



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.	SR 34-12
County & State	Garfield County, CO
SDI Job No.	OP.006568
Rig	H&P 318

I, Mel Mireles Jr., having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 122 feet to a measured depth of 9,607 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

27-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 SR 34-12 - Slot SR 34-12 (B6)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
Site:	SR 23-12 Pad	MD Reference:	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
Well:	SR 34-12	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		SR 23-12 Pad			
Site Position:		Northing:	1,597,713.40 usft	Latitude:	39.4511965
From:	Map	Easting:	2,340,229.70 usft	Longitude:	-107.8367194
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.47 °

Well		SR 34-12 - Slot SR 34-12 (B6)				
Well Position	+N/-S	0.00 usft	Northing:	1,597,682.00 usft	Latitude:	39.4511120
	+E/-W	0.00 usft	Easting:	2,340,252.60 usft	Longitude:	-107.8366355
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	7,478.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/12/2017	9.23	65.62	51,637

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	128.75	

Survey Program	Date	12/27/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
122.00	675.00	Survey #1 - Gyro MWD Survey (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
754.00	1,079.00	Survey #2 - Surface MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,181.00	9,607.00	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	
122.00	0.18	114.87	122.00	-0.08	0.17	0.19	0.15	0.15	0.00	
First SDI Gyro MWD Survey										
214.00	2.64	136.23	213.97	-1.67	1.77	2.43	2.69	2.67	23.22	
307.00	5.98	132.28	306.69	-6.48	6.84	9.39	3.60	3.59	-4.25	
399.00	8.89	119.53	397.91	-13.21	16.57	21.19	3.62	3.16	-13.86	
492.00	9.94	113.55	489.66	-19.96	30.18	36.03	1.54	1.13	-6.43	
584.00	11.52	119.71	580.05	-27.68	45.44	52.77	2.12	1.72	6.70	
675.00	12.49	126.39	669.06	-38.03	61.26	71.58	1.86	1.07	7.34	

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SR 34-12 - Slot SR 34-12 (B6)
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Site:	SR 23-12 Pad	MD Reference:	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
Well:	SR 34-12	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									
754.00	13.08	129.93	746.11	-48.83	74.99	89.05	1.24	0.75	4.48
First SDI Surface MWD Survey									
849.00	12.69	136.16	838.72	-63.26	90.46	110.14	1.52	-0.41	6.56
943.00	13.06	138.11	930.36	-78.61	104.70	130.86	0.61	0.39	2.07
1,038.00	13.47	135.70	1,022.82	-94.52	119.60	152.44	0.72	0.43	-2.54
1,079.00	13.98	135.34	1,062.65	-101.46	126.42	162.10	1.26	1.24	-0.88
Last SDI Surface MWD Survey									
1,181.00	14.61	135.54	1,161.49	-119.41	144.09	187.11	0.62	0.62	0.20
First SDI Production MWD Survey									
1,276.00	14.71	134.93	1,253.40	-136.48	161.02	211.00	0.19	0.11	-0.64
1,370.00	15.11	134.44	1,344.23	-153.48	178.21	235.06	0.45	0.43	-0.52
1,464.00	15.05	134.73	1,435.00	-170.65	195.63	259.38	0.10	-0.06	0.31
1,559.00	15.23	133.70	1,526.70	-187.95	213.41	284.08	0.34	0.19	-1.08
1,653.00	15.21	134.02	1,617.40	-205.05	231.21	308.66	0.09	-0.02	0.34
1,748.00	15.20	133.36	1,709.08	-222.26	249.22	333.49	0.18	-0.01	-0.69
1,842.00	15.12	132.77	1,799.81	-239.05	267.18	358.00	0.18	-0.09	-0.63
1,937.00	14.81	132.41	1,891.58	-255.65	285.24	382.47	0.34	-0.33	-0.38
2,031.00	14.26	130.91	1,982.58	-271.33	302.86	406.03	0.71	-0.59	-1.60
2,126.00	13.89	129.10	2,074.72	-286.19	320.55	429.13	0.61	-0.39	-1.91
2,220.00	13.81	128.60	2,165.99	-300.30	338.08	451.63	0.15	-0.09	-0.53
2,315.00	13.08	130.21	2,258.39	-314.32	355.15	473.71	0.86	-0.77	1.69
2,409.00	13.02	129.84	2,349.96	-327.97	371.40	494.93	0.11	-0.06	-0.39
2,503.00	12.47	129.21	2,441.64	-341.17	387.40	515.67	0.60	-0.59	-0.67
2,598.00	11.79	129.45	2,534.52	-353.82	402.84	535.63	0.72	-0.72	0.25
2,692.00	11.47	128.75	2,626.59	-365.77	417.54	554.58	0.37	-0.34	-0.74
2,787.00	10.99	128.58	2,719.77	-377.33	431.99	573.08	0.51	-0.51	-0.18
2,881.00	10.47	128.28	2,812.13	-388.21	445.70	590.58	0.56	-0.55	-0.32
2,976.00	10.23	128.44	2,905.58	-398.80	459.08	607.65	0.25	-0.25	0.17
3,070.00	10.01	126.63	2,998.12	-408.86	472.18	624.16	0.41	-0.23	-1.93
3,165.00	11.01	128.73	3,091.53	-419.47	485.88	641.48	1.13	1.05	2.21
3,259.00	10.77	129.31	3,183.83	-430.65	499.68	659.24	0.28	-0.26	0.62
3,353.00	12.53	127.59	3,275.89	-442.43	514.55	678.22	1.91	1.87	-1.83
3,447.00	12.31	127.70	3,367.69	-454.78	530.56	698.43	0.24	-0.23	0.12
3,542.00	12.13	126.44	3,460.54	-466.90	546.60	718.53	0.34	-0.19	-1.33
3,637.00	11.94	126.52	3,553.45	-478.68	562.53	738.32	0.20	-0.20	0.08
3,731.00	14.04	130.36	3,645.04	-491.85	579.04	759.44	2.41	2.23	4.09
3,826.00	13.99	130.15	3,737.22	-506.72	596.59	782.44	0.08	-0.05	-0.22
3,920.00	14.19	129.03	3,828.39	-521.30	614.23	805.32	0.36	0.21	-1.19
4,014.00	14.15	128.33	3,919.53	-535.68	632.19	828.33	0.19	-0.04	-0.74
4,109.00	13.94	128.22	4,011.69	-549.96	650.29	851.38	0.22	-0.22	-0.12
4,203.00	13.46	128.43	4,103.01	-563.77	667.76	873.65	0.51	-0.51	0.22
4,297.00	13.10	126.38	4,194.50	-576.88	684.90	895.23	0.63	-0.38	-2.18
4,392.00	12.60	126.60	4,287.12	-589.45	701.89	916.34	0.53	-0.53	0.23

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Site:	SR 23-12 Pad	MD Reference:	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
Well:	SR 34-12	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

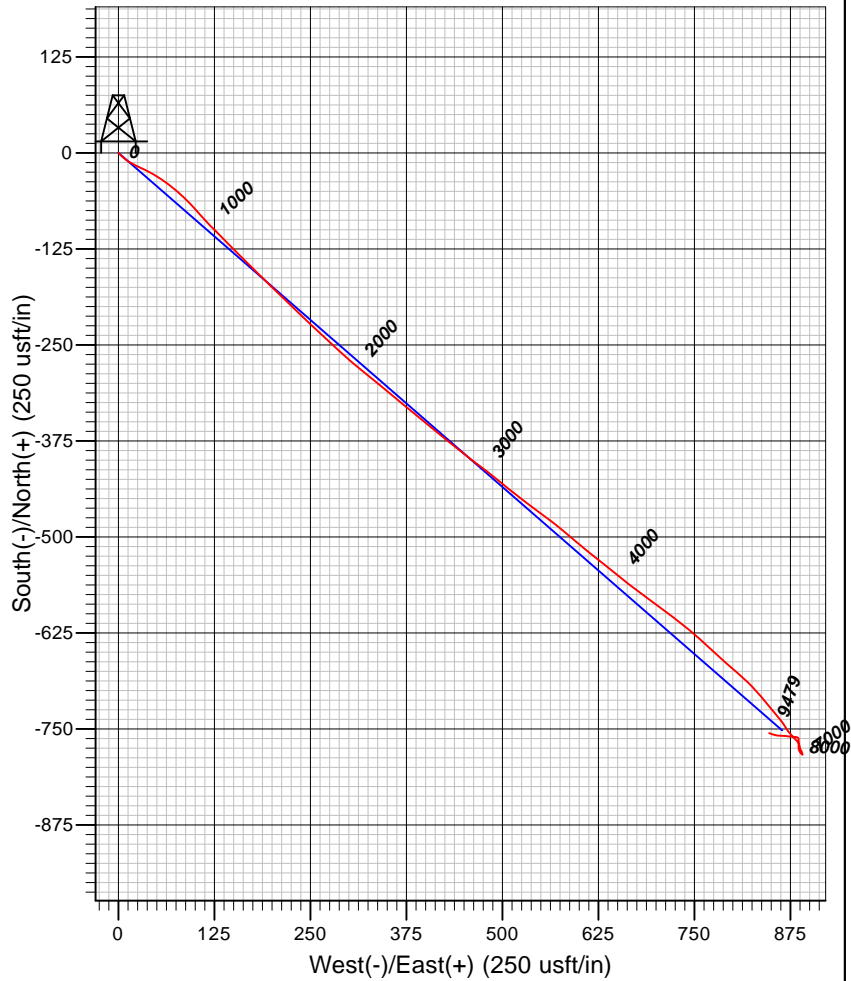
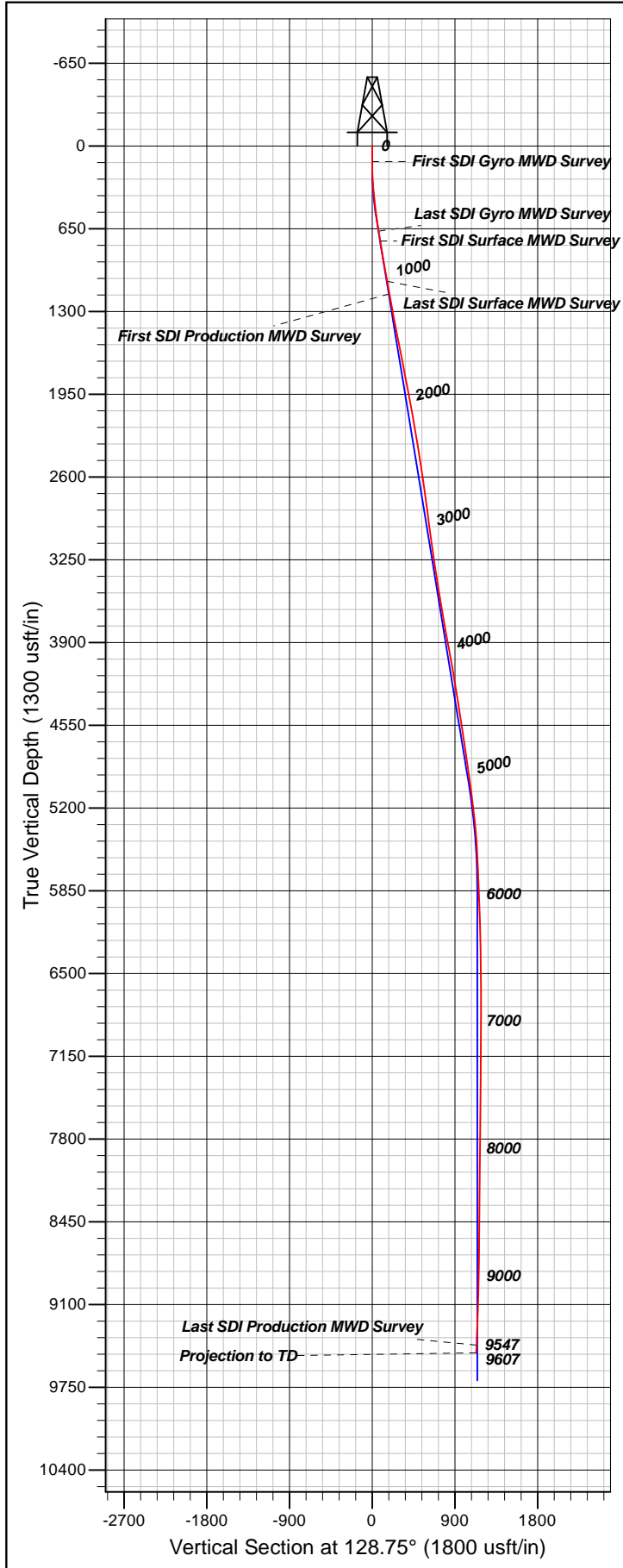
Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,487.00	12.05	127.43	4,379.93	-601.65	718.08	936.61	0.61	-0.58	0.87
4,581.00	11.89	126.36	4,471.89	-613.36	733.67	956.09	0.29	-0.17	-1.14
4,675.00	12.52	132.13	4,563.77	-625.93	749.03	975.94	1.46	0.67	6.14
4,770.00	12.01	131.98	4,656.60	-639.45	764.01	996.09	0.54	-0.54	-0.16
4,864.00	11.78	132.53	4,748.58	-652.48	778.35	1,015.43	0.27	-0.24	0.59
4,957.00	11.23	131.56	4,839.71	-664.90	792.13	1,033.95	0.63	-0.59	-1.04
5,051.00	10.85	131.06	4,931.97	-676.79	805.65	1,051.93	0.42	-0.40	-0.53
5,146.00	10.83	132.59	5,025.27	-688.70	818.96	1,069.77	0.30	-0.02	1.61
5,241.00	9.71	140.27	5,118.76	-700.90	830.65	1,086.52	1.86	-1.18	8.08
5,336.00	9.32	140.53	5,212.45	-713.00	840.66	1,101.90	0.41	-0.41	0.27
5,431.00	8.88	138.51	5,306.25	-724.43	850.41	1,116.66	0.57	-0.46	-2.13
5,524.00	7.06	140.75	5,398.35	-734.24	858.78	1,129.33	1.98	-1.96	2.41
5,621.00	4.31	144.84	5,494.86	-741.84	864.65	1,138.66	2.86	-2.84	4.22
5,716.00	3.96	149.05	5,589.62	-747.57	868.40	1,145.17	0.49	-0.37	4.43
5,810.00	3.69	143.08	5,683.41	-752.77	871.88	1,151.14	0.51	-0.29	-6.35
5,905.00	3.61	138.16	5,778.22	-757.44	875.71	1,157.06	0.34	-0.08	-5.18
5,973.95	3.29	137.23	5,847.05	-760.51	878.50	1,161.15	0.48	-0.47	-1.35
SR 34-12 BTV									
5,999.00	3.17	136.84	5,872.05	-761.54	879.46	1,162.55	0.48	-0.47	-1.54
6,093.00	3.53	136.09	5,965.89	-765.52	883.25	1,167.99	0.39	0.38	-0.80
6,188.00	2.05	159.83	6,060.78	-769.22	885.86	1,172.35	1.95	-1.56	24.99
6,282.00	1.81	167.44	6,154.73	-772.25	886.77	1,174.95	0.37	-0.26	8.10
6,376.00	1.58	158.46	6,248.68	-774.91	887.57	1,177.23	0.37	-0.24	-9.55
6,471.00	1.23	161.45	6,343.66	-777.09	888.37	1,179.23	0.38	-0.37	3.15
6,565.00	1.29	147.83	6,437.63	-778.94	889.25	1,181.08	0.32	0.06	-14.49
6,659.00	1.13	174.20	6,531.61	-780.76	889.91	1,182.73	0.61	-0.17	28.05
6,754.00	1.23	147.47	6,626.59	-782.55	890.55	1,184.35	0.58	0.11	-28.14
6,849.00	0.44	292.32	6,721.59	-783.27	890.77	1,184.96	1.69	-0.83	152.47
6,943.00	0.40	273.49	6,815.58	-783.12	890.10	1,184.35	0.15	-0.04	-20.03
7,038.00	0.34	343.24	6,910.58	-782.83	889.69	1,183.85	0.45	-0.06	73.42
7,132.00	0.44	323.21	7,004.58	-782.27	889.40	1,183.27	0.18	0.11	-21.31
7,227.00	0.35	297.50	7,099.58	-781.84	888.92	1,182.63	0.21	-0.09	-27.06
7,321.00	0.40	301.25	7,193.58	-781.54	888.38	1,182.02	0.06	0.05	3.99
7,415.00	0.62	335.82	7,287.57	-780.91	887.90	1,181.25	0.39	0.23	36.78
7,509.00	0.79	328.61	7,381.57	-779.89	887.35	1,180.18	0.20	0.18	-7.67
7,606.00	0.69	323.84	7,478.56	-778.85	886.66	1,178.99	0.12	-0.10	-4.92
7,700.00	0.79	343.12	7,572.55	-777.77	886.13	1,177.91	0.28	0.11	20.51
7,794.00	1.02	341.58	7,666.54	-776.36	885.68	1,176.67	0.25	0.24	-1.64
7,888.00	1.26	7.90	7,760.52	-774.54	885.56	1,175.44	0.61	0.26	28.00
7,983.00	1.38	354.15	7,855.50	-772.37	885.59	1,174.10	0.36	0.13	-14.47
8,077.00	1.43	5.91	7,949.47	-770.07	885.59	1,172.67	0.31	0.05	12.51
8,171.00	1.26	356.88	8,043.44	-767.88	885.66	1,171.34	0.29	-0.18	-9.61
8,266.00	1.23	356.39	8,138.42	-765.82	885.54	1,169.96	0.03	-0.03	-0.52

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Well:	SR 34-12	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)	
8,361.00	0.97	2.10	8,233.40	-763.99	885.50	1,168.79	0.30	-0.27	6.01	
8,455.00	0.65	356.45	8,327.39	-762.67	885.50	1,167.96	0.35	-0.34	-6.01	
8,549.00	0.65	320.41	8,421.39	-761.72	885.12	1,167.08	0.43	0.00	-38.34	
8,644.00	0.70	299.26	8,516.38	-761.02	884.27	1,165.98	0.27	0.05	-22.26	
8,738.00	1.06	278.34	8,610.37	-760.62	882.91	1,164.66	0.51	0.38	-22.26	
8,833.00	1.27	274.88	8,705.35	-760.40	880.99	1,163.03	0.23	0.22	-3.64	
8,927.00	1.49	278.34	8,799.32	-760.13	878.75	1,161.11	0.25	0.23	3.68	
9,021.00	1.85	272.10	8,893.28	-759.90	876.02	1,158.84	0.43	0.38	-6.64	
9,116.00	2.20	279.69	8,988.22	-759.54	872.69	1,156.01	0.46	0.37	7.99	
9,211.00	2.37	274.21	9,083.15	-759.09	868.94	1,152.80	0.29	0.18	-5.77	
9,305.00	3.95	270.24	9,177.00	-758.93	863.76	1,148.67	1.70	1.68	-4.22	
9,399.00	3.61	280.36	9,270.80	-758.39	857.61	1,143.53	0.80	-0.36	10.77	
9,494.00	2.81	288.18	9,365.65	-757.12	852.46	1,138.72	0.96	-0.84	8.23	
9,547.00	2.81	288.18	9,418.58	-756.31	849.99	1,136.29	0.00	0.00	0.00	
Last SDI Production MWD Survey										
9,607.00	2.81	288.18	9,478.51	-755.39	847.19	1,133.53	0.00	0.00	0.00	
Projection to TD - SR 34-12 PBHL										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
122.00	122.00	-0.08	0.17	First SDI Gyro MWD Survey	
675.00	669.06	-38.03	61.26	Last SDI Gyro MWD Survey	
754.00	746.11	-48.83	74.99	First SDI Surface MWD Survey	
1,079.00	1,062.65	-101.46	126.42	Last SDI Surface MWD Survey	
1,181.00	1,161.49	-119.41	144.09	First SDI Production MWD Survey	
9,547.00	9,418.58	-756.31	849.99	Last SDI Production MWD Survey	
9,607.00	9,478.51	-755.39	847.19	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____



Well Details: SR 34-12

TVD Reference: GL 7478' & RKB 24' @ 7502.00usft (H&P 318) Level: 7478.00
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.00 0.00 1597682.00 2340252.60 39.4511119 -107.8366354 SR 34-12 (B6)

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SR 34-12 - Slot SR 34-12 (B6), True North
 Vertical (TVD) Reference: GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
 Section (VS) Reference: Slot - SR 34-12 (B6)(0.00N, 0.00E)
 Measured Depth Reference: GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
 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

16:23, December 27 2017
 Created By: Mel Mireles Jr.