



## Directional Survey Certification

2948 I-70 Business Loop  
Grand Junction, CO 81504  
(970)-245-9447 Fax (970)-245-9454

<b>Operator</b>	TEP Rocky Mountain, LLC.
<b>Well Name &amp; No.</b>	SR 312-12
<b>County &amp; State</b>	Garfield County, CO
<b>SDI Job No.</b>	OP.004741
<b>Rig</b>	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 124 feet to a measured depth of 10,104 feet is true and correct as determined from all available records.

  
Signature

11-Oct-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 312-12 - Slot A10
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 7254' & RKB 24' @ 7278.00usft (H&P 318)
<b>Site:</b>	RU 32-12 Pad	<b>MD Reference:</b>	GL 7254' & RKB 24' @ 7278.00usft (H&P 318)
<b>Well:</b>	SR 312-12	<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		RU 32-12 Pad			
Site Position:		Northing:	1,599,253.30 usft	Latitude:	39.4554808
From:	Map	Easting:	2,341,050.00 usft	Longitude:	-107.8339555
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.47 °

Well	SR 312-12 - Slot A10					
Well Position	+N/-S	0.00 usft	Northing:	1,599,187.60 usft	Latitude:	39.4553015
	+E/-W	0.00 usft	Easting:	2,341,065.40 usft	Longitude:	-107.8338950
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	7,254.00 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	10/2/2017	9.23	65.67	51,664

<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	262.02	

<b>Survey Program</b>	<b>Date</b>	10/11/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
124.00	863.00	Survey #1 - Gyro MWD Survey (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
939.00	1,372.00	Survey #2 - Surface MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,462.00	10,104.00	Survey #3 - 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	
124.00	1.85	259.37	123.98	-0.37	-1.97	2.00	1.49	1.49	0.00	
<b>First SDI Gyro MWD Survey</b>										
216.00	4.57	264.55	215.83	-0.99	-7.08	7.15	2.97	2.96	5.63	
308.00	7.30	266.92	307.32	-1.65	-16.56	16.63	2.98	2.97	2.58	
399.00	9.68	270.70	397.32	-1.87	-29.99	29.96	2.68	2.62	4.15	
491.00	11.52	269.12	487.75	-1.92	-46.91	46.72	2.02	2.00	-1.72	
584.00	13.72	269.74	578.50	-2.11	-67.23	66.87	2.37	2.37	0.67	
676.00	15.75	264.55	667.47	-3.35	-90.57	90.16	2.63	2.21	-5.64	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well SR 312-12 - Slot A10
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 7254' & RKB 24' @ 7278.00usft (H&P 318)
<b>Site:</b>	RU 32-12 Pad	<b>MD Reference:</b>	GL 7254' & RKB 24' @ 7278.00usft (H&P 318)
<b>Well:</b>	SR 312-12	<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)
770.00	18.21	267.36	757.37	-5.23	-117.95	117.53	2.76	2.62	2.99
863.00	21.64	267.71	844.79	-6.59	-149.61	149.07	3.69	3.69	0.38
Last SDI Gyro MWD Survey									
939.00	24.26	268.73	914.76	-7.50	-179.22	178.53	3.49	3.45	1.34
First SDI Surface MWD Survey									
1,033.00	27.47	270.32	999.34	-7.80	-220.22	219.17	3.49	3.41	1.69
1,128.00	30.17	271.07	1,082.56	-7.23	-266.01	264.44	2.87	2.84	0.79
1,222.00	33.17	270.81	1,162.56	-6.43	-315.35	313.19	3.19	3.19	-0.28
1,316.00	36.87	269.89	1,239.52	-6.12	-369.28	366.56	3.98	3.94	-0.98
1,372.00	38.51	268.68	1,283.84	-6.55	-403.51	400.52	3.21	2.93	-2.16
Last SDI Surface MWD Survey									
1,462.00	38.23	267.89	1,354.40	-8.22	-459.35	456.05	0.63	-0.31	-0.88
First SDI Production MWD Survey									
1,557.00	37.72	268.05	1,429.29	-10.30	-517.77	514.19	0.55	-0.54	0.17
1,651.00	37.44	268.00	1,503.78	-12.27	-575.06	571.20	0.30	-0.30	-0.05
1,746.00	36.16	266.56	1,579.85	-14.96	-631.90	627.87	1.62	-1.35	-1.52
1,840.00	36.65	268.04	1,655.51	-17.58	-687.63	683.41	1.07	0.52	1.57
1,934.00	36.76	269.82	1,730.87	-18.63	-743.79	739.19	1.14	0.12	1.89
2,029.00	37.42	271.15	1,806.65	-18.14	-801.08	795.85	1.09	0.69	1.40
2,124.00	37.22	271.12	1,882.20	-17.00	-858.66	852.72	0.21	-0.21	-0.03
2,218.00	39.04	271.20	1,956.14	-15.83	-916.69	910.02	1.94	1.94	0.09
2,313.00	38.65	271.38	2,030.13	-14.48	-976.26	968.83	0.43	-0.41	0.19
2,407.00	38.32	271.63	2,103.71	-12.95	-1,034.74	1,026.53	0.39	-0.35	0.27
2,501.00	37.35	270.92	2,177.95	-11.66	-1,092.38	1,083.43	1.13	-1.03	-0.76
2,596.00	37.90	270.38	2,253.19	-11.01	-1,150.37	1,140.77	0.67	0.58	-0.57
2,785.00	38.03	269.14	2,402.20	-11.49	-1,266.63	1,255.98	0.41	0.07	-0.66
2,879.00	39.33	272.39	2,475.59	-10.69	-1,325.36	1,314.02	2.57	1.38	3.46
2,974.00	38.26	272.66	2,549.63	-8.07	-1,384.82	1,372.55	1.14	-1.13	0.28
3,068.00	39.33	272.71	2,622.89	-5.31	-1,443.65	1,430.42	1.14	1.14	0.05
3,163.00	38.40	272.30	2,696.86	-2.70	-1,503.20	1,489.04	1.02	-0.98	-0.43
3,257.00	39.84	271.71	2,769.79	-0.63	-1,562.47	1,547.45	1.58	1.53	-0.63
3,352.00	38.23	271.21	2,843.58	0.90	-1,622.28	1,606.47	1.73	-1.69	-0.53
3,446.00	39.46	269.89	2,916.79	1.46	-1,681.23	1,664.77	1.58	1.31	-1.40
3,541.00	38.51	270.20	2,990.63	1.50	-1,741.00	1,723.95	1.02	-1.00	0.33
3,636.00	36.73	270.43	3,065.87	1.82	-1,798.98	1,781.33	1.88	-1.87	0.24
3,730.00	38.81	272.15	3,140.18	3.13	-1,856.54	1,838.15	2.48	2.21	1.83
3,825.00	37.02	271.29	3,215.12	4.90	-1,914.88	1,895.68	1.96	-1.88	-0.91
3,919.00	35.44	270.88	3,290.95	5.95	-1,970.43	1,950.54	1.70	-1.68	-0.44
4,013.00	34.39	270.74	3,368.02	6.71	-2,024.22	2,003.71	1.12	-1.12	-0.15
4,108.00	33.02	270.32	3,447.05	7.20	-2,076.94	2,055.85	1.46	-1.44	-0.44
4,202.00	31.01	270.60	3,526.75	7.60	-2,126.77	2,105.14	2.14	-2.14	0.30
4,297.00	29.45	270.56	3,608.83	8.08	-2,174.59	2,152.44	1.64	-1.64	-0.04
4,391.00	28.90	269.30	3,690.91	8.03	-2,220.41	2,197.82	0.88	-0.59	-1.34
4,486.00	27.74	269.84	3,774.54	7.69	-2,265.48	2,242.50	1.25	-1.22	0.57

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<b>Well:</b>	SR 312-12	<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

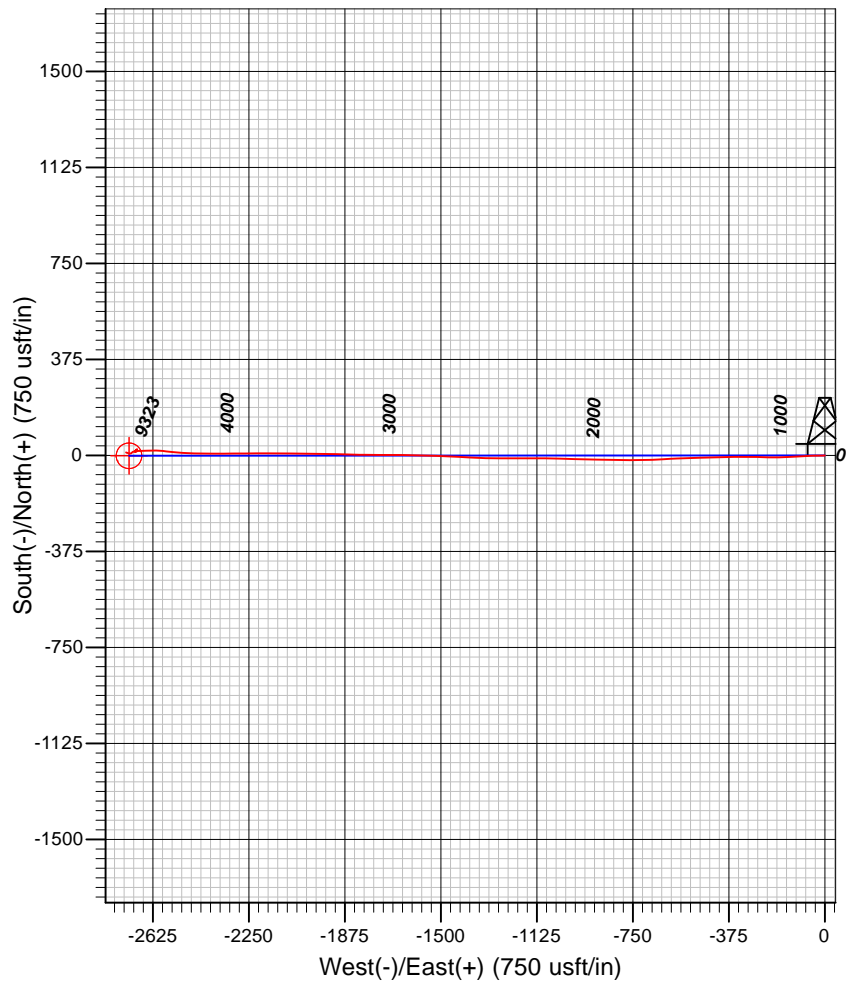
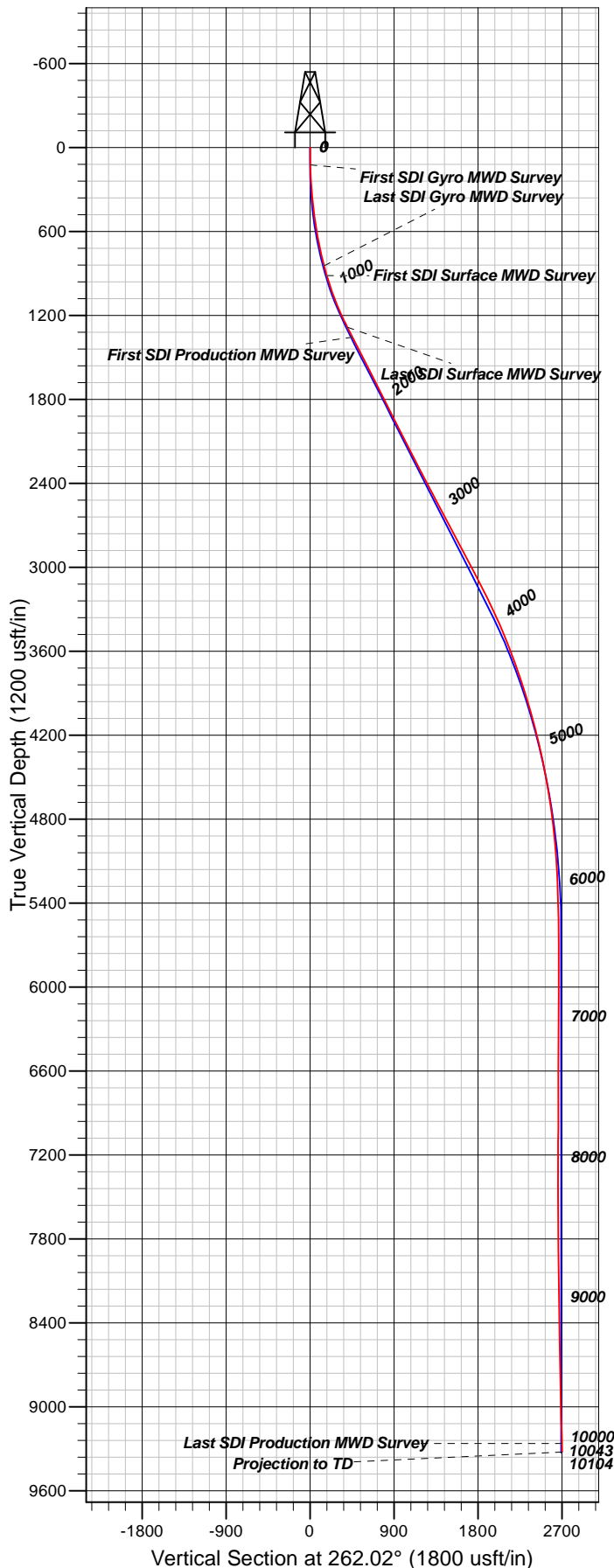
Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,580.00	26.06	269.24	3,858.36	7.36	-2,308.00	2,284.66	1.81	-1.79	-0.64	
4,675.00	24.82	269.72	3,944.15	6.98	-2,348.81	2,325.12	1.32	-1.31	0.51	
4,769.00	22.99	270.24	4,030.08	6.96	-2,386.90	2,362.85	1.96	-1.95	0.55	
4,864.00	22.07	270.53	4,117.83	7.20	-2,423.30	2,398.86	0.98	-0.97	0.31	
4,958.00	21.00	271.06	4,205.27	7.68	-2,457.80	2,432.96	1.16	-1.14	0.56	
5,053.00	18.38	272.55	4,294.70	8.66	-2,489.79	2,464.50	2.81	-2.76	1.57	
5,147.00	17.67	274.38	4,384.09	10.41	-2,518.82	2,493.01	0.97	-0.76	1.95	
5,242.00	16.79	276.15	4,474.83	12.98	-2,546.83	2,520.40	1.08	-0.93	1.86	
5,336.00	15.00	275.86	4,565.23	15.68	-2,572.44	2,545.38	1.91	-1.90	-0.31	
5,430.00	13.62	275.13	4,656.31	17.91	-2,595.56	2,567.97	1.48	-1.47	-0.78	
5,524.00	11.67	273.21	4,748.03	19.43	-2,616.08	2,588.08	2.12	-2.07	-2.04	
5,619.00	9.75	264.05	4,841.38	19.14	-2,633.67	2,605.55	2.70	-2.02	-9.64	
5,713.00	7.06	266.88	4,934.36	18.00	-2,647.36	2,619.26	2.89	-2.86	3.01	
5,808.00	6.68	269.12	5,028.68	17.59	-2,658.72	2,630.56	0.49	-0.40	2.36	
5,903.00	5.04	267.67	5,123.18	17.34	-2,668.41	2,640.20	1.73	-1.73	-1.53	
5,997.00	4.66	269.47	5,216.84	17.14	-2,676.36	2,648.09	0.44	-0.40	1.91	
6,091.00	2.81	263.59	5,310.64	16.84	-2,682.46	2,654.18	2.01	-1.97	-6.26	
6,186.00	2.61	271.65	5,405.53	16.65	-2,686.94	2,658.64	0.45	-0.21	8.48	
6,280.00	2.29	275.01	5,499.44	16.87	-2,690.95	2,662.58	0.37	-0.34	3.57	
6,374.00	0.72	209.74	5,593.41	16.52	-2,693.11	2,664.77	2.23	-1.67	-69.44	
6,392.87	0.68	207.45	5,612.28	16.32	-2,693.22	2,664.91	0.28	-0.24	-12.15	
SR 312-12 MVRD										
6,469.00	0.51	194.28	5,688.41	15.59	-2,693.51	2,665.30	0.28	-0.22	-17.30	
6,563.00	0.14	180.67	5,782.41	15.07	-2,693.62	2,665.48	0.40	-0.39	-14.48	
6,657.00	0.38	3.61	5,876.41	15.27	-2,693.60	2,665.43	0.55	0.26	-188.36	
6,752.00	0.53	20.66	5,971.40	16.00	-2,693.43	2,665.16	0.21	0.16	17.95	
6,846.00	0.46	28.55	6,065.40	16.73	-2,693.09	2,664.72	0.10	-0.07	8.39	
6,941.00	0.59	23.85	6,160.40	17.52	-2,692.71	2,664.24	0.14	0.14	-4.95	
7,035.00	0.88	35.95	6,254.39	18.54	-2,692.09	2,663.48	0.35	0.31	12.87	
7,130.00	0.76	45.75	6,349.38	19.57	-2,691.21	2,662.47	0.19	-0.13	10.32	
7,224.00	0.53	50.10	6,443.37	20.29	-2,690.43	2,661.60	0.25	-0.24	4.63	
7,319.00	0.44	100.69	6,538.37	20.50	-2,689.74	2,660.88	0.44	-0.09	53.25	
7,413.00	0.31	48.69	6,632.37	20.60	-2,689.19	2,660.32	0.37	-0.14	-55.32	
7,508.00	0.27	358.92	6,727.37	21.00	-2,689.00	2,660.08	0.26	-0.04	-52.39	
7,602.00	0.20	331.82	6,821.36	21.36	-2,689.08	2,660.11	0.14	-0.07	-28.83	
7,697.00	0.27	334.21	6,916.36	21.71	-2,689.26	2,660.24	0.07	0.07	2.52	
7,791.00	0.35	38.94	7,010.36	22.13	-2,689.18	2,660.10	0.36	0.09	68.86	
7,885.00	0.84	53.34	7,104.36	22.77	-2,688.44	2,659.28	0.54	0.52	15.32	
7,980.00	0.90	49.62	7,199.35	23.67	-2,687.32	2,658.04	0.09	0.06	-3.92	
8,074.00	0.62	151.61	7,293.34	23.70	-2,686.51	2,657.24	1.27	-0.30	108.50	
8,169.00	1.49	187.30	7,388.33	22.02	-2,686.42	2,657.39	1.11	0.92	37.57	
8,263.00	1.14	192.57	7,482.30	19.89	-2,686.78	2,658.04	0.39	-0.37	5.61	
8,358.00	1.03	194.68	7,577.28	18.15	-2,687.21	2,658.70	0.12	-0.12	2.22	

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<b>Well:</b>	SR 312-12	<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)
8,452.00	0.88	207.34	7,671.27	16.69	-2,687.75	2,659.44	0.27	-0.16	13.47
8,547.00	0.77	205.33	7,766.26	15.46	-2,688.36	2,660.21	0.12	-0.12	-2.12
8,641.00	0.59	227.05	7,860.25	14.56	-2,688.98	2,660.96	0.33	-0.19	23.11
8,735.00	1.19	265.03	7,954.24	14.15	-2,690.31	2,662.33	0.86	0.64	40.40
8,830.00	1.24	267.33	8,049.22	14.01	-2,692.32	2,664.34	0.07	0.05	2.42
8,924.00	1.14	281.69	8,143.20	14.16	-2,694.25	2,666.23	0.33	-0.11	15.28
9,019.00	1.46	273.90	8,238.18	14.43	-2,696.38	2,668.30	0.38	0.34	-8.20
9,113.00	1.48	272.52	8,332.15	14.57	-2,698.79	2,670.67	0.04	0.02	-1.47
9,208.00	1.40	260.61	8,427.12	14.43	-2,701.16	2,673.04	0.33	-0.08	-12.54
9,302.00	1.41	239.10	8,521.09	13.65	-2,703.29	2,675.25	0.56	0.01	-22.88
9,396.00	1.43	226.27	8,615.06	12.24	-2,705.13	2,677.27	0.34	0.02	-13.65
9,491.00	2.05	223.07	8,710.02	10.18	-2,707.14	2,679.55	0.66	0.65	-3.37
9,585.00	2.11	246.53	8,803.96	8.27	-2,709.88	2,682.52	0.90	0.06	24.96
9,680.00	1.54	267.26	8,898.91	7.51	-2,712.76	2,685.48	0.91	-0.60	21.82
9,774.00	1.98	279.47	8,992.86	7.72	-2,715.62	2,688.29	0.61	0.47	12.99
9,869.00	2.56	281.76	9,087.79	8.42	-2,719.32	2,691.85	0.62	0.61	2.41
9,963.00	2.92	285.63	9,181.68	9.49	-2,723.68	2,696.02	0.43	0.38	4.12
10,043.00	2.64	291.36	9,261.59	10.71	-2,727.36	2,699.49	0.49	-0.35	7.16
Last SDI Production MWD Survey									
10,104.00	2.64	291.36	9,322.52	11.73	-2,729.97	2,701.94	0.00	0.00	0.00
Projection to TD - SR 312-12 PBHL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
124.00	123.98	-0.37	-1.97	First SDI Gyro MWD Survey
863.00	844.79	-6.59	-149.61	Last SDI Gyro MWD Survey
939.00	914.76	-7.50	-179.22	First SDI Surface MWD Survey
1,372.00	1,283.84	-6.55	-403.51	Last SDI Surface MWD Survey
1,462.00	1,354.40	-8.22	-459.35	First SDI Production MWD Survey
10,043.00	9,261.59	10.71	-2,727.36	Last SDI Production MWD Survey
10,104.00	9,322.52	11.73	-2,729.97	Projection to TD

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



#### Well Details: SR 312-12

TVD Reference: GL 7254' & RKB 24' @ 7278.00usft (H&P 318) Level: 7254.00						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1599187.60	2341065.40	39.4553015	-107.8338949	A10

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SR 312-12 - Slot A10, True North  
 Vertical (TVD) Reference: GL 7254' & RKB 24' @ 7278.00usft (H&P 318)  
 Section (VS) Reference: Slot - A10(0.00N, 0.00E)  
 Measured Depth Reference: GL 7254' & RKB 24' @ 7278.00usft (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

9:37, October 11 2017  
 Created By: Mel Mireles Jr.