



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 43-26
County & State	Garfield County, CO
SDI Job No.	OP.005628
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 134 feet to a measured depth of 8,307 feet is true and correct as determined from all available records.

Signature

 4-Dec-17

Date

Mel Mireles Jr.
Grand Junction Assistant Well Planner
Scientific Drilling - Colorado District

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 43-26 - Slot PA 43-26 (A1)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5224' & RKB 24' @ 5248.00usft
Site:	PA 22-25 Pad	MD Reference:	GL 5224' & RKB 24' @ 5248.00usft
Well:	PA 43-26	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 22-25 Pad				
Site Position:		Northing:	1,615,186.77 usft	Latitude:	39.4968742
From:	Map	Easting:	2,308,728.18 usft	Longitude:	-107.9499045
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.55 °

Well	PA 43-26 - Slot PA 43-26 (A1), A1					
Well Position	+N/-S	0.00 usft	Northing:	1,615,190.04 usft	Latitude:	39.4968835
	+E/-W	0.00 usft	Easting:	2,308,732.79 usft	Longitude:	-107.9498885
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,224.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/4/2017	9.40	65.82	51,690

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	256.04	

Survey Program	Date	12/4/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
134.00	1,074.00	Survey #1 - Gyro MWD Survey (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
657.00	1,074.00	Survey #2 - Surface MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,176.00	8,307.00	Survey #3 - Production MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	

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	0.00
SHL (PA 43-26)										
134.00	0.53	117.60	134.00	-0.29	0.55	-0.46	0.40	0.40	0.00	
First SDI Gyro MWD Survey										
214.00	0.44	112.41	214.00	-0.58	1.16	-0.99	0.13	-0.11	-6.49	
307.00	0.53	112.41	306.99	-0.88	1.89	-1.62	0.10	0.10	0.00	
398.00	0.70	204.87	397.99	-1.54	2.04	-1.61	0.98	0.19	101.60	
492.00	1.41	252.16	491.97	-2.42	0.70	-0.10	1.14	0.76	50.31	

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 43-26 - Slot PA 43-26 (A1)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5224' & RKB 24' @ 5248.00usft
Site:	PA 22-25 Pad	MD Reference:	GL 5224' & RKB 24' @ 5248.00usft
Well:	PA 43-26	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)	
583.00	3.26	273.78	582.90	-2.59	-2.95	3.48	2.22	2.03	23.76	
Last SDI Gyro MWD Survey										
657.00	4.72	271.80	656.71	-2.35	-8.09	8.42	1.98	1.97	-2.68	
First SDI Surface MWD Survey										
748.00	6.24	269.29	747.30	-2.30	-16.78	16.84	1.69	1.67	-2.76	
840.00	7.02	261.39	838.68	-3.20	-27.34	27.30	1.30	0.85	-8.59	
934.00	6.86	257.43	931.99	-5.28	-38.49	38.63	0.54	-0.17	-4.21	
1,029.00	6.89	258.89	1,026.31	-7.62	-49.62	50.00	0.19	0.03	1.54	
1,074.00	7.21	257.34	1,070.97	-8.75	-55.03	55.51	0.83	0.71	-3.44	
Last SDI Surface MWD Survey										
1,176.00	8.35	260.04	1,172.03	-11.44	-68.57	69.30	1.17	1.12	2.65	
First SDI Production MWD Survey										
1,271.00	11.96	249.81	1,265.53	-16.03	-84.61	85.98	4.23	3.80	-10.77	
1,366.00	14.89	253.37	1,357.93	-22.92	-105.55	107.96	3.20	3.08	3.75	
1,460.00	17.57	257.20	1,448.18	-29.52	-130.96	134.21	3.07	2.85	4.07	
1,555.00	20.53	257.40	1,537.96	-36.34	-161.20	165.21	3.12	3.12	0.21	
1,650.00	24.61	260.19	1,625.67	-43.34	-196.97	201.61	4.44	4.29	2.94	
1,745.00	27.47	258.67	1,711.02	-51.02	-237.95	243.23	3.09	3.01	-1.60	
1,840.00	28.96	257.21	1,794.73	-60.42	-281.87	288.12	1.73	1.57	-1.54	
1,934.00	28.40	256.64	1,877.20	-70.62	-325.81	333.23	0.66	-0.60	-0.61	
2,029.00	27.69	255.14	1,961.04	-81.50	-369.13	377.89	1.05	-0.75	-1.58	
2,124.00	29.25	255.23	2,044.55	-93.08	-412.91	423.17	1.64	1.64	0.09	
2,218.00	27.52	254.68	2,127.25	-104.67	-456.06	467.84	1.86	-1.84	-0.59	
2,313.00	28.41	254.22	2,211.16	-116.62	-498.98	512.38	0.96	0.94	-0.48	
2,407.00	27.98	253.29	2,294.00	-129.04	-541.62	556.75	0.65	-0.46	-0.99	
2,502.00	27.14	253.55	2,378.22	-141.58	-583.74	600.66	0.89	-0.88	0.27	
2,596.00	28.71	253.95	2,461.27	-153.90	-626.01	644.64	1.68	1.67	0.43	
2,691.00	28.01	254.38	2,544.87	-166.21	-669.42	689.75	0.77	-0.74	0.45	
2,785.00	26.84	254.19	2,628.31	-177.94	-711.10	733.02	1.25	-1.24	-0.20	
2,880.00	29.10	257.73	2,712.21	-188.69	-754.31	777.55	2.95	2.38	3.73	
2,974.00	29.12	257.97	2,794.34	-198.32	-799.02	823.26	0.13	0.02	0.26	
3,069.00	28.44	258.12	2,877.60	-207.79	-843.76	868.97	0.72	-0.72	0.16	
3,163.00	27.92	258.19	2,960.46	-216.90	-887.21	913.33	0.55	-0.55	0.07	
3,257.00	26.80	258.00	3,043.94	-225.81	-929.48	956.50	1.20	-1.19	-0.20	
3,352.00	27.29	254.76	3,128.56	-235.99	-971.44	999.68	1.63	0.52	-3.41	
3,447.00	28.52	253.90	3,212.51	-248.01	-1,014.25	1,044.12	1.36	1.29	-0.91	
3,542.00	27.63	253.39	3,296.33	-260.59	-1,057.15	1,088.79	0.97	-0.94	-0.54	
3,637.00	29.43	256.26	3,379.80	-272.44	-1,100.93	1,134.14	2.38	1.89	3.02	
3,731.00	29.55	255.49	3,461.62	-283.73	-1,145.81	1,180.41	0.42	0.13	-0.82	
3,826.00	29.11	254.70	3,544.44	-295.70	-1,190.78	1,226.94	0.62	-0.46	-0.83	
3,921.00	29.11	255.09	3,627.44	-307.74	-1,235.40	1,273.15	0.20	0.00	0.41	
4,022.00	28.36	254.66	3,716.00	-320.41	-1,282.27	1,321.69	0.77	-0.74	-0.43	
4,110.00	28.50	255.44	3,793.39	-331.21	-1,322.75	1,363.58	0.45	0.16	0.89	
4,205.00	27.31	256.32	3,877.34	-342.07	-1,365.86	1,408.04	1.33	-1.25	0.93	

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 43-26 - Slot PA 43-26 (A1)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5224' & RKB 24' @ 5248.00usft
Site:	PA 22-25 Pad	MD Reference:	GL 5224' & RKB 24' @ 5248.00usft
Well:	PA 43-26	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

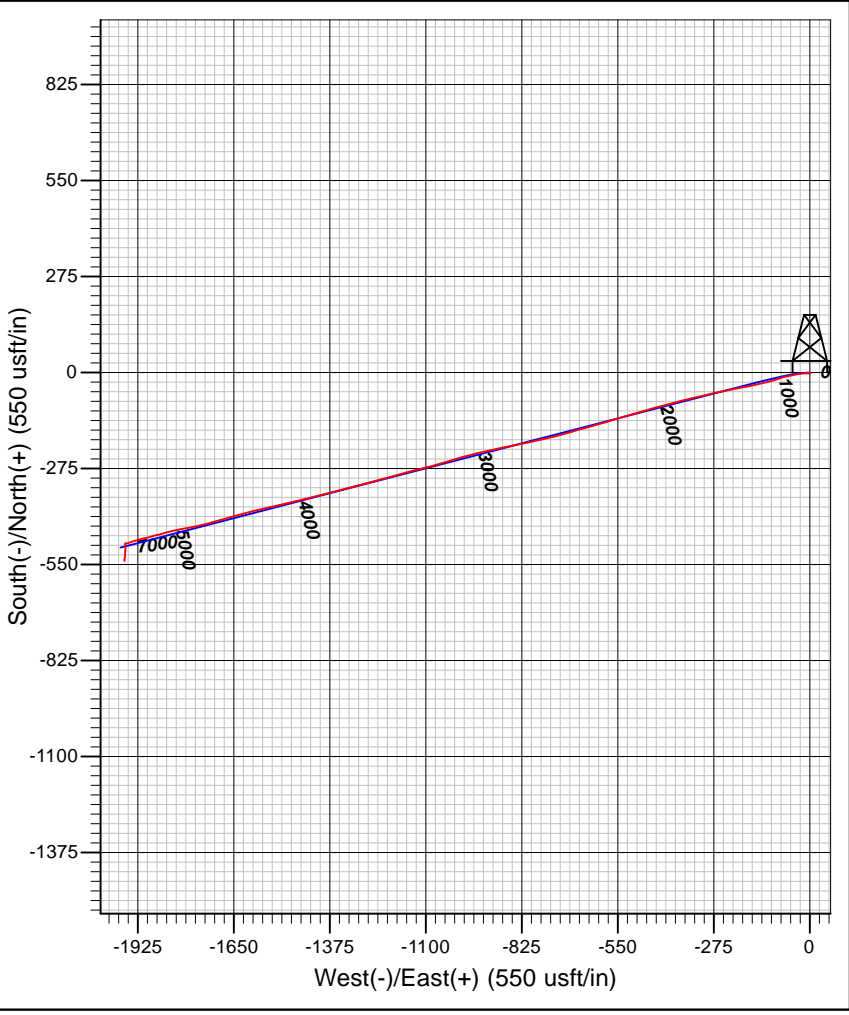
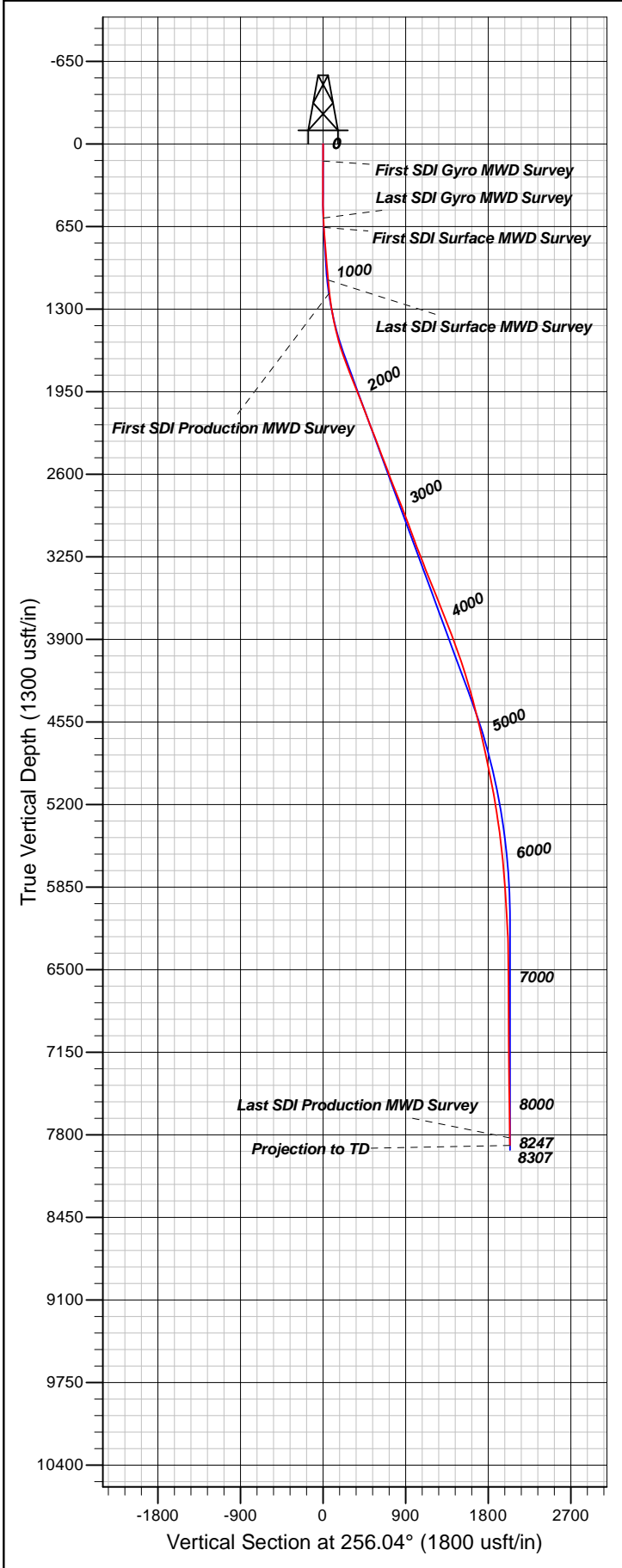
Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,309.00	26.00	255.62	3,970.29	-353.37	-1,411.13	1,454.70	1.30	-1.26	-0.67	
4,395.00	25.15	255.41	4,047.86	-362.66	-1,447.07	1,491.82	0.99	-0.99	-0.24	
4,489.00	24.74	257.69	4,133.09	-371.88	-1,485.62	1,531.45	1.11	-0.44	2.43	
4,584.00	23.06	257.49	4,219.95	-380.15	-1,523.21	1,569.93	1.77	-1.77	-0.21	
4,679.00	21.29	256.44	4,307.92	-388.22	-1,558.14	1,605.78	1.91	-1.86	-1.11	
4,774.00	19.97	255.99	4,396.82	-396.20	-1,590.65	1,639.25	1.40	-1.39	-0.47	
4,830.43	19.06	255.95	4,450.01	-400.77	-1,608.94	1,658.10	1.61	-1.61	-0.07	
PA 43-26 MVRD										
4,869.00	18.44	255.92	4,486.53	-403.78	-1,620.96	1,670.50	1.61	-1.61	-0.08	
4,963.00	18.56	254.20	4,575.67	-411.47	-1,649.78	1,700.32	0.59	0.13	-1.83	
5,058.00	18.25	255.07	4,665.82	-419.42	-1,678.70	1,730.30	0.44	-0.33	0.92	
5,153.00	16.44	253.47	4,756.49	-427.08	-1,705.96	1,758.61	1.97	-1.91	-1.68	
5,248.00	15.66	255.14	4,847.79	-434.19	-1,731.24	1,784.86	0.95	-0.82	1.76	
5,342.00	15.59	258.42	4,938.32	-439.98	-1,755.88	1,810.16	0.94	-0.07	3.49	
5,437.00	15.33	259.58	5,029.88	-444.81	-1,780.74	1,835.45	0.43	-0.27	1.22	
5,532.00	14.06	258.88	5,121.77	-449.31	-1,804.41	1,859.51	1.35	-1.34	-0.74	
5,627.00	12.81	256.77	5,214.17	-453.95	-1,825.99	1,881.57	1.41	-1.32	-2.22	
5,722.00	11.55	255.23	5,307.03	-458.78	-1,845.44	1,901.61	1.37	-1.33	-1.62	
5,816.00	10.56	255.13	5,399.28	-463.39	-1,862.86	1,919.63	1.05	-1.05	-0.11	
5,911.00	9.65	254.84	5,492.81	-467.71	-1,878.96	1,936.30	0.96	-0.96	-0.31	
6,005.00	8.62	254.69	5,585.62	-471.63	-1,893.36	1,951.22	1.10	-1.10	-0.16	
6,100.00	6.42	257.82	5,679.79	-474.63	-1,905.42	1,963.64	2.35	-2.32	3.29	
6,194.00	6.19	256.15	5,773.23	-476.95	-1,915.48	1,973.96	0.31	-0.24	-1.78	
6,289.00	5.69	255.08	5,867.71	-479.39	-1,925.00	1,983.79	0.54	-0.53	-1.13	
6,384.00	5.20	254.11	5,962.29	-481.78	-1,933.69	1,992.81	0.52	-0.52	-1.02	
6,478.00	4.98	249.19	6,055.92	-484.40	-1,941.60	2,001.11	0.52	-0.23	-5.23	
6,573.00	4.06	248.23	6,150.62	-487.11	-1,948.58	2,008.54	0.97	-0.97	-1.01	
6,667.00	2.59	251.12	6,244.46	-489.03	-1,953.68	2,013.95	1.57	-1.56	3.07	
6,762.00	1.47	269.94	6,339.40	-489.72	-1,956.93	2,017.27	1.36	-1.18	19.81	
6,856.00	0.64	294.96	6,433.38	-489.50	-1,958.61	2,018.85	0.99	-0.88	26.62	
6,951.00	0.49	293.82	6,528.38	-489.12	-1,959.47	2,019.59	0.16	-0.16	-1.20	
7,045.00	0.48	252.23	6,622.37	-489.07	-1,960.21	2,020.30	0.37	-0.01	-44.24	
7,140.00	0.86	234.55	6,717.37	-489.61	-1,961.17	2,021.36	0.45	0.40	-18.61	
7,234.00	0.34	176.16	6,811.36	-490.30	-1,961.72	2,022.06	0.79	-0.55	-62.12	
7,329.00	1.28	181.12	6,906.35	-491.64	-1,961.73	2,022.39	0.99	0.99	5.22	
7,423.00	1.97	171.97	7,000.31	-494.29	-1,961.52	2,022.83	0.78	0.73	-9.73	
7,518.00	2.49	163.92	7,095.24	-497.89	-1,960.72	2,022.92	0.64	0.55	-8.47	
7,612.00	2.72	176.65	7,189.15	-502.08	-1,960.02	2,023.26	0.66	0.24	13.54	
7,707.00	2.99	189.61	7,284.03	-506.77	-1,960.31	2,024.66	0.73	0.28	13.64	
7,801.00	3.28	185.59	7,377.89	-511.86	-1,960.98	2,026.54	0.39	0.31	-4.28	
7,896.00	3.01	184.96	7,472.74	-517.05	-1,961.46	2,028.26	0.29	-0.28	-0.66	
7,990.00	3.48	183.55	7,566.59	-522.36	-1,961.85	2,029.92	0.51	0.50	-1.50	
8,085.00	3.34	185.62	7,661.43	-527.99	-1,962.30	2,031.71	0.20	-0.15	2.18	
8,178.00	3.11	184.67	7,754.28	-533.20	-1,962.77	2,033.43	0.25	-0.25	-1.02	

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 43-26 - Slot PA 43-26 (A1)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5224' & RKB 24' @ 5248.00usft
Site:	PA 22-25 Pad	MD Reference:	GL 5224' & RKB 24' @ 5248.00usft
Well:	PA 43-26	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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)
8,247.00	2.99	185.36	7,823.18	-536.86	-1,963.09	2,034.62	0.18	-0.17	1.00
Last SDI Production MWD Survey									
8,307.00	2.99	185.36	7,883.10	-539.98	-1,963.38	2,035.66	0.00	0.00	0.00
Projection to TD - PA 43-26 PBHL - PBHL (PA 43-26)									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
134.00	134.00	-0.29	0.55	First SDI Gyro MWD Survey
583.00	582.90	-2.59	-2.95	Last SDI Gyro MWD Survey
657.00	656.71	-2.35	-8.09	First SDI Surface MWD Survey
1,074.00	1,070.97	-8.75	-55.03	Last SDI Surface MWD Survey
1,176.00	1,172.03	-11.44	-68.57	First SDI Production MWD Survey
8,247.00	7,823.18	-536.86	-1,963.09	Last SDI Production MWD Survey
8,307.00	7,883.10	-539.98	-1,963.38	Projection to TD

Checked By: _____ Approved By: _____ Date: _____



Well Details: PA 43-26

TVD Reference: GL 5224' & RKB 24' @ 5248.00usft							Ground Level: 5224.00	
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot		
0.00	0.00	1615190.04	2308732.79	39.4968835	-107.9498885	PA 43-26 (A1)		

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well PA 43-26 - Slot PA 43-26 (A1), True North
 Vertical (TVD) Reference: GL 5224' & RKB 24' @ 5248.00usft
 Section (VS) Reference: Slot - PA 43-26 (A1)(0.00N, 0.00E)
 Measured Depth Reference: GL 5224' & RKB 24' @ 5248.00usft
 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