



7327 West Barton Road
Casper, WY 82604
(307)-472-6621 Fax (307) 472-5439

Survey Certification

Operator	TEP Rocky Mountain LLC
Well Name & No.	PA 531-13
API #	05-045-24123
County & State	Garfield County, CO
SDI Job #	OP.025828
Rig	H&P 318
Survey Date	25-Jul-2020

I, Seth M. Burstad, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 0 feet to a measured depth of 10464 feet is true and correct as determined from all available records.

Seth M. Burstad

Signature

27-Jul-2020

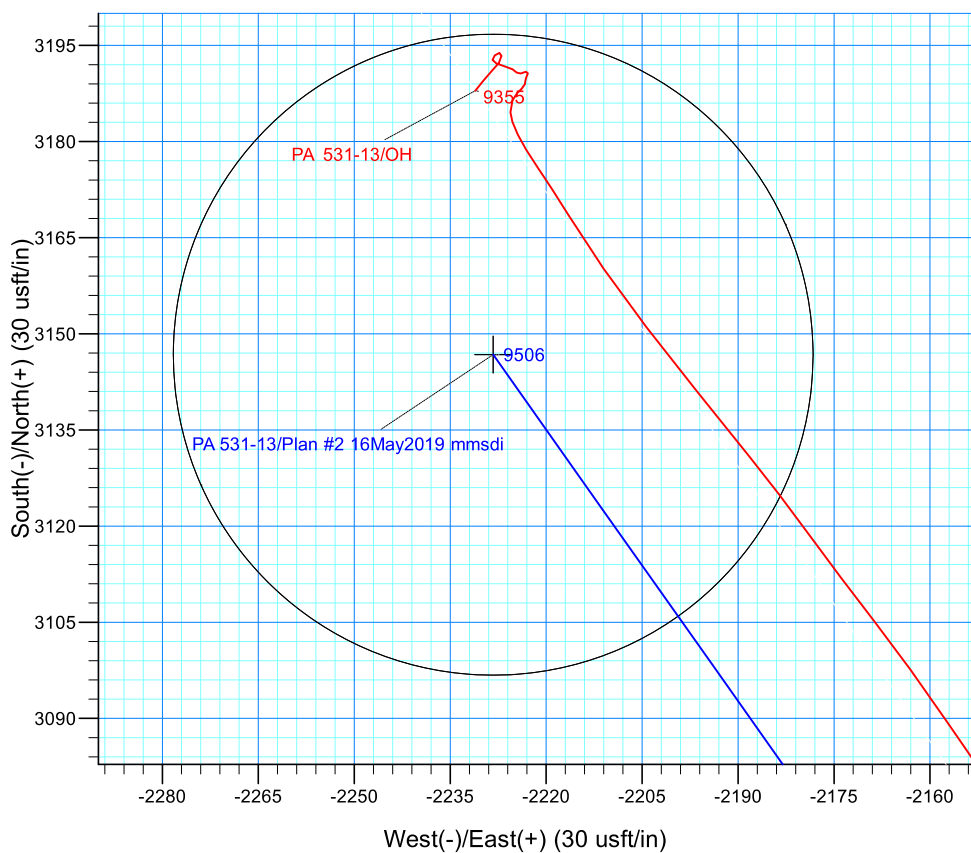
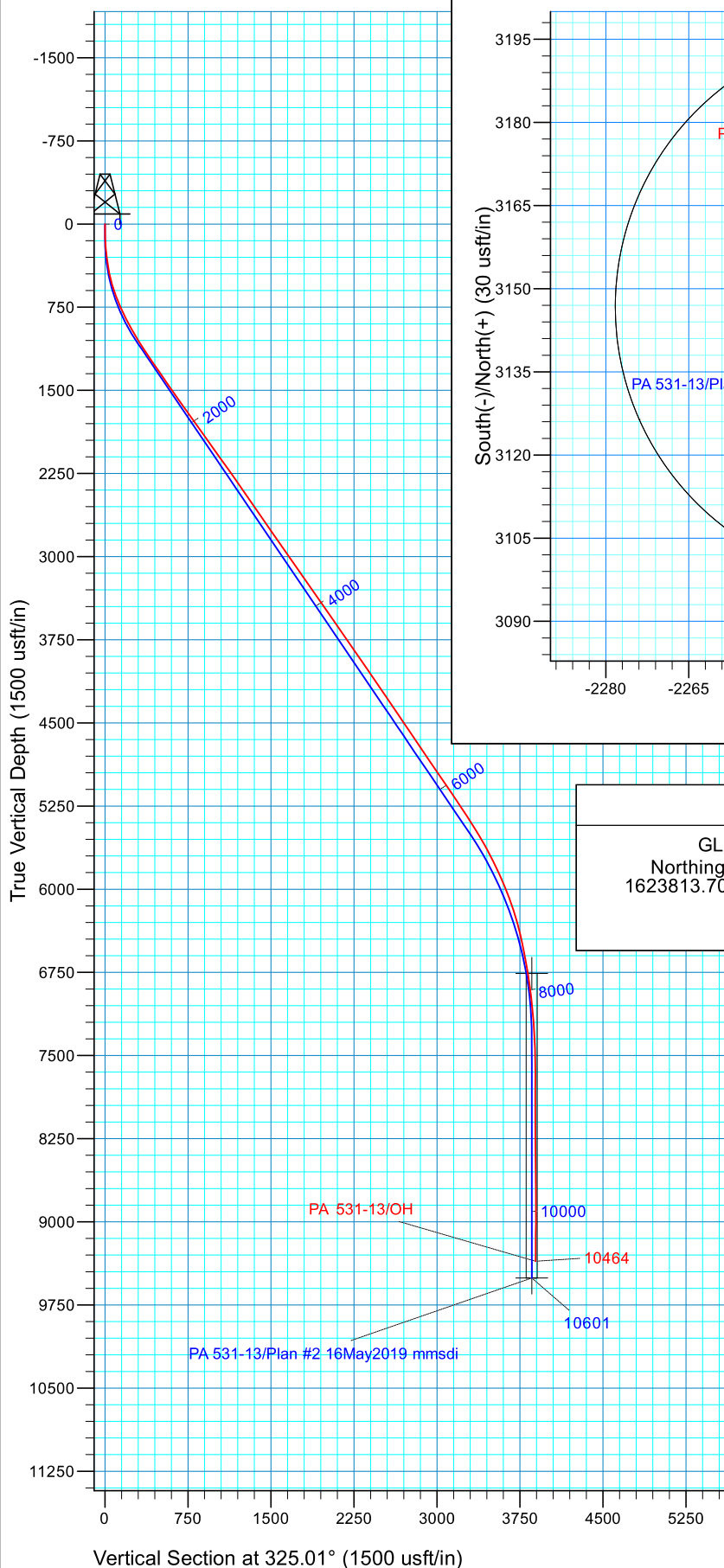
Date

Seth M. Burstad

Rockies Region Well Planner
Scientific Drilling - Rocky Mountain District



Project: Garfield County, CO NAD83
 Site: PA 44-13 Pad
 Well: PA 531-13
 Wellbore: OH
 Design: OH



WELL DETAILS: PA 531-13

GL 6571.1' & RKB 24' @ 6595.10usft (H&P 318)
 Northing 1623813.7000 Easting 2311233.5000 Latitude 39.5207354 Longitude -107.9418514

PROJECT DETAILS: Garfield County, CO NAD83

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Central Zone

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well PA 531-13, True North
 Vertical (TVD) Reference: GL 6571.1' & RKB 24' @ 6595.10usft (H&P 318)
 Section (VS) Reference: Slot - (0.00N, 0.00E)
 Measured Depth Reference: GL 6571.1' & RKB 24' @ 6595.10usft (H&P 318)
 Calculation Method: Minimum Curvature
 Local North: True
 Location:



TEP Rocky Mountain LLC

Garfield County, CO NAD83

PA 44-13 Pad

PA 531-13

OH

Design: OH

Standard Survey Report

27 July, 2020



Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 531-13
Project:	Garfield County, CO NAD83	TVD Reference:	GL 6571.1' & RKB 24' @ 6595.10usft (H&P 318)
Site:	PA 44-13 Pad	MD Reference:	GL 6571.1' & RKB 24' @ 6595.10usft (H&P 318)
Well:	PA 531-13	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction

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		PA 44-13 Pad			
Site Position:		Northing:	1,623,813.7000 usft	Latitude:	39.5207354
From:	Map	Easting:	2,311,233.5000 usft	Longitude:	-107.9418514
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.54 °

Well	PA 531-13					
Well Position	+N/-S	0.00 usft	Northing:	1,623,813.7000 usft	Latitude:	39.5207354
	+E/-W	0.00 usft	Easting:	2,311,233.5000 usft	Longitude:	-107.9418514
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,571.10 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/2/2019	9.32	65.75	51,491.80000000

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	325.01	

Survey Program	Date	7/27/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
121.00	576.00	Survey #1 - Surface Gyro (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
650.00	1,074.00	Survey #2 - Surface MWD (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,162.00	10,464.00	Survey #3 - Production (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	0.70	349.45	121.00	0.73	-0.14	0.67	0.58	0.58	0.00
First SDI Gyro Surface Survey									
212.00	5.63	345.41	211.83	5.60	-1.36	5.37	5.42	5.42	-4.44
302.00	7.83	328.36	301.21	15.09	-5.69	15.63	3.28	2.44	-18.94
394.00	9.77	330.29	392.13	27.21	-12.85	29.66	2.13	2.11	2.10
484.00	13.46	332.40	480.27	43.13	-21.49	47.65	4.13	4.10	2.34
576.00	16.98	333.90	569.03	64.69	-32.36	71.55	3.85	3.83	1.63

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 531-13
Project:	Garfield County, CO NAD83	TVD Reference:	GL 6571.1' & RKB 24' @ 6595.10usft (H&P 318)
Site:	PA 44-13 Pad	MD Reference:	GL 6571.1' & RKB 24' @ 6595.10usft (H&P 318)
Well:	PA 531-13	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction

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 Surface Survey									
650.00	19.98	329.69	639.21	85.31	-43.50	94.84	4.43	4.05	-5.69
First SDI MWD Surface Survey									
745.00	24.18	326.57	727.22	115.57	-62.42	130.48	4.59	4.42	-3.28
839.00	26.90	324.37	812.03	148.93	-85.42	170.99	3.06	2.89	-2.34
933.00	26.82	318.93	895.90	182.21	-111.74	213.35	2.62	-0.09	-5.79
1,027.00	30.04	322.97	978.56	216.99	-139.85	257.97	3.99	3.43	4.30
1,074.00	31.66	323.41	1,018.91	236.29	-154.29	282.05	3.48	3.45	0.94
Last SDI MWD Surface Survey									
1,162.00	32.59	324.96	1,093.44	274.23	-181.66	328.84	1.41	1.06	1.76
First SDI MWD Production Survey									
1,257.00	33.60	326.05	1,173.03	316.99	-211.04	380.71	1.23	1.06	1.15
1,351.00	34.82	324.99	1,250.76	360.55	-240.96	433.55	1.44	1.30	-1.13
1,446.00	34.01	324.12	1,329.13	404.29	-272.09	487.24	1.00	-0.85	-0.92
1,539.00	35.31	323.93	1,405.63	447.09	-303.16	540.12	1.40	1.40	-0.20
1,634.00	34.53	323.87	1,483.52	491.03	-335.20	594.49	0.82	-0.82	-0.06
1,728.00	35.62	324.01	1,560.45	534.70	-367.00	648.50	1.16	1.16	0.15
1,822.00	35.01	322.84	1,637.16	578.34	-399.37	702.82	0.97	-0.65	-1.24
1,917.00	36.04	324.13	1,714.47	622.70	-432.21	757.99	1.34	1.08	1.36
2,011.00	35.35	323.76	1,790.81	667.04	-464.49	812.83	0.77	-0.73	-0.39
2,105.00	35.40	325.79	1,867.46	711.49	-495.87	867.24	1.25	0.05	2.16
2,200.00	36.05	325.78	1,944.58	757.36	-527.06	922.71	0.68	0.68	-0.01
2,294.00	34.86	325.02	2,021.15	802.25	-558.02	977.23	1.35	-1.27	-0.81
2,388.00	36.01	326.06	2,097.74	847.18	-588.85	1,031.72	1.38	1.22	1.11
2,483.00	35.88	326.13	2,174.65	893.47	-619.96	1,087.48	0.14	-0.14	0.07
2,577.00	34.47	324.99	2,251.49	938.13	-650.57	1,141.62	1.65	-1.50	-1.21
2,670.00	35.44	325.87	2,327.71	982.00	-680.80	1,194.90	1.18	1.04	0.95
2,765.00	34.47	326.05	2,405.57	1,027.11	-711.27	1,249.32	1.03	-1.02	0.19
2,859.00	35.37	326.60	2,482.64	1,071.89	-741.10	1,303.12	1.01	0.96	0.59
2,954.00	33.83	325.86	2,560.84	1,116.73	-771.08	1,357.05	1.68	-1.62	-0.78
3,048.00	34.47	325.17	2,638.63	1,160.22	-800.96	1,409.81	0.80	0.68	-0.73
3,142.00	35.73	325.45	2,715.54	1,204.67	-831.72	1,463.86	1.35	1.34	0.30
3,237.00	34.74	325.08	2,793.13	1,249.71	-862.94	1,518.67	1.07	-1.04	-0.39
3,331.00	35.31	326.26	2,870.11	1,294.26	-893.37	1,572.61	0.94	0.61	1.26
3,425.00	34.98	326.52	2,946.97	1,339.33	-923.32	1,626.71	0.39	-0.35	0.28
3,519.00	35.11	326.24	3,023.93	1,384.27	-953.20	1,680.67	0.22	0.14	-0.30
3,613.00	34.65	323.85	3,101.05	1,428.33	-983.99	1,734.41	1.53	-0.49	-2.54
3,708.00	35.09	322.18	3,178.99	1,471.70	-1,016.67	1,788.69	1.11	0.46	-1.76
3,802.00	33.59	321.30	3,256.61	1,513.34	-1,049.49	1,841.63	1.68	-1.60	-0.94
3,897.00	35.98	320.91	3,334.62	1,555.52	-1,083.53	1,895.69	2.53	2.52	-0.41
3,991.00	34.70	321.14	3,411.30	1,597.79	-1,117.73	1,949.93	1.37	-1.36	0.24
4,085.00	34.95	321.35	3,488.47	1,639.65	-1,151.33	2,003.50	0.29	0.27	0.22
4,180.00	34.88	322.91	3,566.37	1,682.57	-1,184.71	2,057.80	0.94	-0.07	1.64
4,274.00	35.32	325.84	3,643.28	1,726.50	-1,216.17	2,111.83	1.85	0.47	3.12

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Site:	PA 44-13 Pad	MD Reference:	GL 6571.1' & RKB 24' @ 6595.10usft (H&P 318)
Well:	PA 531-13	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction

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)	
4,368.00	34.62	326.29	3,720.31	1,771.19	-1,246.25	2,165.70	0.79	-0.74	0.48	
4,463.00	35.37	326.25	3,798.13	1,816.51	-1,276.51	2,220.17	0.79	0.79	-0.04	
4,557.00	34.31	326.05	3,875.28	1,861.10	-1,306.42	2,273.86	1.13	-1.13	-0.21	
4,651.00	35.26	326.54	3,952.48	1,905.72	-1,336.17	2,327.47	1.05	1.01	0.52	
4,746.00	34.28	326.49	4,030.52	1,950.90	-1,366.06	2,381.63	1.03	-1.03	-0.05	
4,840.00	34.73	326.12	4,107.98	1,995.20	-1,395.60	2,434.86	0.53	0.48	-0.39	
4,935.00	33.32	326.27	4,186.71	2,039.37	-1,425.18	2,488.01	1.49	-1.48	0.16	
5,029.00	34.37	325.33	4,264.78	2,082.67	-1,454.61	2,540.35	1.25	1.12	-1.00	
5,123.00	34.50	325.77	4,342.31	2,126.50	-1,484.68	2,593.50	0.30	0.14	0.47	
5,218.00	33.52	325.42	4,421.06	2,170.34	-1,514.70	2,646.64	1.05	-1.03	-0.37	
5,312.00	34.92	325.63	4,498.79	2,213.92	-1,544.62	2,699.50	1.49	1.49	0.22	
5,406.00	33.96	325.33	4,576.31	2,257.72	-1,574.75	2,752.66	1.04	-1.02	-0.32	
5,501.00	34.67	324.75	4,654.77	2,301.61	-1,605.43	2,806.21	0.82	0.75	-0.61	
5,595.00	34.03	323.92	4,732.38	2,344.70	-1,636.36	2,859.24	0.84	-0.68	-0.88	
5,690.00	34.65	324.11	4,810.82	2,388.07	-1,667.84	2,912.83	0.66	0.65	0.20	
5,784.00	33.25	323.91	4,888.80	2,430.54	-1,698.69	2,965.31	1.49	-1.49	-0.21	
5,879.00	34.59	325.07	4,967.63	2,473.70	-1,729.47	3,018.32	1.57	1.41	1.22	
5,973.00	34.94	323.67	5,044.85	2,517.26	-1,760.70	3,071.91	0.93	0.37	-1.49	
6,068.00	34.12	324.64	5,123.11	2,560.91	-1,792.23	3,125.75	1.04	-0.86	1.02	
6,162.00	34.03	323.85	5,200.98	2,603.65	-1,823.01	3,178.42	0.48	-0.10	-0.84	
6,257.00	34.03	324.46	5,279.71	2,646.74	-1,854.14	3,231.57	0.36	0.00	0.64	
6,351.00	32.18	324.20	5,358.44	2,688.45	-1,884.07	3,282.91	1.97	-1.97	-0.28	
6,445.00	32.25	324.35	5,437.97	2,729.13	-1,913.33	3,333.01	0.11	0.07	0.16	
6,540.00	30.82	323.75	5,518.94	2,769.35	-1,942.50	3,382.69	1.54	-1.51	-0.63	
6,634.00	29.37	324.40	5,600.27	2,807.52	-1,970.16	3,429.82	1.58	-1.54	0.69	
6,729.00	27.59	325.73	5,683.77	2,844.64	-1,996.11	3,475.12	1.99	-1.87	1.40	
6,824.00	25.73	325.21	5,768.67	2,879.76	-2,020.26	3,517.74	1.97	-1.96	-0.55	
6,918.00	24.81	325.95	5,853.67	2,912.86	-2,042.95	3,557.86	1.03	-0.98	0.79	
7,012.00	23.64	326.10	5,939.39	2,944.85	-2,064.50	3,596.43	1.25	-1.24	0.16	
7,107.00	21.14	327.51	6,027.22	2,975.11	-2,084.33	3,632.59	2.69	-2.63	1.48	
7,201.00	19.69	328.37	6,115.32	3,002.89	-2,101.74	3,665.33	1.58	-1.54	0.91	
7,296.00	18.09	328.90	6,205.20	3,029.15	-2,117.75	3,696.03	1.69	-1.68	0.56	
7,390.00	15.29	327.49	6,295.23	3,052.10	-2,131.96	3,722.98	3.01	-2.98	-1.50	
7,484.00	13.98	324.90	6,386.18	3,071.84	-2,145.15	3,746.72	1.56	-1.39	-2.76	
7,578.00	12.41	325.76	6,477.69	3,089.49	-2,157.36	3,768.17	1.68	-1.67	0.91	
7,673.00	11.02	322.15	6,570.71	3,105.10	-2,168.68	3,787.45	1.65	-1.46	-3.80	
7,766.00	10.00	323.93	6,662.15	3,118.64	-2,178.88	3,804.40	1.15	-1.10	1.91	
7,861.00	8.55	320.96	6,755.91	3,130.79	-2,188.19	3,819.69	1.61	-1.53	-3.13	
7,955.00	7.86	321.55	6,848.94	3,141.25	-2,196.59	3,833.08	0.74	-0.73	0.63	
8,050.00	7.28	322.06	6,943.12	3,151.09	-2,204.33	3,845.57	0.61	-0.61	0.54	
8,144.00	6.56	325.20	7,036.43	3,160.20	-2,211.05	3,856.89	0.86	-0.77	3.34	
8,238.00	5.93	328.45	7,129.87	3,168.74	-2,216.66	3,867.11	0.77	-0.67	3.46	
8,333.00	4.35	325.30	7,224.49	3,175.89	-2,221.28	3,875.61	1.69	-1.66	-3.32	

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8,427.00	3.09	333.93	7,318.29	3,181.09	-2,224.42	3,881.68	1.46	-1.34	9.18	
8,521.00	1.44	357.87	7,412.21	3,184.55	-2,225.58	3,885.17	1.99	-1.76	25.47	
8,616.00	0.97	28.98	7,507.19	3,186.45	-2,225.23	3,886.53	0.83	-0.49	32.75	
8,710.00	0.68	38.39	7,601.18	3,187.58	-2,224.50	3,887.04	0.34	-0.31	10.01	
8,805.00	0.52	50.53	7,696.18	3,188.30	-2,223.82	3,887.23	0.21	-0.17	12.78	
8,899.00	0.49	25.12	7,790.18	3,188.93	-2,223.32	3,887.46	0.24	-0.03	-27.03	
8,994.00	0.33	343.55	7,885.17	3,189.56	-2,223.22	3,887.93	0.34	-0.17	-43.76	
9,088.00	0.34	39.01	7,979.17	3,190.04	-2,223.13	3,888.26	0.33	0.01	59.00	
9,183.00	0.51	13.97	8,074.17	3,190.67	-2,222.85	3,888.62	0.26	0.18	-26.36	
9,277.00	0.53	245.95	8,168.17	3,190.90	-2,223.14	3,888.97	0.99	0.02	-136.19	
9,372.00	0.56	260.31	8,263.16	3,190.64	-2,224.00	3,889.25	0.15	0.03	15.12	
9,466.00	0.34	321.10	8,357.16	3,190.78	-2,224.63	3,889.73	0.52	-0.23	64.67	
9,561.00	0.66	301.15	8,452.16	3,191.28	-2,225.27	3,890.51	0.38	0.34	-21.00	
9,655.00	0.95	283.90	8,546.15	3,191.75	-2,226.49	3,891.59	0.40	0.31	-18.35	
9,750.00	0.73	294.39	8,641.14	3,192.19	-2,227.81	3,892.71	0.28	-0.23	11.04	
9,844.00	0.41	352.43	8,735.13	3,192.77	-2,228.40	3,893.52	0.66	-0.34	61.74	
9,938.00	0.66	51.32	8,829.13	3,193.44	-2,228.02	3,893.85	0.61	0.27	62.65	
10,032.00	0.34	80.83	8,923.13	3,193.82	-2,227.32	3,893.77	0.43	-0.34	31.39	
10,127.00	0.61	173.43	9,018.12	3,193.36	-2,226.99	3,893.20	0.75	0.28	97.47	
10,221.00	0.96	217.34	9,112.12	3,192.24	-2,227.41	3,892.52	0.71	0.37	46.71	
10,316.00	1.22	225.38	9,207.10	3,190.90	-2,228.61	3,892.11	0.32	0.27	8.46	
10,395.00	1.58	218.03	9,286.08	3,189.45	-2,229.88	3,891.65	0.51	0.46	-9.30	
Last SDI MWD Production Survey										
10,464.00	1.58	218.03	9,355.05	3,187.95	-2,231.05	3,891.09	0.00	0.00	0.00	
Projection to TD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
121.00	121.00	0.73	-0.14	First SDI Gyro Surface Survey	
576.00	569.03	64.69	-32.36	Last SDI Gyro Surface Survey	
650.00	639.21	85.31	-43.50	First SDI MWD Surface Survey	
1,074.00	1,018.91	236.29	-154.29	Last SDI MWD Surface Survey	
1,162.00	1,093.44	274.23	-181.66	First SDI MWD Production Survey	
10,395.00	9,286.08	3,189.45	-2,229.88	Last SDI MWD Production Survey	
10,464.00	9,355.05	3,187.95	-2,231.05	Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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