



## 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 12-12
<b>County &amp; State</b>	Garfield County, CO
<b>SDI Job No.</b>	OP.002663 & OP.003710
<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 122 feet to a measured depth of 10,070 feet is true and correct as determined from all available records.

  
Signature

06-Sep-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 12-12 - Slot A9
<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 12-12	<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 12-12 - Slot A9				
Well Position	+N/-S	0.00 usft	Northing:	1,599,195.10 usft	Latitude:	39.4553220
	+E/-W	0.00 usft	Easting:	2,341,063.60 usft	Longitude:	-107.8339020
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	8/22/2017	9.25	65.67	51,677

<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	275.58	

<b>Survey Program</b>	<b>Date</b>	9/6/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
122.00	587.00	Survey #1 - Gyro MWD Survey (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
659.00	1,301.00	Survey #2 - Surface MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,460.00	10,070.00	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	
122.00	0.44	250.05	122.00	-0.16	-0.44	0.42	0.36	0.36	0.00	
<b>First SDI Gyro MWD Survey</b>										
218.00	2.90	276.50	217.95	-0.01	-3.20	3.18	2.62	2.56	27.55	
310.00	5.54	280.37	309.69	1.05	-9.88	9.94	2.88	2.87	4.21	
402.00	8.27	279.49	401.02	2.94	-20.78	20.97	2.97	2.97	-0.96	
494.00	10.82	273.34	491.74	4.54	-35.93	36.20	2.98	2.77	-6.68	
587.00	14.08	271.49	582.54	5.34	-55.96	56.21	3.53	3.51	-1.99	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well SR 12-12 - Slot A9
<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 12-12	<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)
<b>Last SDI Gyro MWD Survey</b>									
659.00	16.41	271.18	652.00	5.78	-74.88	75.09	3.24	3.24	-0.43
<b>First SDI Surface MWD Survey</b>									
753.00	18.92	273.35	741.56	6.94	-103.38	103.56	2.76	2.67	2.31
847.00	21.50	274.71	829.77	9.25	-135.76	136.02	2.79	2.74	1.45
942.00	23.47	276.23	917.54	12.73	-171.92	172.35	2.16	2.07	1.60
1,036.00	26.46	276.34	1,002.75	17.07	-211.35	212.01	3.18	3.18	0.12
1,131.00	29.59	276.76	1,086.60	22.17	-255.69	256.64	3.30	3.29	0.44
1,225.00	33.35	277.66	1,166.76	28.35	-304.36	305.68	4.03	4.00	0.96
1,301.00	35.88	277.16	1,229.30	33.91	-347.17	348.83	3.35	3.33	-0.66
<b>Last SDI Surface MWD Survey</b>									
1,460.00	36.76	273.01	1,357.43	42.22	-440.93	442.95	1.64	0.55	-2.61
<b>First SDI Production MWD Survey</b>									
1,554.00	37.46	273.45	1,432.39	45.42	-497.56	499.61	0.80	0.74	0.47
1,649.00	37.36	276.10	1,507.86	50.22	-555.06	557.31	1.70	-0.11	2.79
1,743.00	37.95	275.59	1,582.28	56.07	-612.18	614.73	0.71	0.63	-0.54
1,837.00	37.08	278.24	1,656.84	62.94	-669.00	671.95	1.95	-0.93	2.82
1,932.00	36.70	276.83	1,732.82	70.42	-725.53	728.94	0.98	-0.40	-1.48
2,027.00	37.28	280.93	1,808.72	79.26	-781.97	785.98	2.67	0.61	4.32
2,121.00	37.85	280.83	1,883.23	90.07	-838.25	843.04	0.61	0.61	-0.11
2,216.00	37.85	280.28	1,958.24	100.75	-895.56	901.11	0.36	0.00	-0.58
2,310.00	37.70	279.79	2,032.54	110.79	-952.26	958.52	0.36	-0.16	-0.52
2,404.00	37.89	279.16	2,106.82	120.27	-1,009.08	1,015.99	0.46	0.20	-0.67
2,499.00	37.57	279.21	2,181.96	129.55	-1,066.47	1,074.01	0.34	-0.34	0.05
2,594.00	36.49	279.23	2,257.79	138.71	-1,122.94	1,131.10	1.14	-1.14	0.02
2,688.00	35.65	277.77	2,333.78	146.90	-1,177.67	1,186.37	1.28	-0.89	-1.55
2,782.00	36.93	279.78	2,409.54	155.40	-1,232.65	1,241.91	1.86	1.36	2.14
2,877.00	36.53	279.29	2,485.68	164.81	-1,288.67	1,298.59	0.52	-0.42	-0.52
2,971.00	36.42	280.29	2,561.27	174.31	-1,343.74	1,354.32	0.64	-0.12	1.06
3,066.00	35.54	279.63	2,638.15	183.97	-1,398.71	1,409.97	1.01	-0.93	-0.69
3,160.00	35.35	279.67	2,714.72	193.11	-1,452.45	1,464.34	0.20	-0.20	0.04
3,255.00	34.47	279.31	2,792.63	202.07	-1,506.07	1,518.58	0.95	-0.93	-0.38
3,349.00	35.88	281.18	2,869.46	211.72	-1,559.35	1,572.55	1.89	1.50	1.99
3,444.00	37.59	280.69	2,945.60	222.49	-1,615.14	1,629.12	1.83	1.80	-0.52
3,539.00	37.26	280.93	3,021.04	233.32	-1,671.85	1,686.61	0.38	-0.35	0.25
3,633.00	36.35	280.72	3,096.30	243.90	-1,727.16	1,742.69	0.98	-0.97	-0.22
3,728.00	35.26	280.39	3,173.35	254.08	-1,781.79	1,798.06	1.17	-1.15	-0.35
3,822.00	32.73	279.95	3,251.28	263.37	-1,833.52	1,850.44	2.70	-2.69	-0.47
3,916.00	35.12	281.34	3,329.27	273.08	-1,885.07	1,902.69	2.67	2.54	1.48
4,011.00	34.44	277.63	3,407.31	282.02	-1,938.49	1,956.73	2.34	-0.72	-3.91
4,105.00	33.65	277.51	3,485.19	288.95	-1,990.66	2,009.32	0.84	-0.84	-0.13
4,200.00	32.81	276.85	3,564.66	295.46	-2,042.31	2,061.36	0.96	-0.88	-0.69
4,294.00	31.92	276.96	3,644.06	301.51	-2,092.26	2,111.67	0.95	-0.95	0.12
4,389.00	31.64	277.12	3,724.81	307.64	-2,141.92	2,161.68	0.31	-0.29	0.17

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<b>Site:</b>	RU 32-12 Pad	<b>MD Reference:</b>	GL 7254' & RKB 24' @ 7278.00usft (H&P 318)
<b>Well:</b>	SR 12-12	<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

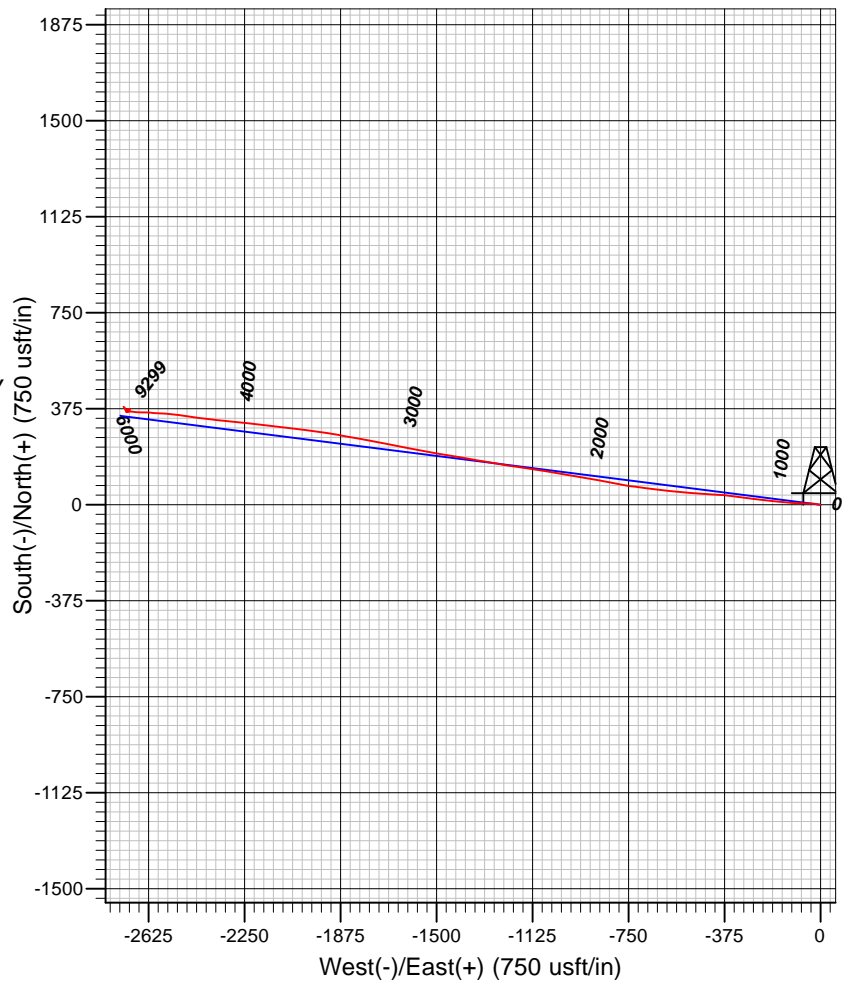
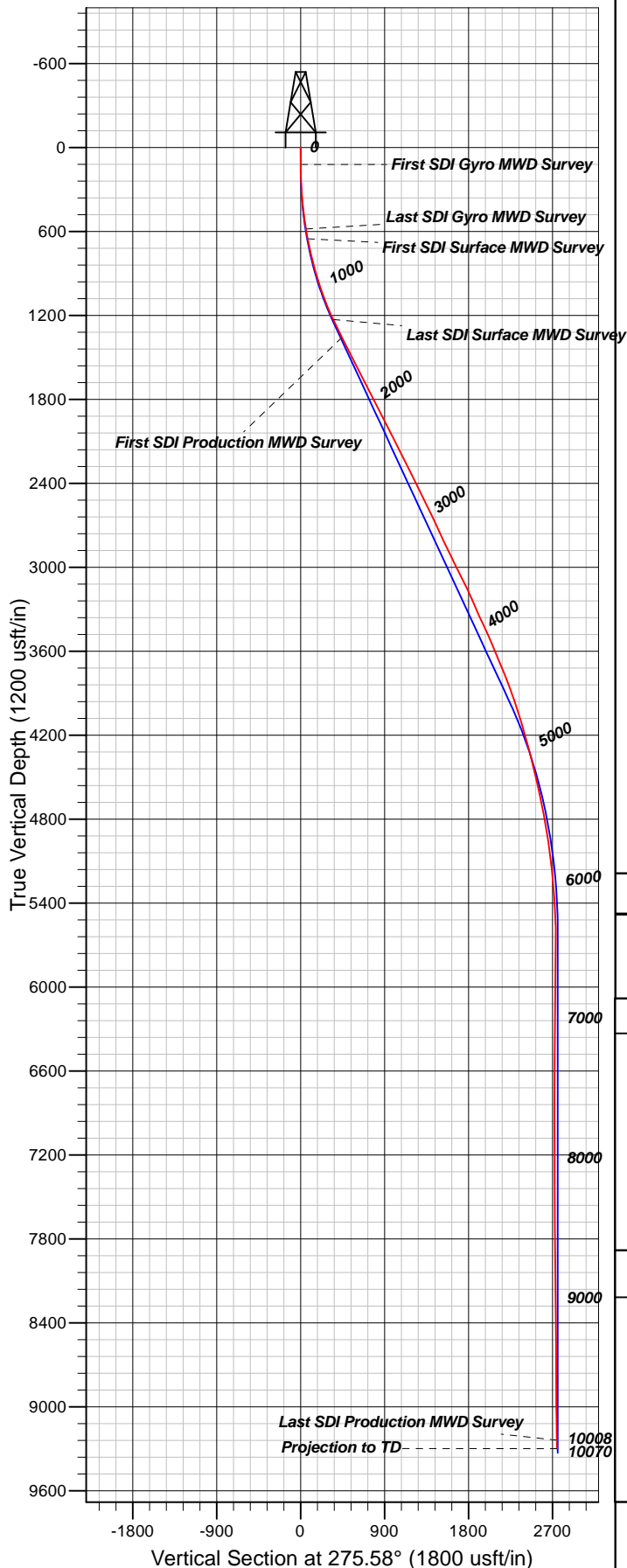
Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,483.00	29.54	276.24	3,805.73	313.22	-2,189.43	2,209.51	2.28	-2.23	-0.94	
4,578.00	28.84	276.00	3,888.66	318.16	-2,235.49	2,255.84	0.75	-0.74	-0.25	
4,672.00	26.66	275.92	3,971.85	322.70	-2,279.02	2,299.60	2.32	-2.32	-0.09	
4,767.00	25.59	276.17	4,057.14	327.11	-2,320.62	2,341.43	1.13	-1.13	0.26	
4,861.00	23.51	275.57	4,142.64	331.11	-2,359.47	2,380.48	2.23	-2.21	-0.64	
4,956.00	22.57	277.34	4,230.06	335.28	-2,396.41	2,417.65	1.23	-0.99	1.86	
5,050.00	21.75	278.20	4,317.12	340.06	-2,431.54	2,453.08	0.94	-0.87	0.91	
5,145.00	19.43	277.32	4,406.04	344.59	-2,464.64	2,486.46	2.46	-2.44	-0.93	
5,239.00	19.30	277.81	4,494.72	348.69	-2,495.54	2,517.61	0.22	-0.14	0.52	
5,333.00	19.33	277.12	4,583.43	352.73	-2,526.36	2,548.69	0.24	0.03	-0.73	
5,427.00	16.94	273.64	4,672.76	355.53	-2,555.47	2,577.93	2.79	-2.54	-3.70	
5,522.00	15.30	273.80	4,764.02	357.24	-2,581.79	2,604.29	1.73	-1.73	0.17	
5,616.00	14.99	274.28	4,854.76	358.97	-2,606.29	2,628.84	0.36	-0.33	0.51	
5,711.00	12.84	272.31	4,946.96	360.31	-2,629.09	2,651.67	2.32	-2.26	-2.07	
5,806.00	10.71	270.90	5,039.96	360.87	-2,648.47	2,671.01	2.26	-2.24	-1.48	
5,900.00	9.67	273.19	5,132.48	361.45	-2,665.08	2,687.60	1.19	-1.11	2.44	
5,994.00	7.83	277.58	5,225.38	362.74	-2,679.32	2,701.89	2.08	-1.96	4.67	
6,089.00	6.24	274.15	5,319.66	363.96	-2,690.88	2,713.52	1.73	-1.67	-3.61	
6,183.00	4.92	267.12	5,413.21	364.13	-2,700.00	2,722.61	1.58	-1.40	-7.48	
6,277.00	3.87	261.58	5,506.94	363.46	-2,707.17	2,729.68	1.20	-1.12	-5.89	
6,372.00	1.58	264.75	5,601.82	362.87	-2,711.64	2,734.08	2.41	-2.41	3.34	
6,373.40	1.55	264.71	5,603.22	362.87	-2,711.68	2,734.11	2.27	-2.27	-2.93	
<b>SR 12-12 MVRD</b>										
6,466.00	0.56	92.38	5,695.81	362.74	-2,712.47	2,734.89	2.27	-1.07	-186.10	
6,560.00	0.96	86.11	5,789.81	362.77	-2,711.23	2,733.65	0.43	0.43	-6.67	
6,655.00	0.97	76.40	5,884.79	363.01	-2,709.65	2,732.11	0.17	0.01	-10.22	
6,749.00	1.16	67.96	5,978.78	363.56	-2,708.00	2,730.52	0.26	0.20	-8.98	
6,844.00	1.21	66.58	6,073.76	364.32	-2,706.19	2,728.79	0.06	0.05	-1.45	
6,938.00	1.13	66.90	6,167.74	365.08	-2,704.42	2,727.10	0.09	-0.09	0.34	
7,033.00	1.15	65.78	6,262.72	365.83	-2,702.69	2,725.46	0.03	0.02	-1.18	
7,127.00	1.23	68.58	6,356.70	366.59	-2,700.89	2,723.74	0.11	0.09	2.98	
7,222.00	0.18	7.40	6,451.69	367.11	-2,699.92	2,722.83	1.21	-1.11	-64.40	
7,316.00	0.18	341.39	6,545.69	367.40	-2,699.95	2,722.88	0.09	0.00	-27.67	
7,411.00	0.35	36.41	6,640.69	367.77	-2,699.83	2,722.79	0.30	0.18	57.92	
7,505.00	0.44	33.42	6,734.69	368.30	-2,699.46	2,722.48	0.10	0.10	-3.18	
7,600.00	0.52	355.77	6,829.68	369.04	-2,699.29	2,722.38	0.34	0.08	-39.63	
7,694.00	0.44	7.69	6,923.68	369.82	-2,699.27	2,722.44	0.14	-0.09	12.68	
7,788.00	0.44	282.68	7,017.68	370.26	-2,699.58	2,722.78	0.63	0.00	-90.44	
7,883.00	0.62	349.86	7,112.67	370.84	-2,700.02	2,723.29	0.64	0.19	70.72	
7,977.00	0.35	2.13	7,206.67	371.63	-2,700.10	2,723.44	0.31	-0.29	13.05	
8,072.00	0.62	17.78	7,301.67	372.41	-2,699.93	2,723.35	0.31	0.28	16.47	
8,166.00	0.79	40.96	7,395.66	373.38	-2,699.35	2,722.87	0.35	0.18	24.66	
8,261.00	0.84	264.83	7,490.66	373.82	-2,699.62	2,723.17	1.59	0.05	-143.29	
8,355.00	0.93	236.83	7,584.64	373.34	-2,700.94	2,724.44	0.46	0.10	-29.79	

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<b>Well:</b>	SR 12-12	<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)
8,450.00	0.53	230.82	7,679.64	372.64	-2,701.93	2,725.36	0.43	-0.42	-6.33
8,544.00	0.67	248.22	7,773.63	372.16	-2,702.78	2,726.15	0.24	0.15	18.51
8,638.00	0.97	278.20	7,867.62	372.07	-2,704.07	2,727.44	0.55	0.32	31.89
8,733.00	0.57	289.94	7,962.61	372.34	-2,705.31	2,728.70	0.45	-0.42	12.36
8,827.00	0.97	261.23	8,056.61	372.38	-2,706.54	2,729.92	0.58	0.43	-30.54
8,922.00	0.95	243.13	8,151.59	371.90	-2,708.04	2,731.37	0.32	-0.02	-19.05
9,016.00	0.97	238.82	8,245.58	371.14	-2,709.41	2,732.66	0.08	0.02	-4.59
9,111.00	1.37	239.49	8,340.56	370.15	-2,711.08	2,734.22	0.42	0.42	0.71
9,205.00	1.02	257.31	8,434.54	369.39	-2,712.86	2,735.93	0.54	-0.37	18.96
9,299.00	1.06	289.18	8,528.52	369.49	-2,714.50	2,737.56	0.61	0.04	33.90
9,394.00	0.83	321.38	8,623.51	370.32	-2,715.76	2,738.90	0.60	-0.24	33.89
9,488.00	0.79	344.55	8,717.50	371.48	-2,716.36	2,739.61	0.35	-0.04	24.65
9,583.00	1.17	343.89	8,812.49	373.04	-2,716.80	2,740.20	0.40	0.40	-0.69
9,677.00	1.37	354.22	8,906.47	375.08	-2,717.18	2,740.78	0.32	0.21	10.99
9,772.00	1.58	354.51	9,001.43	377.51	-2,717.42	2,741.25	0.22	0.22	0.31
9,866.00	1.48	312.94	9,095.40	379.63	-2,718.43	2,742.46	1.16	-0.11	-44.22
9,960.00	1.58	299.99	9,189.37	381.11	-2,720.44	2,744.61	0.38	0.11	-13.78
10,008.00	1.58	308.17	9,237.35	381.85	-2,721.54	2,745.77	0.47	0.00	17.04
<b>Last SDI Production MWD Survey</b>									
10,070.00	1.58	308.17	9,299.33	382.90	-2,722.88	2,747.21	0.00	0.00	0.00
<b>Projection to TD - SR 12-12 PBHL</b>									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
122.00	122.00	-0.16	-0.44	First SDI Gyro MWD Survey
587.00	582.54	5.34	-55.96	Last SDI Gyro MWD Survey
659.00	652.00	5.78	-74.88	First SDI Surface MWD Survey
1,301.00	1,229.30	33.91	-347.17	Last SDI Surface MWD Survey
1,460.00	1,357.43	42.22	-440.93	First SDI Production MWD Survey
10,008.00	9,237.35	381.85	-2,721.54	Last SDI Production MWD Survey
10,070.00	9,299.33	382.90	-2,722.88	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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#### Well Details: SR 12-12

TVD Reference: GL 7254' & RKB 24' @ 7278.00usft (H&P 318) Level: 7254.00						
+N/-S	+E/-W	North	East	Latitude	Longitude	Slot
0.00	0.00	1599195.10	2341063.60	39.4553220	-107.8339020	A9

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SR 12-12 - Slot A9, True North  
 Vertical (TVD) Reference: GL 7254' & RKB 24' @ 7278.00usft (H&P 318)  
 Section (VS) Reference: Slot - A9(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

13:13, September 06 2017  
 Created By: Mel Mireles Jr.