



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

Survey Certification

Operator	TEP Rocky Mountain LLC
Well Name & No.	RWF 312-12
API #	05045242750000
County & State	Garfield County, CO
SDI Job #	OP.023528
Rig	H&P 318
Survey Date	2-Feb-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 8820 feet is true and correct as determined from all available records.

Seth M. Burstad

Signature

5-Feb-2020

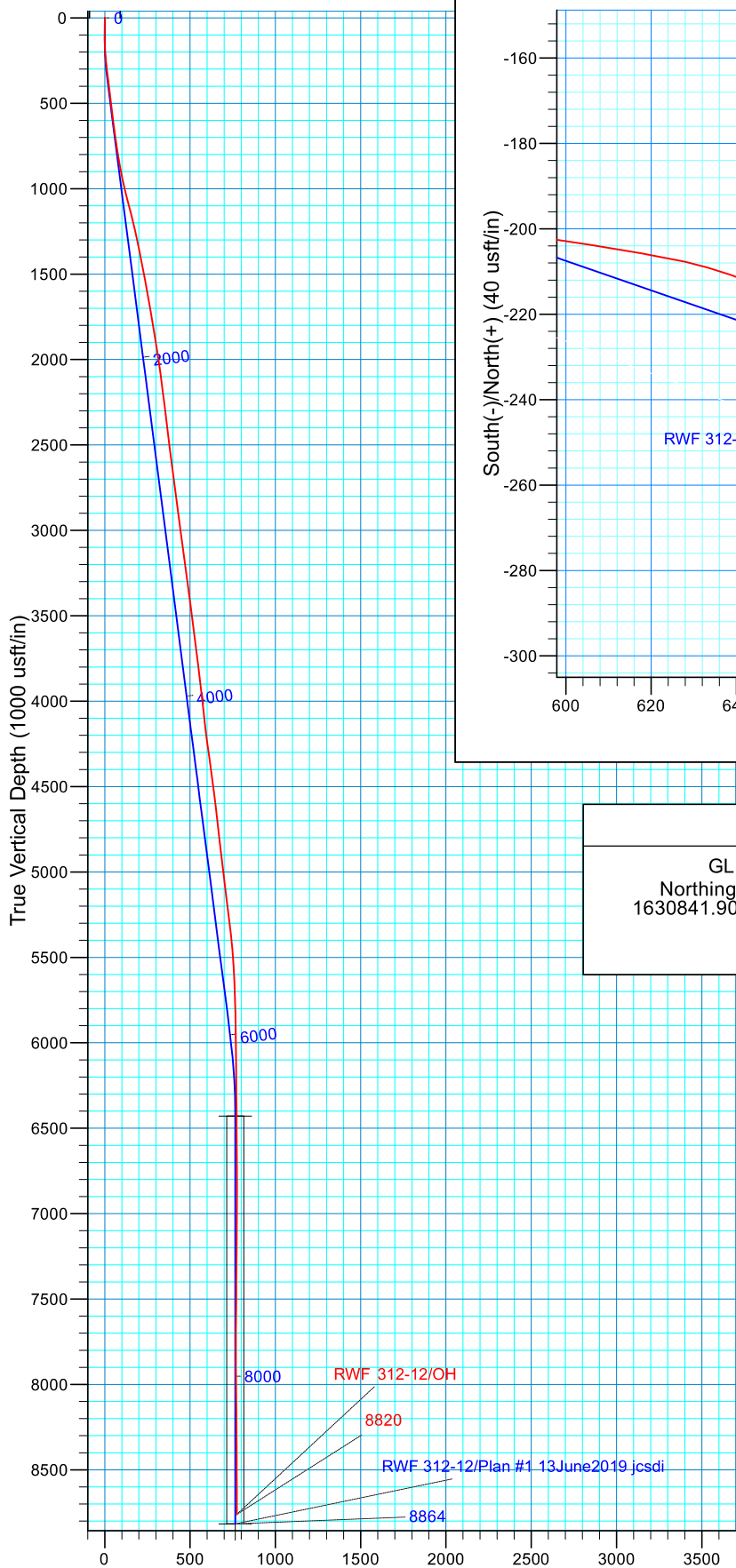
Date

Seth M. Burstad

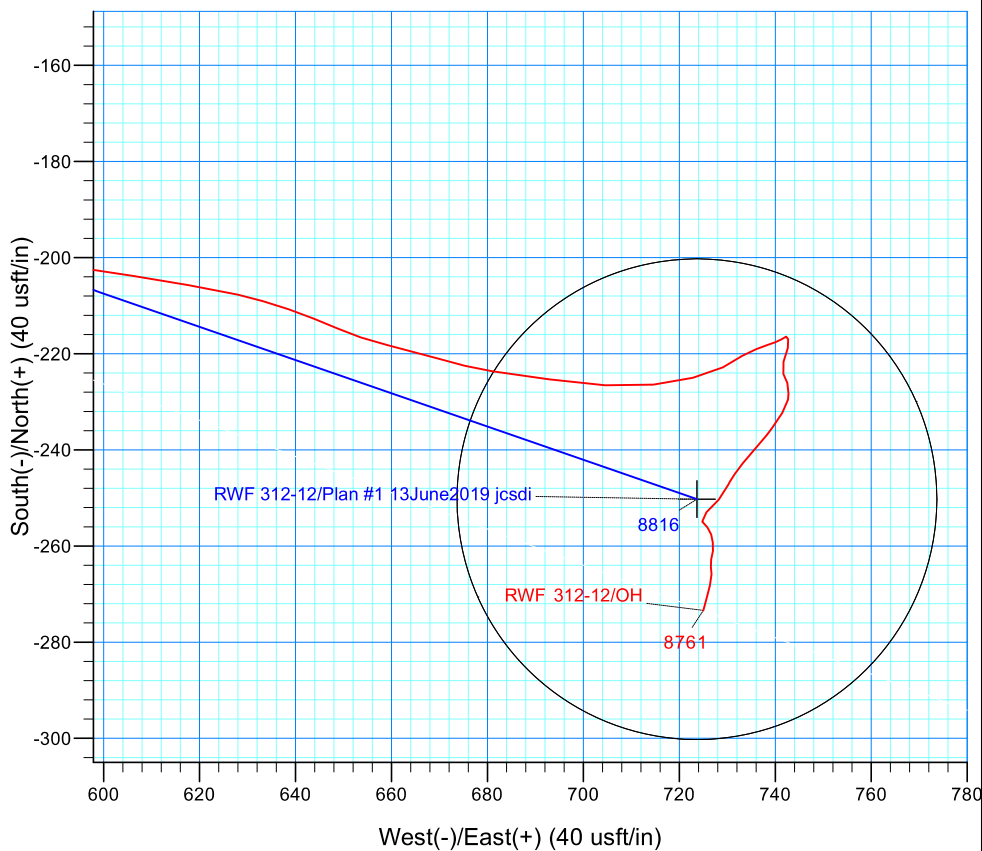
Rockies Region Well Planner
Scientific Drilling - Rocky Mountain District



Project: Garfield County, CO NAD83
 Site: RWF 12-12 Pad
 Well: RWF 312-12
 Wellbore: OH
 Design: OH



Vertical Section at 110.66° (1000 usft/in)



WELL DETAILS: RWF 312-12

GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
 Northing 1630841.9000 Easting 2339709.7000 Latitude 39.5420820 Longitude -107.8415838

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 RWF 312-12 - Slot RWF 312-12, True North
 Vertical (TVD) Reference: GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
 Section (VS) Reference: Slot - RWF 312-12(0.00N, 0.00E)
 Measured Depth Reference: GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
 Calculation Method: Minimum Curvature
 Local North: True
 Location:

TEP Rocky Mountain LLC

Garfield County, CO NAD83

RWF 12-12 Pad

RWF 312-12 - Slot RWF 312-12

OH

Design: OH

Standard Survey Report

04 February, 2020



Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well RWF 312-12 - Slot RWF 312-12
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
Site:	RWF 12-12 Pad	MD Reference:	GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
Well:	RWF 312-12	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	RWF 12-12 Pad				
Site Position:		Northing:	1,630,797.2000 usft	Latitude:	39.5419586
From:	Map	Easting:	2,339,698.6000 usft	Longitude:	-107.8416191
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.48 °

Well	RWF 312-12 - Slot RWF 312-12					
Well Position	+N/-S	0.00 usft	Northing:	1,630,841.9000 usft	Latitude:	39.5420821
	+E/-W	0.00 usft	Easting:	2,339,709.7000 usft	Longitude:	-107.8415839
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,466.80 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	1/27/2020	9.25	65.72	51,422.30000000

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	110.66	

Survey Program	Date	2/4/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
122.00	578.00	Survey #1 - Surface Gyro survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
649.00	988.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,078.00	8,820.00	Survey #3 - Production MWD Survey (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	
122.00	0.18	213.40	122.00	-0.16	-0.11	-0.04	0.15	0.15	0.00	
First SDI Surface Gyro Survey										
214.00	4.05	100.46	213.92	-0.87	3.01	3.12	4.48	4.21	-122.76	
304.00	7.57	106.17	303.45	-3.10	11.83	12.17	3.96	3.91	6.34	
395.00	7.65	105.47	393.65	-6.38	23.43	24.17	0.13	0.09	-0.77	
486.00	6.51	115.14	483.96	-10.19	33.94	35.35	1.81	-1.25	10.63	
578.00	6.95	120.06	575.32	-15.20	43.47	46.04	0.79	0.48	5.35	

Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well RWF 312-12 - Slot RWF 312-12
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
Site:	RWF 12-12 Pad	MD Reference:	GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
Well:	RWF 312-12	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 Surface Gyro Survey									
649.00	7.10	110.77	645.79	-18.90	51.30	54.67	1.61	0.21	-13.08
First SDI Surface MWD Survey									
742.00	8.23	107.84	737.96	-22.98	63.01	67.06	1.29	1.22	-3.15
837.00	10.03	106.62	831.75	-27.43	77.41	82.11	1.91	1.89	-1.28
931.00	12.13	105.97	923.99	-32.49	94.75	100.12	2.24	2.23	-0.69
988.00	13.28	103.91	979.60	-35.71	106.86	112.59	2.17	2.02	-3.61
Last SDI Surface MWD Survey									
1,078.00	14.41	102.56	1,066.98	-40.63	127.83	133.94	1.31	1.26	-1.50
First SDI MWD Production Survey									
1,173.00	14.44	103.53	1,158.99	-45.97	150.88	157.40	0.26	0.03	1.02
1,267.00	12.33	108.73	1,250.43	-51.94	171.78	179.06	2.58	-2.24	5.53
1,362.00	11.85	107.40	1,343.32	-58.11	190.70	198.94	0.58	-0.51	-1.40
1,456.00	11.21	106.18	1,435.43	-63.55	208.68	217.68	0.73	-0.68	-1.30
1,550.00	10.72	107.17	1,527.71	-68.67	225.81	235.52	0.56	-0.52	1.05
1,645.00	10.04	107.09	1,621.16	-73.71	242.17	252.60	0.72	-0.72	-0.08
1,739.00	9.77	106.73	1,713.75	-78.42	257.64	268.74	0.29	-0.29	-0.38
1,834.00	9.40	106.81	1,807.43	-82.98	272.78	284.52	0.39	-0.39	0.08
1,928.00	9.36	105.94	1,900.17	-87.30	287.48	299.80	0.16	-0.04	-0.93
2,023.00	7.98	112.17	1,994.09	-91.91	301.02	314.09	1.76	-1.45	6.56
2,117.00	7.84	113.68	2,087.19	-96.95	312.93	327.01	0.27	-0.15	1.61
2,212.00	7.79	116.06	2,181.31	-102.38	324.65	339.89	0.34	-0.05	2.51
2,306.00	7.03	116.74	2,274.52	-107.77	335.51	351.95	0.81	-0.81	0.72
2,400.00	6.71	120.84	2,367.85	-113.17	345.36	363.08	0.62	-0.34	4.36
2,494.00	6.46	121.62	2,461.23	-118.76	354.58	373.68	0.28	-0.27	0.83
2,589.00	7.96	114.52	2,555.48	-124.29	365.12	385.49	1.83	1.58	-7.47
2,683.00	7.86	115.79	2,648.58	-129.79	376.82	398.38	0.21	-0.11	1.35
2,778.00	7.43	118.29	2,742.74	-135.52	388.08	410.94	0.57	-0.45	2.63
2,872.00	7.36	118.26	2,835.96	-141.26	398.74	422.93	0.07	-0.07	-0.03
2,966.00	7.21	119.11	2,929.20	-146.98	409.19	434.74	0.20	-0.16	0.90
3,061.00	8.19	110.80	3,023.34	-152.28	420.73	447.40	1.56	1.03	-8.75
3,155.00	7.72	112.65	3,116.44	-157.09	432.81	460.41	0.57	-0.50	1.97
3,250.00	7.40	113.79	3,210.61	-162.01	444.30	472.89	0.37	-0.34	1.20
3,344.00	7.28	123.45	3,303.85	-167.74	454.81	484.74	1.32	-0.13	10.28
3,438.00	7.99	108.92	3,397.02	-173.14	465.96	497.08	2.18	0.76	-15.46
3,533.00	7.56	106.81	3,491.15	-177.09	478.19	509.92	0.54	-0.45	-2.22
3,626.00	7.42	107.43	3,583.35	-180.66	489.77	522.02	0.17	-0.15	0.67
3,721.00	7.43	106.84	3,677.56	-184.27	501.51	534.27	0.08	0.01	-0.62
3,815.00	6.43	114.48	3,770.87	-188.22	512.11	545.59	1.44	-1.06	8.13
3,909.00	7.35	98.80	3,864.20	-191.32	522.85	556.72	2.22	0.98	-16.68
4,004.00	6.86	97.23	3,958.47	-192.96	534.48	568.19	0.55	-0.52	-1.65
4,098.00	5.72	97.40	4,051.90	-194.27	544.70	578.21	1.21	-1.21	0.18
4,192.00	6.88	103.34	4,145.33	-196.17	554.82	588.35	1.41	1.23	6.32
4,286.00	8.20	97.81	4,238.52	-198.38	566.94	600.47	1.60	1.40	-5.88

Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well RWF 312-12 - Slot RWF 312-12
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
Site:	RWF 12-12 Pad	MD Reference:	GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
Well:	RWF 312-12	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)
4,380.00	8.24	97.40	4,331.55	-200.16	580.26	613.57	0.08	0.04	-0.44
4,474.00	7.87	97.59	4,424.63	-201.88	593.32	626.39	0.39	-0.39	0.20
4,569.00	7.67	99.37	4,518.76	-203.77	606.02	638.94	0.33	-0.21	1.87
4,663.00	6.76	99.54	4,612.01	-205.71	617.67	650.52	0.97	-0.97	0.18
4,757.00	6.17	102.48	4,705.41	-207.72	628.06	660.95	0.72	-0.63	3.13
4,852.00	7.11	109.09	4,799.78	-210.74	638.60	671.88	1.27	0.99	6.96
4,946.00	6.17	113.94	4,893.14	-214.70	648.71	682.74	1.16	-1.00	5.16
5,040.00	7.19	103.75	4,986.51	-218.14	659.04	693.63	1.66	1.09	-10.84
5,135.00	6.49	106.36	5,080.83	-221.07	669.97	704.88	0.81	-0.74	2.75
5,229.00	7.31	100.16	5,174.15	-223.62	680.95	716.06	1.18	0.87	-6.60
5,324.00	7.30	95.64	5,268.38	-225.28	692.91	727.83	0.60	-0.01	-4.76
5,418.00	6.98	96.61	5,361.65	-226.52	704.53	739.14	0.36	-0.34	1.03
5,512.00	5.45	80.35	5,455.10	-226.43	714.60	748.54	2.47	-1.63	-17.30
5,606.00	4.80	79.71	5,548.73	-224.98	722.87	755.76	0.69	-0.69	-0.68
5,700.00	3.40	58.10	5,642.49	-222.81	729.11	760.83	2.19	-1.49	-22.99
5,794.00	2.30	61.59	5,736.37	-220.44	733.14	763.76	1.18	-1.17	3.71
5,888.00	1.68	67.53	5,830.32	-219.01	736.07	766.00	0.69	-0.66	6.32
5,983.00	1.20	71.92	5,925.29	-218.17	738.30	767.79	0.52	-0.51	4.62
6,077.00	1.02	69.10	6,019.27	-217.57	740.02	769.19	0.20	-0.19	-3.00
6,171.00	0.84	60.36	6,113.26	-216.93	741.40	770.25	0.24	-0.19	-9.30
6,265.00	0.38	59.80	6,207.25	-216.43	742.27	770.89	0.49	-0.49	-0.60
6,360.00	0.81	164.72	6,302.25	-216.92	742.72	771.48	1.03	0.45	110.44
6,454.00	1.52	191.83	6,396.23	-218.78	742.63	772.07	0.94	0.76	28.84
6,548.00	2.16	201.21	6,490.18	-221.65	741.74	772.24	0.75	0.68	9.98
6,643.00	1.28	144.69	6,585.14	-224.19	741.70	773.10	1.90	-0.93	-59.49
6,737.00	1.26	166.41	6,679.12	-226.05	742.55	774.55	0.51	-0.02	23.11
6,831.00	1.49	180.29	6,773.09	-228.28	742.79	775.56	0.43	0.24	14.77
6,879.00	1.59	192.11	6,821.07	-229.55	742.65	775.88	0.69	0.21	24.63
6,974.00	2.10	211.92	6,916.03	-232.32	741.45	775.73	0.85	0.54	20.85
7,068.00	2.52	215.87	7,009.95	-235.45	739.33	774.86	0.48	0.45	4.20
7,163.00	1.18	221.19	7,104.90	-237.88	737.46	773.96	1.42	-1.41	5.60
7,257.00	1.75	223.30	7,198.87	-239.66	735.84	773.07	0.61	0.61	2.24
7,351.00	0.95	213.39	7,292.84	-241.35	734.43	772.35	0.88	-0.85	-10.54
7,445.00	1.26	221.52	7,386.82	-242.78	733.31	771.81	0.37	0.33	8.65
7,540.00	1.77	216.61	7,481.79	-244.73	731.74	771.03	0.55	0.54	-5.17
7,634.00	2.03	206.17	7,575.74	-247.39	730.14	770.48	0.46	0.28	-11.11
7,729.00	2.23	219.82	7,670.67	-250.32	728.22	769.71	0.57	0.21	14.37
7,823.00	2.30	228.12	7,764.60	-252.99	725.64	768.24	0.36	0.07	8.83
7,918.00	1.02	140.00	7,859.57	-254.91	724.77	768.10	2.62	-1.35	-92.76
8,012.00	1.03	135.44	7,953.55	-256.15	725.90	769.59	0.09	0.01	-4.85
8,107.00	1.03	169.54	8,048.54	-257.60	726.65	770.81	0.64	0.00	35.89
8,201.00	1.05	167.14	8,142.52	-259.27	727.00	771.72	0.05	0.02	-2.55
8,295.00	1.10	190.95	8,236.51	-261.00	727.02	772.35	0.47	0.05	25.33

Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well RWF 312-12 - Slot RWF 312-12
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
Site:	RWF 12-12 Pad	MD Reference:	GL 5466.8' & RKB 24' @ 5490.80usft (H&P 318)
Well:	RWF 312-12	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)
8,390.00	1.05	193.28	8,331.49	-262.74	726.64	772.61	0.07	-0.05	2.45
8,484.00	0.89	170.47	8,425.48	-264.30	726.57	773.09	0.44	-0.17	-24.27
8,578.00	1.01	176.24	8,519.46	-265.84	726.74	773.80	0.16	0.13	6.14
8,673.00	1.88	194.91	8,614.43	-268.18	726.40	774.30	1.03	0.92	19.65
8,762.00	2.20	194.96	8,703.38	-271.25	725.58	774.62	0.36	0.36	0.06
Last SDI MWD Production Survey									
8,820.00	2.20	194.96	8,761.33	-273.40	725.01	774.84	0.00	0.00	0.00
Projection to TD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
122.00	122.00	-0.16	-0.11	First SDI Surface Gyro Survey
578.00	575.32	-15.20	43.47	Last SDI Surface Gyro Survey
649.00	645.79	-18.90	51.30	First SDI Surface MWD Survey
988.00	979.60	-35.71	106.86	Last SDI Surface MWD Survey
1,078.00	1,066.98	-40.63	127.83	First SDI MWD Production Survey
8,762.00	8,703.38	-271.25	725.58	Last SDI MWD Production Survey
8,820.00	8,761.33	-273.40	725.01	Projection to TD

Checked By: _____ Approved By: _____ Date: _____