

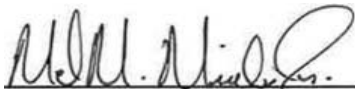


Directional Survey Certification

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 344-3
County & State	Garfield County, CO
SDI Job No.	OP.014598
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 10,715 feet is true and correct as determined from all available records.


Signature

10-Dec-18
Date

Mel Mireles Jr.
Grand Junction Assistant Well Planner
Scientific Drilling - Colorado District

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well NR 344-3 - Slot NR 344-3 (B12)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 6720' & RKB 24' @ 6744.00usft
Site:	NR 23-3 Pad	MD Reference:	GL 6720' & RKB 24' @ 6744.00usft
Well:	NR 344-3	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

Project	Garfield County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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 344-3 - Slot NR 344-3 (B12)					
Well Position	+N/-S	0.00 usft	Northing:	1,634,898.50 usft	Latitude:	39.5525070
	+E/-W	0.00 usft	Easting:	2,329,774.64 usft	Longitude:	-107.8771769
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,720.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/16/2018	9.42	65.78	51,517

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	118.11	

Survey Program	Date	11/30/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
121.00	1,056.00	Survey #1 - Gyro MWD Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
744.00	1,056.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,180.00	10,715.00	Survey #3 - Production MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
121.00	0.53	301.55	121.00	0.29	-0.48	-0.56	0.44	0.44	0.00	
First SDI Gyro MWD Survey										
213.00	2.55	116.19	212.97	-0.39	1.00	1.06	3.35	2.20	189.83	
305.00	5.72	123.93	304.72	-3.85	6.64	7.67	3.49	3.45	8.41	
398.00	8.89	121.90	396.96	-10.24	16.59	19.45	3.42	3.41	-2.18	
489.00	12.58	115.66	486.35	-18.25	31.50	36.38	4.25	4.05	-6.86	
580.00	15.84	116.10	574.55	-28.00	51.59	58.70	3.58	3.58	0.48	
672.00	19.27	114.08	662.26	-39.73	76.73	86.40	3.79	3.73	-2.20	

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Site:	NR 23-3 Pad	MD Reference:	GL 6720' & RKB 24' @ 6744.00usft
Well:	NR 344-3	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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)
Last SDI Gyro MWD Survey									
744.00	22.69	113.51	729.47	-50.12	100.32	112.10	4.76	4.75	-0.79
First SDI Surface MWD Survey									
839.00	26.21	116.97	815.95	-66.95	135.83	151.35	4.00	3.71	3.64
933.00	29.23	117.43	899.15	-86.94	174.71	195.06	3.22	3.21	0.49
1,027.00	31.48	117.52	980.26	-108.85	216.85	242.56	2.39	2.39	0.10
1,056.00	32.01	117.70	1,004.92	-115.93	230.37	257.82	1.86	1.83	0.62
Last SDI Surface MWD Survey									
1,180.00	32.26	116.23	1,109.92	-145.83	289.16	323.76	0.66	0.20	-1.19
First SDI Production MWD Survey									
1,274.00	32.21	115.78	1,189.43	-167.81	334.22	373.86	0.26	-0.05	-0.48
1,369.00	31.54	118.08	1,270.11	-190.52	378.94	424.01	1.46	-0.71	2.42
1,464.00	31.34	117.82	1,351.16	-213.75	422.72	473.56	0.25	-0.21	-0.27
1,559.00	30.95	116.85	1,432.47	-236.31	466.36	522.69	0.67	-0.41	-1.02
1,653.00	31.04	119.28	1,513.05	-259.08	509.07	571.09	1.33	0.10	2.59
1,747.00	31.32	118.63	1,593.47	-282.64	551.65	619.75	0.47	0.30	-0.69
1,842.00	31.11	117.59	1,674.72	-305.84	595.07	668.98	0.61	-0.22	-1.09
1,936.00	31.04	121.13	1,755.24	-329.62	637.35	717.47	1.95	-0.07	3.77
2,031.00	30.58	119.66	1,836.83	-354.24	679.31	766.09	0.93	-0.48	-1.55
2,126.00	29.90	118.07	1,918.91	-377.34	721.20	813.92	1.11	-0.72	-1.67
2,221.00	30.05	121.32	2,001.20	-400.84	762.42	861.35	1.72	0.16	3.42
2,316.00	30.33	120.61	2,083.32	-425.42	803.38	909.06	0.48	0.29	-0.75
2,410.00	30.46	118.72	2,164.40	-448.96	844.71	956.60	1.03	0.14	-2.01
2,505.00	30.43	117.35	2,246.30	-471.58	887.19	1,004.74	0.73	-0.03	-1.44
2,600.00	30.43	115.50	2,328.22	-492.99	930.28	1,052.83	0.99	0.00	-1.95
2,694.00	29.98	118.01	2,409.46	-514.27	972.50	1,100.09	1.43	-0.48	2.67
2,789.00	29.72	117.61	2,491.86	-536.33	1,014.32	1,147.38	0.34	-0.27	-0.42
2,883.00	29.05	115.76	2,573.76	-557.05	1,055.52	1,193.48	1.20	-0.71	-1.97
2,978.00	29.11	118.67	2,656.79	-578.16	1,096.57	1,239.64	1.49	0.06	3.06
3,073.00	28.72	117.03	2,739.95	-599.62	1,137.18	1,285.57	0.93	-0.41	-1.73
3,167.00	29.69	118.98	2,822.00	-621.16	1,177.67	1,331.43	1.45	1.03	2.07
3,261.00	29.38	118.63	2,903.79	-643.49	1,218.27	1,377.76	0.38	-0.33	-0.37
3,356.00	28.95	117.33	2,986.74	-665.21	1,259.15	1,424.05	0.81	-0.45	-1.37
3,451.00	29.92	119.67	3,069.48	-687.50	1,300.17	1,470.73	1.58	1.02	2.46
3,545.00	29.34	118.66	3,151.19	-710.15	1,340.74	1,517.19	0.81	-0.62	-1.07
3,639.00	28.67	117.61	3,233.40	-731.65	1,380.93	1,562.77	0.90	-0.71	-1.12
3,734.00	29.99	118.14	3,316.22	-753.41	1,422.07	1,609.30	1.42	1.39	0.56
3,828.00	29.05	117.42	3,398.02	-775.00	1,463.04	1,655.62	1.07	-1.00	-0.77
3,922.00	29.37	119.46	3,480.07	-796.84	1,503.37	1,701.48	1.11	0.34	2.17
4,017.00	30.07	121.04	3,562.57	-820.57	1,544.05	1,748.54	1.11	0.74	1.66
4,112.00	28.67	120.16	3,645.36	-844.30	1,584.15	1,795.09	1.54	-1.47	-0.93
4,206.00	30.39	122.97	3,727.15	-868.57	1,623.59	1,841.32	2.35	1.83	2.99
4,300.00	32.62	121.21	3,807.29	-894.64	1,665.22	1,890.32	2.57	2.37	-1.87
4,395.00	31.30	120.42	3,887.89	-920.40	1,708.40	1,940.55	1.46	-1.39	-0.83

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well NR 344-3 - Slot NR 344-3 (B12)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 6720' & RKB 24' @ 6744.00usft
Site:	NR 23-3 Pad	MD Reference:	GL 6720' & RKB 24' @ 6744.00usft
Well:	NR 344-3	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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)	
4,489.00	32.62	119.46	3,967.64	-945.23	1,751.52	1,990.28	1.50	1.40	-1.02	
4,583.00	31.83	119.19	4,047.16	-969.78	1,795.22	2,040.39	0.85	-0.84	-0.29	
4,678.00	31.17	118.46	4,128.16	-993.71	1,838.70	2,090.02	0.80	-0.69	-0.77	
4,772.00	30.25	119.28	4,208.98	-1,016.89	1,880.74	2,138.02	1.08	-0.98	0.87	
4,866.00	31.57	120.77	4,289.62	-1,041.06	1,922.54	2,186.28	1.62	1.40	1.59	
4,961.00	30.28	120.71	4,371.12	-1,066.01	1,964.50	2,235.05	1.36	-1.36	-0.06	
5,055.00	30.78	120.39	4,452.09	-1,090.28	2,005.62	2,282.75	0.56	0.53	-0.34	
5,149.00	32.80	120.60	4,531.98	-1,115.41	2,048.29	2,332.23	2.15	2.15	0.22	
5,243.00	34.38	119.90	4,610.28	-1,141.60	2,093.22	2,384.19	1.73	1.68	-0.74	
5,338.00	34.29	119.76	4,688.73	-1,168.26	2,139.70	2,437.75	0.13	-0.09	-0.15	
5,433.00	33.09	118.64	4,767.77	-1,193.97	2,185.69	2,490.44	1.42	-1.26	-1.18	
5,527.00	31.92	118.71	4,847.05	-1,218.21	2,230.01	2,540.95	1.25	-1.24	0.07	
5,621.00	32.64	119.28	4,926.52	-1,242.55	2,273.92	2,591.14	0.83	0.77	0.61	
5,716.00	31.87	119.69	5,006.86	-1,267.50	2,318.05	2,641.83	0.84	-0.81	0.43	
5,810.00	31.48	119.19	5,086.85	-1,291.76	2,361.04	2,691.17	0.50	-0.41	-0.53	
5,905.00	30.14	117.05	5,168.45	-1,314.71	2,403.93	2,739.82	1.82	-1.41	-2.25	
5,999.00	29.11	118.67	5,250.16	-1,336.41	2,445.02	2,786.28	1.39	-1.10	1.72	
6,094.00	28.63	118.27	5,333.35	-1,358.27	2,485.34	2,832.15	0.54	-0.51	-0.42	
6,188.00	26.73	114.80	5,416.60	-1,377.81	2,524.37	2,875.78	2.65	-2.02	-3.69	
6,283.00	25.94	115.33	5,501.74	-1,395.66	2,562.54	2,917.87	0.87	-0.83	0.56	
6,378.00	23.92	111.63	5,587.89	-1,411.65	2,599.23	2,957.76	2.69	-2.13	-3.89	
6,472.00	23.74	111.47	5,673.87	-1,425.60	2,634.56	2,995.49	0.20	-0.19	-0.17	
6,567.00	21.46	113.48	5,761.57	-1,439.53	2,668.30	3,031.81	2.53	-2.40	2.12	
6,661.00	19.25	112.45	5,849.70	-1,452.30	2,698.39	3,064.38	2.38	-2.35	-1.10	
6,756.00	17.67	111.63	5,939.81	-1,463.59	2,726.27	3,094.29	1.69	-1.66	-0.86	
6,850.00	17.32	118.17	6,029.47	-1,475.46	2,751.87	3,122.46	2.12	-0.37	6.96	
6,944.00	16.00	113.74	6,119.52	-1,487.28	2,776.06	3,149.37	1.95	-1.40	-4.71	
7,039.00	13.62	114.73	6,211.36	-1,497.23	2,798.21	3,173.59	2.52	-2.51	1.04	
7,133.00	12.57	114.53	6,302.91	-1,506.11	2,817.57	3,194.85	1.12	-1.12	-0.21	
7,228.00	12.13	116.82	6,395.72	-1,514.91	2,835.88	3,215.15	0.69	-0.46	2.41	
7,322.00	10.20	120.77	6,487.93	-1,523.62	2,851.85	3,233.34	2.21	-2.05	4.20	
7,417.00	7.56	126.40	6,581.79	-1,531.63	2,864.11	3,247.93	2.92	-2.78	5.93	
7,511.00	7.21	123.41	6,675.01	-1,538.55	2,874.01	3,259.92	0.55	-0.37	-3.18	
7,605.00	7.12	121.92	6,768.28	-1,544.88	2,883.88	3,271.60	0.22	-0.10	-1.59	
7,699.00	8.09	118.40	6,861.45	-1,551.11	2,894.64	3,284.03	1.14	1.03	-3.74	
7,794.00	7.74	111.37	6,955.55	-1,556.62	2,906.48	3,297.07	1.08	-0.37	-7.40	
7,889.00	6.60	104.43	7,049.80	-1,560.31	2,917.73	3,308.73	1.51	-1.20	-7.31	
7,984.00	5.63	93.97	7,144.26	-1,561.99	2,927.66	3,318.29	1.55	-1.02	-11.01	
8,078.00	4.92	82.10	7,237.87	-1,561.76	2,936.25	3,325.75	1.38	-0.76	-12.63	
8,153.57	4.51	83.13	7,313.18	-1,560.96	2,942.41	3,330.81	0.56	-0.55	1.36	
NR 344-3 BTV										
8,173.00	4.40	83.42	7,332.55	-1,560.78	2,943.91	3,332.05	0.56	-0.55	1.52	
8,267.00	3.52	79.99	7,426.33	-1,559.86	2,950.33	3,337.28	0.97	-0.94	-3.65	

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

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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)
8,362.00	2.96	88.77	7,521.18	-1,559.30	2,955.66	3,341.71	0.79	-0.59	9.24
8,455.00	2.22	107.81	7,614.08	-1,559.80	2,959.77	3,345.58	1.21	-0.80	20.47
8,549.00	1.41	97.57	7,708.04	-1,560.51	2,962.65	3,348.45	0.92	-0.86	-10.89
8,644.00	1.06	42.02	7,803.02	-1,560.01	2,964.40	3,349.76	1.25	-0.37	-58.47
8,738.00	0.53	330.04	7,897.01	-1,558.99	2,964.77	3,349.60	1.09	-0.56	-76.57
8,832.00	1.76	245.05	7,990.99	-1,559.22	2,963.24	3,348.36	1.91	1.31	-90.41
8,927.00	0.88	257.36	8,085.97	-1,560.00	2,961.21	3,346.93	0.97	-0.93	12.96
9,022.00	0.87	15.35	8,180.96	-1,559.46	2,960.68	3,346.22	1.58	-0.01	124.20
9,116.00	0.88	346.21	8,274.95	-1,558.07	2,960.70	3,345.58	0.47	0.01	-31.00
9,210.00	1.06	355.35	8,368.94	-1,556.51	2,960.46	3,344.63	0.25	0.19	9.72
9,305.00	1.11	357.19	8,463.92	-1,554.71	2,960.34	3,343.68	0.06	0.05	1.94
9,400.00	1.49	272.91	8,558.90	-1,553.73	2,959.06	3,342.09	1.86	0.40	-88.72
9,494.00	2.37	273.62	8,652.85	-1,553.54	2,955.90	3,339.22	0.94	0.94	0.76
9,589.00	2.46	287.50	8,747.76	-1,552.81	2,952.00	3,335.42	0.62	0.09	14.61
9,683.00	2.46	290.23	8,841.68	-1,551.50	2,948.18	3,331.44	0.12	0.00	2.90
9,778.00	2.62	275.30	8,936.59	-1,550.60	2,944.11	3,327.42	0.71	0.17	-15.72
9,872.00	3.04	268.52	9,030.47	-1,550.46	2,939.48	3,323.27	0.57	0.45	-7.21
9,967.00	3.49	259.94	9,125.32	-1,551.03	2,934.11	3,318.81	0.70	0.47	-9.03
10,061.00	4.22	255.59	9,219.10	-1,552.39	2,927.94	3,314.01	0.84	0.78	-4.63
10,155.00	3.61	242.68	9,312.89	-1,554.61	2,921.96	3,309.78	1.14	-0.65	-13.73
10,250.00	3.11	236.33	9,407.72	-1,557.42	2,917.16	3,306.87	0.66	-0.53	-6.68
10,345.00	3.78	233.09	9,502.55	-1,560.72	2,912.51	3,304.33	0.73	0.71	-3.41
10,439.00	4.61	219.42	9,596.30	-1,565.50	2,907.64	3,302.28	1.38	0.88	-14.54
10,533.00	5.28	202.86	9,689.95	-1,572.41	2,903.56	3,301.93	1.67	0.71	-17.62
10,628.00	5.19	205.15	9,784.56	-1,580.32	2,900.03	3,302.55	0.24	-0.09	2.41
10,656.00	5.19	206.38	9,812.44	-1,582.61	2,898.93	3,302.66	0.40	0.00	4.39
Last SDI Production MWD Survey									
10,715.00	5.19	206.38	9,871.20	-1,587.39	2,896.56	3,302.82	0.00	0.00	0.00
Projection to TD - NR 344-3 PBHL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
121.00	121.00	0.29	-0.48	First SDI Gyro MWD Survey
672.00	662.26	-39.73	76.73	Last SDI Gyro MWD Survey
744.00	729.47	-50.12	100.32	First SDI Surface MWD Survey
1,056.00	1,004.92	-115.93	230.37	Last SDI Surface MWD Survey
1,180.00	1,109.92	-145.83	289.16	First SDI Production MWD Survey
10,656.00	9,812.44	-1,582.61	2,898.93	Last SDI Production MWD Survey
10,715.00	9,871.20	-1,587.39	2,896.56	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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