



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 534-26
County & State	Garfield County, CO
SDI Job No.	OP.012265
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 8,768 feet is true and correct as determined from all available records.

A handwritten signature in black ink, appearing to read 'Mel Mireles Jr.', written over a horizontal line.

Signature

24-Aug-18

Date

Mel Mireles Jr.

Grand Junction Assistant Well Planner
Scientific Drilling - Colorado District

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 534-26 - Slot PA 534-26 (B9)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Site:	PA 23-26 Pad	MD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Well:	PA 534-26	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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 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 534-26 - Slot PA 534-26 (B9), B9				
Well Position	+N/-S	0.00 usft	Northing:	1,614,389.50 usft	Latitude:	39.4943290
	+E/-W	0.00 usft	Easting:	2,303,921.20 usft	Longitude:	-107.9668557
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,637.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/11/2018	9.35	65.75	51,599

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	142.06	

Survey Program	Date	8/24/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
152.00	561.00	Survey #1 - Gyro MWD Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
652.00	1,072.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,171.00	8,768.00	Survey #3 - Production MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	

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	
152.00	0.88	113.47	151.99	-0.46	1.07	1.02	0.58	0.58	0.00	
First SDI Gyro MWD Survey										
213.00	2.02	141.33	212.97	-1.49	2.17	2.51	2.14	1.87	45.67	
305.00	4.93	150.38	304.80	-6.19	5.14	8.05	3.21	3.16	9.84	
397.00	7.48	146.51	396.25	-14.63	10.40	17.93	2.81	2.77	-4.21	
489.00	10.56	141.42	487.10	-26.21	18.96	32.33	3.46	3.35	-5.53	
561.00	12.32	141.41	557.67	-37.38	27.87	46.61	2.44	2.44	-0.01	

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 534-26 - Slot PA 534-26 (B9)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Site:	PA 23-26 Pad	MD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Well:	PA 534-26	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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)
Last SDI Gyro MWD Survey									
652.00	15.27	142.61	646.03	-54.49	41.20	68.31	3.26	3.24	1.32
First SDI Surface MWD Survey									
743.00	18.18	142.31	733.18	-75.25	57.16	94.49	3.20	3.20	-0.33
834.00	21.40	141.87	818.79	-99.55	76.10	125.30	3.54	3.54	-0.48
928.00	24.29	142.17	905.41	-128.31	98.55	161.79	3.08	3.07	0.32
1,022.00	26.29	141.98	990.39	-159.99	123.23	201.94	2.13	2.13	-0.20
1,072.00	27.44	140.22	1,035.00	-177.57	137.42	224.53	2.80	2.30	-3.52
Last SDI Surface MWD Survey									
1,171.00	28.35	141.92	1,122.49	-213.60	166.52	270.84	1.22	0.92	1.72
First SDI Production MWD Survey									
1,266.00	28.26	141.79	1,206.14	-249.03	194.34	315.88	0.11	-0.09	-0.14
1,360.00	27.40	141.63	1,289.26	-283.47	221.53	359.76	0.92	-0.91	-0.17
1,455.00	29.02	145.02	1,372.98	-319.49	248.31	404.64	2.40	1.71	3.57
1,549.00	28.67	144.99	1,455.32	-356.64	274.32	449.93	0.37	-0.37	-0.03
1,643.00	27.66	145.51	1,538.19	-393.10	299.61	494.23	1.11	-1.07	0.55
1,738.00	29.31	146.35	1,621.68	-430.63	324.99	539.43	1.79	1.74	0.88
1,832.00	28.30	146.05	1,704.05	-468.27	350.18	584.61	1.09	-1.07	-0.32
1,927.00	30.76	145.03	1,786.71	-506.86	376.69	631.34	2.64	2.59	-1.07
2,021.00	29.83	145.28	1,867.87	-545.78	403.78	678.69	1.00	-0.99	0.27
2,116.00	28.86	144.17	1,950.68	-583.79	430.66	725.19	1.17	-1.02	-1.17
2,210.00	27.64	145.00	2,033.48	-620.04	456.45	769.64	1.36	-1.30	0.88
2,305.00	29.00	143.31	2,117.11	-656.56	482.85	814.67	1.66	1.43	-1.78
2,399.00	30.49	143.27	2,198.72	-693.95	510.72	861.30	1.59	1.59	-0.04
2,493.00	29.19	143.78	2,280.26	-731.55	538.53	908.05	1.41	-1.38	0.54
2,588.00	27.72	143.81	2,363.78	-768.08	565.27	953.29	1.55	-1.55	0.03
2,682.00	29.21	142.73	2,446.41	-803.98	592.07	998.08	1.68	1.59	-1.15
2,776.00	30.76	141.60	2,527.83	-841.07	620.89	1,045.06	1.75	1.65	-1.20
2,871.00	29.82	141.87	2,609.86	-878.69	650.57	1,092.97	1.00	-0.99	0.28
2,965.00	28.96	141.92	2,691.76	-914.99	679.03	1,139.10	0.92	-0.91	0.05
3,059.00	28.13	142.27	2,774.33	-950.43	706.63	1,184.02	0.90	-0.88	0.37
3,153.00	29.42	141.72	2,856.73	-986.08	734.49	1,229.27	1.40	1.37	-0.59
3,248.00	29.75	140.39	2,939.34	-1,022.55	763.98	1,276.16	0.77	0.35	-1.40
3,342.00	28.44	140.90	3,021.48	-1,057.89	792.96	1,321.85	1.42	-1.39	0.54
3,437.00	29.88	138.96	3,104.44	-1,093.30	822.77	1,368.10	1.81	1.52	-2.04
3,531.00	28.81	139.23	3,186.37	-1,128.11	852.93	1,414.11	1.15	-1.14	0.29
3,626.00	28.30	139.40	3,269.82	-1,162.55	882.54	1,459.47	0.54	-0.54	0.18
3,720.00	27.11	139.34	3,353.04	-1,195.72	910.99	1,503.12	1.27	-1.27	-0.06
3,815.00	28.39	140.18	3,437.11	-1,229.48	939.56	1,547.31	1.41	1.35	0.88
3,909.00	30.15	141.73	3,519.11	-1,265.18	968.50	1,593.26	2.04	1.87	1.65
4,003.00	29.33	142.41	3,600.73	-1,301.96	997.16	1,639.89	0.94	-0.87	0.72
4,098.00	28.10	142.70	3,684.04	-1,338.20	1,024.91	1,685.53	1.30	-1.29	0.31
4,192.00	27.04	143.75	3,767.37	-1,373.04	1,050.96	1,729.02	1.24	-1.13	1.12
4,287.00	28.94	143.51	3,851.25	-1,408.94	1,077.40	1,773.59	2.00	2.00	-0.25

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 534-26 - Slot PA 534-26 (B9)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Site:	PA 23-26 Pad	MD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Well:	PA 534-26	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

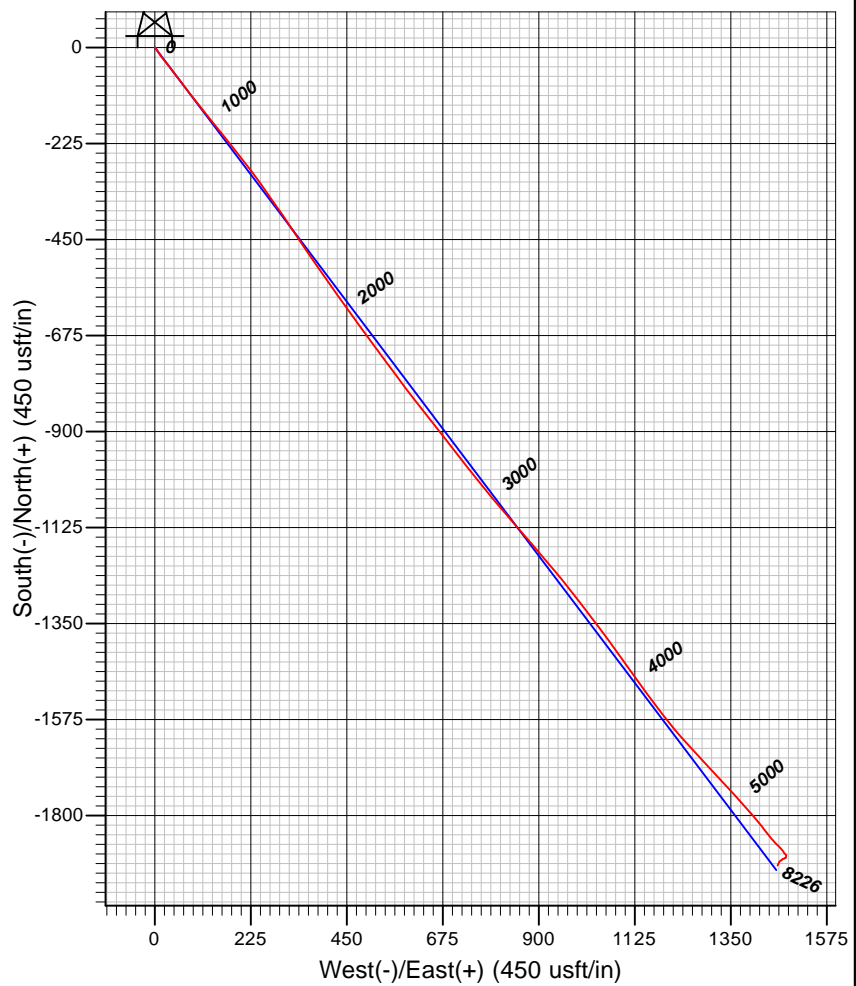
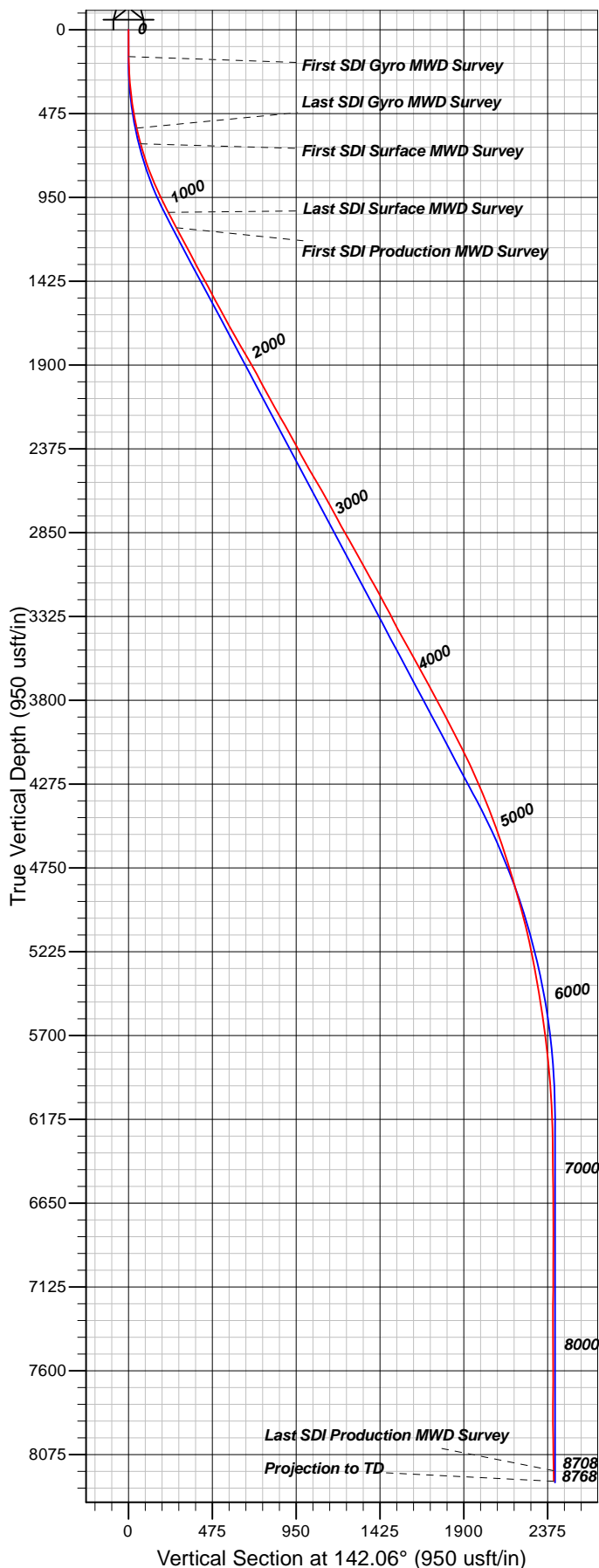
Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,381.00	27.90	143.92	3,933.92	-1,445.00	1,103.88	1,818.31	1.13	-1.11	0.44
4,475.00	26.76	144.46	4,017.43	-1,479.99	1,129.14	1,861.44	1.24	-1.21	0.57
4,570.00	26.46	144.78	4,102.37	-1,514.68	1,153.77	1,903.94	0.35	-0.32	0.34
4,664.00	24.32	141.93	4,187.28	-1,547.04	1,177.79	1,944.23	2.62	-2.28	-3.03
4,758.00	24.18	142.31	4,272.99	-1,577.51	1,201.50	1,982.83	0.22	-0.15	0.40
4,863.00	22.07	138.99	4,369.55	-1,609.42	1,227.59	2,024.04	2.36	-2.01	-3.16
4,947.00	20.48	137.04	4,447.83	-1,632.08	1,247.96	2,054.44	2.07	-1.89	-2.32
5,041.00	19.47	137.27	4,536.17	-1,655.62	1,269.80	2,086.43	1.08	-1.07	0.24
5,136.00	18.32	136.87	4,626.05	-1,678.15	1,290.75	2,117.08	1.22	-1.21	-0.42
5,230.00	17.97	137.55	4,715.37	-1,699.63	1,310.64	2,146.25	0.44	-0.37	0.72
5,324.00	16.99	137.16	4,805.03	-1,720.40	1,329.76	2,174.39	1.05	-1.04	-0.41
5,419.00	16.04	137.71	4,896.11	-1,740.29	1,348.03	2,201.31	1.01	-1.00	0.58
5,513.00	15.01	137.70	4,986.68	-1,758.90	1,364.96	2,226.39	1.10	-1.10	-0.01
5,607.00	13.55	138.14	5,077.77	-1,776.10	1,380.51	2,249.52	1.56	-1.55	0.47
5,702.00	12.48	138.02	5,170.33	-1,792.02	1,394.80	2,270.86	1.13	-1.13	-0.13
5,797.00	11.30	139.28	5,263.29	-1,806.71	1,407.74	2,290.40	1.27	-1.24	1.33
5,891.00	9.88	142.60	5,355.69	-1,820.10	1,418.64	2,307.66	1.64	-1.51	3.53
5,986.00	8.88	143.91	5,449.42	-1,832.50	1,427.91	2,323.14	1.08	-1.05	1.38
6,080.00	8.90	139.11	5,542.29	-1,843.86	1,436.95	2,337.65	0.79	0.02	-5.11
6,175.00	8.44	141.63	5,636.21	-1,854.88	1,446.08	2,351.96	0.63	-0.48	2.65
6,269.00	7.73	135.49	5,729.27	-1,864.79	1,454.80	2,365.14	1.19	-0.76	-6.53
6,364.00	5.35	134.80	5,823.65	-1,872.47	1,462.42	2,375.88	2.51	-2.51	-0.73
6,458.00	4.82	136.05	5,917.28	-1,878.40	1,468.27	2,384.16	0.58	-0.56	1.33
6,552.00	3.59	144.71	6,011.02	-1,883.65	1,472.71	2,391.03	1.47	-1.31	9.21
6,646.00	3.16	147.66	6,104.86	-1,888.24	1,475.80	2,396.54	0.49	-0.46	3.14
6,741.00	2.36	130.25	6,199.75	-1,891.72	1,478.69	2,401.06	1.21	-0.84	-18.33
6,835.00	0.50	165.17	6,293.72	-1,893.36	1,480.28	2,403.34	2.10	-1.98	37.15
6,929.00	0.78	192.35	6,387.71	-1,894.38	1,480.24	2,404.12	0.43	0.30	28.91
7,023.00	1.24	197.48	6,481.70	-1,895.98	1,479.80	2,405.11	0.50	0.49	5.46
7,118.00	0.35	138.90	6,576.69	-1,897.18	1,479.68	2,405.98	1.16	-0.94	-61.66
7,212.00	0.39	207.42	6,670.69	-1,897.68	1,479.72	2,406.40	0.44	0.04	72.89
7,307.00	1.43	206.17	6,765.67	-1,899.03	1,479.05	2,407.05	1.09	1.09	-1.32
7,401.00	0.50	318.72	6,859.66	-1,899.77	1,478.26	2,407.16	1.79	-0.99	119.73
7,495.00	1.06	249.12	6,953.66	-1,899.78	1,477.18	2,406.49	1.07	0.60	-74.04
7,590.00	1.62	222.49	7,048.63	-1,901.08	1,475.45	2,406.46	0.87	0.59	-28.03
7,684.00	0.53	306.24	7,142.62	-1,901.80	1,474.21	2,406.26	1.75	-1.16	89.10
7,778.00	0.71	266.08	7,236.61	-1,901.59	1,473.27	2,405.52	0.49	0.19	-42.72
7,873.00	0.84	239.40	7,331.60	-1,901.98	1,472.09	2,405.10	0.40	0.14	-28.08
7,967.00	0.71	207.24	7,425.60	-1,902.85	1,471.23	2,405.25	0.48	-0.14	-34.21
8,062.00	0.54	201.03	7,520.59	-1,903.79	1,470.80	2,405.73	0.19	-0.18	-6.54
8,156.00	0.33	250.91	7,614.59	-1,904.29	1,470.38	2,405.87	0.44	-0.22	53.06
8,251.00	1.14	248.89	7,709.58	-1,904.72	1,469.24	2,405.51	0.85	0.85	-2.13
8,345.00	1.57	246.46	7,803.55	-1,905.57	1,467.19	2,404.92	0.46	0.46	-2.59

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 534-26 - Slot PA 534-26 (B9)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Site:	PA 23-26 Pad	MD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Well:	PA 534-26	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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)	
8,439.00	1.68	221.92	7,897.52	-1,907.11	1,465.09	2,404.84	0.74	0.12	-26.11	
8,534.00	1.88	205.08	7,992.47	-1,909.56	1,463.50	2,405.79	0.59	0.21	-17.73	
8,628.00	2.11	206.05	8,086.41	-1,912.51	1,462.08	2,407.25	0.25	0.24	1.03	
8,708.00	2.11	205.87	8,166.36	-1,915.16	1,460.79	2,408.55	0.01	0.00	-0.23	
Last SDI Production MWD Survey										
8,768.00	2.11	205.87	8,226.32	-1,917.15	1,459.83	2,409.52	0.00	0.00	0.00	
Projection to TD - PBHL(PA 534-26)										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
152.00	151.99	-0.46	1.07	First SDI Gyro MWD Survey	
561.00	557.67	-37.38	27.87	Last SDI Gyro MWD Survey	
652.00	646.03	-54.49	41.20	First SDI Surface MWD Survey	
1,072.00	1,035.00	-177.57	137.42	Last SDI Surface MWD Survey	
1,171.00	1,122.49	-213.60	166.52	First SDI Production MWD Survey	
8,708.00	8,166.36	-1,915.16	1,460.79	Last SDI Production MWD Survey	
8,768.00	8,226.32	-1,917.15	1,459.83	Projection to TD	

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



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 1614389.50 2303921.20 39.4943290 -107.9668556 PA 534-26 (B9)

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well PA 534-26 - Slot PA 534-26 (B9), True North
 Vertical (TVD) Reference: GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
 Section (VS) Reference: Slot - PA 534-26 (B9)(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

11:34, August 24 2018
 Created By: Mel Mireles Jr.