



## Directional Survey Certification

2948 I-70 Business Loop  
Grand Junction, CO 81504  
(970)-245-9447 Fax (970)-245-9454

<b>Operator</b>	TEP Rocky Mountain, LLC.
<b>Well Name &amp; No.</b>	TR 413-24-597
<b>County &amp; State</b>	Garfield County, CO
<b>SDI Job No.</b>	OP.001337 & OP.002874
<b>Rig</b>	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 113 feet to a measured depth of 10,442 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

24-Jul-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 413-24-597 - Slot A9 (TR 413-24-597)
<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 413-24-597	<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		

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

Well	TR 413-24-597 - Slot A9 (TR 413-24-597)					
Well Position	+N/-S	0.00 usft	Northing:	1,654,881.30 usft	Latitude:	39.5994467
	+E/-W	0.00 usft	Easting:	2,227,630.20 usft	Longitude:	-108.2413990
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	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	5/17/2017	9.77	65.93	51,610

<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	120.77	

<b>Survey Program</b>	<b>Date</b>	7/24/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
113.00	531.00	Survey #1 - Gyro MWD Survey (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
601.00	2,928.00	Survey #2 - Surface MWD Survey (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
3,066.00	10,442.00	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	
113.00	0.26	103.27	113.00	-0.06	0.25	0.24	0.23	0.23	0.00	
<b>First SDI Gyro MWD Survey</b>										
173.00	1.94	116.54	172.99	-0.54	1.29	1.39	2.81	2.80	22.12	
262.00	4.31	121.38	261.85	-2.96	5.49	6.23	2.68	2.66	5.44	
352.00	6.77	121.11	351.42	-7.46	12.92	14.92	2.73	2.73	-0.30	
442.00	9.33	118.65	440.53	-13.70	23.87	27.52	2.87	2.84	-2.73	

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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 413-24-597	<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	11.79	121.29	528.01	-21.88	37.97	43.82	2.82	2.76	2.97
<b>Last SDI Gyro MWD Survey</b>									
601.00	13.63	124.20	596.30	-30.23	50.91	59.21	2.78	2.63	4.16
<b>First SDI Surface MWD Survey</b>									
690.00	16.00	122.37	682.33	-42.70	69.94	81.94	2.71	2.66	-2.06
779.00	17.46	121.16	767.56	-56.17	91.73	107.56	1.69	1.64	-1.36
868.00	19.32	118.23	852.02	-70.05	116.13	135.62	2.33	2.09	-3.29
958.00	19.34	116.48	936.94	-83.74	142.59	165.35	0.64	0.02	-1.94
1,053.00	19.53	117.28	1,026.53	-98.03	170.78	196.89	0.34	0.20	0.84
1,147.00	19.91	121.74	1,115.02	-113.65	198.36	228.58	1.65	0.40	4.74
1,242.00	19.92	124.05	1,204.34	-131.22	225.52	260.91	0.83	0.01	2.43
1,337.00	20.09	123.11	1,293.61	-149.20	252.60	293.37	0.38	0.18	-0.99
1,431.00	21.21	118.98	1,381.57	-166.25	281.00	326.50	1.95	1.19	-4.39
1,526.00	21.01	120.75	1,470.20	-183.29	310.67	360.70	0.70	-0.21	1.86
1,621.00	19.49	124.22	1,559.33	-200.91	338.41	393.56	2.04	-1.60	3.65
1,716.00	18.41	119.14	1,649.18	-217.13	364.62	424.37	2.07	-1.14	-5.35
1,811.00	19.04	118.62	1,739.16	-231.86	391.33	454.85	0.69	0.66	-0.55
1,905.00	20.31	122.18	1,827.67	-247.89	418.60	486.49	1.86	1.35	3.79
2,000.00	20.40	120.34	1,916.74	-265.03	446.84	519.53	0.68	0.09	-1.94
2,095.00	19.52	122.89	2,006.03	-282.02	474.46	551.95	1.30	-0.93	2.68
2,189.00	19.52	125.75	2,094.63	-299.72	500.39	583.29	1.02	0.00	3.04
2,284.00	20.31	123.59	2,183.95	-318.12	527.01	615.57	1.14	0.83	-2.27
2,379.00	19.70	121.92	2,273.22	-335.70	554.33	648.04	0.88	-0.64	-1.76
2,474.00	20.58	120.78	2,362.41	-352.71	582.27	680.75	1.01	0.93	-1.20
2,569.00	18.91	120.41	2,451.82	-369.05	609.89	712.84	1.76	-1.76	-0.39
2,664.00	18.91	120.42	2,541.69	-384.64	636.44	743.63	0.00	0.00	0.01
2,759.00	22.42	122.71	2,630.57	-402.23	664.97	777.14	3.79	3.69	2.41
2,854.00	23.81	123.67	2,717.94	-422.65	696.17	814.40	1.52	1.46	1.01
2,928.00	22.77	123.41	2,785.91	-438.82	720.56	843.62	1.41	-1.41	-0.35
<b>Last SDI Surface MWD Survey</b>									
3,066.00	20.75	122.95	2,914.07	-466.82	763.37	894.73	1.47	-1.46	-0.33
<b>First SDI Production MWD Survey</b>									
3,160.00	19.95	122.80	3,002.20	-484.57	790.82	927.40	0.85	-0.85	-0.16
3,255.00	21.29	122.87	3,091.11	-502.71	818.93	960.83	1.41	1.41	0.07
3,349.00	18.66	121.03	3,179.45	-519.72	846.16	992.93	2.88	-2.80	-1.96
3,444.00	17.33	117.60	3,269.81	-534.11	871.72	1,022.26	1.79	-1.40	-3.61
3,538.00	17.26	120.27	3,359.56	-547.63	896.17	1,050.18	0.85	-0.07	2.84
3,633.00	18.10	126.42	3,450.08	-563.50	920.22	1,078.96	2.15	0.88	6.47
3,727.00	21.02	121.72	3,538.65	-581.04	946.32	1,110.36	3.53	3.11	-5.00
3,822.00	21.54	119.26	3,627.17	-598.52	976.03	1,144.83	1.09	0.55	-2.59
3,916.00	21.46	119.61	3,714.63	-615.45	1,006.03	1,179.27	0.16	-0.09	0.37
4,011.00	19.78	119.73	3,803.54	-632.01	1,035.10	1,212.72	1.77	-1.77	0.13
4,105.00	19.52	116.88	3,892.07	-647.00	1,062.92	1,244.29	1.06	-0.28	-3.03

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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)
4,200.00	18.82	119.35	3,981.80	-661.68	1,090.44	1,275.45	1.13	-0.74	2.60
4,294.00	19.35	123.12	4,070.64	-677.62	1,116.70	1,306.16	1.43	0.56	4.01
4,389.00	20.14	126.20	4,160.06	-695.88	1,143.08	1,338.17	1.37	0.83	3.24
4,483.00	21.72	123.39	4,247.85	-715.01	1,170.66	1,371.66	1.99	1.68	-2.99
4,578.00	20.27	122.70	4,336.54	-733.58	1,199.19	1,405.67	1.55	-1.53	-0.73
4,672.00	21.37	122.95	4,424.41	-751.69	1,227.26	1,439.06	1.17	1.17	0.27
4,767.00	21.10	122.42	4,512.96	-770.27	1,256.22	1,473.45	0.35	-0.28	-0.56
4,861.00	19.70	122.60	4,601.06	-787.88	1,283.85	1,506.20	1.49	-1.49	0.19
4,956.00	18.20	122.60	4,690.91	-804.50	1,309.84	1,537.03	1.58	-1.58	0.00
5,050.00	16.43	123.44	4,780.64	-819.74	1,333.30	1,564.98	1.90	-1.88	0.89
5,144.00	16.88	117.85	4,870.70	-833.44	1,356.46	1,591.90	1.77	0.48	-5.95
5,238.00	16.00	115.65	4,960.86	-845.42	1,380.21	1,618.43	1.15	-0.94	-2.34
5,333.00	14.95	117.32	5,052.42	-856.72	1,402.90	1,643.70	1.20	-1.11	1.76
5,427.00	12.93	116.53	5,143.64	-866.98	1,423.08	1,666.29	2.16	-2.15	-0.84
5,521.00	11.96	110.38	5,235.44	-875.07	1,441.62	1,686.36	1.75	-1.03	-6.54
5,616.00	12.22	111.87	5,328.33	-882.24	1,460.18	1,705.98	0.43	0.27	1.57
5,710.00	10.82	113.54	5,420.44	-889.47	1,477.50	1,724.56	1.53	-1.49	1.78
5,804.00	10.38	111.87	5,512.83	-896.15	1,493.45	1,741.68	0.57	-0.47	-1.78
5,899.00	10.64	116.01	5,606.24	-903.19	1,509.28	1,758.88	0.84	0.27	4.36
5,993.00	10.02	118.03	5,698.72	-910.83	1,524.29	1,775.69	0.76	-0.66	2.15
6,088.00	9.39	116.94	5,792.36	-918.23	1,538.50	1,791.68	0.69	-0.66	-1.15
6,183.00	9.23	114.60	5,886.10	-924.91	1,552.33	1,806.99	0.43	-0.17	-2.46
6,277.00	8.27	111.08	5,979.01	-930.48	1,565.50	1,821.15	1.17	-1.02	-3.74
6,371.00	6.51	109.59	6,072.23	-934.70	1,576.83	1,833.04	1.88	-1.87	-1.59
6,466.00	4.48	117.59	6,166.79	-938.22	1,585.19	1,842.03	2.28	-2.14	8.42
6,560.00	4.48	115.83	6,260.50	-941.52	1,591.75	1,849.35	0.15	0.00	-1.87
6,655.00	3.69	117.85	6,355.26	-944.57	1,597.79	1,856.10	0.85	-0.83	2.13
6,751.00	3.52	120.58	6,451.07	-947.51	1,603.06	1,862.13	0.25	-0.18	2.84
6,843.22	3.34	96.36	6,543.12	-949.25	1,608.16	1,867.41	1.57	-0.20	-26.27
TR 413-24-597 MVRD									
6,845.00	3.34	95.88	6,544.90	-949.26	1,608.27	1,867.50	1.57	0.14	-26.87
6,940.00	1.06	26.71	6,639.84	-948.76	1,611.42	1,869.95	3.29	-2.40	-72.81
7,035.00	0.88	9.13	6,734.82	-947.25	1,611.93	1,869.62	0.36	-0.19	-18.51
7,130.00	0.53	30.66	6,829.82	-946.16	1,612.27	1,869.35	0.46	-0.37	22.66
7,224.00	0.35	267.18	6,923.82	-945.80	1,612.20	1,869.11	0.83	-0.19	-131.36
7,319.00	0.44	313.67	7,018.81	-945.56	1,611.65	1,868.51	0.34	0.09	48.94
7,413.00	0.64	335.25	7,112.81	-944.83	1,611.17	1,867.73	0.30	0.21	22.96
7,508.00	1.58	67.31	7,207.80	-943.84	1,612.15	1,868.07	1.82	0.99	96.91
7,603.00	1.23	73.38	7,302.77	-943.05	1,614.34	1,869.54	0.40	-0.37	6.39
7,697.00	0.79	86.83	7,396.75	-942.72	1,615.95	1,870.76	0.53	-0.47	14.31
7,792.00	0.53	143.08	7,491.75	-943.04	1,616.87	1,871.71	0.70	-0.27	59.21
7,886.00	1.05	50.54	7,585.74	-942.84	1,617.80	1,872.40	1.27	0.55	-98.45

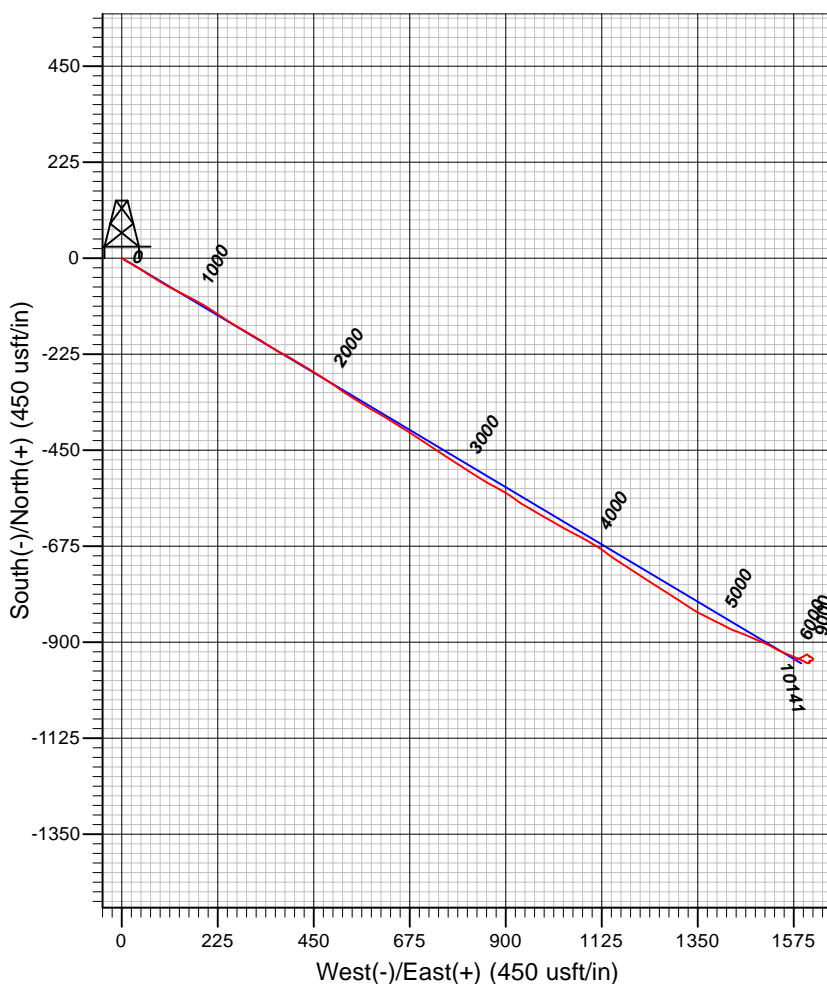
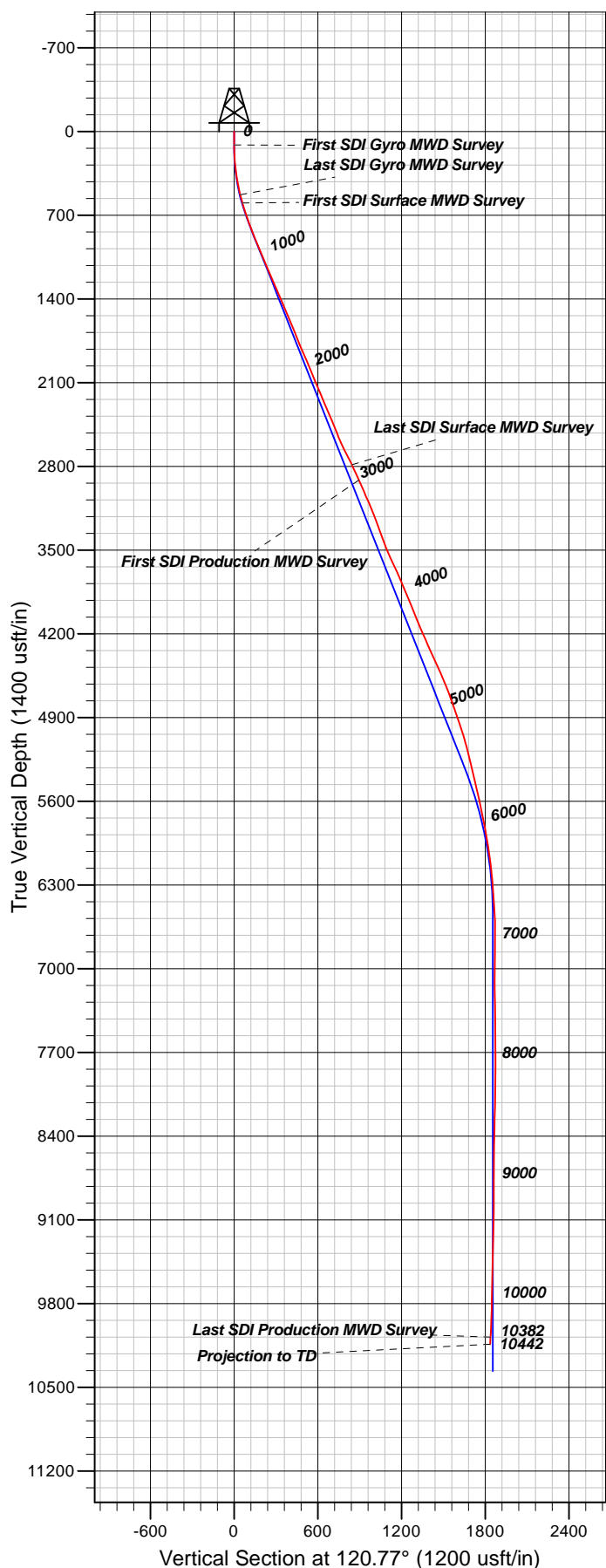
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<b>Design:</b>	OH	<b>Database:</b>	Grand Junction District

Survey									
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7,981.00	0.88	55.98	7,680.73	-941.88	1,619.07	1,873.01	0.20	-0.18	5.73
8,075.00	0.77	32.12	7,774.72	-940.94	1,620.01	1,873.33	0.38	-0.12	-25.38
8,170.00	0.44	17.04	7,869.71	-940.05	1,620.45	1,873.26	0.38	-0.35	-15.87
8,264.00	1.06	331.07	7,963.70	-938.94	1,620.14	1,872.42	0.87	0.66	-48.90
8,358.00	0.88	313.76	8,057.69	-937.68	1,619.20	1,870.97	0.36	-0.19	-18.41
8,453.00	0.97	316.57	8,152.68	-936.59	1,618.12	1,869.48	0.11	0.09	2.96
8,547.00	0.97	312.15	8,246.66	-935.48	1,616.98	1,867.94	0.08	0.00	-4.70
8,642.00	1.49	290.73	8,341.64	-934.51	1,615.23	1,865.93	0.72	0.55	-22.55
8,736.00	1.76	276.93	8,435.61	-933.90	1,612.65	1,863.41	0.50	0.29	-14.68
8,831.00	0.44	46.92	8,530.59	-933.47	1,611.47	1,862.18	2.18	-1.39	136.83
8,925.00	0.09	262.52	8,624.59	-933.24	1,611.66	1,862.22	0.55	-0.37	-153.62
9,020.00	0.53	306.99	8,719.59	-932.98	1,611.24	1,861.72	0.49	0.46	46.81
9,114.00	0.70	71.97	8,813.59	-932.54	1,611.44	1,861.67	1.16	0.18	132.96
9,209.00	0.35	236.68	8,908.59	-932.52	1,611.74	1,861.93	1.10	-0.37	173.38
9,303.00	0.68	274.84	9,002.58	-932.63	1,610.95	1,861.30	0.49	0.35	40.60
9,398.00	1.07	317.40	9,097.57	-931.93	1,609.79	1,859.94	0.77	0.41	44.80
9,492.00	1.62	328.07	9,191.55	-930.16	1,608.49	1,857.92	0.64	0.59	11.35
9,587.00	1.52	296.91	9,286.51	-928.45	1,606.66	1,855.47	0.89	-0.11	-32.80
9,681.00	1.49	236.33	9,380.48	-928.56	1,604.53	1,853.70	1.62	-0.03	-64.45
9,776.00	2.02	232.28	9,475.44	-930.27	1,602.17	1,852.55	0.57	0.56	-4.26
9,870.00	2.21	238.26	9,569.38	-932.24	1,599.32	1,851.11	0.31	0.20	6.36
9,965.00	2.32	243.87	9,664.30	-934.05	1,596.04	1,849.21	0.26	0.12	5.91
10,059.00	1.89	239.44	9,758.24	-935.67	1,593.00	1,847.43	0.49	-0.46	-4.71
10,154.00	1.58	253.64	9,853.19	-936.84	1,590.39	1,845.79	0.56	-0.33	14.95
10,248.00	2.99	251.09	9,947.12	-938.00	1,586.83	1,843.32	1.50	1.50	-2.71
10,343.00	4.04	255.49	10,041.94	-939.64	1,581.24	1,839.36	1.14	1.11	4.63
10,382.00	4.13	254.61	10,080.84	-940.36	1,578.56	1,837.42	0.28	0.23	-2.26
Last SDI Production MWD Survey									
10,440.00	4.13	254.61	10,138.69	-941.47	1,574.53	1,834.53	0.00	0.00	0.00
Projection to TD									
10,442.00	4.13	254.61	10,140.68	-941.51	1,574.39	1,834.43	0.00	0.00	0.00
TR 413-24-597 PBHL									

<b>Company:</b>	TEP Rocky Mountain LLC	<b>Local Co-ordinate Reference:</b>	Well TR 413-24-597 - Slot A9 (TR 413-24-597)
<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 413-24-597	<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

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
113.00	113.00	-0.06	0.25	First SDI Gyro MWD Survey
531.00	528.01	-21.88	37.97	Last SDI Gyro MWD Survey
601.00	596.30	-30.23	50.91	First SDI Surface MWD Survey
2,928.00	2,785.91	-438.82	720.56	Last SDI Surface MWD Survey
3,066.00	2,914.07	-466.82	763.37	First SDI Production MWD Survey
10,382.00	10,080.84	-940.36	1,578.56	Last SDI Production MWD Survey
10,440.00	10,138.69	-941.47	1,574.53	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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#### Well Details: TR 413-24-597

TVD Reference: GL 8545.20' & RKB 24' @ 8569.20usft (H&P 318) Level: 8545.20  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.00 0.00 1654881.30 2227630.20 39.5994466 -108.2413397 TR 413-24-597

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well TR 413-24-597 - Slot A9 (TR 413-24-597), True North  
 Vertical (TVD) Reference: GL 8545.20' & RKB 24' @ 8569.20usft (H&P 318)  
 Section (VS) Reference: Slot - A9 (TR 413-24-597)(0.00N, 0.00E)  
 Measured Depth Reference: GL 8545.20' & RKB 24' @ 8569.20usft (H&P 318)  
 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

13:17, July 24 2017  
 Created By: Mel Mireles Jr.