





## 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 443-3
County & State	Garfield County, CO
SDI Job No.	OP.013988
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 96 feet to a measured depth of 10,578 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

31-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 443-3 - Slot NR 443-3 (B10)
<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 443-3	<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 443-3 - Slot NR 443-3 (B10)				
Well Position	+N/-S	0.00 usft	Northing:	1,634,910.53 usft	Latitude:	39.5525394
	+E/-W	0.00 usft	Easting:	2,329,765.68 usft	Longitude:	-107.8772098
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	10/21/2018	9.42	65.78	51,526

<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	96.89	

<b>Survey Program</b>	<b>Date</b>	10/31/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
96.00	672.00	Survey #1 - Gyro MWD Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
744.00	1,067.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,180.00	10,578.00	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	
96.00	0.18	18.98	96.00	0.14	0.05	0.03	0.19	0.19	0.00	
<b>First SDI Gyro MWD Survey</b>										
121.00	0.35	30.50	121.00	0.25	0.10	0.07	0.71	0.68	46.08	
212.00	3.96	92.90	211.92	0.33	3.38	3.32	4.19	3.97	68.57	
304.00	6.07	100.81	303.57	-0.75	11.33	11.34	2.41	2.29	8.60	
396.00	8.71	91.49	394.80	-1.84	23.08	23.13	3.14	2.87	-10.13	
488.00	11.96	91.49	485.29	-2.27	39.57	39.56	3.53	3.53	0.00	
580.00	15.40	99.58	574.68	-4.55	61.16	61.26	4.27	3.74	8.79	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well NR 443-3 - Slot NR 443-3 (B10)
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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 443-3	<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)
672.00	19.35	98.79	662.46	-8.92	88.28	88.71	4.30	4.29	-0.86
Last SDI Gyro MWD Survey									
744.00	23.31	97.44	729.52	-12.58	114.20	114.88	5.54	5.50	-1.88
First SDI Surface MWD Survey									
839.00	26.27	98.38	815.75	-18.08	153.65	154.70	3.14	3.12	0.99
934.00	27.00	97.31	900.67	-23.89	195.83	197.29	0.92	0.77	-1.13
1,028.00	29.72	96.26	983.38	-29.15	240.17	241.93	2.94	2.89	-1.12
1,067.00	29.63	96.87	1,017.27	-31.36	259.35	261.24	0.81	-0.23	1.56
Last SDI Surface MWD Survey									
1,180.00	30.42	95.41	1,115.11	-37.39	315.57	317.77	0.95	0.70	-1.29
First SDI Production MWD Survey									
1,274.00	29.60	96.11	1,196.50	-42.11	362.34	364.78	0.95	-0.87	0.74
1,369.00	28.82	95.75	1,279.42	-46.90	408.45	411.13	0.84	-0.82	-0.38
1,463.00	27.26	96.70	1,362.39	-51.68	452.38	455.31	1.73	-1.66	1.01
1,558.00	28.14	98.72	1,446.50	-57.62	496.13	499.46	1.35	0.93	2.13
1,653.00	27.17	98.19	1,530.65	-64.10	539.75	543.54	1.05	-1.02	-0.56
1,747.00	26.38	97.66	1,614.57	-69.94	581.69	585.88	0.88	-0.84	-0.56
1,842.00	25.06	96.96	1,700.15	-75.20	622.58	627.10	1.43	-1.39	-0.74
1,936.00	26.88	96.81	1,784.66	-80.13	663.44	668.26	1.94	1.94	-0.16
2,031.00	25.41	95.64	1,869.94	-84.68	705.05	710.12	1.64	-1.55	-1.23
2,126.00	27.74	98.37	1,954.90	-89.90	747.22	752.60	2.77	2.45	2.87
2,221.00	27.44	96.43	2,039.10	-95.57	790.84	796.60	1.00	-0.32	-2.04
2,315.00	26.93	96.07	2,122.71	-100.25	833.53	839.54	0.57	-0.54	-0.38
2,410.00	26.12	95.82	2,207.71	-104.64	875.73	881.96	0.86	-0.85	-0.26
2,505.00	25.23	95.12	2,293.33	-108.57	916.70	923.10	0.99	-0.94	-0.74
2,599.00	23.57	93.97	2,378.93	-111.66	955.41	961.90	1.84	-1.77	-1.22
2,694.00	25.58	96.85	2,465.33	-115.42	994.72	1,001.38	2.46	2.12	3.03
2,789.00	24.57	97.31	2,551.37	-120.38	1,034.68	1,041.64	1.08	-1.06	0.48
2,883.00	26.91	97.49	2,636.04	-125.64	1,075.16	1,082.46	2.49	2.49	0.19
2,978.00	25.76	96.87	2,721.18	-130.91	1,116.97	1,124.61	1.24	-1.21	-0.65
3,072.00	28.40	95.73	2,804.87	-135.59	1,159.50	1,167.39	2.86	2.81	-1.21
3,167.00	27.35	95.11	2,888.84	-139.79	1,203.71	1,211.79	1.15	-1.11	-0.65
3,261.00	26.47	95.11	2,972.66	-143.58	1,246.09	1,254.31	0.94	-0.94	0.00
3,356.00	26.20	94.94	3,057.80	-147.27	1,288.07	1,296.43	0.30	-0.28	-0.18
3,450.00	25.59	94.76	3,142.37	-150.74	1,328.97	1,337.46	0.65	-0.65	-0.19
3,545.00	24.27	95.28	3,228.51	-154.24	1,368.86	1,377.48	1.41	-1.39	0.55
3,639.00	25.35	99.03	3,313.84	-159.18	1,407.98	1,416.90	2.03	1.15	3.99
3,733.00	24.42	98.99	3,399.11	-165.37	1,447.04	1,456.43	0.99	-0.99	-0.04
3,828.00	25.76	103.46	3,485.15	-173.25	1,486.52	1,496.57	2.44	1.41	4.71
3,922.00	23.91	103.34	3,570.46	-182.40	1,524.93	1,535.79	1.97	-1.97	-0.13
4,017.00	26.71	103.14	3,656.33	-191.69	1,564.46	1,576.16	2.95	2.95	-0.21
4,111.00	26.12	102.68	3,740.51	-201.04	1,605.22	1,617.74	0.66	-0.63	-0.49
4,206.00	27.32	98.75	3,825.38	-208.95	1,647.17	1,660.34	2.25	1.26	-4.14
4,300.00	26.43	99.01	3,909.22	-215.50	1,689.15	1,702.81	0.96	-0.95	0.28

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<b>Well:</b>	NR 443-3	<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)
4,395.00	29.02	93.88	3,993.32	-220.38	1,733.04	1,746.96	3.71	2.73	-5.40
4,489.00	27.87	93.80	4,075.97	-223.37	1,777.71	1,791.67	1.22	-1.22	-0.09
4,583.00	28.94	92.37	4,158.65	-225.77	1,822.36	1,836.28	1.35	1.14	-1.52
4,678.00	27.99	91.42	4,242.17	-227.27	1,867.61	1,881.39	1.11	-1.00	-1.00
4,772.00	28.03	95.71	4,325.17	-230.02	1,911.64	1,925.43	2.14	0.04	4.56
4,866.00	26.49	95.07	4,408.72	-234.07	1,954.51	1,968.47	1.67	-1.64	-0.68
4,961.00	28.49	95.73	4,492.99	-238.20	1,998.16	2,012.30	2.13	2.11	0.69
5,055.00	27.26	95.55	4,576.08	-242.52	2,041.89	2,056.24	1.31	-1.31	-0.19
5,149.00	28.14	98.28	4,659.31	-247.80	2,085.26	2,099.93	1.64	0.94	2.90
5,243.00	27.02	99.09	4,742.63	-254.36	2,128.28	2,143.42	1.26	-1.19	0.86
5,338.00	28.85	97.30	4,826.56	-260.69	2,172.33	2,187.91	2.12	1.93	-1.88
5,432.00	27.16	97.57	4,909.55	-266.39	2,216.09	2,232.05	1.80	-1.80	0.29
5,527.00	29.05	94.52	4,993.35	-271.07	2,260.59	2,276.78	2.50	1.99	-3.21
5,621.00	27.65	95.47	5,076.07	-274.95	2,305.05	2,321.39	1.56	-1.49	1.01
5,715.00	30.27	91.86	5,158.32	-277.80	2,350.45	2,366.80	3.35	2.79	-3.84
5,810.00	28.94	91.41	5,240.91	-279.14	2,397.36	2,413.54	1.42	-1.40	-0.47
5,905.00	28.07	90.72	5,324.40	-279.99	2,442.69	2,458.64	0.98	-0.92	-0.73
5,999.00	27.00	91.07	5,407.75	-280.66	2,486.14	2,501.86	1.15	-1.14	0.37
6,094.00	25.53	90.77	5,492.94	-281.34	2,528.17	2,543.67	1.55	-1.55	-0.32
6,188.00	24.62	91.60	5,578.08	-282.16	2,568.00	2,583.30	1.04	-0.97	0.88
6,283.00	23.61	92.42	5,664.79	-283.51	2,606.79	2,621.98	1.12	-1.06	0.86
6,377.00	20.53	91.85	5,751.89	-284.84	2,642.08	2,657.17	3.28	-3.28	-0.61
6,472.00	19.53	93.45	5,841.14	-286.34	2,674.58	2,689.61	1.20	-1.05	1.68
6,567.00	17.66	93.70	5,931.18	-288.22	2,704.82	2,719.86	1.97	-1.97	0.26
6,661.00	15.83	93.09	6,021.19	-289.83	2,731.85	2,746.89	1.96	-1.95	-0.65
6,756.00	14.86	94.06	6,112.80	-291.39	2,756.94	2,771.98	1.06	-1.02	1.02
6,850.00	13.81	94.41	6,203.87	-293.11	2,780.15	2,795.23	1.12	-1.12	0.37
6,944.00	12.93	94.85	6,295.33	-294.86	2,801.81	2,816.95	0.94	-0.94	0.47
7,038.00	11.52	95.90	6,387.19	-296.72	2,821.63	2,836.85	1.52	-1.50	1.12
7,133.00	10.64	97.93	6,480.42	-298.90	2,839.75	2,855.10	1.01	-0.93	2.14
7,227.00	10.11	97.22	6,572.88	-301.13	2,856.53	2,872.03	0.58	-0.56	-0.76
7,322.00	8.28	96.63	6,666.66	-302.97	2,871.60	2,887.21	1.93	-1.93	-0.62
7,420.00	7.65	91.72	6,763.71	-303.98	2,885.13	2,900.76	0.95	-0.64	-5.01
7,511.00	6.87	93.40	6,853.98	-304.49	2,896.62	2,912.22	0.89	-0.86	1.85
7,605.00	6.24	95.90	6,947.37	-305.35	2,907.31	2,922.94	0.74	-0.67	2.66
7,699.00	5.36	96.34	7,040.89	-306.36	2,916.76	2,932.44	0.94	-0.94	0.47
7,794.00	4.40	104.87	7,135.54	-307.78	2,924.69	2,940.49	1.26	-1.01	8.98
7,889.00	3.61	89.58	7,230.31	-308.69	2,931.20	2,947.06	1.39	-0.83	-16.09
7,983.00	3.23	84.25	7,324.14	-308.41	2,936.80	2,952.58	0.53	-0.40	-5.67
8,032.77	2.81	87.35	7,373.85	-308.21	2,939.41	2,955.16	0.90	-0.84	6.23
NR 443-3 BTV									
8,076.00	2.46	90.89	7,417.03	-308.18	2,941.40	2,957.12	0.90	-0.82	8.18
8,171.00	3.96	79.91	7,511.88	-307.63	2,946.67	2,962.29	1.70	1.58	-11.56

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<b>Design:</b>	OH	<b>Database:</b>	Grand Junction District

Survey										
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8,265.00	5.06	47.76	7,605.60	-304.28	2,952.93	2,968.11	2.88	1.17	-34.20	
8,359.00	4.48	48.18	7,699.27	-299.04	2,958.74	2,973.24	0.62	-0.62	0.45	
8,454.00	2.58	49.03	7,794.09	-295.17	2,963.12	2,977.13	2.00	-2.00	0.89	
8,548.00	1.98	36.31	7,888.02	-292.47	2,965.68	2,979.34	0.83	-0.64	-13.53	
8,643.00	1.20	47.35	7,982.98	-290.47	2,967.38	2,980.79	0.88	-0.82	11.62	
8,737.00	0.57	15.00	8,076.97	-289.36	2,968.23	2,981.50	0.83	-0.67	-34.41	
8,832.00	0.62	342.01	8,171.96	-288.41	2,968.19	2,981.35	0.36	0.05	-34.73	
8,926.00	0.55	325.20	8,265.96	-287.56	2,967.78	2,980.83	0.20	-0.07	-17.88	
9,021.00	1.23	271.51	8,360.95	-287.15	2,966.50	2,979.52	1.06	0.72	-56.52	
9,115.00	1.14	268.87	8,454.93	-287.15	2,964.55	2,977.59	0.11	-0.10	-2.81	
9,210.00	1.22	253.37	8,549.91	-287.45	2,962.64	2,975.72	0.35	0.08	-16.32	
9,304.00	1.07	242.32	8,643.89	-288.15	2,960.90	2,974.08	0.28	-0.16	-11.76	
9,398.00	1.38	244.70	8,737.87	-289.04	2,959.10	2,972.40	0.33	0.33	2.53	
9,497.00	1.64	266.96	8,836.83	-289.62	2,956.61	2,970.00	0.64	0.26	22.48	
9,587.00	0.69	293.85	8,926.81	-289.47	2,954.83	2,968.21	1.19	-1.06	29.88	
9,681.00	0.34	45.06	9,020.81	-289.05	2,954.51	2,967.84	0.93	-0.37	118.31	
9,775.00	0.09	142.75	9,114.81	-288.91	2,954.75	2,968.07	0.39	-0.27	103.93	
9,869.00	1.09	242.14	9,208.81	-289.39	2,954.00	2,967.38	1.18	1.06	105.73	
9,964.00	1.23	238.90	9,303.79	-290.34	2,952.33	2,965.84	0.16	0.15	-3.41	
10,058.00	0.71	184.89	9,397.77	-291.44	2,951.42	2,965.06	1.06	-0.55	-57.46	
10,153.00	0.48	180.11	9,492.77	-292.42	2,951.37	2,965.13	0.25	-0.24	-5.03	
10,247.00	0.72	209.59	9,586.76	-293.33	2,951.07	2,964.95	0.41	0.26	31.36	
10,342.00	1.41	232.84	9,681.75	-294.55	2,949.85	2,963.88	0.84	0.73	24.47	
10,436.00	1.80	223.61	9,775.71	-296.32	2,947.91	2,962.16	0.50	0.41	-9.82	
10,519.00	1.85	217.81	9,858.67	-298.32	2,946.19	2,960.70	0.23	0.06	-6.99	
Last SDI Production MWD Survey										
10,578.00	1.85	217.81	9,917.64	-299.83	2,945.02	2,959.72	0.00	0.00	0.00	
Projection to TD - NR 443-3 PBHL										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
96.00	96.00	0.14	0.05	First SDI Gyro MWD Survey	
672.00	662.46	-8.92	88.28	Last SDI Gyro MWD Survey	
744.00	729.52	-12.58	114.20	First SDI Surface MWD Survey	
1,067.00	1,017.27	-31.36	259.35	Last SDI Surface MWD Survey	
1,180.00	1,115.11	-37.39	315.57	First SDI Production MWD Survey	
10,519.00	9,858.67	-298.32	2,946.19	Last SDI Production MWD Survey	
10,578.00	9,917.64	-299.83	2,945.02	Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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