



## 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 522-12
County & State	Garfield County, CO
SDI Job No.	OP.005047
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 195 feet to a measured depth of 9,634 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-Nov-17

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 SR 522-12 - Slot SR 522-12 (B1)
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
<b>Site:</b>	SR 23-12 Pad	<b>MD Reference:</b>	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
<b>Well:</b>	SR 522-12	<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		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 522-12 - Slot SR 522-12 (B1)				
Well Position	+N/-S	0.00 usft	Northing:	1,597,717.00 usft	Latitude:	39.4512071
	+E/-W	0.00 usft	Easting:	2,340,239.10 usft	Longitude:	-107.8366864
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	7,478.00 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	10/14/2017	9.23	65.65	51,657

<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		343.49

<b>Survey Program</b>	<b>Date</b>	10/26/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
195.00	1,056.00	Survey #1 - Surface MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,166.00	9,634.00	Survey #2 - Production MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	

<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	
195.00	3.42	335.09	194.88	5.28	-2.45	5.76	1.75	1.75	0.00	
<b>First SDI Surface MWD Survey</b>										
287.00	5.15	342.88	286.62	11.71	-4.82	12.60	1.98	1.88	8.47	
380.00	7.25	348.06	379.08	21.44	-7.27	22.62	2.33	2.26	5.57	
472.00	9.41	348.05	470.10	34.48	-10.02	35.91	2.35	2.35	-0.01	
565.00	11.97	342.71	561.48	51.13	-14.47	53.13	2.95	2.75	-5.74	
656.00	12.99	340.51	650.33	69.78	-20.68	72.78	1.24	1.12	-2.42	
750.00	13.64	340.26	741.80	90.18	-27.95	94.40	0.69	0.69	-0.27	
844.00	13.25	341.81	833.23	110.84	-35.06	116.24	0.56	-0.41	1.65	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well SR 522-12 - Slot SR 522-12 (B1)
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
<b>Site:</b>	SR 23-12 Pad	<b>MD Reference:</b>	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
<b>Well:</b>	SR 522-12	<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)
939.00	12.31	334.36	925.88	130.32	-42.84	137.12	2.00	-0.99	-7.84
1,033.00	12.35	331.01	1,017.71	148.14	-52.05	156.83	0.76	0.04	-3.56
1,056.00	12.31	330.12	1,040.18	152.42	-54.46	161.61	0.84	-0.17	-3.87
Last SDI Surface MWD Survey									
1,166.00	12.97	330.43	1,147.51	173.33	-66.39	185.05	0.60	0.60	0.28
First SDI Production MWD Survey									
1,275.00	12.76	329.80	1,253.78	194.37	-78.49	208.66	0.23	-0.19	-0.58
1,370.00	12.92	329.25	1,346.40	212.56	-89.19	229.15	0.21	0.17	-0.58
1,464.00	12.81	328.98	1,438.04	230.52	-99.94	249.42	0.13	-0.12	-0.29
1,559.00	13.12	336.87	1,530.63	249.47	-109.60	270.33	1.89	0.33	8.31
1,653.00	12.84	335.66	1,622.23	268.79	-118.10	291.27	0.42	-0.30	-1.29
1,748.00	13.30	333.38	1,714.77	288.18	-127.34	312.49	0.73	0.48	-2.40
1,842.00	13.50	332.55	1,806.21	307.58	-137.24	333.90	0.30	0.21	-0.88
1,937.00	13.41	332.27	1,898.60	327.18	-147.48	355.60	0.12	-0.09	-0.29
2,031.00	13.24	331.63	1,990.07	346.30	-157.67	376.82	0.24	-0.18	-0.68
2,125.00	13.84	335.26	2,081.46	365.98	-167.49	398.49	1.11	0.64	3.86
2,220.00	13.97	334.08	2,173.67	386.61	-177.26	421.04	0.33	0.14	-1.24
2,314.00	13.89	333.20	2,264.91	406.89	-187.30	443.34	0.24	-0.09	-0.94
2,408.00	14.10	339.16	2,356.12	427.66	-196.46	465.86	1.55	0.22	6.34
2,503.00	13.63	339.82	2,448.36	448.98	-204.44	488.57	0.52	-0.49	0.69
2,597.00	13.29	339.37	2,539.77	469.49	-212.07	510.40	0.38	-0.36	-0.48
2,692.00	13.00	339.75	2,632.28	489.73	-219.62	531.95	0.32	-0.31	0.40
2,787.00	12.69	339.75	2,724.91	509.55	-226.93	553.03	0.33	-0.33	0.00
2,881.00	11.99	339.67	2,816.73	528.39	-233.89	573.07	0.74	-0.74	-0.09
2,976.00	11.37	337.00	2,909.77	546.26	-240.98	592.22	0.87	-0.65	-2.81
3,070.00	11.16	336.51	3,001.96	563.14	-248.23	610.46	0.25	-0.22	-0.52
3,164.00	10.31	336.81	3,094.31	579.21	-255.16	627.84	0.91	-0.90	0.32
3,259.00	12.14	338.97	3,187.49	596.35	-262.10	646.24	1.98	1.93	2.27
3,353.00	11.61	339.44	3,279.48	614.43	-268.97	665.53	0.57	-0.56	0.50
3,447.00	11.15	339.53	3,371.63	631.80	-275.47	684.03	0.49	-0.49	0.10
3,542.00	10.35	339.37	3,464.96	648.40	-281.69	701.71	0.84	-0.84	-0.17
3,637.00	12.30	337.80	3,558.11	665.75	-288.52	720.29	2.08	2.05	-1.65
3,731.00	12.00	338.79	3,650.00	684.13	-295.83	740.00	0.39	-0.32	1.05
3,825.00	11.39	339.24	3,742.05	701.92	-302.66	758.99	0.66	-0.65	0.48
3,920.00	10.83	338.67	3,835.27	719.01	-309.23	777.24	0.60	-0.59	-0.60
4,014.00	10.49	340.13	3,927.65	735.28	-315.35	794.58	0.46	-0.36	1.55
4,109.00	10.11	339.28	4,021.12	751.21	-321.24	811.53	0.43	-0.40	-0.89
4,203.00	9.78	339.41	4,113.70	766.40	-326.97	827.72	0.35	-0.35	0.14
4,297.00	9.62	337.56	4,206.36	781.14	-332.77	843.50	0.37	-0.17	-1.97
4,392.00	9.25	337.57	4,300.07	795.53	-338.72	858.99	0.39	-0.39	0.01
4,486.00	9.25	336.33	4,392.85	809.43	-344.63	874.00	0.21	0.00	-1.32
4,581.00	8.96	336.34	4,486.66	823.20	-350.67	888.91	0.31	-0.31	0.01
4,675.00	8.35	335.31	4,579.58	836.11	-356.46	902.93	0.67	-0.65	-1.10

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<b>Well:</b>	SR 522-12	<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

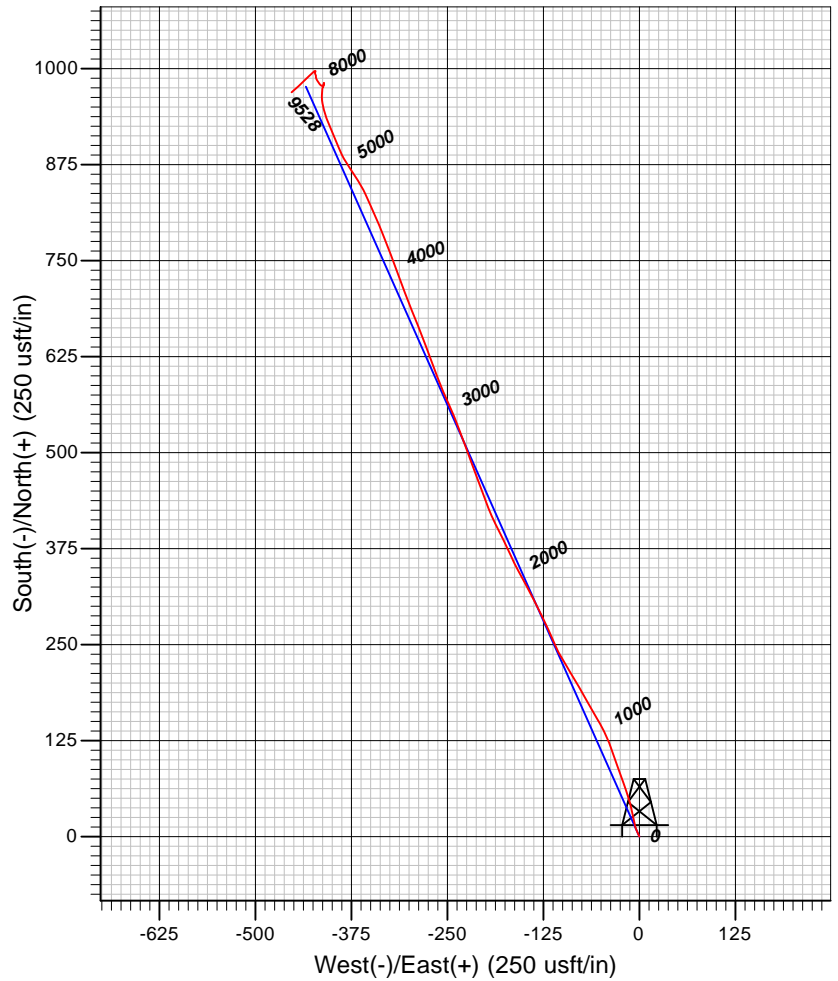
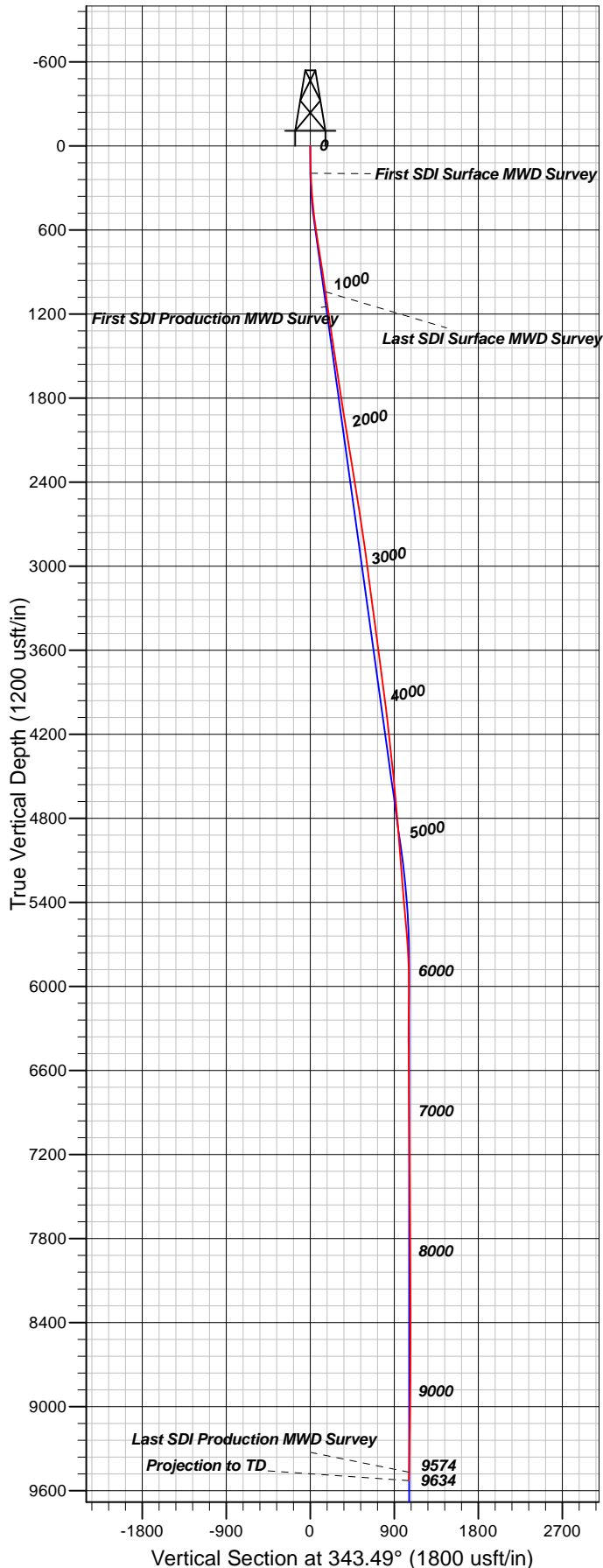
Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,770.00	7.37	328.88	4,673.69	847.59	-362.49	915.66	1.38	-1.03	-6.77
4,864.00	7.31	327.53	4,766.92	857.80	-368.81	927.24	0.19	-0.06	-1.44
4,958.00	7.47	327.84	4,860.14	868.02	-375.28	938.87	0.18	0.17	0.33
5,053.00	6.86	325.50	4,954.40	877.92	-381.78	950.22	0.71	-0.64	-2.46
5,148.00	6.90	335.65	5,048.72	887.80	-387.34	961.27	1.28	0.04	10.68
5,243.00	6.69	337.22	5,143.05	898.10	-391.84	972.42	0.30	-0.22	1.65
5,338.00	7.03	336.71	5,237.37	908.54	-396.28	983.69	0.36	0.36	-0.54
5,433.00	7.47	336.36	5,331.61	919.54	-401.05	995.59	0.47	0.46	-0.37
5,528.00	7.30	340.49	5,425.82	930.88	-405.55	1,007.75	0.59	-0.18	4.35
5,623.00	7.39	341.11	5,520.04	942.35	-409.54	1,019.88	0.13	0.09	0.65
5,718.00	6.77	349.81	5,614.32	953.65	-412.51	1,031.55	1.30	-0.65	9.16
5,812.00	6.16	1.15	5,707.73	964.14	-413.39	1,041.86	1.50	-0.65	12.06
5,906.00	5.19	8.79	5,801.27	973.39	-412.64	1,050.51	1.31	-1.03	8.13
5,940.53	4.25	11.53	5,835.68	976.18	-412.14	1,053.05	2.81	-2.73	7.95
<b>SR 522-12 BTW</b>									
6,001.00	2.64	21.01	5,896.04	979.68	-411.20	1,056.13	2.81	-2.66	15.67
6,095.00	0.35	183.52	5,990.01	981.41	-410.44	1,057.58	3.17	-2.44	172.88
6,190.00	0.66	198.70	6,085.01	980.60	-410.63	1,056.86	0.35	0.33	15.98
6,284.00	1.06	182.20	6,179.00	979.22	-410.84	1,055.60	0.50	0.43	-17.55
6,378.00	1.32	193.28	6,272.98	977.30	-411.12	1,053.83	0.37	0.28	11.79
6,472.00	0.68	305.22	6,366.97	976.57	-411.82	1,053.33	1.80	-0.68	119.09
6,567.00	0.88	307.18	6,461.96	977.33	-412.87	1,054.36	0.21	0.21	2.06
6,661.00	0.71	289.20	6,555.95	977.96	-413.99	1,055.28	0.32	-0.18	-19.13
6,756.00	0.87	302.72	6,650.94	978.54	-415.15	1,056.17	0.26	0.17	14.23
6,850.00	0.97	326.69	6,744.93	979.59	-416.19	1,057.48	0.42	0.11	25.50
6,945.00	0.85	323.03	6,839.92	980.83	-417.06	1,058.91	0.14	-0.13	-3.85
7,039.00	0.77	342.19	6,933.91	981.99	-417.67	1,060.19	0.30	-0.09	20.38
7,134.00	0.67	311.79	7,028.90	982.96	-418.28	1,061.30	0.41	-0.11	-32.00
7,228.00	0.44	326.17	7,122.90	983.63	-418.89	1,062.11	0.28	-0.24	15.30
7,322.00	0.63	324.66	7,216.89	984.35	-419.39	1,062.95	0.20	0.20	-1.61
7,417.00	0.70	333.28	7,311.88	985.30	-419.95	1,064.01	0.13	0.07	9.07
7,511.00	0.67	330.41	7,405.88	986.29	-420.48	1,065.11	0.05	-0.03	-3.05
7,605.00	0.37	354.68	7,499.87	987.07	-420.78	1,065.95	0.39	-0.32	25.82
7,700.00	0.51	352.02	7,594.87	987.79	-420.87	1,066.67	0.15	0.15	-2.80
7,794.00	0.62	345.94	7,688.87	988.70	-421.05	1,067.59	0.13	0.12	-6.47
7,888.00	0.70	6.42	7,782.86	989.76	-421.11	1,068.62	0.26	0.09	21.79
7,983.00	0.70	353.24	7,877.85	990.92	-421.11	1,069.73	0.17	0.00	-13.87
8,077.00	1.01	330.79	7,971.84	992.21	-421.58	1,071.10	0.48	0.33	-23.88
8,171.00	1.38	343.74	8,065.82	994.02	-422.31	1,073.04	0.48	0.39	13.78
8,266.00	0.53	65.39	8,160.81	995.30	-422.23	1,074.25	1.48	-0.89	85.95
8,360.00	0.53	37.45	8,254.81	995.83	-421.57	1,074.57	0.27	0.00	-29.72
8,455.00	0.34	341.67	8,349.81	996.44	-421.39	1,075.11	0.46	-0.20	-58.72
8,549.00	0.57	277.24	8,443.80	996.77	-421.94	1,075.57	0.56	0.24	-68.54
8,644.00	1.32	242.93	8,538.79	996.33	-423.38	1,075.56	0.96	0.79	-36.12

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<b>Well:</b>	SR 522-12	<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)	
8,738.00	1.49	223.82	8,632.76	994.95	-425.19	1,074.76	0.53	0.18	-20.33	
8,833.00	1.85	221.66	8,727.72	992.92	-427.07	1,073.34	0.38	0.38	-2.27	
8,927.00	2.52	225.29	8,821.65	990.33	-429.54	1,071.56	0.73	0.71	3.86	
9,022.00	2.58	232.65	8,916.56	987.56	-432.73	1,069.82	0.35	0.06	7.75	
9,116.00	2.02	223.42	9,010.48	985.08	-435.55	1,068.23	0.71	-0.60	-9.82	
9,210.00	2.22	223.05	9,104.42	982.54	-437.93	1,066.48	0.21	0.21	-0.39	
9,305.00	2.44	226.39	9,199.34	979.80	-440.65	1,064.63	0.27	0.23	3.52	
9,399.00	3.39	227.92	9,293.22	976.56	-444.16	1,062.52	1.01	1.01	1.63	
9,493.00	2.73	228.08	9,387.08	973.20	-447.89	1,060.36	0.70	-0.70	0.17	
9,574.00	2.46	228.61	9,468.00	970.76	-450.63	1,058.80	0.33	-0.33	0.65	
Last SDI Production MWD Survey										
9,634.00	2.46	228.61	9,527.94	969.06	-452.56	1,057.71	0.00	0.00	0.00	
Projection to TD - SR 522-12 PBHL										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
195.00	194.88	5.28	-2.45	First SDI Surface MWD Survey	
1,056.00	1,040.18	152.42	-54.46	Last SDI Surface MWD Survey	
1,166.00	1,147.51	173.33	-66.39	First SDI Production MWD Survey	
9,574.00	9,468.00	970.76	-450.63	Last SDI Production MWD Survey	
9,634.00	9,527.94	969.06	-452.56	Projection to TD	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



#### Well Details: SR 522-12

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 1597717.00 2340239.10 39.4512070 -107.8366864SR 522-12 (B1)

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SR 522-12 - Slot SR 522-12 (B1), True North  
 Vertical (TVD) Reference: GL 7478' & RKB 24' @ 7502.00usft (H&P 318)  
 Section (VS) Reference: Slot - SR 522-12 (B1)(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

19:01, November 27 2017  
 Created By: Mel Mireles Jr.