2231.76	1509.63	1.50	180.00	2694.39	Start 2634.00 hold at 6525.15 MD
9159.15	0.00	0.00	8391.00	2231.76	1509.63	0.00	0.00	2694.39	TD at 9159.15



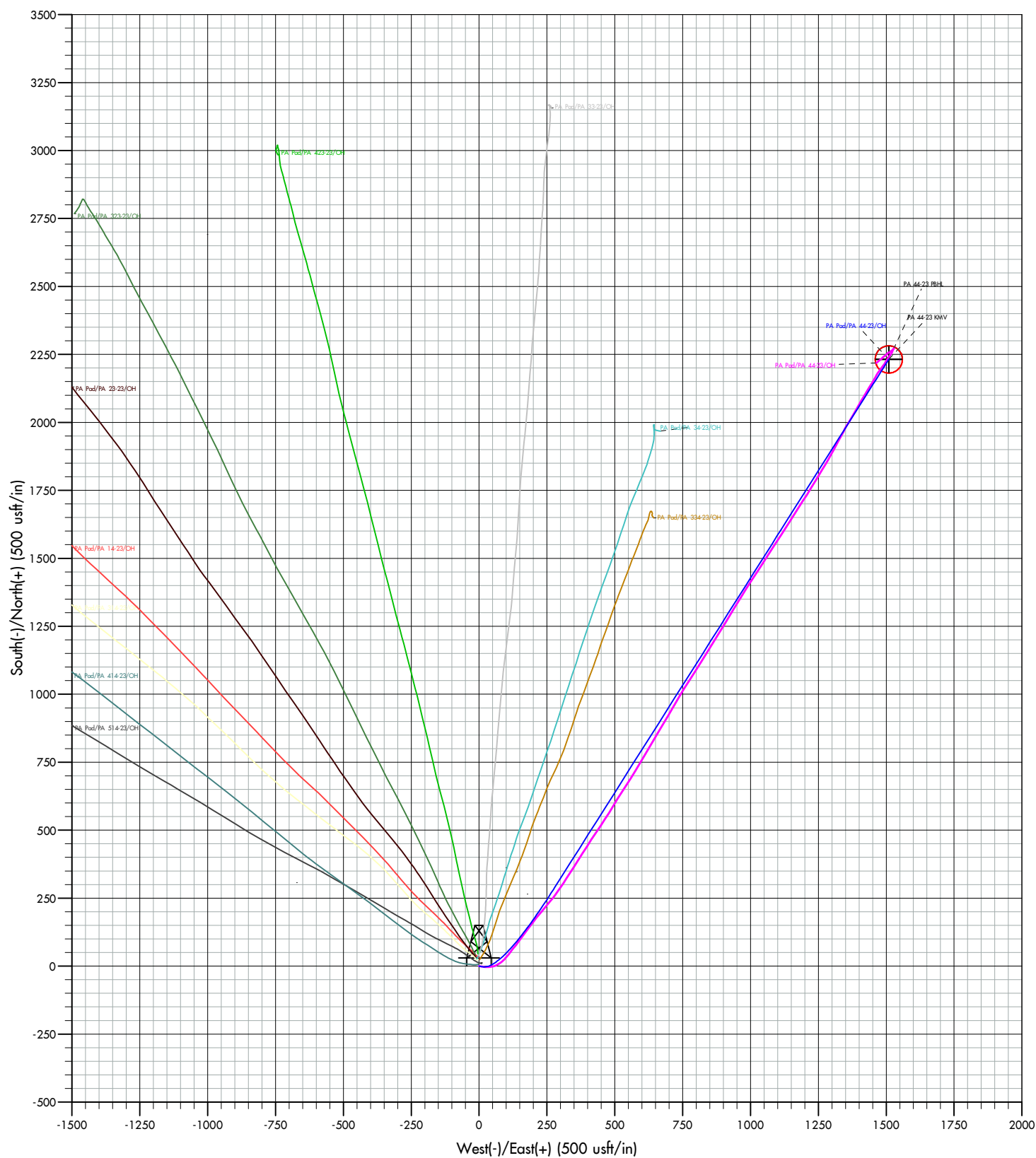
Vertical Section at 34.08° (1500 usf/in)

## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2348.00	2668.62	G Sand Top
2418.00	2756.25	G Sand Base
3922.00	4611.04	Lower WSTC
4618.00	5368.56	OCRK
4618.00	5368.56	WRFK/UMVRD
5757.00	6525.15	KMWGAS
7816.00	8584.15	CMEO
8163.00	8931.15	RLNS
8391.00	9159.15	TD











# ALTITUDE ENERGY PARTNERS LLC. SURVEY DATA CERTIFICATION

ALTITUDE JOB NUMBER				OPERATOR		
WELL NAME				COUNTY & STATE		
API WELL NUMBER					PROPOSED DIRECTION	
Latitude			Longitude			

TIE-IN DATA						
MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH		SURVEY INSTRUMENT TYPE MWD	
				MAGNETIC DECLINATION OR TOTAL GRID		
LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH	TOTAL CORRECTION USED		
				DECLINATION OR GRID		
PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH			

The data and calculations for this survey have been checked by me and conform to the calibration standards and operational procedures set forth by Altitude Energy Partners LLC. I am authorized and qualified to review the data, calculations and this report, and that the report represents a true and correct Directional Survey of this well based on the original data corrected to True North and obtained at the well site. Wellbore coordinates are calculated using Minimum curvature or other method.

PRINT MWD NAME ABOVE

SIGN MWD NAME ABOVE

TODAY'S DATE





# **TEP Rocky Mountain LLC**

**Garfield Co., CO (NAD83)**

**PA Pad**

**PA 44-23**

**OH**

**Design: OH**

## **Standard Survey Report**

**09 October, 2020**





<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well PA 44-23
<b>Project:</b>	Garfield Co., CO (NAD83)	<b>TVD Reference:</b>	KB=24' @ 5510.00usft (H&P 318)
<b>Site:</b>	PA Pad	<b>MD Reference:</b>	KB=24' @ 5510.00usft (H&P 318)
<b>Well:</b>	PA 44-23	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	Garfield Co., 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	PA Pad				
Site Position:		Northing:	1,616,444.30 usft	Latitude:	39.500029
From:	Map	Easting:	2,304,740.70 usft	Longitude:	-107.964151
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	

Well	PA 44-23					
Well Position	+N/-S	0.00 usft	Northing:	1,616,412.70 usft	Latitude:	39.499943
	+E/-W	0.00 usft	Easting:	2,304,739.60 usft	Longitude:	-107.964151
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,486.00 usft
Grid Convergence:	-1.55 °					

<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>
	HDGM2020	8/16/2020	9.17	65.70	51,387.80000000

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<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	34.08	

<b>Survey Program</b>	<b>Date</b>	10/9/2020			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
203.00	9,012.00	MWD Survey (OH)	MWD+ HGDM	OWSG MWD + HGDM	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
203.00	2.62	97.98	202.93	-0.64	4.60	2.04	1.29	1.29	0.00	
<b>First MWD Survey</b>										
293.00	5.44	96.16	292.70	-1.39	10.88	4.94	3.14	3.13	-2.02	
383.00	8.55	96.41	382.02	-2.59	21.77	10.05	3.46	3.46	0.28	
474.00	10.31	87.63	471.79	-3.01	36.63	18.03	2.49	1.93	-9.65	
564.00	11.23	74.55	560.22	-0.34	53.13	29.48	2.89	1.02	-14.53	
655.00	12.03	61.14	649.36	6.60	69.98	44.67	3.09	0.88	-14.74	
746.00	12.97	47.17	738.23	18.12	85.77	63.07	3.47	1.03	-15.35	
838.00	16.23	40.71	827.25	34.89	101.74	85.90	3.96	3.54	-7.02	



<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well PA 44-23
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<b>Site:</b>	PA Pad	<b>MD Reference:</b>	KB=24' @ 5510.00usft (H&P 318)
<b>Well:</b>	PA 44-23	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Single User Db

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)
932.00	20.12	38.39	916.54	57.53	120.35	115.08	4.21	4.14	-2.47
1,026.00	23.84	37.05	1,003.70	85.37	141.85	150.19	3.99	3.96	-1.43
1,064.00	25.24	36.63	1,038.26	98.00	151.31	165.95	3.71	3.68	-1.11
1,155.00	27.36	36.50	1,119.84	130.39	175.32	206.23	2.33	2.33	-0.14
1,249.00	28.34	37.48	1,202.95	165.46	201.75	250.08	1.15	1.04	1.04
1,343.00	30.16	40.39	1,284.96	201.15	230.63	295.83	2.46	1.94	3.10
1,437.00	30.99	39.60	1,365.90	237.78	261.36	343.39	0.98	0.88	-0.84
1,531.00	32.11	35.60	1,446.01	276.75	291.33	392.46	2.52	1.19	-4.26
1,625.00	34.39	32.22	1,524.62	319.53	320.03	443.98	3.12	2.43	-3.60
1,719.00	36.80	32.94	1,601.05	365.62	349.50	498.67	2.60	2.56	0.77
1,813.00	39.57	32.35	1,674.93	414.55	380.84	556.75	2.97	2.95	-0.63
1,907.00	40.21	33.66	1,747.06	465.10	413.68	617.02	1.12	0.68	1.39
2,001.00	39.29	33.84	1,819.33	515.08	447.07	677.13	0.99	-0.98	0.19
2,095.00	40.25	31.73	1,891.58	565.63	479.62	737.24	1.76	1.02	-2.24
2,189.00	39.13	32.24	1,963.91	616.55	511.41	797.23	1.24	-1.19	0.54
2,283.00	40.02	33.12	2,036.37	666.96	543.75	857.09	1.12	0.95	0.94
2,378.00	40.00	30.78	2,109.13	718.77	576.07	918.12	1.58	-0.02	-2.46
2,472.00	38.87	31.11	2,181.73	769.98	606.77	977.74	1.22	-1.20	0.35
2,566.00	39.52	30.52	2,254.58	821.00	637.19	1,037.05	0.80	0.69	-0.63
2,660.00	38.34	30.54	2,327.71	871.88	667.20	1,096.00	1.26	-1.26	0.02
2,754.00	37.35	31.16	2,401.93	921.39	696.77	1,153.58	1.13	-1.05	0.66
2,849.00	37.30	29.85	2,477.48	971.02	726.01	1,211.06	0.84	-0.05	-1.38
2,943.00	37.85	32.01	2,551.98	1,020.18	755.47	1,268.29	1.52	0.59	2.30
3,037.00	38.96	32.45	2,625.64	1,069.57	786.62	1,326.65	1.22	1.18	0.47
3,132.00	37.53	32.07	2,700.25	1,119.30	818.01	1,385.43	1.53	-1.51	-0.40
3,226.00	38.48	31.80	2,774.32	1,168.42	848.62	1,443.27	1.03	1.01	-0.29
3,321.00	37.16	32.13	2,849.36	1,217.84	879.46	1,501.48	1.41	-1.39	0.35
3,415.00	37.52	30.95	2,924.10	1,266.43	909.28	1,558.44	0.85	0.38	-1.26
3,510.00	37.86	32.42	2,999.28	1,315.85	939.79	1,616.46	1.01	0.36	1.55
3,604.00	36.22	30.80	3,074.31	1,364.06	969.47	1,673.03	2.03	-1.74	-1.72
3,698.00	36.00	33.32	3,150.25	1,411.00	998.87	1,728.38	1.60	-0.23	2.68
3,793.00	36.29	33.01	3,226.97	1,457.90	1,029.52	1,784.41	0.36	0.31	-0.33
3,887.00	34.87	33.28	3,303.42	1,503.70	1,059.43	1,839.09	1.52	-1.51	0.29
3,981.00	33.19	32.90	3,381.32	1,547.77	1,088.15	1,891.69	1.80	-1.79	-0.40
4,075.00	31.22	32.21	3,460.85	1,589.99	1,115.11	1,941.76	2.13	-2.10	-0.73
4,170.00	31.77	33.26	3,541.86	1,631.73	1,141.95	1,991.38	0.82	0.58	1.11
4,264.00	30.04	32.30	3,622.51	1,672.31	1,168.10	2,039.64	1.91	-1.84	-1.02
4,359.00	30.47	33.19	3,704.57	1,712.57	1,193.99	2,087.50	0.65	0.45	0.94
4,453.00	28.93	31.58	3,786.22	1,751.89	1,218.94	2,134.04	1.84	-1.64	-1.71
4,547.00	27.26	31.56	3,869.14	1,789.60	1,242.12	2,178.27	1.78	-1.78	-0.02
4,642.00	27.12	31.60	3,953.64	1,826.58	1,264.85	2,221.64	0.15	-0.15	0.04
4,736.00	26.13	29.67	4,037.67	1,862.82	1,286.33	2,263.68	1.40	-1.05	-2.05
4,830.00	25.26	28.42	4,122.38	1,898.44	1,306.12	2,304.28	1.09	-0.93	-1.33



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<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Single User Db

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)	
4,925.00	24.03	28.27	4,208.72	1,933.31	1,324.93	2,343.69	1.30	-1.29	-0.16	
5,019.00	23.14	28.00	4,294.87	1,966.47	1,342.66	2,381.10	0.95	-0.95	-0.29	
5,113.00	21.18	31.12	4,381.93	1,997.32	1,360.11	2,416.43	2.43	-2.09	3.32	
5,222.00	20.10	29.92	4,483.93	2,030.41	1,379.63	2,454.78	1.06	-0.99	-1.10	
5,301.00	18.59	29.88	4,558.47	2,053.10	1,392.68	2,480.88	1.91	-1.91	-0.05	
5,396.00	16.91	29.49	4,648.94	2,078.26	1,407.02	2,509.75	1.77	-1.77	-0.41	
5,490.00	17.23	31.97	4,738.80	2,101.97	1,421.12	2,537.29	0.85	0.34	2.64	
5,585.00	16.26	31.76	4,829.77	2,125.21	1,435.57	2,564.64	1.02	-1.02	-0.22	
5,679.00	14.89	30.30	4,920.32	2,146.83	1,448.60	2,589.85	1.52	-1.46	-1.55	
5,773.00	13.48	29.86	5,011.45	2,166.76	1,460.14	2,612.82	1.50	-1.50	-0.47	
5,868.00	10.94	35.84	5,104.30	2,183.67	1,470.94	2,632.88	2.98	-2.67	6.29	
5,962.00	9.46	35.75	5,196.81	2,197.17	1,480.67	2,649.52	1.57	-1.57	-0.10	
6,057.00	8.29	35.07	5,290.67	2,209.12	1,489.17	2,664.17	1.24	-1.23	-0.72	
6,151.00	7.14	33.87	5,383.82	2,219.51	1,496.32	2,676.79	1.24	-1.22	-1.28	
6,245.00	6.08	31.67	5,477.19	2,228.60	1,502.19	2,687.60	1.16	-1.13	-2.34	
6,339.00	5.40	33.59	5,570.72	2,236.52	1,507.25	2,697.00	0.75	-0.72	2.04	
6,434.00	4.52	33.26	5,665.36	2,243.38	1,511.78	2,705.21	0.93	-0.93	-0.35	
6,528.00	4.13	35.10	5,759.09	2,249.24	1,515.75	2,712.30	0.44	-0.41	1.96	
6,622.00	3.91	37.60	5,852.86	2,254.55	1,519.66	2,718.89	0.30	-0.23	2.66	
6,717.00	2.33	14.05	5,947.72	2,258.99	1,522.10	2,723.93	2.11	-1.66	-24.79	
6,811.00	2.15	14.85	6,041.65	2,262.55	1,523.02	2,727.39	0.19	-0.19	0.85	
6,906.00	1.71	17.33	6,136.60	2,265.62	1,523.90	2,730.43	0.47	-0.46	2.61	
7,000.00	1.54	28.22	6,230.56	2,268.08	1,524.91	2,733.03	0.37	-0.18	11.59	
7,095.00	1.20	31.29	6,325.53	2,270.05	1,526.03	2,735.30	0.37	-0.36	3.23	
7,189.00	0.91	39.81	6,419.52	2,271.47	1,527.02	2,737.02	0.35	-0.31	9.06	
7,283.00	0.34	49.96	6,513.51	2,272.22	1,527.71	2,738.03	0.62	-0.61	10.80	
7,377.00	0.03	220.99	6,607.51	2,272.38	1,527.91	2,738.28	0.39	-0.33	181.95	
7,472.00	0.40	157.87	6,702.51	2,272.05	1,528.02	2,738.07	0.41	0.39	-66.44	
7,566.00	0.84	199.66	6,796.50	2,271.10	1,527.91	2,737.22	0.64	0.47	44.46	
7,661.00	1.29	210.12	6,891.49	2,269.52	1,527.14	2,735.48	0.51	0.47	11.01	
7,755.00	1.43	233.20	6,985.46	2,267.90	1,525.67	2,733.31	0.60	0.15	24.55	
7,849.00	1.82	224.69	7,079.42	2,266.14	1,523.68	2,730.74	0.49	0.41	-9.05	
7,943.00	1.96	240.22	7,173.37	2,264.28	1,521.24	2,727.83	0.56	0.15	16.52	
8,038.00	2.07	238.10	7,268.31	2,262.57	1,518.37	2,724.80	0.14	0.12	-2.23	
8,132.00	2.60	241.19	7,362.24	2,260.64	1,515.06	2,721.35	0.58	0.56	3.29	
8,226.00	2.83	241.30	7,456.13	2,258.50	1,511.16	2,717.39	0.24	0.24	0.12	
8,321.00	3.30	230.93	7,550.99	2,255.65	1,506.98	2,712.69	0.76	0.49	-10.92	
8,415.00	4.58	226.23	7,644.77	2,251.35	1,502.16	2,706.43	1.40	1.36	-5.00	
8,509.00	5.64	231.60	7,738.40	2,245.88	1,495.83	2,698.36	1.24	1.13	5.71	
8,603.00	5.16	225.26	7,831.98	2,240.04	1,489.21	2,689.81	0.81	-0.51	-6.74	
8,698.00	4.77	229.68	7,926.62	2,234.47	1,483.17	2,681.81	0.57	-0.41	4.65	
8,791.00	4.43	232.39	8,019.32	2,229.78	1,477.37	2,674.68	0.43	-0.37	2.91	
8,885.00	4.25	230.04	8,113.05	2,225.33	1,471.83	2,667.88	0.27	-0.19	-2.50	



<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well PA 44-23
<b>Project:</b>	Garfield Co., CO (NAD83)	<b>TVD Reference:</b>	KB=24' @ 5510.00usft (H&P 318)
<b>Site:</b>	PA Pad	<b>MD Reference:</b>	KB=24' @ 5510.00usft (H&P 318)
<b>Well:</b>	PA 44-23	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Single User Db

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)
8,947.00	4.45	228.77	8,174.88	2,222.27	1,468.26	2,663.35	0.36	0.32	-2.05
Last MWD Survey									
9,012.00	4.45	228.77	8,239.68	2,218.94	1,464.46	2,658.47	0.00	0.00	0.00
PTB @ 9012'									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
203.00	202.93	-0.64	4.60	First MWD Survey
8,947.00	8,174.88	2,222.27	1,468.26	Last MWD Survey
9,012.00	8,239.68	2,218.94	1,464.46	PTB @ 9012'

Checked By: _____	Approved By: _____	Date: _____
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