





## 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 343-3
County & State	Garfield County, CO
SDI Job No.	OP.013480
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 10,610 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

17-Oct-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 343-3 - Slot NR 343-3 (B9)
<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 343-3	<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 343-3 - Slot NR 343-3 (B9)					
Well Position	+N/-S	0.00 usft	Northing:	1,634,916.54 usft	Latitude:	39.5525555
	+E/-W	0.00 usft	Easting:	2,329,761.20 usft	Longitude:	-107.8772262
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	10/2/2018	9.43	65.78	51,532

<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	85.25	

<b>Survey Program</b>	<b>Date</b>	10/17/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
121.00	580.00	Survey #1 - Gyro MWD Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
650.00	1,072.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,273.00	10,610.00	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	0.53	103.89	121.00	-0.13	0.54	0.53	0.44	0.44	0.00	
<b>First SDI Gyro MWD Survey</b>										
213.00	3.96	90.26	212.91	-0.25	4.13	4.10	3.75	3.73	-14.82	
305.00	7.39	87.98	304.45	-0.06	13.23	13.18	3.74	3.73	-2.48	
397.00	10.38	82.53	395.34	1.23	27.36	27.37	3.37	3.25	-5.92	
489.00	13.81	85.34	485.28	3.20	46.53	46.63	3.78	3.73	3.05	
580.00	16.98	82.53	573.01	5.81	70.53	70.77	3.58	3.48	-3.09	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well NR 343-3 - Slot NR 343-3 (B9)
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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 343-3	<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)	
Last SDI Gyro MWD Survey										
650.00	19.67	83.51	639.45	8.47	92.38	92.76	3.87	3.84	1.40	
First SDI Surface MWD Survey										
745.00	22.94	86.08	727.95	11.55	126.75	127.27	3.58	3.44	2.71	
839.00	24.91	86.82	813.87	13.90	164.79	165.38	2.12	2.10	0.79	
934.00	24.81	85.13	900.07	16.70	204.63	205.31	0.76	-0.11	-1.78	
1,028.00	26.62	84.74	984.75	20.30	245.25	246.09	1.93	1.93	-0.41	
1,072.00	26.82	85.37	1,024.05	22.01	264.96	265.87	0.79	0.45	1.43	
Last SDI Surface MWD Survey										
1,273.00	26.90	86.73	1,203.37	28.26	355.56	356.67	0.31	0.04	0.68	
First SDI Production MWD Survey										
1,368.00	27.34	90.28	1,287.93	29.38	398.83	399.89	1.77	0.46	3.74	
1,463.00	27.01	90.67	1,372.45	29.02	442.21	443.10	0.39	-0.35	0.41	
1,557.00	27.05	91.34	1,456.18	28.27	484.93	485.60	0.33	0.04	0.71	
1,651.00	26.13	89.28	1,540.24	28.03	526.99	527.51	1.39	-0.98	-2.19	
1,748.00	26.05	89.11	1,627.35	28.63	569.65	570.06	0.11	-0.08	-0.18	
1,840.00	25.85	88.35	1,710.08	29.52	609.90	610.25	0.42	-0.22	-0.83	
1,935.00	24.63	87.89	1,796.01	30.85	650.38	650.70	1.30	-1.28	-0.48	
2,030.00	26.12	87.12	1,881.84	32.63	691.05	691.38	1.61	1.57	-0.81	
2,124.00	25.96	86.33	1,966.30	34.99	732.25	732.63	0.41	-0.17	-0.84	
2,218.00	25.60	84.92	2,050.94	38.10	773.01	773.51	0.76	-0.38	-1.50	
2,313.00	26.89	86.85	2,136.15	41.10	814.91	815.51	1.63	1.36	2.03	
2,407.00	27.56	86.44	2,219.73	43.62	857.84	858.50	0.74	0.71	-0.44	
2,502.00	27.65	85.45	2,303.92	46.73	901.75	902.52	0.49	0.09	-1.04	
2,596.00	27.79	88.53	2,387.14	49.02	945.40	946.21	1.53	0.15	3.28	
2,691.00	27.00	90.90	2,471.48	49.25	989.10	989.78	1.42	-0.83	2.49	
2,786.00	27.17	90.82	2,556.07	48.60	1,032.35	1,032.83	0.18	0.18	-0.08	
2,880.00	25.24	90.73	2,640.40	48.04	1,073.85	1,074.14	2.05	-2.05	-0.10	
2,974.00	25.06	91.43	2,725.49	47.29	1,113.79	1,113.89	0.37	-0.19	0.74	
3,069.00	25.68	87.74	2,811.33	47.60	1,154.48	1,154.46	1.79	0.65	-3.88	
3,164.00	25.06	88.01	2,897.17	49.11	1,195.15	1,195.12	0.66	-0.65	0.28	
3,258.00	26.73	84.42	2,981.73	51.86	1,236.09	1,236.14	2.44	1.78	-3.82	
3,353.00	26.82	84.66	3,066.55	55.93	1,278.70	1,278.94	0.15	0.09	0.25	
3,448.00	26.56	84.57	3,151.43	59.93	1,321.18	1,321.60	0.28	-0.27	-0.09	
3,542.00	26.38	84.75	3,235.57	63.83	1,362.89	1,363.50	0.21	-0.19	0.19	
3,637.00	26.20	84.75	3,320.75	67.68	1,404.79	1,405.58	0.19	-0.19	0.00	
3,731.00	25.88	85.55	3,405.20	71.17	1,445.91	1,446.84	0.51	-0.34	0.85	
3,826.00	26.13	84.47	3,490.59	74.80	1,487.41	1,488.49	0.56	0.26	-1.14	
3,920.00	24.43	85.23	3,575.58	78.41	1,527.38	1,528.63	1.84	-1.81	0.81	
4,015.00	25.76	85.95	3,661.61	81.50	1,567.55	1,568.92	1.44	1.40	0.76	
4,110.00	27.51	87.94	3,746.53	83.75	1,610.08	1,611.48	2.07	1.84	2.09	
4,204.00	26.82	87.39	3,830.16	85.49	1,652.96	1,654.36	0.78	-0.73	-0.59	
4,299.00	28.40	86.68	3,914.34	87.78	1,696.92	1,698.36	1.70	1.66	-0.75	
4,393.00	27.51	85.84	3,997.37	90.65	1,740.89	1,742.42	1.04	-0.95	-0.89	

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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)
4,488.00	28.62	85.51	4,081.20	94.02	1,785.46	1,787.11	1.18	1.17	-0.35
4,583.00	27.43	85.51	4,165.06	97.51	1,829.96	1,831.75	1.25	-1.25	0.00
4,677.00	29.27	87.08	4,247.78	100.38	1,874.50	1,876.37	2.11	1.96	1.67
4,772.00	28.49	88.54	4,330.97	102.14	1,920.34	1,922.21	1.11	-0.82	1.54
4,866.00	27.08	89.85	4,414.13	102.77	1,964.15	1,965.92	1.63	-1.50	1.39
4,961.00	27.81	88.42	4,498.44	103.44	2,007.93	2,009.60	1.04	0.77	-1.51
5,055.00	26.53	89.23	4,582.06	104.32	2,050.84	2,052.44	1.42	-1.36	0.86
5,150.00	27.66	87.36	4,666.64	105.62	2,094.09	2,095.64	1.49	1.19	-1.97
5,244.00	27.00	88.01	4,750.14	107.37	2,137.21	2,138.76	0.77	-0.70	0.69
5,339.00	25.84	89.35	4,835.22	108.35	2,179.46	2,180.95	1.37	-1.22	1.41
5,433.00	26.93	91.48	4,919.43	108.03	2,221.23	2,222.55	1.54	1.16	2.27
5,527.00	25.68	92.75	5,003.69	106.51	2,262.85	2,263.90	1.46	-1.33	1.35
5,622.00	25.68	88.71	5,089.32	105.98	2,303.99	2,304.86	1.84	0.00	-4.25
5,716.00	27.30	88.61	5,173.45	106.97	2,345.91	2,346.71	1.72	1.72	-0.11
5,811.00	26.26	89.14	5,258.25	107.81	2,388.70	2,389.43	1.12	-1.09	0.56
5,906.00	26.84	87.83	5,343.24	108.94	2,431.15	2,431.82	0.87	0.61	-1.38
6,000.00	26.20	87.83	5,427.35	110.53	2,473.09	2,473.75	0.68	-0.68	0.00
6,095.00	25.76	85.36	5,512.75	112.99	2,514.62	2,515.35	1.23	-0.46	-2.60
6,189.00	25.31	84.85	5,597.57	116.45	2,555.00	2,555.87	0.53	-0.48	-0.54
6,284.00	24.53	87.12	5,683.72	119.26	2,594.92	2,595.89	1.30	-0.82	2.39
6,378.00	23.44	86.61	5,769.60	121.35	2,633.07	2,634.08	1.18	-1.16	-0.54
6,473.00	21.98	86.77	5,857.24	123.47	2,669.69	2,670.74	1.54	-1.54	0.17
6,568.00	19.61	89.50	5,946.04	124.61	2,703.38	2,704.42	2.69	-2.49	2.87
6,663.00	18.11	90.55	6,035.94	124.60	2,734.09	2,735.02	1.62	-1.58	1.11
6,757.00	16.80	92.75	6,125.61	123.81	2,762.27	2,763.04	1.56	-1.39	2.34
6,852.00	16.62	88.71	6,216.60	123.46	2,789.57	2,790.21	1.24	-0.19	-4.25
6,947.00	15.04	86.07	6,308.00	124.61	2,815.45	2,816.10	1.83	-1.66	-2.78
7,041.00	12.73	88.64	6,399.25	125.69	2,837.97	2,838.64	2.54	-2.46	2.73
7,136.00	11.87	85.54	6,492.07	126.70	2,858.18	2,858.86	1.14	-0.91	-3.26
7,231.00	11.08	86.86	6,585.17	127.96	2,877.03	2,877.75	0.88	-0.83	1.39
7,325.00	9.50	88.71	6,677.65	128.63	2,893.81	2,894.53	1.72	-1.68	1.97
7,419.00	8.27	93.01	6,770.52	128.45	2,908.32	2,908.97	1.49	-1.31	4.57
7,514.00	7.47	91.52	6,864.63	127.93	2,921.31	2,921.88	0.87	-0.84	-1.57
7,609.00	6.68	72.09	6,958.92	129.46	2,932.74	2,933.40	2.64	-0.83	-20.45
7,703.00	5.19	53.20	7,052.42	133.69	2,941.35	2,942.32	2.59	-1.59	-20.10
7,798.00	3.78	46.08	7,147.13	138.44	2,947.05	2,948.39	1.59	-1.48	-7.49
7,892.00	2.99	44.32	7,240.96	142.34	2,950.99	2,952.65	0.85	-0.84	-1.87
7,987.00	2.13	49.92	7,335.87	145.25	2,954.08	2,955.96	0.94	-0.91	5.89
8,034.24	1.75	55.77	7,383.08	146.22	2,955.35	2,957.31	0.90	-0.80	12.39
NR 343-3 BTV									
8,081.00	1.41	64.54	7,429.82	146.87	2,956.46	2,958.47	0.90	-0.74	18.75
8,175.00	0.97	69.46	7,523.80	147.65	2,958.25	2,960.32	0.48	-0.47	5.23
8,270.00	0.53	120.52	7,618.79	147.71	2,959.38	2,961.45	0.80	-0.46	53.75
8,364.00	0.91	217.39	7,712.79	146.89	2,959.30	2,961.30	1.18	0.40	103.05

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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)
8,459.00	2.02	225.11	7,807.76	145.11	2,957.65	2,959.52	1.18	1.17	8.13
8,553.00	1.76	239.44	7,901.71	143.21	2,955.24	2,956.95	0.57	-0.28	15.24
8,648.00	1.93	254.73	7,996.66	142.05	2,952.44	2,954.06	0.55	0.18	16.09
8,742.00	1.90	267.95	8,090.61	141.57	2,949.35	2,950.95	0.47	-0.03	14.06
8,837.00	0.62	296.05	8,185.58	141.74	2,947.32	2,948.94	1.46	-1.35	29.58
8,931.00	0.53	195.40	8,279.58	141.55	2,946.75	2,948.35	0.94	-0.10	-107.07
9,025.00	0.50	359.63	8,373.58	141.54	2,946.63	2,948.23	1.09	-0.03	174.71
9,120.00	1.67	336.56	8,468.56	143.22	2,946.07	2,947.82	1.29	1.23	-24.28
9,214.00	1.82	324.27	8,562.52	145.69	2,944.66	2,946.61	0.43	0.16	-13.07
9,308.00	1.68	323.06	8,656.47	148.00	2,942.96	2,945.11	0.15	-0.15	-1.29
9,403.00	1.67	311.51	8,751.43	150.03	2,941.08	2,943.41	0.35	-0.01	-12.16
9,496.00	1.76	281.10	8,844.39	151.21	2,938.67	2,941.10	0.97	0.10	-32.70
9,591.00	2.46	267.21	8,939.33	151.39	2,935.20	2,937.66	0.91	0.74	-14.62
9,686.00	2.55	288.13	9,034.24	151.95	2,931.16	2,933.67	0.96	0.09	22.02
9,780.00	1.28	316.45	9,128.19	153.36	2,928.44	2,931.09	1.65	-1.35	30.13
9,874.00	0.88	271.43	9,222.17	154.14	2,927.00	2,929.71	0.96	-0.43	-47.89
9,969.00	2.02	263.61	9,317.14	153.97	2,924.61	2,927.31	1.22	1.20	-8.23
10,063.00	2.37	256.93	9,411.07	153.35	2,921.07	2,923.74	0.46	0.37	-7.11
10,158.00	3.13	254.55	9,505.96	152.21	2,916.65	2,919.24	0.81	0.80	-2.51
10,252.00	3.43	256.31	9,599.81	150.86	2,911.45	2,913.94	0.34	0.32	1.87
10,347.00	4.48	265.98	9,694.58	149.93	2,904.99	2,907.43	1.31	1.11	10.18
10,441.00	4.46	258.46	9,788.29	148.94	2,897.74	2,900.13	0.62	-0.02	-8.00
10,535.00	3.87	253.32	9,882.05	147.30	2,891.12	2,893.39	0.74	-0.63	-5.47
10,552.00	4.04	252.80	9,899.00	146.96	2,890.00	2,892.25	1.02	1.00	-3.06
Last SDI Production MWD Survey									
10,610.00	4.04	252.80	9,956.86	145.75	2,886.10	2,888.26	0.00	0.00	0.00
Projection to TD - NR 343-3 PBHL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
121.00	121.00	-0.13	0.54	First SDI Gyro MWD Survey
580.00	573.01	5.81	70.53	Last SDI Gyro MWD Survey
650.00	639.45	8.47	92.38	First SDI Surface MWD Survey
1,072.00	1,024.05	22.01	264.96	Last SDI Surface MWD Survey
1,273.00	1,203.37	28.26	355.56	First SDI Production MWD Survey
10,552.00	9,899.00	146.96	2,890.00	Last SDI Production MWD Survey
10,610.00	9,956.86	145.75	2,886.10	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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