



## 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 422-26
County & State	Garfield County, CO
SDI Job No.	OP.011374
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 153 feet to a measured depth of 8,580 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

25-Jul-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 422-26 - Slot PA 422-26 (A11)
<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 422-26	<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 422-26 - Slot PA 422-26 (A11), A11					
Well Position	+N/-S	0.00 usft	Northing:	1,614,399.40 usft	Latitude:	39.4943551
	+E/-W	0.00 usft	Easting:	2,303,906.10 usft	Longitude:	-107.9669101
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	7/4/2018	9.37	65.75	51,612

<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	354.45	

<b>Survey Program</b>	<b>Date</b>	7/25/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
153.00	673.00	Survey #1 - Gyro MWD Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
743.00	1,067.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,174.00	8,580.00	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	
153.00	1.50	36.65	152.98	1.61	1.20	1.48	0.98	0.98	0.00	
<b>First SDI Gyro MWD Survey</b>										
213.00	2.99	14.94	212.94	3.75	2.07	3.53	2.82	2.48	-36.18	
306.00	4.22	349.72	305.76	9.46	2.08	9.21	2.13	1.32	-27.12	
398.00	2.82	2.90	397.58	15.05	1.59	14.83	1.75	-1.52	14.33	
490.00	5.19	359.91	489.35	21.47	1.70	21.21	2.59	2.58	-3.25	
581.00	8.18	355.52	579.72	32.05	1.19	31.78	3.33	3.29	-4.82	
673.00	12.23	354.46	670.25	48.28	-0.26	48.08	4.41	4.40	-1.15	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well PA 422-26 - Slot PA 422-26 (A11)
<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 422-26	<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>									
743.00	14.74	353.21	738.31	64.50	-2.03	64.40	3.61	3.59	-1.79
<b>First SDI Surface MWD Survey</b>									
835.00	16.50	349.80	826.91	88.98	-5.73	89.12	2.16	1.91	-3.71
929.00	16.99	351.36	916.93	115.70	-10.16	116.14	0.71	0.52	1.66
1,024.00	16.66	353.94	1,007.86	142.96	-13.68	143.62	0.86	-0.35	2.72
1,067.00	16.62	353.02	1,049.06	155.20	-15.08	155.93	0.62	-0.09	-2.14
<b>Last SDI Surface MWD Survey</b>									
1,174.00	17.34	353.55	1,151.40	186.23	-18.73	187.17	0.69	0.67	0.50
<b>First SDI Production MWD Survey</b>									
1,268.00	17.37	353.61	1,241.12	214.09	-21.86	215.21	0.04	0.03	0.06
1,363.00	17.08	353.63	1,331.86	242.05	-24.99	243.33	0.31	-0.31	0.02
1,457.00	16.81	352.77	1,421.77	269.26	-28.23	270.72	0.39	-0.29	-0.91
1,551.00	17.87	351.78	1,511.50	297.01	-32.01	298.72	1.17	1.13	-1.05
1,645.00	18.78	353.37	1,600.73	326.32	-35.81	328.25	1.10	0.97	1.69
1,740.00	17.65	350.90	1,690.97	355.73	-39.86	357.92	1.44	-1.19	-2.60
1,834.00	16.44	348.69	1,780.84	382.85	-44.72	385.38	1.46	-1.29	-2.35
1,929.00	17.41	353.40	1,871.73	410.15	-48.99	412.96	1.77	1.02	4.96
2,024.00	18.55	355.17	1,962.09	439.33	-51.90	442.29	1.33	1.20	1.86
2,118.00	17.91	355.32	2,051.37	468.63	-54.34	471.69	0.68	-0.68	0.16
2,212.00	17.20	355.47	2,141.00	496.89	-56.61	500.04	0.76	-0.76	0.16
2,307.00	16.64	355.61	2,231.88	524.46	-58.76	527.68	0.59	-0.59	0.15
2,401.00	15.93	354.74	2,322.11	550.72	-60.98	554.04	0.80	-0.76	-0.93
2,495.00	17.17	356.53	2,412.22	577.42	-63.00	580.80	1.43	1.32	1.90
2,589.00	18.35	357.29	2,501.73	606.05	-64.54	609.45	1.28	1.26	0.81
2,684.00	18.38	358.21	2,591.90	635.96	-65.71	639.33	0.31	0.03	0.97
2,778.00	17.69	359.25	2,681.28	665.05	-66.36	668.35	0.81	-0.73	1.11
2,872.00	16.70	359.66	2,771.08	692.84	-66.63	696.03	1.06	-1.05	0.44
2,967.00	15.93	359.58	2,862.25	719.52	-66.81	722.61	0.81	-0.81	-0.08
3,061.00	16.86	356.28	2,952.43	746.03	-67.79	749.08	1.40	0.99	-3.51
3,155.00	18.17	353.05	3,042.07	774.18	-70.44	777.36	1.73	1.39	-3.44
3,250.00	17.34	353.47	3,132.54	802.95	-73.85	806.33	0.88	-0.87	0.44
3,345.00	16.16	353.39	3,223.51	830.15	-76.98	833.70	1.24	-1.24	-0.08
3,439.00	15.24	354.33	3,314.00	855.44	-79.70	859.13	1.02	-0.98	1.00
3,533.00	15.85	352.62	3,404.57	880.46	-82.57	884.32	0.81	0.65	-1.82
3,627.00	17.14	349.23	3,494.70	906.80	-86.81	910.94	1.71	1.37	-3.61
3,722.00	16.26	348.71	3,585.69	933.59	-92.03	938.12	0.94	-0.93	-0.55
3,816.00	15.11	347.61	3,676.19	958.47	-97.24	963.38	1.26	-1.22	-1.17
3,911.00	16.41	351.08	3,767.62	983.82	-101.97	989.07	1.69	1.37	3.65
4,005.00	18.23	348.32	3,857.35	1,011.34	-107.01	1,016.95	2.12	1.94	-2.94
4,099.00	17.50	347.29	3,946.82	1,039.52	-113.10	1,045.59	0.85	-0.78	-1.10
4,194.00	16.65	346.90	4,037.63	1,066.71	-119.32	1,073.25	0.90	-0.89	-0.41
4,288.00	17.82	351.19	4,127.41	1,094.05	-124.58	1,100.97	1.84	1.24	4.56
4,382.00	18.81	356.81	4,216.66	1,123.39	-127.63	1,130.47	2.15	1.05	5.98

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<b>Well:</b>	PA 422-26	<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

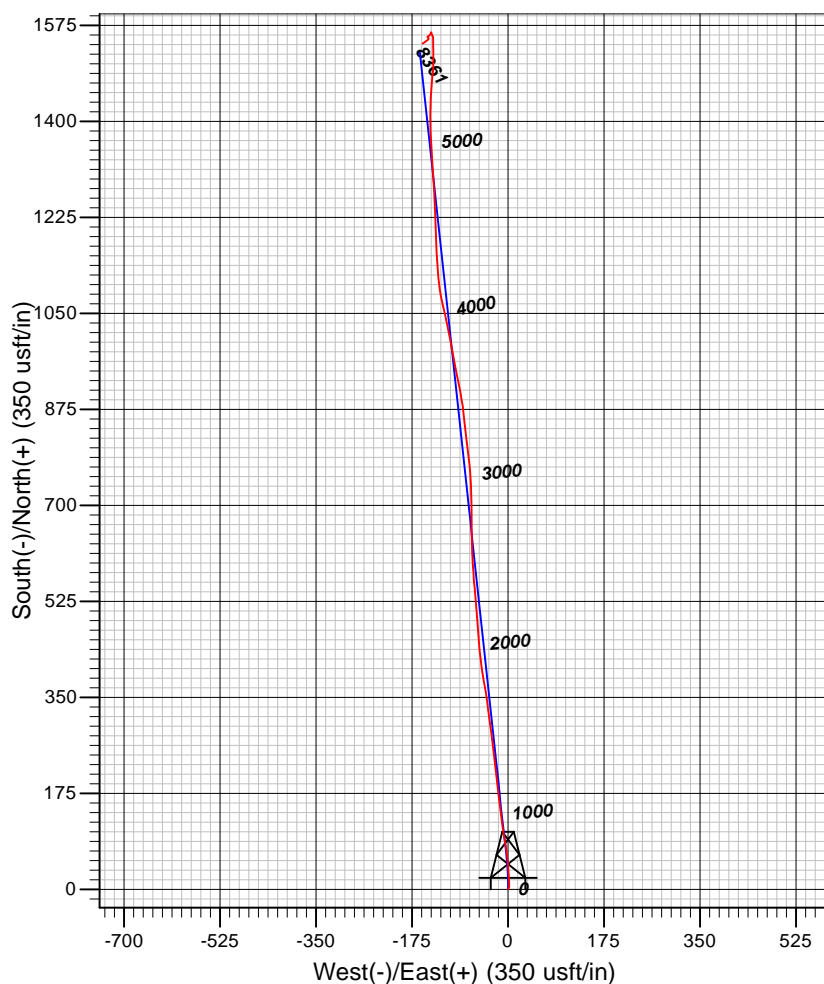
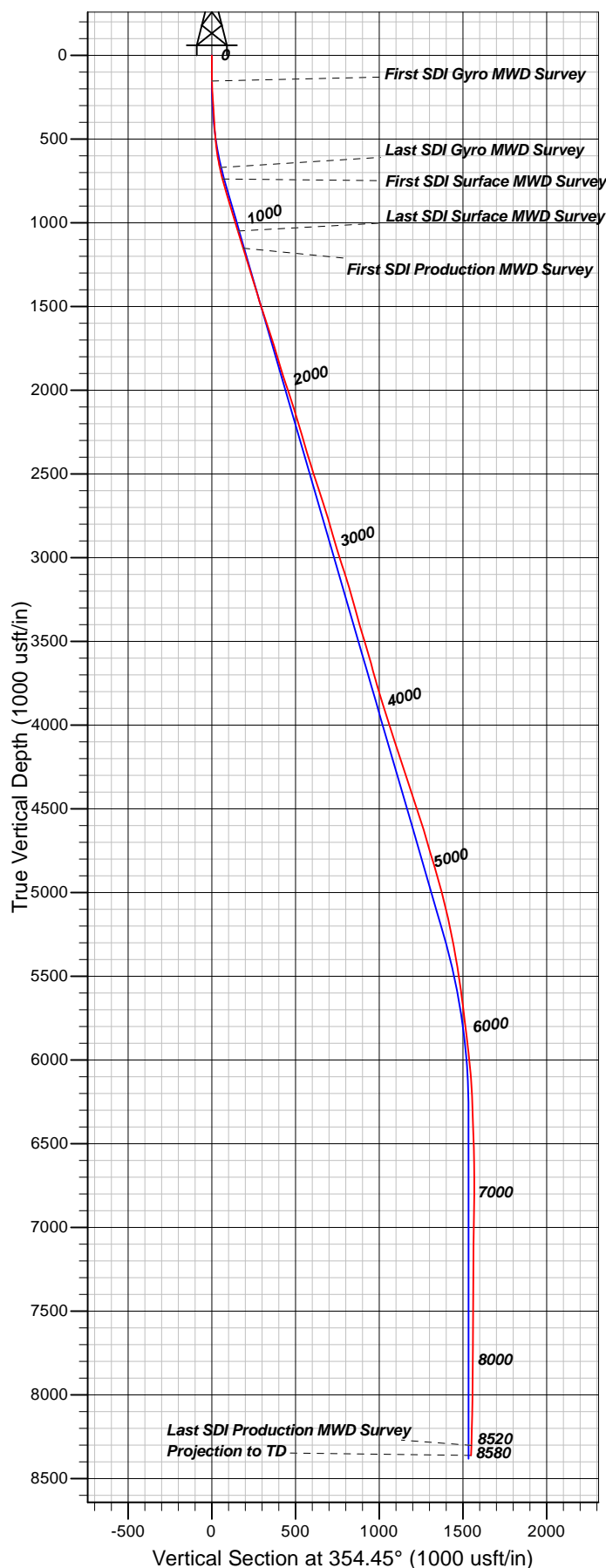
Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,477.00	18.75	356.56	4,306.60	1,153.93	-129.39	1,161.03	0.11	-0.06	-0.26
4,586.00	18.29	357.50	4,409.95	1,188.50	-131.19	1,195.62	0.50	-0.42	0.86
4,666.00	18.41	358.24	4,485.89	1,213.67	-132.13	1,220.76	0.33	0.15	0.93
4,759.00	17.53	357.75	4,574.35	1,242.34	-133.13	1,249.39	0.96	-0.95	-0.53
4,869.00	16.44	356.71	4,679.55	1,274.44	-134.67	1,281.49	1.03	-0.99	-0.95
4,948.00	15.97	355.84	4,755.41	1,296.44	-136.10	1,303.52	0.67	-0.59	-1.10
5,043.00	16.53	356.64	4,846.62	1,322.96	-137.84	1,330.09	0.63	0.59	0.84
5,137.00	15.94	356.99	4,936.87	1,349.20	-139.30	1,356.35	0.64	-0.63	0.37
5,231.00	14.92	356.67	5,027.48	1,374.17	-140.68	1,381.34	1.09	-1.09	-0.34
5,326.00	12.87	359.47	5,119.69	1,396.96	-141.49	1,404.10	2.27	-2.16	2.95
5,420.00	10.80	0.12	5,211.69	1,416.24	-141.57	1,423.29	2.21	-2.20	0.69
5,515.00	11.58	3.21	5,304.88	1,434.66	-141.02	1,441.58	1.04	0.82	3.25
5,609.00	10.04	3.65	5,397.21	1,452.26	-139.97	1,458.99	1.64	-1.64	0.47
5,703.00	8.92	4.52	5,489.93	1,467.70	-138.87	1,474.25	1.20	-1.19	0.93
5,797.00	8.06	5.64	5,582.90	1,481.53	-137.65	1,487.89	0.93	-0.91	1.19
5,892.00	6.88	4.57	5,677.09	1,493.83	-136.54	1,500.03	1.25	-1.24	-1.13
5,986.00	7.45	0.16	5,770.36	1,505.53	-136.08	1,511.64	0.84	0.61	-4.69
6,080.00	7.03	359.63	5,863.61	1,517.38	-136.10	1,523.43	0.45	-0.45	-0.56
6,174.00	6.07	358.80	5,956.99	1,528.10	-136.24	1,534.11	1.03	-1.02	-0.88
6,268.00	5.54	0.58	6,050.51	1,537.61	-136.30	1,543.58	0.60	-0.56	1.89
6,363.00	3.10	357.42	6,145.23	1,544.76	-136.37	1,550.71	2.58	-2.57	-3.33
6,457.00	2.69	359.26	6,239.11	1,549.50	-136.51	1,555.44	0.45	-0.44	1.96
6,552.00	2.17	348.80	6,334.03	1,553.50	-136.89	1,559.45	0.72	-0.55	-11.01
6,646.00	1.80	339.82	6,427.97	1,556.63	-137.74	1,562.65	0.51	-0.39	-9.55
6,740.00	1.31	334.43	6,521.94	1,558.98	-138.71	1,565.09	0.54	-0.52	-5.73
6,835.00	0.96	341.99	6,616.92	1,560.72	-139.43	1,566.89	0.40	-0.37	7.96
6,929.00	0.55	345.61	6,710.91	1,561.91	-139.78	1,568.10	0.44	-0.44	3.85
7,024.00	0.40	220.60	6,805.91	1,562.10	-140.11	1,568.32	0.89	-0.16	-131.59
7,118.00	0.95	188.56	6,899.90	1,561.08	-140.44	1,567.34	0.69	0.59	-34.09
7,213.00	1.50	210.02	6,994.88	1,559.22	-141.18	1,565.57	0.74	0.58	22.59
7,307.00	1.35	218.89	7,088.85	1,557.29	-142.49	1,563.78	0.28	-0.16	9.44
7,401.00	0.66	220.68	7,182.83	1,556.02	-143.54	1,562.61	0.73	-0.73	1.90
7,496.00	0.77	255.56	7,277.83	1,555.45	-144.52	1,562.13	0.46	0.12	36.72
7,590.00	0.75	239.33	7,371.82	1,554.98	-145.66	1,561.77	0.23	-0.02	-17.27
7,684.00	0.48	240.93	7,465.81	1,554.47	-146.53	1,561.36	0.29	-0.29	1.70
7,778.00	0.48	146.58	7,559.81	1,553.95	-146.66	1,560.85	0.75	0.00	-100.37
7,873.00	0.48	150.54	7,654.81	1,553.27	-146.24	1,560.13	0.03	0.00	4.17
7,968.00	0.34	149.95	7,749.81	1,552.68	-145.91	1,559.51	0.15	-0.15	-0.62
8,062.00	0.63	134.18	7,843.80	1,552.08	-145.40	1,558.87	0.34	0.31	-16.78
8,157.00	0.64	130.14	7,938.80	1,551.37	-144.62	1,558.09	0.05	0.01	-4.25
8,250.00	0.90	199.17	8,031.79	1,550.35	-144.46	1,557.05	0.97	0.28	74.23
8,344.00	2.39	225.52	8,125.75	1,548.28	-146.10	1,555.15	1.74	1.59	28.03
8,439.00	2.80	238.84	8,220.65	1,545.69	-149.50	1,552.90	0.76	0.43	14.02

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<b>Well:</b>	PA 422-26	<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)	
8,520.00	3.08	236.13	8,301.55	1,543.45	-153.00	1,551.02	0.39	0.35	-3.35	
Last SDI Production MWD Survey										
8,580.00	3.08	236.13	8,361.46	1,541.66	-155.67	1,549.49	0.00	0.00	0.00	
Projection to TD - PBHL(PA 422-26)										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
153.00	152.98	1.61	1.20	First SDI Gyro MWD Survey	
673.00	670.25	48.28	-0.26	Last SDI Gyro MWD Survey	
743.00	738.31	64.50	-2.03	First SDI Surface MWD Survey	
1,067.00	1,049.06	155.20	-15.08	Last SDI Surface MWD Survey	
1,174.00	1,151.40	186.23	-18.73	First SDI Production MWD Survey	
8,520.00	8,301.55	1,543.45	-153.00	Last SDI Production MWD Survey	
8,580.00	8,361.46	1,541.66	-155.67	Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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#### Well Details: PA 422-26

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 1614399.40 2303906.10 39.4943550 -107.966910 PA 422-26 (A11)

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well PA 422-26 - Slot PA 422-26 (A11), True North  
 Vertical (TVD) Reference: GL 5637' & RKB 24' @ 5661.00usft (H&P 271)  
 Section (VS) Reference: Slot - PA 422-26 (A11)(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

13:22, July 25 2018  
 Created By: Mel Mireles Jr.