



## 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 424-12
County & State	Garfield County, CO
SDI Job No.	OP.007351
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 121 feet to a measured depth of 9,666 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

2-Feb-18

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 424-12 - Slot SR 424-12 (B11)
<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 424-12	<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 424-12 - Slot SR 424-12 (B11)				
Well Position	+N/-S	0.00 usft	Northing:	1,597,647.10 usft	Latitude:	39.4510171
	+E/-W	0.00 usft	Easting:	2,340,266.20 usft	Longitude:	-107.8365841
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	1/16/2018	9.23	65.62	51,626

<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	200.65	

<b>Survey Program</b>	<b>Date</b>	2/2/2018		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
121.00	398.00	Survey #1 - Gyro MWD Survey (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4
474.00	1,036.00	Survey #2 - Surface MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1
1,177.00	9,666.00	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
121.00	0.35	232.73	121.00	-0.22	-0.29	0.31	0.29	0.29	0.00
<b>First SDI Gyro MWD Survey</b>									
214.00	3.78	198.81	213.93	-3.30	-1.51	3.62	3.76	3.69	-36.47
305.00	6.33	203.29	304.56	-10.75	-4.46	11.63	2.83	2.80	4.92
398.00	7.74	204.87	396.86	-21.14	-9.12	23.00	1.53	1.52	1.70
<b>Last SDI Gyro MWD Survey</b>									
474.00	9.91	202.83	471.96	-31.81	-13.81	34.64	2.88	2.86	-2.68

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well SR 424-12 - Slot SR 424-12 (B11)
<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 424-12	<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>First SDI Surface MWD Survey</b>									
566.00	11.56	198.74	562.35	-47.84	-19.85	51.76	1.97	1.79	-4.45
658.00	12.77	199.93	652.28	-66.13	-26.27	71.14	1.34	1.32	1.29
753.00	13.53	197.48	744.79	-86.60	-33.19	92.74	0.99	0.80	-2.58
847.00	13.63	197.19	836.16	-107.67	-39.77	114.77	0.13	0.11	-0.31
941.00	14.48	203.06	927.35	-129.06	-47.64	137.57	1.76	0.90	6.24
1,036.00	14.92	202.70	1,019.24	-151.27	-57.01	161.66	0.47	0.46	-0.38
<b>Last SDI Surface MWD Survey</b>									
1,177.00	15.54	200.39	1,155.29	-185.72	-70.60	198.69	0.62	0.44	-1.64
<b>First SDI Production MWD Survey</b>									
1,272.00	14.88	199.60	1,246.96	-209.14	-79.13	223.61	0.73	-0.69	-0.83
1,366.00	14.22	196.75	1,337.95	-231.57	-86.50	247.20	1.04	-0.70	-3.03
1,461.00	15.61	202.69	1,429.75	-254.54	-94.80	271.61	2.17	1.46	6.25
1,555.00	15.32	201.29	1,520.35	-277.78	-104.18	296.67	0.50	-0.31	-1.49
1,650.00	15.08	198.17	1,612.02	-301.21	-112.59	321.57	0.90	-0.25	-3.28
1,744.00	14.96	197.26	1,702.81	-324.42	-120.01	345.89	0.28	-0.13	-0.97
1,839.00	15.65	202.74	1,794.45	-347.94	-128.60	370.94	1.69	0.73	5.77
1,933.00	15.21	202.21	1,885.06	-371.05	-138.16	395.94	0.49	-0.47	-0.56
2,027.00	14.90	200.54	1,975.83	-393.79	-147.06	420.35	0.57	-0.33	-1.78
2,122.00	14.64	202.35	2,067.69	-416.33	-155.91	444.56	0.56	-0.27	1.91
2,216.00	14.22	200.42	2,158.73	-438.13	-164.46	467.98	0.68	-0.45	-2.05
2,311.00	15.66	204.38	2,250.52	-460.75	-173.82	492.45	1.86	1.52	4.17
2,405.00	15.53	204.05	2,341.06	-483.80	-184.19	517.67	0.17	-0.14	-0.35
2,500.00	15.10	202.15	2,432.68	-506.87	-194.04	542.73	0.70	-0.45	-2.00
2,594.00	14.86	201.16	2,523.49	-529.45	-203.00	567.03	0.37	-0.26	-1.05
2,689.00	14.36	200.18	2,615.42	-551.87	-211.47	590.99	0.59	-0.53	-1.03
2,783.00	15.35	202.42	2,706.28	-574.31	-220.23	615.08	1.22	1.05	2.38
2,877.00	14.88	201.85	2,797.02	-597.02	-229.47	639.58	0.52	-0.50	-0.61
2,972.00	14.56	200.58	2,888.91	-619.52	-238.21	663.72	0.48	-0.34	-1.34
3,066.00	16.18	201.45	2,979.54	-642.77	-247.15	688.63	1.74	1.72	0.93
3,161.00	15.49	200.08	3,070.94	-667.00	-256.35	714.55	0.83	-0.73	-1.44
3,255.00	15.30	199.34	3,161.56	-690.50	-264.76	739.50	0.29	-0.20	-0.79
3,350.00	14.94	198.86	3,253.27	-713.91	-272.87	764.27	0.40	-0.38	-0.51
3,444.00	14.63	197.94	3,344.16	-736.67	-280.45	788.24	0.41	-0.33	-0.98
3,539.00	13.94	197.22	3,436.22	-759.02	-287.53	811.65	0.75	-0.73	-0.76
3,633.00	15.08	200.65	3,527.23	-781.27	-295.19	835.18	1.52	1.21	3.65
3,727.00	14.58	201.15	3,618.09	-803.75	-303.77	859.24	0.55	-0.53	0.53
3,822.00	15.52	205.16	3,709.84	-826.41	-313.49	883.87	1.48	0.99	4.22
3,917.00	14.38	204.48	3,801.62	-848.65	-323.79	908.31	1.21	-1.20	-0.72
4,011.00	16.00	204.88	3,892.33	-871.03	-334.07	932.88	1.73	1.72	0.43
4,106.00	15.40	204.22	3,983.79	-894.41	-344.76	958.53	0.66	-0.63	-0.69
4,202.00	14.51	204.53	4,076.54	-916.97	-354.98	983.25	0.93	-0.93	0.32
4,297.00	15.08	203.64	4,168.39	-939.12	-364.88	1,007.46	0.65	0.60	-0.94
4,392.00	14.26	202.95	4,260.29	-961.22	-374.39	1,031.49	0.88	-0.86	-0.73

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<b>Site:</b>	SR 23-12 Pad	<b>MD Reference:</b>	GL 7478' & RKB 24' @ 7502.00usft (H&P 318)
<b>Well:</b>	SR 424-12	<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

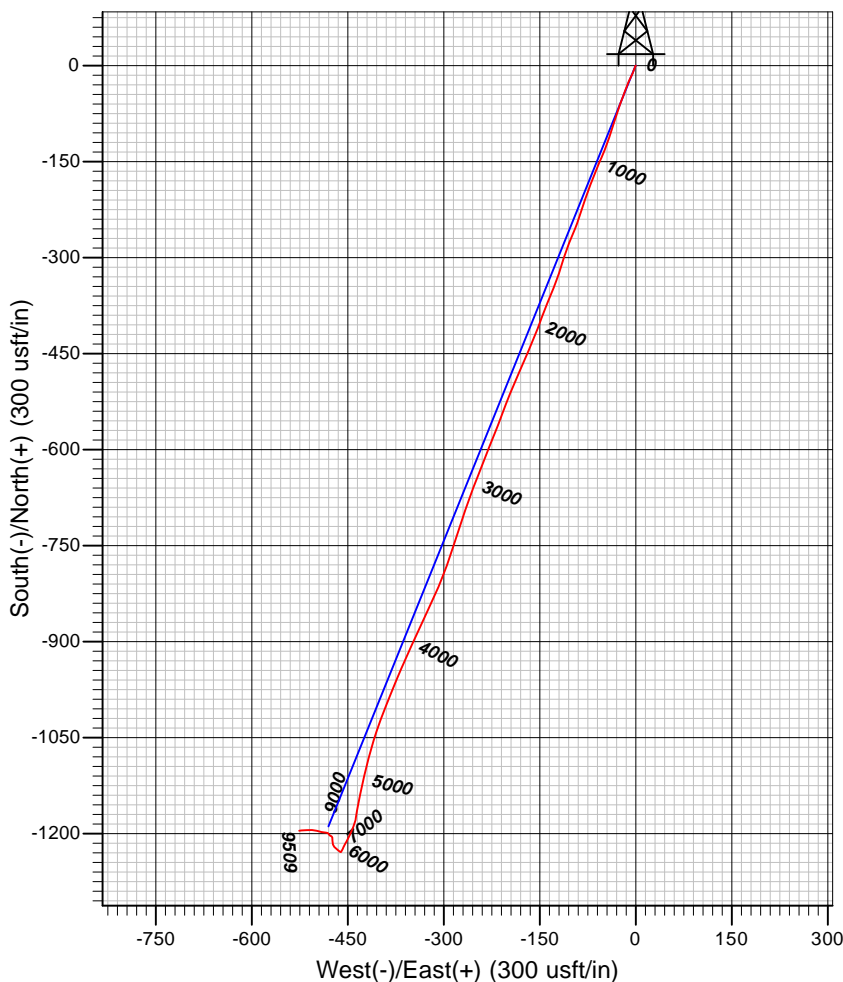
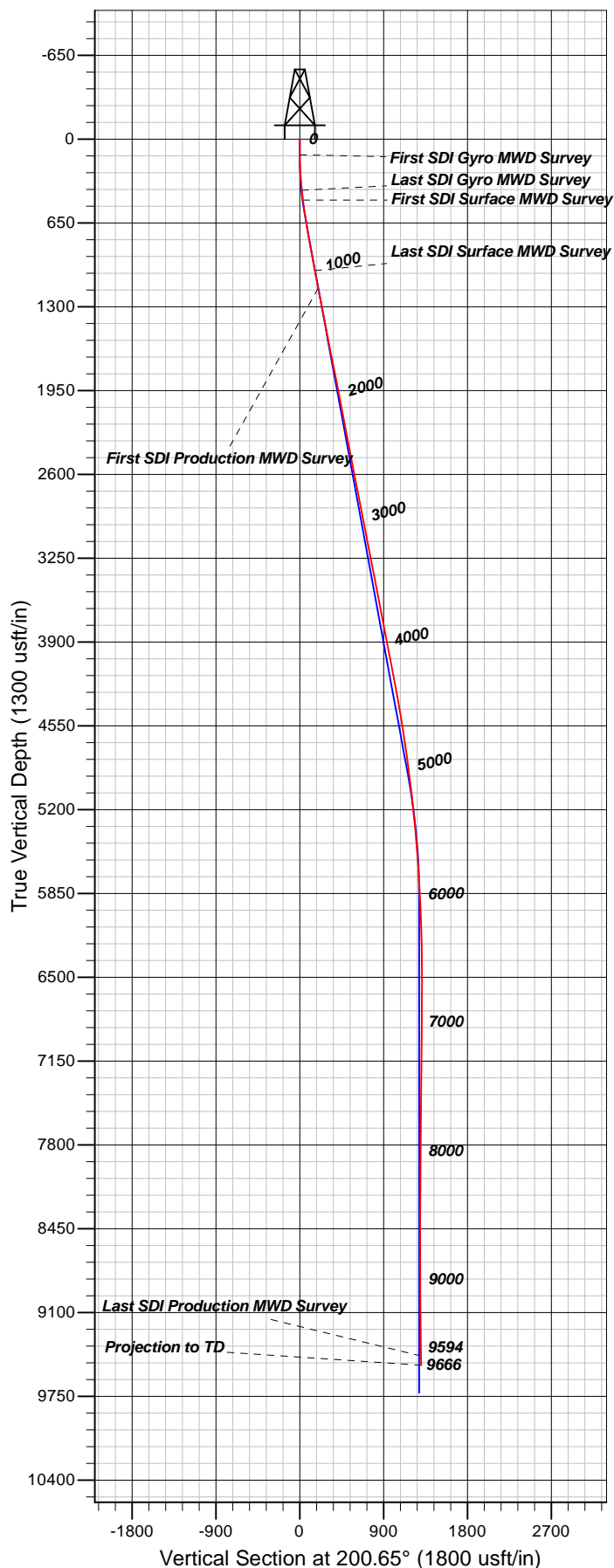
Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,487.00	13.73	201.88	4,352.47	-982.45	-383.16	1,054.46	0.62	-0.56	-1.13
4,581.00	13.10	201.55	4,443.90	-1,002.71	-391.23	1,076.26	0.68	-0.67	-0.35
4,675.00	12.36	199.94	4,535.59	-1,022.08	-398.57	1,096.97	0.87	-0.79	-1.71
4,770.00	11.66	199.41	4,628.51	-1,040.69	-405.23	1,116.74	0.75	-0.74	-0.56
4,864.00	11.34	196.08	4,720.63	-1,058.53	-410.95	1,135.45	0.78	-0.34	-3.54
4,958.00	11.03	194.17	4,812.84	-1,076.13	-415.71	1,153.59	0.51	-0.33	-2.03
5,053.00	10.44	194.54	4,906.18	-1,093.27	-420.09	1,171.18	0.63	-0.62	0.39
5,147.00	9.82	193.03	4,998.71	-1,109.33	-424.04	1,187.60	0.72	-0.66	-1.61
5,241.00	9.35	193.33	5,091.40	-1,124.57	-427.61	1,203.11	0.50	-0.50	0.32
5,336.00	9.15	190.90	5,185.16	-1,139.49	-430.81	1,218.21	0.46	-0.21	-2.56
5,430.00	7.57	190.92	5,278.16	-1,152.91	-433.40	1,231.68	1.68	-1.68	0.02
5,524.00	6.95	189.06	5,371.41	-1,164.61	-435.47	1,243.36	0.71	-0.66	-1.98
5,619.00	6.47	189.18	5,465.76	-1,175.57	-437.23	1,254.23	0.51	-0.51	0.13
5,713.00	5.54	202.18	5,559.25	-1,185.00	-439.78	1,263.96	1.75	-0.99	13.83
5,808.00	5.19	202.42	5,653.83	-1,193.22	-443.15	1,272.84	0.37	-0.37	0.25
5,902.00	5.10	202.07	5,747.45	-1,201.02	-446.35	1,281.26	0.10	-0.10	-0.37
5,997.00	3.43	208.83	5,842.18	-1,207.42	-449.30	1,288.30	1.83	-1.76	7.12
6,035.69	3.21	208.93	5,880.81	-1,209.39	-450.39	1,290.52	0.56	-0.56	0.26
SR 424-12 BTV									
6,091.00	2.90	209.10	5,936.04	-1,211.96	-451.82	1,293.43	0.56	-0.56	0.31
6,186.00	3.34	209.01	6,030.90	-1,216.48	-454.33	1,298.55	0.46	0.46	-0.09
6,280.00	2.73	200.40	6,124.77	-1,220.98	-456.43	1,303.50	0.81	-0.65	-9.16
6,375.00	2.20	209.36	6,219.68	-1,224.69	-458.12	1,307.56	0.69	-0.56	9.43
6,469.00	1.93	205.14	6,313.62	-1,227.69	-459.67	1,310.92	0.33	-0.29	-4.49
6,564.00	0.79	288.02	6,408.60	-1,228.94	-460.98	1,312.55	2.10	-1.20	87.24
6,658.00	1.23	302.70	6,502.58	-1,228.19	-462.44	1,312.37	0.54	0.47	15.62
6,753.00	1.06	323.27	6,597.56	-1,226.94	-463.83	1,311.68	0.46	-0.18	21.65
6,848.00	0.70	304.37	6,692.55	-1,225.91	-464.83	1,311.07	0.48	-0.38	-19.89
6,942.00	1.28	290.52	6,786.54	-1,225.21	-466.29	1,310.94	0.66	0.62	-14.73
7,037.00	1.25	314.47	6,881.52	-1,224.12	-468.02	1,310.52	0.55	-0.03	25.21
7,132.00	1.32	321.77	6,976.49	-1,222.53	-469.44	1,309.54	0.19	0.07	7.68
7,226.00	1.40	316.68	7,070.47	-1,220.84	-470.90	1,308.47	0.15	0.09	-5.41
7,321.00	1.34	329.56	7,165.44	-1,219.04	-472.25	1,307.27	0.33	-0.06	13.56
7,415.00	1.23	336.36	7,259.42	-1,217.17	-473.22	1,305.85	0.20	-0.12	7.23
7,510.00	0.97	354.12	7,354.40	-1,215.44	-473.71	1,304.40	0.45	-0.27	18.69
7,605.00	1.14	2.47	7,449.38	-1,213.69	-473.75	1,302.79	0.24	0.18	8.79
7,699.00	1.02	2.61	7,543.37	-1,211.92	-473.67	1,301.10	0.13	-0.13	0.15
7,794.00	1.12	347.01	7,638.35	-1,210.17	-473.84	1,299.53	0.32	0.11	-16.42
7,889.00	1.23	352.80	7,733.33	-1,208.26	-474.18	1,297.85	0.17	0.12	6.09
7,983.00	1.14	357.90	7,827.31	-1,206.32	-474.34	1,296.10	0.15	-0.10	5.43
8,078.00	0.79	330.47	7,922.30	-1,204.81	-474.70	1,294.81	0.60	-0.37	-28.87
8,173.00	1.16	293.72	8,017.28	-1,203.85	-475.90	1,294.34	0.75	0.39	-38.68
8,267.00	0.88	287.49	8,111.27	-1,203.25	-477.46	1,294.32	0.32	-0.30	-6.63
8,362.00	0.70	325.02	8,206.26	-1,202.56	-478.49	1,294.04	0.56	-0.19	39.51

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<b>Well:</b>	SR 424-12	<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)
8,457.00	0.88	326.17	8,301.25	-1,201.47	-479.23	1,293.29	0.19	0.19	1.21
8,553.00	1.06	324.23	8,397.24	-1,200.14	-480.15	1,292.37	0.19	0.19	-2.02
8,647.00	1.01	294.64	8,491.22	-1,199.09	-481.42	1,291.83	0.56	-0.05	-31.48
8,742.00	2.11	275.28	8,586.19	-1,198.58	-483.92	1,292.23	1.27	1.16	-20.38
8,836.00	2.37	275.01	8,680.11	-1,198.25	-487.58	1,293.22	0.28	0.28	-0.29
8,931.00	1.93	280.73	8,775.05	-1,197.78	-491.11	1,294.02	0.51	-0.46	6.02
9,026.00	1.49	286.53	8,870.00	-1,197.13	-493.86	1,294.39	0.50	-0.46	6.11
9,120.00	2.20	289.34	8,963.95	-1,196.19	-496.74	1,294.51	0.76	0.76	2.99
9,215.00	3.69	279.23	9,058.83	-1,195.09	-501.47	1,295.16	1.66	1.57	-10.64
9,310.00	4.00	270.04	9,153.61	-1,194.60	-507.81	1,296.93	0.73	0.33	-9.67
9,404.00	2.99	270.27	9,247.44	-1,194.59	-513.54	1,298.94	1.07	-1.07	0.24
9,499.00	2.55	263.06	9,342.33	-1,194.83	-518.11	1,300.78	0.59	-0.46	-7.59
9,594.00	2.66	266.27	9,437.23	-1,195.23	-522.41	1,302.67	0.19	0.12	3.38
<b>Last SDI Production MWD Survey</b>									
9,666.00	2.66	266.27	9,509.15	-1,195.45	-525.74	1,304.05	0.00	0.00	0.00
<b>Projection to TD - SR 424-12 PBHL</b>									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
121.00	121.00	-0.22	-0.29	First SDI Gyro MWD Survey
398.00	396.86	-21.14	-9.12	Last SDI Gyro MWD Survey
474.00	471.96	-31.81	-13.81	First SDI Surface MWD Survey
1,036.00	1,019.24	-151.27	-57.01	Last SDI Surface MWD Survey
1,177.00	1,155.29	-185.72	-70.60	First SDI Production MWD Survey
9,594.00	9,437.23	-1,195.23	-522.41	Last SDI Production MWD Survey
9,666.00	9,509.15	-1,195.45	-525.74	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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#### Well Details: SR 424-12

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 1597647.10 2340266.20 39.4510171 -107.8365845 SR 424-12 (B11)

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SR 424-12 - Slot SR 424-12 (B11), True North  
 Vertical (TVD) Reference: GL 7478' & RKB 24' @ 7502.00usft (H&P 318)  
 Section (VS) Reference: Slot - SR 424-12 (B11)(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

17:18, February 02 2018  
 Created By: Mel Mireles Jr.