



## 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.	TR 23-23-597
County & State	Garfield County, CO
SDI Job No.	OP.001806 & OP.002039
Rig	H&P 271

I, Mel Mireles Jr., having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 143 feet to a measured depth of 10,359 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

20-Jun-17

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 TR 23-23-597 - Slot B2 (TR 23-23-597)
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 8545.20' & RKB 24' @ 8569.20usft (H&P 318)
<b>Site:</b>	TR 32-23-597 Pad	<b>MD Reference:</b>	GL 8545.20' & RKB 24' @ 8569.20usft (H&P 318)
<b>Well:</b>	TR 23-23-597	<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		

<b>Site</b>	TR 32-23-597 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,654,899.00 usft	<b>Latitude:</b> 39.5994964
<b>From:</b>	Map	<b>Easting:</b>	2,227,644.00 usft	<b>Longitude:</b> -108.2413519
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in	<b>Grid Convergence:</b> -1.73 °

<b>Well</b>	TR 23-23-597 - Slot B2 (TR 23-23-597)			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,654,846.10 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	2,227,589.80 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	0.00 usft
			<b>Ground Level:</b>	8,545.20 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	6/16/2017	9.75	65.93	51,601

<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	249.84	

<b>Survey Program</b>	<b>Date</b>	6/20/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
143.00	531.00	Survey #1 - Gyro MWD Survey (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
601.00	2,936.00	Survey #2 - Surface MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
3,061.00	10,359.00	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	
143.00	0.88	224.47	142.99	-0.78	-0.77	0.99	0.62	0.62	0.00	
<b>First SDI Gyro MWD Survey</b>										
173.00	1.41	235.81	172.99	-1.16	-1.24	1.56	1.91	1.77	37.80	
263.00	3.52	249.17	262.90	-2.76	-4.73	5.40	2.41	2.34	14.84	
352.00	5.45	253.21	351.62	-4.95	-11.34	12.35	2.20	2.17	4.54	
442.00	8.09	256.64	440.99	-7.65	-21.59	22.90	2.97	2.93	3.81	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well TR 23-23-597 - Slot B2 (TR 23-23-597)
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<b>Site:</b>	TR 32-23-597 Pad	<b>MD Reference:</b>	GL 8545.20' & RKB 24' @ 8569.20usft (H&P 318)
<b>Well:</b>	TR 23-23-597	<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)
531.00	10.29	255.50	528.84	-11.09	-35.38	37.03	2.48	2.47	-1.28
<b>Last SDI Gyro MWD Survey</b>									
601.00	11.34	257.87	597.60	-14.10	-48.16	50.07	1.63	1.50	3.39
<b>First SDI Surface MWD Survey</b>									
690.00	12.25	255.56	684.72	-18.29	-65.86	68.13	1.15	1.02	-2.60
779.00	14.19	254.85	771.36	-23.50	-85.54	88.39	2.19	2.18	-0.80
868.00	14.20	253.30	857.64	-29.49	-106.52	110.16	0.43	0.01	-1.74
958.00	14.44	250.08	944.84	-36.48	-127.65	132.40	0.92	0.27	-3.58
1,053.00	14.82	247.58	1,036.76	-45.15	-150.01	156.38	0.78	0.40	-2.63
1,148.00	14.77	244.24	1,128.62	-55.05	-172.15	180.58	0.90	-0.05	-3.52
1,242.00	15.83	248.64	1,219.29	-64.93	-194.88	205.32	1.67	1.13	4.68
1,337.00	15.39	247.76	1,310.78	-74.42	-218.62	230.87	0.53	-0.46	-0.93
1,432.00	15.02	244.15	1,402.46	-84.56	-241.37	255.72	1.07	-0.39	-3.80
1,526.00	15.15	245.36	1,493.22	-94.99	-263.49	280.09	0.36	0.14	1.29
1,621.00	15.56	246.70	1,584.83	-105.20	-286.48	305.19	0.57	0.43	1.41
1,716.00	15.56	249.25	1,676.35	-114.76	-310.10	330.65	0.72	0.00	2.68
1,811.00	13.98	245.53	1,768.21	-124.03	-332.46	354.84	1.94	-1.66	-3.92
1,905.00	14.16	243.63	1,859.39	-133.84	-353.10	377.59	0.53	0.19	-2.02
2,000.00	14.33	248.55	1,951.47	-143.30	-374.45	400.90	1.29	0.18	5.18
2,095.00	14.95	253.12	2,043.39	-151.16	-397.12	424.88	1.38	0.65	4.81
2,190.00	15.74	253.91	2,135.00	-158.29	-421.23	449.97	0.86	0.83	0.83
2,284.00	15.39	254.00	2,225.55	-165.26	-445.47	475.13	0.37	-0.37	0.10
2,379.00	16.09	250.92	2,316.99	-173.04	-470.03	500.86	1.15	0.74	-3.24
2,475.00	18.64	248.72	2,408.61	-182.95	-496.90	529.51	2.74	2.66	-2.29
2,569.00	16.00	246.18	2,498.34	-193.64	-522.75	557.46	2.92	-2.81	-2.70
2,664.00	14.45	246.59	2,590.00	-203.64	-545.61	582.36	1.64	-1.63	0.43
2,759.00	15.83	250.83	2,681.71	-212.60	-568.73	607.15	1.86	1.45	4.46
2,854.00	17.59	253.38	2,772.69	-220.96	-594.72	634.44	2.01	1.85	2.68
2,936.00	17.23	254.44	2,850.94	-227.76	-618.29	658.91	0.59	-0.44	1.29
<b>Last SDI Surface MWD Survey</b>									
3,061.00	16.82	252.53	2,970.46	-238.16	-653.38	695.43	0.55	-0.33	-1.53
<b>First SDI Production MWD Survey</b>									
3,156.00	17.84	249.70	3,061.15	-247.34	-680.14	723.71	1.39	1.07	-2.98
3,250.00	16.18	248.29	3,151.03	-257.18	-705.82	751.21	1.82	-1.77	-1.50
3,344.00	15.97	247.86	3,241.36	-266.89	-729.96	777.22	0.26	-0.22	-0.46
3,439.00	15.80	245.85	3,332.73	-277.11	-753.87	803.19	0.61	-0.18	-2.12
3,533.00	17.23	246.97	3,422.85	-287.79	-778.36	829.86	1.56	1.52	1.19
3,627.00	18.73	248.11	3,512.26	-298.87	-805.18	858.85	1.64	1.60	1.21
3,721.00	17.50	246.79	3,601.60	-310.06	-832.17	888.05	1.38	-1.31	-1.40
3,816.00	16.88	245.74	3,692.35	-321.36	-857.87	916.07	0.73	-0.65	-1.11
3,910.00	16.27	245.03	3,782.45	-332.53	-882.25	942.80	0.68	-0.65	-0.76
4,005.00	15.39	243.63	3,873.84	-343.74	-905.61	968.60	1.01	-0.93	-1.47
4,100.00	16.00	245.18	3,965.30	-354.84	-928.79	994.18	0.78	0.64	1.63

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<b>Site:</b>	TR 32-23-597 Pad	<b>MD Reference:</b>	GL 8545.20' & RKB 24' @ 8569.20usft (H&P 318)
<b>Well:</b>	TR 23-23-597	<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)
4,194.00	16.71	244.68	4,055.50	-366.06	-952.76	1,020.55	0.77	0.76	-0.53
4,289.00	17.46	249.40	4,146.31	-376.91	-978.45	1,048.41	1.66	0.79	4.97
4,383.00	16.09	248.55	4,236.31	-386.64	-1,003.78	1,075.53	1.48	-1.46	-0.90
4,478.00	14.68	248.29	4,327.90	-395.91	-1,027.21	1,100.73	1.49	-1.48	-0.27
4,572.00	13.98	247.32	4,418.97	-404.69	-1,048.76	1,123.98	0.79	-0.74	-1.03
4,667.00	13.19	247.58	4,511.32	-413.25	-1,069.36	1,146.27	0.83	-0.83	0.27
4,762.00	12.22	246.62	4,603.99	-421.37	-1,088.61	1,167.14	1.04	-1.02	-1.01
4,857.00	11.52	246.63	4,696.96	-429.13	-1,106.55	1,186.65	0.74	-0.74	0.01
4,952.00	10.29	248.37	4,790.24	-436.02	-1,123.15	1,204.61	1.34	-1.29	1.83
5,047.00	9.41	248.81	4,883.84	-441.95	-1,138.27	1,220.85	0.93	-0.93	0.46
5,142.00	9.23	248.99	4,977.58	-447.49	-1,152.63	1,236.24	0.19	-0.19	0.19
5,236.00	8.88	247.76	5,070.41	-452.94	-1,166.38	1,251.03	0.43	-0.37	-1.31
5,331.00	8.62	246.97	5,164.31	-458.50	-1,179.72	1,265.46	0.30	-0.27	-0.83
5,425.00	8.53	247.14	5,257.26	-463.96	-1,192.63	1,279.46	0.10	-0.10	0.18
5,520.00	7.91	247.93	5,351.28	-469.16	-1,205.18	1,293.03	0.66	-0.65	0.83
5,614.00	7.74	250.75	5,444.41	-473.67	-1,217.15	1,305.83	0.45	-0.18	3.00
5,709.00	7.21	249.96	5,538.60	-477.83	-1,228.79	1,318.19	0.57	-0.56	-0.83
5,803.00	7.30	250.48	5,631.85	-481.84	-1,239.96	1,330.06	0.12	0.10	0.55
5,898.00	7.47	252.33	5,726.06	-485.73	-1,251.53	1,342.26	0.31	0.18	1.95
5,992.00	5.63	258.13	5,819.44	-488.54	-1,261.87	1,352.93	2.08	-1.96	6.17
6,087.00	4.04	261.38	5,914.10	-490.00	-1,269.73	1,360.82	1.70	-1.67	3.42
6,181.00	2.29	266.39	6,007.95	-490.61	-1,274.88	1,365.86	1.88	-1.86	5.33
6,276.00	0.62	251.36	6,102.92	-490.90	-1,277.26	1,368.20	1.79	-1.76	-15.82
6,370.00	0.53	203.20	6,196.92	-491.46	-1,277.92	1,369.00	0.51	-0.10	-51.23
6,465.00	0.62	205.83	6,291.91	-492.32	-1,278.31	1,369.68	0.10	0.09	2.77
6,559.00	0.44	181.66	6,385.91	-493.14	-1,278.55	1,370.18	0.30	-0.19	-25.71
6,588.39	0.41	202.94	6,415.30	-493.35	-1,278.59	1,370.29	0.54	-0.12	72.41
TR 23-23-597 MVRD									
6,653.00	0.53	244.42	6,479.90	-493.69	-1,278.95	1,370.74	0.54	0.19	64.20
6,748.00	0.62	266.21	6,574.90	-493.92	-1,279.86	1,371.67	0.25	0.09	22.94
6,842.00	0.88	264.37	6,668.89	-494.02	-1,281.08	1,372.86	0.28	0.28	-1.96
6,937.00	0.88	242.92	6,763.88	-494.42	-1,282.46	1,374.29	0.34	0.00	-22.58
7,031.00	1.49	248.99	6,857.86	-495.19	-1,284.24	1,376.23	0.66	0.65	6.46
7,126.00	0.62	138.77	6,952.85	-496.02	-1,285.06	1,377.28	1.90	-0.92	-116.02
7,220.00	0.97	163.29	7,046.84	-497.16	-1,284.49	1,377.14	0.51	0.37	26.09
7,315.00	1.14	204.60	7,141.82	-498.79	-1,284.66	1,377.86	0.80	0.18	43.48
7,409.00	1.14	146.95	7,235.81	-500.43	-1,284.54	1,378.31	1.17	0.00	-61.33
7,504.00	1.67	119.61	7,330.78	-501.90	-1,282.82	1,377.20	0.88	0.56	-28.78
7,598.00	1.76	130.51	7,424.74	-503.52	-1,280.53	1,375.61	0.36	0.10	11.60
7,693.00	1.23	154.24	7,519.71	-505.38	-1,278.98	1,374.80	0.85	-0.56	24.98
7,787.00	1.14	166.72	7,613.69	-507.20	-1,278.32	1,374.81	0.29	-0.10	13.28
7,882.00	0.62	106.69	7,708.68	-508.27	-1,277.61	1,374.51	1.04	-0.55	-63.19

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

Survey									
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7,977.00	0.53	88.76	7,803.67	-508.41	-1,276.68	1,373.69	0.21	-0.09	-18.87
8,071.00	0.30	122.51	7,897.67	-508.53	-1,276.04	1,373.13	0.35	-0.24	35.90
8,166.00	0.53	220.25	7,992.67	-509.00	-1,276.11	1,373.36	0.68	0.24	102.88
8,260.00	1.06	225.26	8,086.66	-509.94	-1,277.01	1,374.53	0.57	0.56	5.33
8,355.00	1.58	244.51	8,181.63	-511.13	-1,278.82	1,376.63	0.71	0.55	20.26
8,449.00	0.99	276.10	8,275.61	-511.60	-1,280.80	1,378.65	0.96	-0.63	33.61
8,544.00	1.49	282.21	8,370.59	-511.25	-1,282.82	1,380.43	0.54	0.53	6.43
8,639.00	0.97	277.38	8,465.57	-510.88	-1,284.82	1,382.18	0.56	-0.55	-5.08
8,733.00	1.14	248.02	8,559.55	-511.13	-1,286.48	1,383.82	0.60	0.18	-31.23
8,827.00	1.85	253.38	8,653.52	-511.92	-1,288.80	1,386.27	0.77	0.76	5.70
8,922.00	1.36	253.32	8,748.48	-512.68	-1,291.35	1,388.93	0.52	-0.52	-0.06
9,016.00	1.76	240.90	8,842.45	-513.70	-1,293.68	1,391.47	0.55	0.43	-13.21
9,111.00	2.46	244.95	8,937.38	-515.27	-1,296.80	1,394.94	0.75	0.74	4.26
9,206.00	3.52	243.19	9,032.25	-517.45	-1,301.25	1,399.87	1.12	1.12	-1.85
9,300.00	2.02	255.40	9,126.14	-519.17	-1,305.43	1,404.38	1.71	-1.60	12.99
9,395.00	0.44	195.99	9,221.12	-519.94	-1,307.15	1,406.27	1.93	-1.66	-62.54
9,489.00	1.14	95.18	9,315.11	-520.38	-1,306.32	1,405.63	1.38	0.74	-107.24
9,584.00	0.97	87.88	9,410.09	-520.43	-1,304.58	1,404.02	0.23	-0.18	-7.68
9,679.00	0.79	104.94	9,505.08	-520.57	-1,303.14	1,402.71	0.33	-0.19	17.96
9,773.00	0.44	126.03	9,599.08	-520.95	-1,302.22	1,401.98	0.44	-0.37	22.44
9,868.00	0.35	106.69	9,694.07	-521.25	-1,301.65	1,401.55	0.17	-0.09	-20.36
9,962.00	0.35	224.38	9,788.07	-521.54	-1,301.57	1,401.58	0.64	0.00	125.20
10,057.00	0.88	246.09	9,883.07	-522.04	-1,302.44	1,402.57	0.60	0.56	22.85
10,151.00	1.23	273.25	9,977.05	-522.27	-1,304.11	1,404.21	0.64	0.37	28.89
10,246.00	1.49	280.37	10,072.03	-521.99	-1,306.34	1,406.21	0.33	0.27	7.49
10,277.00	1.49	279.40	10,103.02	-521.86	-1,307.14	1,406.91	0.08	0.00	-3.13
10,305.00	1.41	291.35	10,131.01	-521.67	-1,307.82	1,407.49	1.11	-0.29	42.68
Last SDI Production MWD Survey									
10,359.00	1.41	291.35	10,184.99	-521.19	-1,309.06	1,408.48	0.00	0.00	0.00
Projection to TD - TR 23-23-597 PBHL									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
143.00	142.99	-0.78	-0.77	First SDI Gyro MWD Survey	
531.00	528.84	-11.09	-35.38	Last SDI Gyro MWD Survey	
601.00	597.60	-14.10	-48.16	First SDI Surface MWD Survey	
2,936.00	2,850.94	-227.76	-618.29	Last SDI Surface MWD Survey	
3,061.00	2,970.46	-238.16	-653.38	First SDI Production MWD Survey	
10,305.00	10,131.01	-521.67	-1,307.82	Last SDI Production MWD Survey	
10,359.00	10,184.99	-521.19	-1,309.06	Projection to TD	

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well TR 23-23-597 - Slot B2 (TR 23-23-597)
<b>Project:</b>	Garfield County, CO NAD83	<b>TVD Reference:</b>	GL 8545.20' & RKB 24' @ 8569.20usft (H&P 318)
<b>Site:</b>	TR 32-23-597 Pad	<b>MD Reference:</b>	GL 8545.20' & RKB 24' @ 8569.20usft (H&P 318)
<b>Well:</b>	TR 23-23-597	<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

Checked By: _____	Approved By: _____	Date: _____
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