



## 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.	NR 12-3
County & State	Garfield County, CO
SDI Job No.	OP.012556
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 10,299 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

06-Sep-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 NR 12-3 - Slot NR 12-3 (A6)
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 6720' & RKB 24' @ 6744.00usft
<b>Site:</b>	NR 23-3 Pad	<b>MD Reference:</b>	GL 6720' & RKB 24' @ 6744.00usft
<b>Well:</b>	NR 12-3	<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		NR 23-3 Pad			
Site Position:		Northing:	1,634,904.55 usft	Latitude:	39.5525224
From:	Map	Easting:	2,329,757.66 usft	Longitude:	-107.8772377
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.50 °

Well	NR 12-3 - Slot NR 12-3 (A6)					
Well Position	+N/-S	0.00 usft	Northing:	1,634,928.61 usft	Latitude:	39.5525871
	+E/-W	0.00 usft	Easting:	2,329,739.74 usft	Longitude:	-107.8773034
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,720.00 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	8/24/2018	9.43	65.80	51,544

<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	314.33	

<b>Survey Program</b>	<b>Date</b>	9/6/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
121.00	1,051.00	Survey #1 - Gyro MWD Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
1,072.00	1,072.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,179.00	10,299.00	Survey #3 - Production MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	

<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	1.41	263.76	120.99	-0.16	-1.48	0.95	1.17	1.17	0.00	
<b>First SDI Gyro MWD Survey</b>										
213.00	3.61	269.65	212.89	-0.30	-5.50	3.72	2.40	2.39	6.40	
304.00	4.05	271.32	303.69	-0.25	-11.58	8.11	0.50	0.48	1.84	
396.00	4.40	268.15	395.44	-0.29	-18.35	12.93	0.46	0.38	-3.45	
489.00	4.57	283.45	488.16	0.46	-25.52	18.58	1.30	0.18	16.45	
581.00	7.57	302.34	579.64	4.56	-34.21	27.66	3.88	3.26	20.53	
673.00	11.96	312.01	670.29	14.18	-46.42	43.12	5.08	4.77	10.51	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well NR 12-3 - Slot NR 12-3 (A6)
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<b>Site:</b>	NR 23-3 Pad	<b>MD Reference:</b>	GL 6720' & RKB 24' @ 6744.00usft
<b>Well:</b>	NR 12-3	<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)
767.00	15.04	309.29	761.68	28.43	-63.10	65.01	3.34	3.28	-2.89
862.00	18.56	313.77	852.62	46.70	-83.57	92.41	3.95	3.71	4.72
956.00	20.94	316.41	941.09	69.22	-105.95	124.16	2.70	2.53	2.81
1,051.00	22.26	317.02	1,029.41	94.68	-129.93	159.10	1.41	1.39	0.64
Last SDI Gyro MWD Survey									
1,072.00	21.98	315.11	1,048.87	100.37	-135.41	167.01	3.67	-1.33	-9.10
SDI Surface MWD Survey									
1,179.00	21.81	312.07	1,148.15	127.88	-164.30	206.89	1.07	-0.16	-2.84
First SDI Production MWD Survey									
1,273.00	21.22	311.93	1,235.60	150.95	-189.92	241.34	0.63	-0.63	-0.15
1,368.00	20.65	311.68	1,324.33	173.57	-215.22	275.25	0.61	-0.60	-0.26
1,463.00	19.84	310.61	1,413.46	195.21	-239.97	308.07	0.94	-0.85	-1.13
1,557.00	20.14	315.47	1,501.80	217.13	-263.43	340.17	1.80	0.32	5.17
1,652.00	20.34	318.19	1,590.94	241.09	-285.91	372.99	1.01	0.21	2.86
1,746.00	20.05	317.14	1,679.16	265.08	-307.76	405.39	0.49	-0.31	-1.12
1,841.00	20.93	319.42	1,768.15	289.91	-329.88	438.56	1.25	0.93	2.40
1,935.00	21.02	318.81	1,855.92	315.35	-351.90	472.09	0.25	0.10	-0.65
2,030.00	20.22	318.89	1,944.84	340.54	-373.92	505.44	0.84	-0.84	0.08
2,124.00	19.21	319.02	2,033.32	364.45	-394.74	537.04	1.08	-1.07	0.14
2,218.00	20.75	319.16	2,121.66	388.73	-415.77	569.05	1.64	1.64	0.15
2,313.00	20.75	319.63	2,210.50	414.28	-437.68	602.58	0.18	0.00	0.49
2,407.00	20.02	317.74	2,298.62	438.88	-459.28	635.22	1.05	-0.78	-2.01
2,502.00	19.05	316.72	2,388.15	462.20	-480.85	666.94	1.08	-1.02	-1.07
2,596.00	20.52	319.18	2,476.60	485.84	-502.14	698.69	1.80	1.56	2.62
2,691.00	20.26	318.71	2,565.64	510.80	-523.87	731.68	0.32	-0.27	-0.49
2,786.00	19.42	316.72	2,655.01	534.65	-545.56	763.86	1.13	-0.88	-2.09
2,880.00	20.74	319.91	2,743.29	558.76	-566.99	796.04	1.82	1.40	3.39
2,975.00	20.31	319.38	2,832.26	584.15	-588.56	829.21	0.49	-0.45	-0.56
3,069.00	19.79	319.51	2,920.56	608.63	-609.51	861.30	0.56	-0.55	0.14
3,164.00	19.79	319.24	3,009.95	633.05	-630.45	893.34	0.10	0.00	-0.28
3,258.00	19.82	319.14	3,098.39	657.15	-651.27	925.08	0.05	0.03	-0.11
3,353.00	19.31	318.82	3,187.91	681.15	-672.15	956.79	0.55	-0.54	-0.34
3,448.00	18.73	318.72	3,277.72	704.44	-692.55	987.65	0.61	-0.61	-0.11
3,542.00	20.33	318.67	3,366.31	728.04	-713.29	1,018.99	1.70	1.70	-0.05
3,637.00	19.43	318.98	3,455.65	752.36	-734.56	1,051.19	0.95	-0.95	0.33
3,731.00	17.61	317.98	3,544.78	774.72	-754.34	1,080.97	1.97	-1.94	-1.06
3,826.00	17.67	319.16	3,635.31	796.30	-773.39	1,109.67	0.38	0.06	1.24
3,920.00	18.91	320.65	3,724.56	818.88	-792.38	1,139.03	1.41	1.32	1.59
4,015.00	20.81	319.43	3,813.91	843.60	-813.12	1,171.14	2.05	2.00	-1.28
4,110.00	19.98	317.63	3,902.95	868.41	-835.03	1,204.15	1.10	-0.87	-1.89
4,204.00	20.22	317.49	3,991.23	892.25	-856.83	1,236.41	0.26	0.26	-0.15
4,299.00	22.09	316.73	4,079.82	917.36	-880.17	1,270.65	1.99	1.97	-0.80
4,393.00	21.39	316.18	4,167.13	942.60	-904.15	1,305.44	0.78	-0.74	-0.59
4,488.00	21.90	315.38	4,255.43	967.71	-928.59	1,340.47	0.62	0.54	-0.84

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<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Grand Junction District

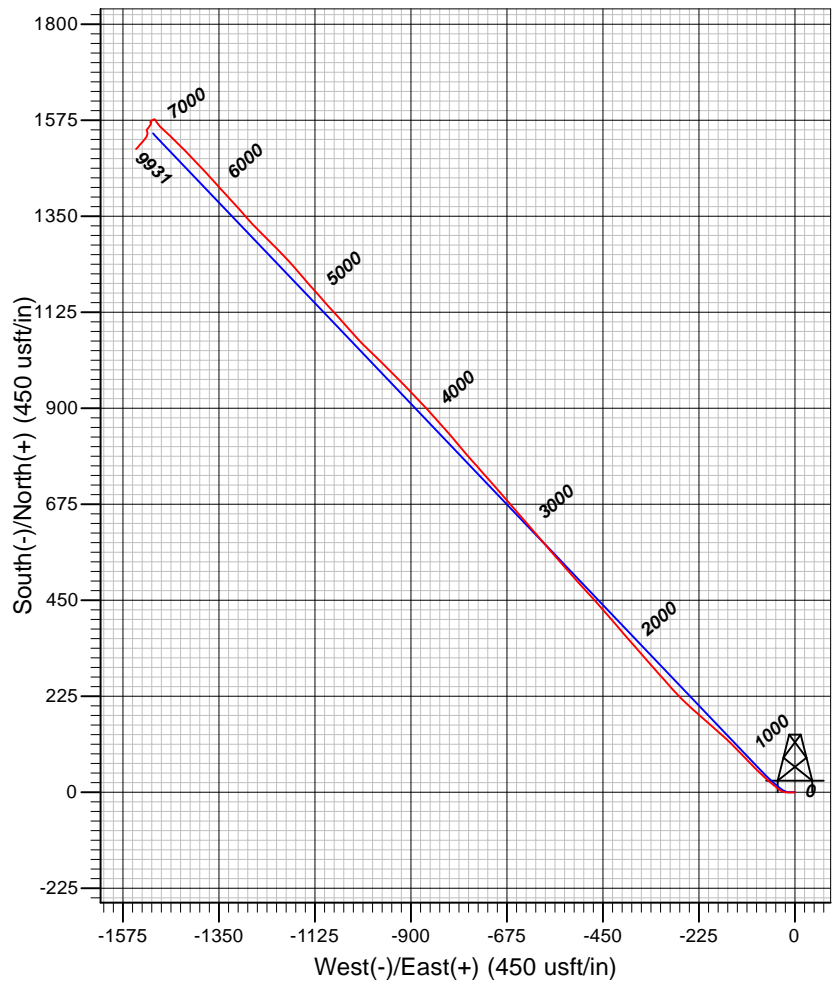
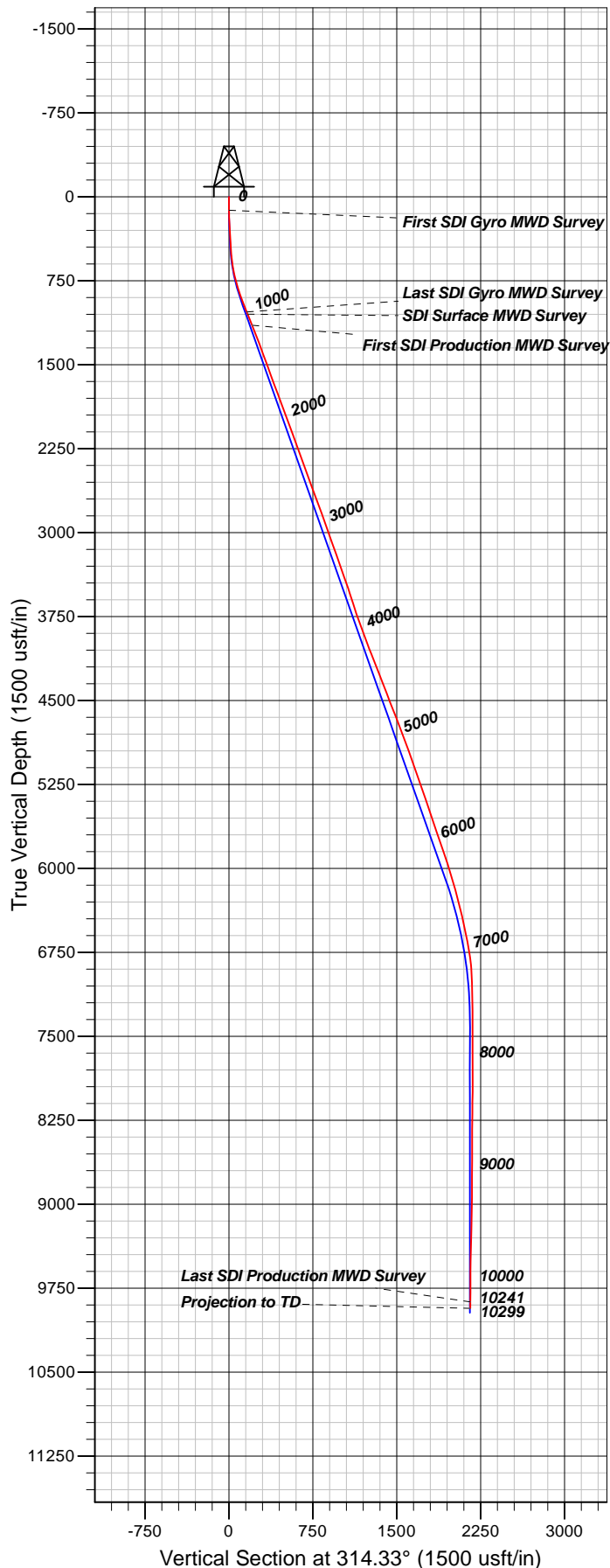
Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,582.00	21.02	314.50	4,342.92	992.00	-952.93	1,374.86	1.00	-0.94	-0.94
4,677.00	20.20	313.95	4,431.84	1,015.33	-976.89	1,408.30	0.89	-0.86	-0.58
4,771.00	20.99	313.68	4,519.83	1,038.22	-1,000.75	1,441.36	0.85	0.84	-0.29
4,866.00	21.83	318.07	4,608.28	1,063.12	-1,024.86	1,476.00	1.90	0.88	4.62
4,960.00	20.84	318.10	4,695.83	1,088.56	-1,047.71	1,510.13	1.05	-1.05	0.03
5,055.00	21.81	317.66	4,784.33	1,114.19	-1,070.88	1,544.61	1.03	1.02	-0.46
5,149.00	21.03	318.50	4,871.84	1,139.73	-1,093.82	1,578.86	0.89	-0.83	0.89
5,244.00	19.87	318.63	4,960.85	1,164.61	-1,115.78	1,611.96	1.22	-1.22	0.14
5,338.00	19.45	319.01	5,049.37	1,188.41	-1,136.61	1,643.49	0.47	-0.45	0.40
5,433.00	18.55	319.24	5,139.19	1,211.80	-1,156.85	1,674.31	0.95	-0.95	0.24
5,526.00	18.73	318.10	5,227.31	1,234.12	-1,176.48	1,703.95	0.44	0.19	-1.23
5,621.00	19.08	316.27	5,317.19	1,256.69	-1,197.40	1,734.69	0.72	0.37	-1.93
5,715.00	19.52	315.38	5,405.91	1,278.97	-1,219.05	1,765.75	0.56	0.47	-0.95
5,810.00	18.01	314.48	5,495.85	1,300.56	-1,240.68	1,796.30	1.62	-1.59	-0.95
5,905.00	18.20	315.99	5,586.15	1,321.52	-1,261.47	1,825.82	0.53	0.20	1.59
5,999.00	18.88	318.88	5,675.27	1,343.53	-1,281.67	1,855.65	1.22	0.72	3.07
6,094.00	19.61	317.40	5,764.97	1,366.85	-1,302.57	1,886.89	0.92	0.77	-1.56
6,189.00	19.21	317.92	5,854.57	1,390.18	-1,323.83	1,918.41	0.46	-0.42	0.55
6,283.00	17.76	316.78	5,943.71	1,412.11	-1,344.01	1,948.17	1.59	-1.54	-1.21
6,378.00	17.32	317.66	6,034.30	1,433.12	-1,363.46	1,976.76	0.54	-0.46	0.93
6,472.00	16.63	318.34	6,124.20	1,453.51	-1,381.83	2,004.15	0.76	-0.73	0.72
6,567.00	14.68	316.78	6,215.67	1,472.44	-1,399.11	2,029.74	2.10	-2.05	-1.64
6,662.00	14.11	317.03	6,307.69	1,489.69	-1,415.24	2,053.33	0.60	-0.60	0.26
6,756.00	13.37	315.03	6,399.00	1,505.76	-1,430.73	2,075.65	0.94	-0.79	-2.13
6,851.00	12.66	313.80	6,491.56	1,520.74	-1,446.01	2,097.04	0.80	-0.75	-1.29
6,946.00	12.31	312.30	6,584.31	1,534.76	-1,461.01	2,117.57	0.50	-0.37	-1.58
7,040.00	10.99	313.53	6,676.37	1,547.67	-1,474.92	2,136.55	1.43	-1.40	1.31
7,135.00	7.91	315.29	6,770.07	1,558.56	-1,486.09	2,152.14	3.26	-3.24	1.85
7,230.00	5.63	325.57	6,864.41	1,567.05	-1,493.32	2,163.25	2.71	-2.40	10.82
7,325.00	3.61	328.21	6,959.10	1,573.44	-1,497.53	2,170.72	2.14	-2.13	2.78
7,419.00	1.32	323.20	7,053.00	1,576.82	-1,499.74	2,174.67	2.44	-2.44	-5.33
7,514.00	0.72	250.75	7,147.99	1,577.50	-1,500.96	2,176.01	1.37	-0.63	-76.26
7,608.00	1.11	241.94	7,241.98	1,576.87	-1,502.32	2,176.55	0.44	0.41	-9.37
7,703.00	0.88	244.84	7,336.96	1,576.13	-1,503.80	2,177.08	0.25	-0.24	3.05
7,740.24	0.81	243.17	7,374.20	1,575.89	-1,504.29	2,177.27	0.20	-0.19	-4.48
NR 12-3 BTV									
7,797.00	0.70	239.97	7,430.95	1,575.54	-1,504.95	2,177.49	0.20	-0.19	-5.64
7,892.00	0.97	238.91	7,525.94	1,574.83	-1,506.14	2,177.85	0.28	0.28	-1.12
7,986.00	1.67	236.01	7,619.92	1,573.66	-1,507.95	2,178.33	0.75	0.74	-3.09
8,081.00	0.18	272.93	7,714.90	1,572.89	-1,509.25	2,178.72	1.61	-1.57	38.86
8,175.00	0.00	0.00	7,808.90	1,572.90	-1,509.40	2,178.83	0.19	-0.19	0.00
8,269.00	0.74	195.31	7,902.90	1,572.31	-1,509.56	2,178.54	0.79	0.79	0.00
8,364.00	1.21	209.12	7,997.89	1,570.84	-1,510.21	2,177.98	0.55	0.49	14.54

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<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Grand Junction District

Survey										
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8,458.00	0.66	138.58	8,091.88	1,569.57	-1,510.33	2,177.18	1.24	-0.59	-75.04	
8,553.00	0.47	129.11	8,186.87	1,568.91	-1,509.67	2,176.24	0.22	-0.20	-9.97	
8,647.00	0.70	168.86	8,280.87	1,568.11	-1,509.26	2,175.39	0.48	0.24	42.29	
8,742.00	1.04	188.29	8,375.86	1,566.68	-1,509.27	2,174.40	0.47	0.36	20.45	
8,836.00	0.44	189.03	8,469.85	1,565.48	-1,509.45	2,173.69	0.64	-0.64	0.79	
8,930.00	0.53	219.93	8,563.85	1,564.79	-1,509.79	2,173.45	0.29	0.10	32.87	
9,025.00	0.84	218.25	8,658.84	1,563.91	-1,510.50	2,173.34	0.33	0.33	-1.77	
9,119.00	1.58	216.50	8,752.82	1,562.33	-1,511.70	2,173.09	0.79	0.79	-1.86	
9,213.00	2.64	216.15	8,846.75	1,559.54	-1,513.74	2,172.61	1.13	1.13	-0.37	
9,308.00	2.73	219.22	8,941.65	1,556.02	-1,516.47	2,172.10	0.18	0.09	3.23	
9,402.00	1.76	207.89	9,035.58	1,553.01	-1,518.56	2,171.49	1.13	-1.03	-12.05	
9,496.00	1.32	157.35	9,129.54	1,550.73	-1,518.82	2,170.08	1.46	-0.47	-53.77	
9,591.00	1.85	152.60	9,224.51	1,548.36	-1,517.69	2,167.62	0.57	0.56	-5.00	
9,685.00	2.73	183.01	9,318.44	1,544.78	-1,517.11	2,164.70	1.56	0.94	32.35	
9,780.00	3.37	195.78	9,413.30	1,539.83	-1,517.99	2,161.87	0.98	0.67	13.44	
9,874.00	3.52	213.42	9,507.13	1,534.77	-1,520.33	2,160.01	1.13	0.16	18.77	
9,968.00	4.57	221.51	9,600.90	1,529.55	-1,524.40	2,159.28	1.27	1.12	8.61	
10,063.00	5.31	220.18	9,695.55	1,523.36	-1,529.74	2,158.77	0.79	0.78	-1.40	
10,157.00	5.15	222.47	9,789.15	1,516.92	-1,535.40	2,158.32	0.28	-0.17	2.44	
10,241.00	4.92	221.51	9,872.83	1,511.45	-1,540.33	2,158.02	0.29	-0.27	-1.14	
<b>Last SDI Production MWD Survey</b>										
10,299.00	4.92	221.51	9,930.62	1,507.72	-1,543.63	2,157.78	0.00	0.00	0.00	
<b>Projection to TD - NR 12-3 PBHL</b>										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
121.00	120.99	-0.16	-1.48	First SDI Gyro MWD Survey	
1,051.00	1,029.41	94.68	-129.93	Last SDI Gyro MWD Survey	
1,072.00	1,048.87	100.37	-135.41	SDI Surface MWD Survey	
1,179.00	1,148.15	127.88	-164.30	First SDI Production MWD Survey	
10,241.00	9,872.83	1,511.45	-1,540.33	Last SDI Production MWD Survey	
10,299.00	9,930.62	1,507.72	-1,543.63	Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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#### Well Details: NR 12-3

TVD Reference: GL 6720' & RKB 24' @ 6744.00usft		Ground Level: 6720.00		Slot	
+N/-S	+E/-W	North	East	Latitude	Longitude
0.00	0.00	1634928.61	2329739.74	39.5525871	-107.8773034

NR 12-3 (A6)

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well NR 12-3 - Slot NR 12-3 (A6), True North  
 Vertical (TVD) Reference: GL 6720' & RKB 24' @ 6744.00usft  
 Section (VS) Reference: Slot - NR 12-3 (A6)(0.00N, 0.00E)  
 Measured Depth Reference: GL 6720' & RKB 24' @ 6744.00usft  
 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

16:39, September 06 2018  
 Created By: Mel Mireles Jr.