



## Directional Survey Certification

2948 I-70 Business Loop  
Grand Junction, CO 81504  
(970)-245-9447 Fax (970)-245-9454

Operator	TEP Rocky Mountain, LLC.
Well Name & No.	PA 334-26
County & State	Garfield County, CO
SDI Job No.	OP.012365
Rig	H&P 271

I, Mel Mireles Jr., having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 152 feet to a measured depth of 8,484 feet is true and correct as determined from all available records.

  
Signature

30-Aug-18  
Date

### Mel Mireles Jr.

Grand Junction Assistant Well Planner  
Scientific Drilling - Colorado District

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well PA 334-26 - Slot PA 334-26 (B10)
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
<b>Site:</b>	PA 23-26 Pad	<b>MD Reference:</b>	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
<b>Well:</b>	PA 334-26	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Grand Junction District

<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		PA 23-26 Pad			
Site Position:		Northing:	1,614,399.90 usft	Latitude:	39.4943598
From:	Map	Easting:	2,303,951.10 usft	Longitude:	-107.9667508
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.56 °

Well		PA 334-26 - Slot PA 334-26 (B10), B10				
Well Position	+N/-S	0.00 usft	Northing:	1,614,389.40 usft	Latitude:	39.4943282
	+E/-W	0.00 usft	Easting:	2,303,913.70 usft	Longitude:	-107.9668822
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,637.00 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	8/14/2018	9.35	65.75	51,599

<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	144.90	

<b>Survey Program</b>	<b>Date</b>	8/30/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
152.00	672.00	Survey #1 - Gyro MWD Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
742.00	1,070.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,171.00	8,484.00	Survey #3 - Production MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	

<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	
152.00	1.58	148.80	151.98	-1.79	1.09	2.09	1.04	1.04	0.00	
<b>First SDI Gyro MWD Survey</b>										
213.00	2.55	158.03	212.94	-3.77	2.03	4.25	1.68	1.59	15.13	
305.00	4.05	147.13	304.79	-8.40	4.56	9.49	1.76	1.63	-11.85	
397.00	5.89	155.04	396.44	-15.41	8.31	17.38	2.13	2.00	8.60	
489.00	8.89	153.46	487.66	-26.05	13.48	29.06	3.27	3.26	-1.72	
580.00	11.70	147.39	577.19	-40.11	21.60	45.24	3.31	3.09	-6.67	
672.00	13.64	142.82	666.95	-56.62	33.18	65.40	2.37	2.11	-4.97	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well PA 334-26 - Slot PA 334-26 (B10)
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
<b>Site:</b>	PA 23-26 Pad	<b>MD Reference:</b>	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
<b>Well:</b>	PA 334-26	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Grand Junction District

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)
<b>Last SDI Gyro MWD Survey</b>									
742.00	15.24	140.82	734.74	-70.33	43.98	82.83	2.39	2.29	-2.86
<b>First SDI Surface MWD Survey</b>									
834.00	17.29	144.18	823.05	-90.79	59.63	108.56	2.45	2.23	3.65
929.00	19.46	140.70	913.20	-114.48	77.91	138.47	2.56	2.28	-3.66
1,023.00	20.14	143.03	1,001.65	-139.53	97.56	170.26	1.11	0.72	2.48
1,070.00	20.75	143.82	1,045.69	-152.72	107.35	186.67	1.42	1.30	1.68
<b>Last SDI Surface MWD Survey</b>									
1,171.00	22.60	143.91	1,139.54	-182.84	129.34	223.96	1.83	1.83	0.09
<b>First SDI Production MWD Survey</b>									
1,266.00	23.37	142.92	1,227.00	-212.63	151.45	261.05	0.91	0.81	-1.04
1,360.00	23.17	143.03	1,313.35	-242.27	173.82	298.16	0.22	-0.21	0.12
1,454.00	22.58	143.22	1,399.96	-271.50	195.74	334.68	0.63	-0.63	0.20
1,549.00	21.85	142.59	1,487.91	-300.15	217.40	370.58	0.81	-0.77	-0.66
1,643.00	21.00	141.07	1,575.41	-327.15	238.62	404.86	1.08	-0.90	-1.62
1,737.00	20.13	139.75	1,663.42	-352.60	259.65	437.78	1.05	-0.93	-1.40
1,831.00	19.54	136.74	1,751.85	-376.39	280.88	469.45	1.25	-0.63	-3.20
1,926.00	19.92	142.41	1,841.28	-400.79	301.64	501.35	2.05	0.40	5.97
2,020.00	19.51	141.04	1,929.77	-425.68	321.28	533.01	0.66	-0.44	-1.46
2,114.00	19.03	139.64	2,018.50	-449.57	341.07	563.93	0.71	-0.51	-1.49
2,209.00	18.37	145.62	2,108.49	-473.73	359.55	594.33	2.13	-0.69	6.29
2,303.00	17.93	144.84	2,197.82	-497.78	376.25	623.61	0.53	-0.47	-0.83
2,398.00	17.08	144.62	2,288.42	-521.11	392.75	652.18	0.90	-0.89	-0.23
2,492.00	16.54	142.75	2,378.40	-543.02	408.84	679.36	0.81	-0.57	-1.99
2,587.00	16.59	143.26	2,469.46	-564.65	425.14	706.43	0.16	0.05	0.54
2,681.00	16.49	141.40	2,559.57	-585.83	441.49	733.16	0.57	-0.11	-1.98
2,775.00	16.38	141.33	2,649.73	-606.60	458.10	759.70	0.12	-0.12	-0.07
2,870.00	16.07	140.27	2,740.95	-627.17	474.87	786.18	0.45	-0.33	-1.12
2,964.00	16.68	143.91	2,831.13	-648.08	491.13	812.63	1.27	0.65	3.87
3,059.00	16.27	143.30	2,922.23	-669.77	507.12	839.57	0.47	-0.43	-0.64
3,153.00	15.31	141.56	3,012.69	-690.05	522.70	865.12	1.14	-1.02	-1.85
3,248.00	16.38	143.48	3,104.08	-710.64	538.47	891.03	1.25	1.13	2.02
3,342.00	17.76	146.99	3,193.94	-733.31	554.17	918.61	1.83	1.47	3.73
3,436.00	17.53	146.35	3,283.51	-757.12	569.82	947.09	0.32	-0.24	-0.68
3,531.00	17.19	146.18	3,374.19	-780.69	585.57	975.43	0.36	-0.36	-0.18
3,625.00	16.47	146.09	3,464.16	-803.29	600.73	1,002.64	0.77	-0.77	-0.10
3,719.00	17.80	145.29	3,553.98	-826.16	616.35	1,030.33	1.44	1.41	-0.85
3,814.00	19.58	144.99	3,643.97	-851.14	633.75	1,060.77	1.88	1.87	-0.32
3,908.00	19.16	145.22	3,732.65	-876.71	651.59	1,091.95	0.45	-0.45	0.24
4,002.00	18.84	144.80	3,821.53	-901.78	669.13	1,122.55	0.37	-0.34	-0.45
4,096.00	18.13	144.74	3,910.68	-926.13	686.33	1,152.35	0.76	-0.76	-0.06
4,191.00	18.20	142.95	4,000.94	-950.04	703.80	1,181.96	0.59	0.07	-1.88
4,285.00	18.31	142.94	4,090.21	-973.54	721.54	1,211.39	0.12	0.12	-0.01
4,380.00	18.70	142.35	4,180.30	-997.50	739.84	1,241.52	0.46	0.41	-0.62

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well PA 334-26 - Slot PA 334-26 (B10)
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
<b>Site:</b>	PA 23-26 Pad	<b>MD Reference:</b>	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
<b>Well:</b>	PA 334-26	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Grand Junction District

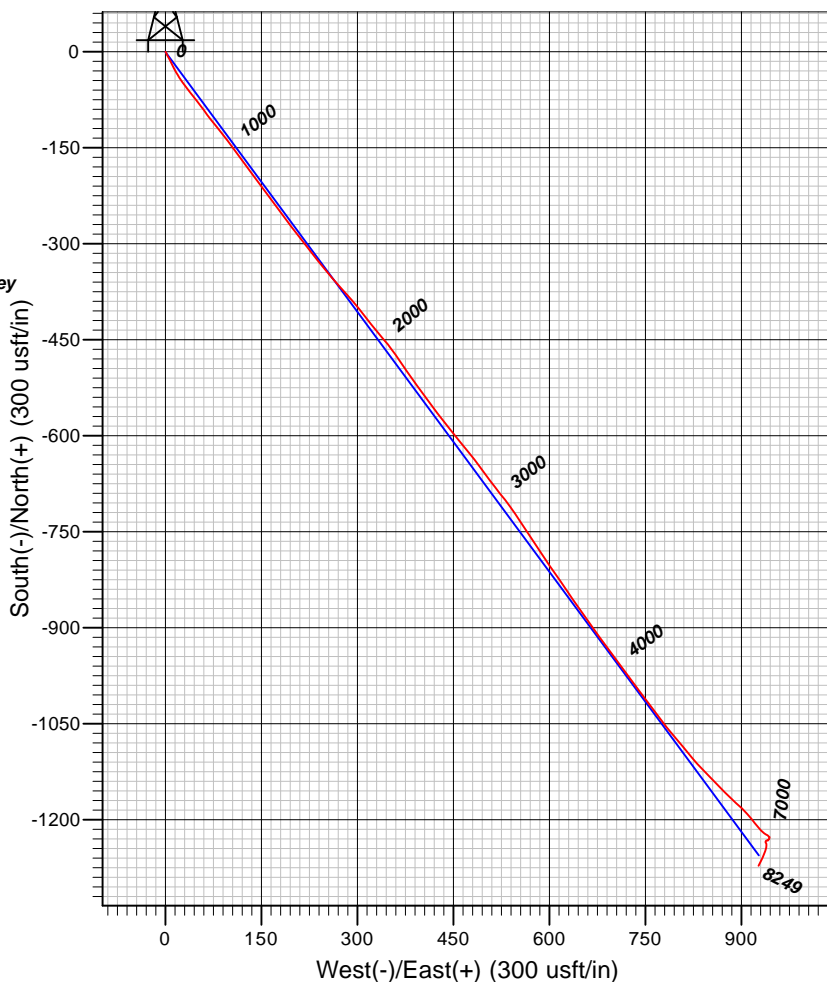
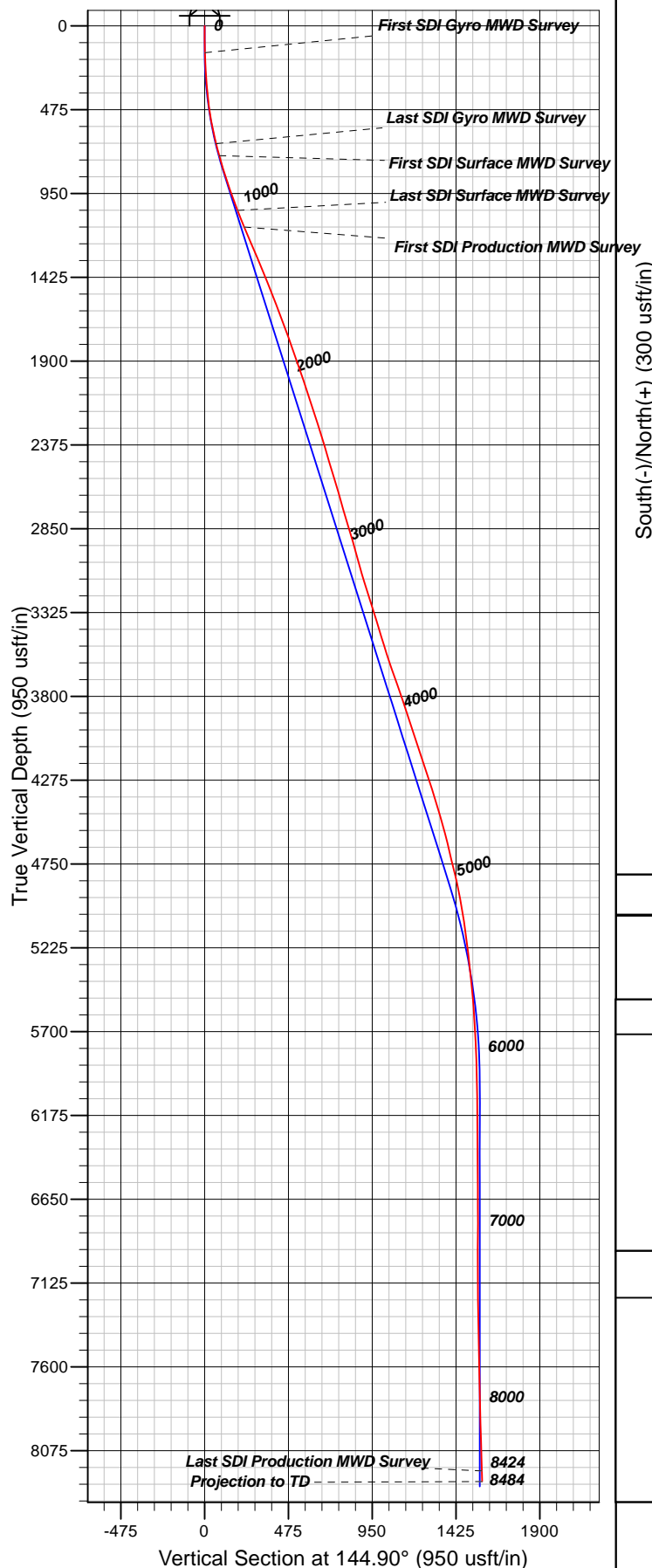
Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,474.00	18.16	143.70	4,269.48	-1,021.24	757.71	1,271.22	0.73	-0.57	1.44
4,568.00	17.52	143.39	4,358.96	-1,044.40	774.82	1,300.01	0.69	-0.68	-0.33
4,663.00	16.05	139.92	4,449.91	-1,065.93	791.81	1,327.39	1.87	-1.55	-3.65
4,757.00	15.14	140.11	4,540.45	-1,085.29	808.05	1,352.56	0.97	-0.97	0.20
4,852.00	13.97	140.37	4,632.40	-1,103.64	823.32	1,376.36	1.23	-1.23	0.27
4,946.00	13.84	134.91	4,723.65	-1,120.32	838.52	1,398.74	1.40	-0.14	-5.81
5,041.00	13.45	137.32	4,815.97	-1,136.46	854.05	1,420.89	0.73	-0.41	2.54
5,135.00	11.52	134.68	4,907.74	-1,151.10	868.14	1,440.96	2.14	-2.05	-2.81
5,229.00	9.78	134.75	5,000.12	-1,163.32	880.49	1,458.06	1.85	-1.85	0.07
5,323.00	8.20	131.63	5,092.96	-1,173.40	891.17	1,472.45	1.76	-1.68	-3.32
5,418.00	7.58	133.91	5,187.06	-1,182.24	900.75	1,485.19	0.73	-0.65	2.40
5,512.00	6.85	139.31	5,280.32	-1,190.80	908.87	1,496.86	1.06	-0.78	5.74
5,607.00	5.86	138.64	5,374.73	-1,198.73	915.77	1,507.32	1.05	-1.04	-0.71
5,701.00	5.46	143.37	5,468.28	-1,205.92	921.60	1,516.56	0.65	-0.43	5.03
5,796.00	4.39	141.91	5,562.92	-1,212.41	926.54	1,524.71	1.13	-1.13	-1.54
5,890.00	3.10	128.79	5,656.72	-1,216.83	930.75	1,530.74	1.64	-1.37	-13.96
5,985.00	3.33	131.41	5,751.57	-1,220.27	934.82	1,535.89	0.29	0.24	2.76
6,079.00	2.23	120.17	5,845.46	-1,222.99	938.45	1,540.21	1.30	-1.17	-11.96
6,174.00	0.90	123.57	5,940.43	-1,224.34	940.67	1,542.58	1.40	-1.40	3.58
6,234.69	0.95	127.33	6,001.11	-1,224.90	941.46	1,543.51	0.13	0.08	6.19
<b>BTV(PA 334-26)</b>									
6,268.00	0.98	129.22	6,034.41	-1,225.25	941.90	1,544.04	0.13	0.09	5.68
6,363.00	1.00	143.54	6,129.40	-1,226.43	943.02	1,545.65	0.26	0.02	15.07
6,457.00	0.40	70.47	6,223.39	-1,226.98	943.82	1,546.56	1.02	-0.64	-77.73
6,551.00	0.34	193.88	6,317.39	-1,227.14	944.06	1,546.83	0.69	-0.06	131.29
6,645.00	0.75	189.98	6,411.39	-1,228.02	943.89	1,547.45	0.44	0.44	-4.15
6,740.00	1.23	198.58	6,506.37	-1,229.60	943.46	1,548.49	0.53	0.51	9.05
6,834.00	0.41	355.59	6,600.37	-1,230.22	943.11	1,548.80	1.72	-0.87	167.03
6,928.00	0.62	218.00	6,694.36	-1,230.29	942.77	1,548.66	1.02	0.22	-146.37
7,022.00	1.49	207.10	6,788.35	-1,231.77	941.90	1,549.38	0.95	0.93	-11.60
7,117.00	0.53	309.58	6,883.34	-1,232.59	941.00	1,549.53	1.77	-1.01	107.87
7,211.00	0.78	290.07	6,977.33	-1,232.10	940.06	1,548.59	0.35	0.27	-20.76
7,306.00	0.97	240.85	7,072.32	-1,232.27	938.75	1,547.97	0.79	0.20	-51.81
7,400.00	1.58	195.41	7,166.30	-1,233.90	937.72	1,548.71	1.21	0.65	-48.34
7,494.00	0.86	139.97	7,260.28	-1,235.69	937.82	1,550.24	1.38	-0.77	-58.98
7,589.00	0.74	143.74	7,355.27	-1,236.73	938.65	1,551.56	0.14	-0.13	3.97
7,683.00	1.23	177.72	7,449.26	-1,238.23	939.05	1,553.02	0.79	0.52	36.15
7,777.00	1.53	182.72	7,543.23	-1,240.49	939.03	1,554.86	0.34	0.32	5.32
7,872.00	2.10	186.10	7,638.18	-1,243.49	938.78	1,557.17	0.61	0.60	3.56
7,967.00	2.32	201.42	7,733.11	-1,247.01	937.89	1,559.54	0.66	0.23	16.13
8,061.00	2.07	196.05	7,827.04	-1,250.41	936.73	1,561.65	0.34	-0.27	-5.71
8,156.00	2.75	206.29	7,921.96	-1,254.11	935.25	1,563.82	0.84	0.72	10.78
8,250.00	3.34	202.28	8,015.83	-1,258.66	933.21	1,566.38	0.67	0.63	-4.27

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well PA 334-26 - Slot PA 334-26 (B10)
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
<b>Site:</b>	PA 23-26 Pad	<b>MD Reference:</b>	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
<b>Well:</b>	PA 334-26	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Grand Junction District

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)
8,344.00	3.69	207.28	8,109.65	-1,263.88	930.78	1,569.25	0.49	0.37	5.32
8,424.00	3.61	206.75	8,189.49	-1,268.42	928.47	1,571.64	0.11	-0.10	-0.66
<b>Last SDI Production MWD Survey</b>									
8,484.00	3.61	206.75	8,249.37	-1,271.80	926.77	1,573.42	0.00	0.00	0.00
<b>Projection to TD - PBHL(PA 334-26)</b>									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
152.00	151.98	-1.79	1.09	First SDI Gyro MWD Survey
672.00	666.95	-56.62	33.18	Last SDI Gyro MWD Survey
742.00	734.74	-70.33	43.98	First SDI Surface MWD Survey
1,070.00	1,045.69	-152.72	107.35	Last SDI Surface MWD Survey
1,171.00	1,139.54	-182.84	129.34	First SDI Production MWD Survey
8,424.00	8,189.49	-1,268.42	928.47	Last SDI Production MWD Survey
8,484.00	8,249.37	-1,271.80	926.77	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------



#### Well Details: PA 334-26

TVD Reference: GL 5637' & RKB 24' @ 5661.00usft (H&P 271) and Level: 5637.00  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.00 0.00 1614389.40 2303913.70 39.4943282 -107.9668822 PA 334-26 (B10)

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well PA 334-26 - Slot PA 334-26 (B10), True North  
 Vertical (TVD) Reference: GL 5637' & RKB 24' @ 5661.00usft (H&P 271)  
 Section (VS) Reference: Slot - PA 334-26 (B10)(0.00N, 0.00E)  
 Measured Depth Reference: GL 5637' & RKB 24' @ 5661.00usft (H&P 271)  
 Calculation Method: Minimum Curvature

#### PROJECT DETAILS: Garfield County, CO NAD83

Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Colorado Central Zone

System Datum: Mean Sea Level

Plan: OH

14:23, August 30 2018  
 Created By: Mel Mireles Jr.