



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 313-12
County & State	Garfield County, CO
SDI Job No.	OP.006258
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 9,883 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 313-12 - Slot SR 313-12 (A5)
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 313-12	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 313-12 - Slot SR 313-12 (A5)					
Well Position	+N/-S	0.00 usft	Northing:	1,597,685.40 usft	Latitude:	39.4511204
	+E/-W	0.00 usft	Easting:	2,340,240.60 usft	Longitude:	-107.8366783
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	12/1/2017	9.23	65.62	51,641

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	278.95	

Survey Program	Date	12/27/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
122.00	584.00	Survey #1 - Gyro MWD Survey (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
659.00	1,078.00	Survey #2 - Surface MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,181.00	9,883.00	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	1.23	262.44	121.99	-0.17	-1.30	1.26	1.01	1.01	0.00	
First SDI Gyro MWD Survey										
214.00	3.78	275.19	213.90	-0.03	-5.30	5.23	2.82	2.77	13.86	
307.00	7.13	278.79	306.46	1.13	-14.06	14.06	3.62	3.60	3.87	
399.00	9.94	284.24	397.44	3.96	-27.40	27.68	3.18	3.05	5.92	
491.00	12.58	287.40	487.66	8.91	-44.66	45.50	2.95	2.87	3.43	
584.00	14.87	284.77	578.00	14.98	-65.87	67.39	2.55	2.46	-2.83	

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SR 313-12 - Slot SR 313-12 (A5)
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 313-12	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									
659.00	16.90	283.08	650.13	19.90	-85.79	87.84	2.78	2.71	-2.25
First SDI Surface MWD Survey									
754.00	18.14	278.85	740.72	25.30	-113.86	116.41	1.87	1.31	-4.45
865.00	20.00	278.36	845.63	30.72	-149.71	152.67	1.68	1.68	-0.44
943.00	22.73	277.13	918.26	34.53	-177.87	181.07	3.55	3.50	-1.58
1,036.00	23.40	278.72	1,003.83	39.56	-213.95	217.50	0.98	0.72	1.71
1,078.00	23.57	277.64	1,042.35	41.94	-230.52	234.24	1.10	0.40	-2.57
Last SDI Surface MWD Survey									
1,181.00	23.66	277.57	1,136.72	47.40	-271.42	275.49	0.09	0.09	-0.07
First SDI Production MWD Survey									
1,276.00	22.46	276.86	1,224.13	52.08	-308.33	312.68	1.30	-1.26	-0.75
1,370.00	24.67	278.10	1,310.29	56.99	-345.58	350.24	2.41	2.35	1.32
1,464.00	24.50	277.12	1,395.77	62.17	-384.35	389.34	0.47	-0.18	-1.04
1,559.00	24.00	275.90	1,482.38	66.60	-423.11	428.32	0.75	-0.53	-1.28
1,653.00	23.18	274.30	1,568.53	69.95	-460.57	465.85	1.11	-0.87	-1.70
1,748.00	25.21	274.48	1,655.18	72.93	-499.39	504.66	2.14	2.14	0.19
1,843.00	25.24	274.15	1,741.12	75.98	-539.77	545.01	0.15	0.03	-0.35
1,937.00	24.76	272.76	1,826.31	78.38	-579.42	584.56	0.81	-0.51	-1.48
2,031.00	24.99	276.02	1,911.60	81.41	-618.83	623.96	1.48	0.24	3.47
2,126.00	24.16	276.32	1,997.99	85.65	-658.11	663.42	0.88	-0.87	0.32
2,220.00	23.79	276.42	2,083.88	89.89	-696.07	701.58	0.40	-0.39	0.11
2,315.00	23.33	278.04	2,170.96	94.66	-733.73	739.53	0.84	-0.48	1.71
2,409.00	22.57	279.15	2,257.52	100.14	-769.97	776.18	0.93	-0.81	1.18
2,503.00	24.00	280.24	2,343.86	106.40	-806.60	813.33	1.59	1.52	1.16
2,598.00	23.10	280.95	2,430.95	113.38	-843.91	851.27	0.99	-0.95	0.75
2,692.00	22.39	280.19	2,517.64	120.05	-879.63	887.60	0.82	-0.76	-0.81
2,787.00	24.16	281.35	2,604.90	127.07	-916.50	925.12	1.92	1.86	1.22
2,881.00	22.67	281.63	2,691.16	134.51	-953.11	962.43	1.59	-1.59	0.30
2,976.00	24.82	280.86	2,778.11	141.96	-990.63	1,000.65	2.29	2.26	-0.81
3,070.00	24.45	281.07	2,863.56	149.41	-1,029.09	1,039.81	0.40	-0.39	0.22
3,165.00	23.67	280.87	2,950.30	156.78	-1,067.12	1,078.52	0.83	-0.82	-0.21
3,259.00	23.06	281.25	3,036.60	163.93	-1,103.70	1,115.77	0.67	-0.65	0.40
3,353.00	24.11	278.03	3,122.75	170.21	-1,140.77	1,153.36	1.77	1.12	-3.43
3,448.00	23.63	277.37	3,209.62	175.36	-1,178.87	1,191.80	0.58	-0.51	-0.69
3,542.00	22.76	277.51	3,296.02	180.15	-1,215.58	1,228.81	0.93	-0.93	0.15
3,637.00	24.49	277.59	3,383.06	185.16	-1,253.32	1,266.87	1.82	1.82	0.08
3,731.00	22.60	276.85	3,469.23	189.89	-1,290.57	1,304.40	2.04	-2.01	-0.79
3,826.00	23.84	276.30	3,556.53	194.17	-1,327.78	1,341.82	1.33	1.31	-0.58
3,920.00	23.35	275.60	3,642.67	198.07	-1,365.20	1,379.39	0.60	-0.52	-0.74
4,014.00	22.54	274.93	3,729.23	201.44	-1,401.69	1,415.96	0.91	-0.86	-0.71
4,109.00	21.95	274.53	3,817.16	204.41	-1,437.53	1,451.83	0.64	-0.62	-0.42
4,203.00	21.11	275.10	3,904.60	207.30	-1,471.90	1,486.23	0.92	-0.89	0.61
4,298.00	20.29	275.47	3,993.47	210.39	-1,505.34	1,519.75	0.87	-0.86	0.39

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Well:	SR 313-12	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

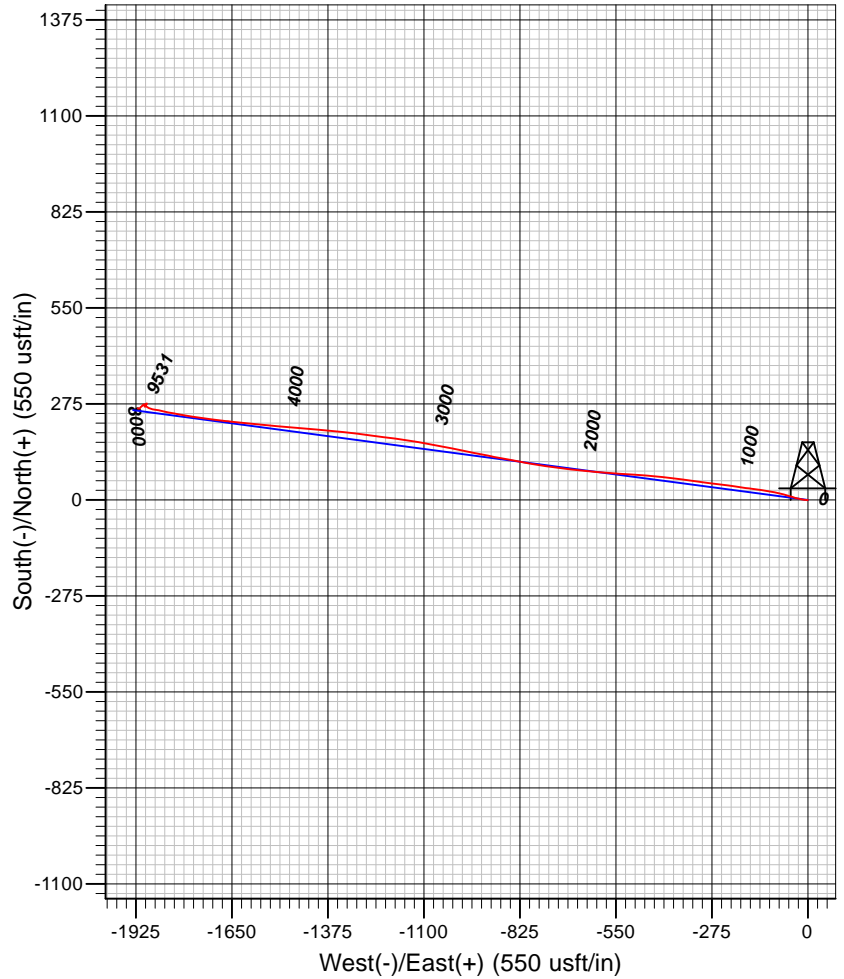
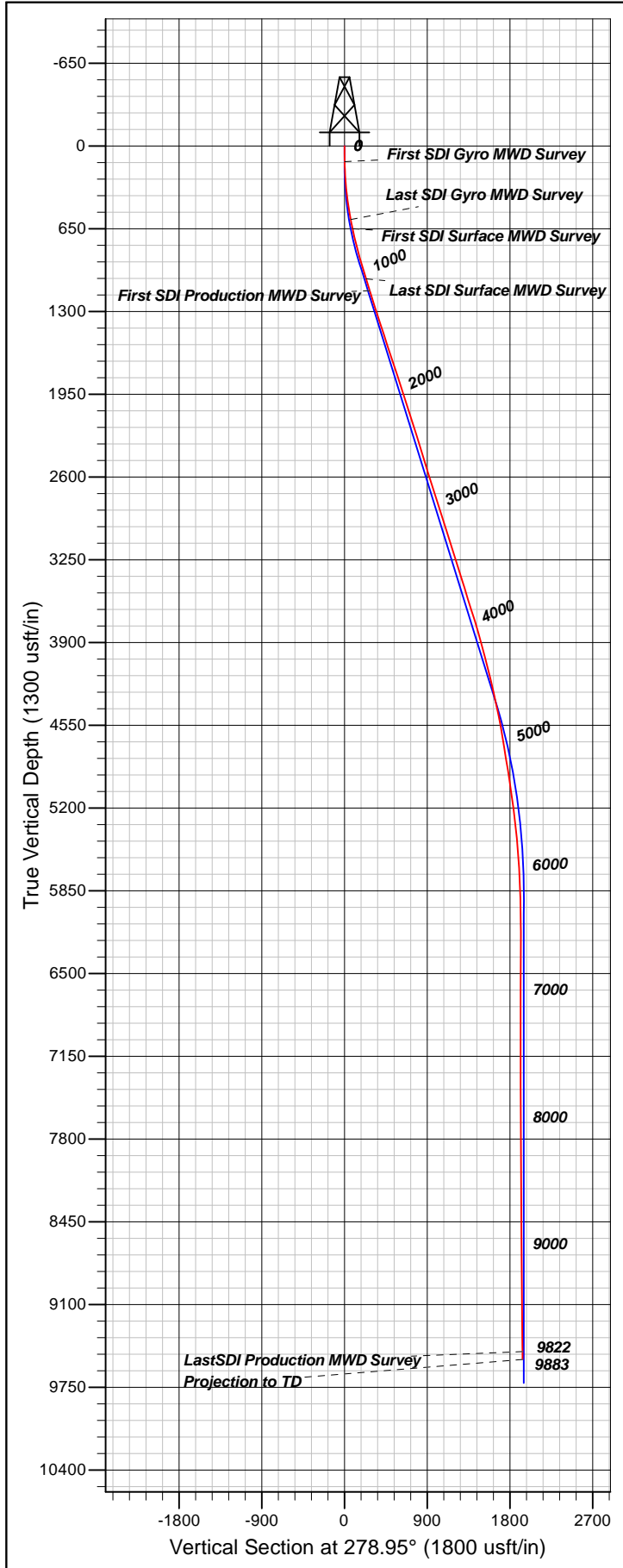
Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,392.00	19.65	275.81	4,081.82	213.54	-1,537.29	1,551.80	0.69	-0.68	0.36
4,487.00	18.69	275.30	4,171.55	216.57	-1,568.34	1,582.94	1.03	-1.01	-0.54
4,581.00	17.71	275.55	4,260.84	219.34	-1,597.56	1,612.24	1.05	-1.04	0.27
4,676.00	16.93	275.27	4,351.54	222.01	-1,625.72	1,640.47	0.83	-0.82	-0.29
4,770.00	16.40	275.81	4,441.59	224.61	-1,652.55	1,667.38	0.59	-0.56	0.57
4,864.00	13.80	277.21	4,532.33	227.36	-1,676.88	1,691.84	2.79	-2.77	1.49
4,959.00	13.24	277.44	4,624.70	230.19	-1,698.91	1,714.04	0.59	-0.59	0.24
5,053.00	12.74	277.27	4,716.30	232.90	-1,719.86	1,735.16	0.53	-0.53	-0.18
5,148.00	12.48	277.62	4,809.00	235.58	-1,740.43	1,755.89	0.29	-0.27	0.37
5,243.00	12.21	278.68	4,901.81	238.46	-1,760.53	1,776.20	0.37	-0.28	1.12
5,338.00	11.96	279.75	4,994.70	241.64	-1,780.17	1,796.09	0.35	-0.26	1.13
5,433.00	11.09	279.94	5,087.79	244.89	-1,798.87	1,815.06	0.92	-0.92	0.20
5,528.00	10.45	280.60	5,181.11	248.05	-1,816.33	1,832.81	0.69	-0.67	0.69
5,623.00	9.93	280.97	5,274.61	251.19	-1,832.84	1,849.61	0.55	-0.55	0.39
5,718.00	7.78	281.78	5,368.48	254.06	-1,847.18	1,864.22	2.27	-2.26	0.85
5,812.00	7.47	282.56	5,461.64	256.69	-1,859.37	1,876.67	0.35	-0.33	0.83
5,907.00	6.24	280.54	5,555.96	258.98	-1,870.48	1,888.00	1.32	-1.29	-2.13
6,001.00	5.36	281.77	5,649.48	260.81	-1,879.80	1,897.49	0.95	-0.94	1.31
6,095.00	2.64	292.67	5,743.24	262.54	-1,886.10	1,903.98	2.99	-2.89	11.60
6,190.00	2.73	299.38	5,838.14	264.49	-1,890.09	1,908.22	0.34	0.09	7.06
6,214.30	2.69	301.84	5,862.41	265.08	-1,891.08	1,909.29	0.50	-0.15	10.14
SR 313-12 BTV									
6,284.00	2.62	309.23	5,932.04	266.95	-1,893.70	1,912.18	0.50	-0.11	10.60
6,378.00	1.69	254.75	6,025.98	267.94	-1,896.70	1,915.30	2.28	-0.99	-57.96
6,473.00	1.41	259.88	6,120.95	267.37	-1,899.21	1,917.68	0.33	-0.29	5.40
6,567.00	0.30	50.24	6,214.94	267.32	-1,900.15	1,918.61	1.78	-1.18	159.96
6,661.00	0.24	5.92	6,308.94	267.68	-1,899.95	1,918.46	0.22	-0.06	-47.15
6,756.00	0.70	13.00	6,403.93	268.44	-1,899.79	1,918.43	0.49	0.48	7.45
6,851.00	0.70	44.55	6,498.93	269.42	-1,899.26	1,918.05	0.40	0.00	33.21
6,945.00	0.62	63.45	6,592.92	270.06	-1,898.40	1,917.30	0.25	-0.09	20.11
7,040.00	0.70	56.51	6,687.91	270.61	-1,897.46	1,916.45	0.12	0.08	-7.31
7,134.00	0.61	42.66	6,781.91	271.29	-1,896.64	1,915.75	0.19	-0.10	-14.73
7,229.00	0.62	15.55	6,876.90	272.16	-1,896.16	1,915.41	0.30	0.01	-28.54
7,323.00	0.67	29.08	6,970.90	273.13	-1,895.75	1,915.16	0.17	0.05	14.39
7,417.00	0.62	31.28	7,064.89	274.04	-1,895.22	1,914.78	0.06	-0.05	2.34
7,511.00	1.06	40.60	7,158.88	275.14	-1,894.39	1,914.13	0.49	0.47	9.91
7,606.00	1.14	38.14	7,253.86	276.55	-1,893.24	1,913.21	0.10	0.08	-2.59
7,700.00	1.06	230.70	7,347.86	276.73	-1,893.33	1,913.33	2.33	-0.09	-178.13
7,794.00	0.94	220.29	7,441.84	275.59	-1,894.50	1,914.31	0.23	-0.13	-11.07
7,888.00	0.70	228.16	7,535.83	274.62	-1,895.43	1,915.08	0.28	-0.26	8.37
7,983.00	0.62	250.48	7,630.83	274.06	-1,896.35	1,915.90	0.28	-0.08	23.49
8,077.00	0.97	277.64	7,724.82	274.00	-1,897.61	1,917.14	0.54	0.37	28.89
8,172.00	0.79	268.94	7,819.81	274.09	-1,899.07	1,918.59	0.24	-0.19	-9.16
8,266.00	1.14	253.82	7,913.79	273.82	-1,900.61	1,920.07	0.46	0.37	-16.09

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Site:	SR 23-12 Pad	MD Reference:	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
Well:	SR 313-12	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	0.44	263.84	8,008.78	273.52	-1,901.88	1,921.28	0.75	-0.74	10.55
8,455.00	0.53	284.85	8,102.78	273.59	-1,902.66	1,922.06	0.21	0.10	22.35
8,549.00	0.14	259.33	8,196.78	273.68	-1,903.19	1,922.60	0.43	-0.41	-27.15
8,644.00	0.44	208.47	8,291.78	273.34	-1,903.48	1,922.83	0.39	0.32	-53.54
8,738.00	0.44	224.55	8,385.77	272.77	-1,903.91	1,923.16	0.13	0.00	17.11
8,833.00	0.35	204.60	8,480.77	272.24	-1,904.28	1,923.45	0.17	-0.09	-21.00
8,927.00	0.70	222.53	8,574.77	271.56	-1,904.79	1,923.85	0.41	0.37	19.07
9,021.00	0.98	221.95	8,668.76	270.54	-1,905.72	1,924.61	0.30	0.30	-0.62
9,116.00	1.06	246.88	8,763.74	269.59	-1,907.07	1,925.79	0.47	0.08	26.24
9,211.00	1.22	222.35	8,858.73	268.50	-1,908.56	1,927.09	0.54	0.17	-25.82
9,305.00	1.41	233.17	8,952.70	267.06	-1,910.16	1,928.45	0.33	0.20	11.51
9,399.00	1.67	222.05	9,046.67	265.35	-1,912.00	1,930.01	0.42	0.28	-11.83
9,494.00	1.58	215.94	9,141.63	263.26	-1,913.70	1,931.36	0.21	-0.09	-6.43
9,588.00	0.62	217.52	9,235.61	261.81	-1,914.77	1,932.19	1.02	-1.02	1.68
9,683.00	1.19	283.90	9,330.60	261.64	-1,916.04	1,933.42	1.16	0.60	69.87
9,777.00	1.23	290.91	9,424.58	262.24	-1,917.93	1,935.38	0.16	0.04	7.46
9,822.00	1.06	294.25	9,469.57	262.58	-1,918.76	1,936.25	0.41	-0.38	7.42
LastSDI Production MWD Survey									
9,883.00	1.06	294.25	9,530.56	263.04	-1,919.79	1,937.34	0.00	0.00	0.00
Projection to TD - SR 313-12 PBHL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
122.00	121.99	-0.17	-1.30	First SDI Gyro MWD Survey
584.00	578.00	14.98	-65.87	Last SDI Gyro MWD Survey
659.00	650.13	19.90	-85.79	First SDI Surface MWD Survey
1,078.00	1,042.35	41.94	-230.52	Last SDI Surface MWD Survey
1,181.00	1,136.72	47.40	-271.42	First SDI Production MWD Survey
9,822.00	9,469.57	262.58	-1,918.76	LastSDI Production MWD Survey
9,883.00	9,530.56	263.04	-1,919.79	Projection to TD

Checked By: _____ Approved By: _____ Date: _____



Well Details: SR 313-12

TVD Reference: GL 7478' & RKB 24' @ 7502.00usft (H&P 318) & B&P 318
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.00 0.00 1597685.40 2340240.60 39.4511204 -107.8366782SR 313-12 (A5)

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SR 313-12 - Slot SR 313-12 (A5), True North
 Vertical (TVD) Reference: GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
 Section (VS) Reference: Slot - SR 313-12 (A5)(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

11:26, December 27 2017
 Created By: Mel Mireles Jr.