Directional Survey Certification

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

Operator	Terra Energy Partners
Well Name & No.	RU 323-7
County & State	Garfield, CO
SDI Job No.	420816DEFK381061
Rig	H&P 318

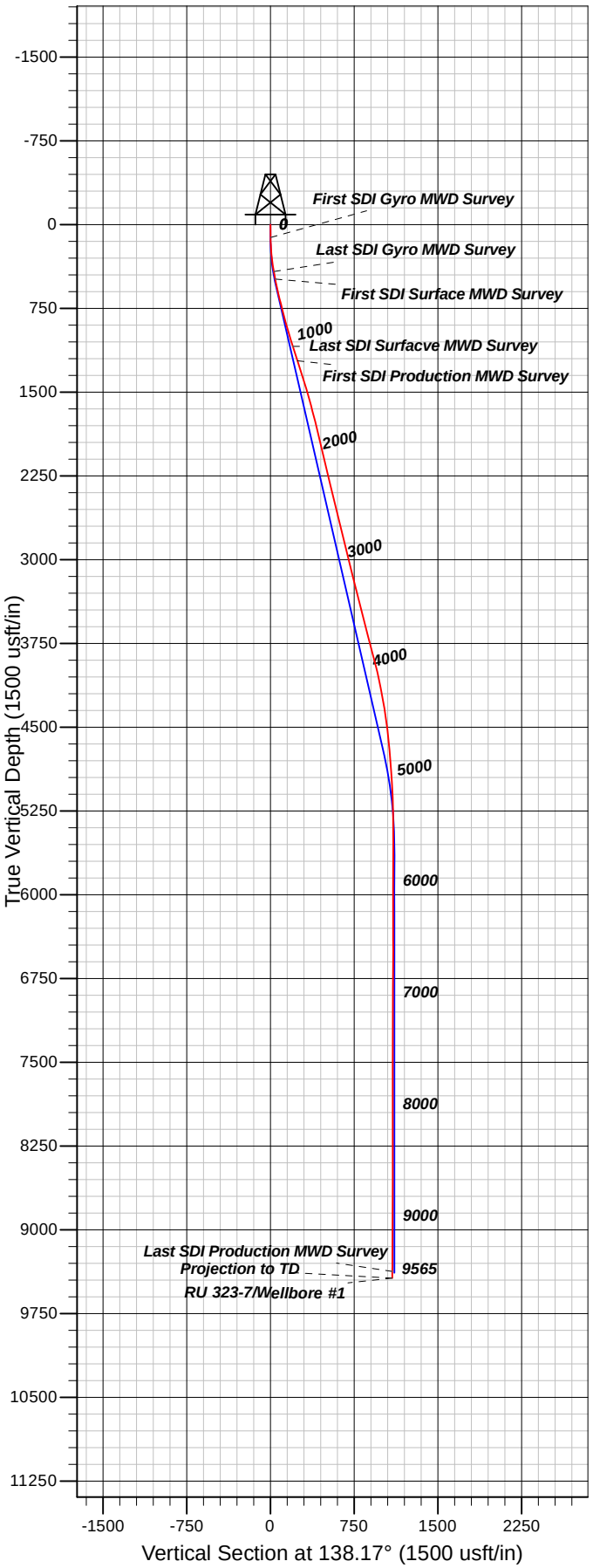
I, Janie Collins, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 115 feet to a measured depth of 9,565 feet is true and correct as determined from all available records.

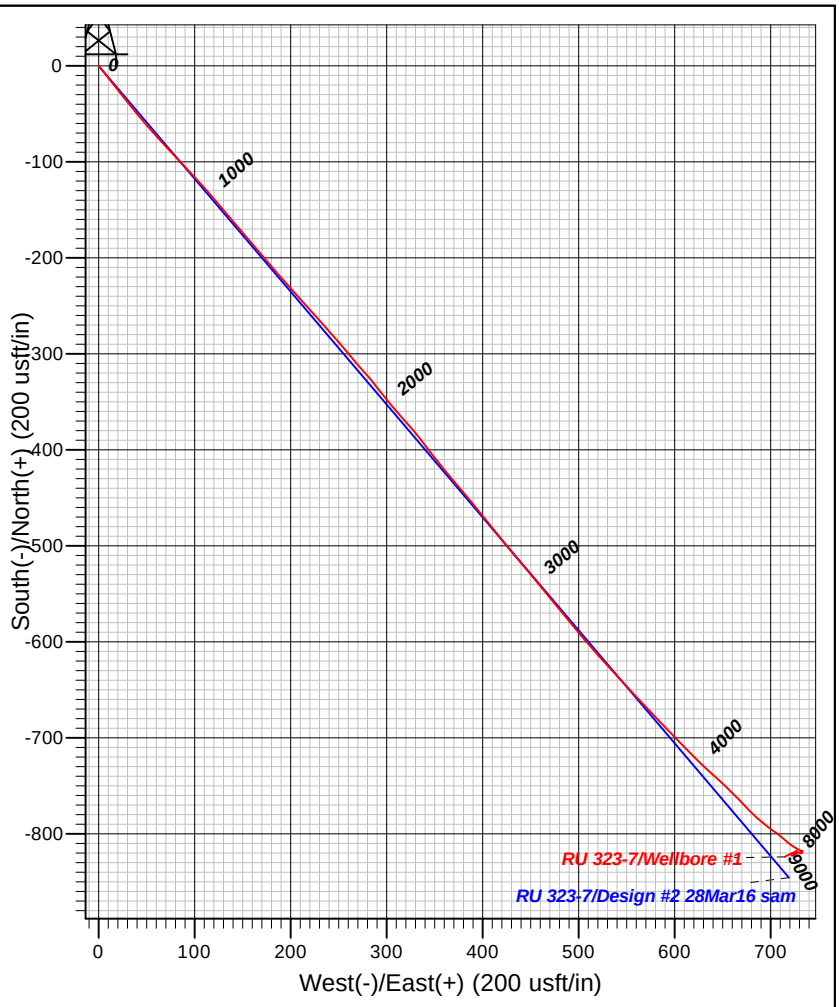
Signature

7-Sep-16
Date

Janie Collins
Colorado District Well Planner
Scientific Drilling International

Company:	TEP Rocky Mountain LLC
Project:	Garfield County, CO NAD83
Site:	RU 22-7 Pad
Well:	RU 323-7
Wellbore:	Wellbore #1
Design:	Wellbore #1





Well Details: RU 323-7

TVD Reference: GL 7339' & RKB 24' @ 7363.00usft (H&P 318) Ground Level: 7339.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1599687.80	2345090.86	39.4569574	-107.8196885	RU 323-7 (A4)

REFERENCE INFORMATION

Co-ordinate (N/E) Reference:	Well RU 323-7 - Slot RU 323-7 (A4), True North
Vertical (TVD) Reference:	GL 7339' & RKB 24' @ 7363.00usft (H&P 318)
Section (VS) Reference:	Slot - RU 323-7 (A4)(0.00N, 0.00E)
Measured Depth Reference:	GL 7339' & RKB 24' @ 7363.00usft (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: Wellbore #1

17:22, September 07 2016
Created By: Janie Collins

Company:	TEP Rocky Mountain LLC	**Local Co-ordinate Reference:**	Well RU 323-7 - Slot RU 323-7 (A4)
Project:	Garfield County, CO NAD83	**TVD Reference:**	GL 7339' & RKB 24' @ 7363.00usft (H&P 318)
Site:	RU 22-7 Pad	**MD Reference:**	GL 7339' & RKB 24' @ 7363.00usft (H&P 318)
Well:	RU 323-7	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Grand Junction District

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 RU 22-7 Pad

Site Position:		**Northing:**	1,599,673.59 usft	**Latitude:**	39.4569181
From:	Map	**Easting:**	2,345,086.00 usft	**Longitude:**	-107.8197045
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.20 in	**Grid Convergence:**	-1.46 °

Well RU 323-7 - Slot RU 323-7 (A4)

Well Position	**+N/-S**	0.00 usft	**Northing:**	1,599,687.79 usft	**Latitude:**	39.4569574
	+E/-W	0.00 usft	**Easting:**	2,345,090.86 usft	**Longitude:**	-107.8196886
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	7,339.00 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/26/2016	9.35	65.68	51,788

Design Wellbore #1

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	138.17

Survey Program **Date** 9/7/2016

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
115.00	422.00	Survey #1 - Gyro Survey (Wellbore #1)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4
491.00	1,114.00	Survey #2 - Surface MWD Survey (Wellbo	SDI MWD	SDI MWD - Standard ver 1.0.1
1,249.00	9,565.00	Survey #3 - Production MWD Survey (Wel	SDI MWD	SDI MWD - Standard ver 1.0.1

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
115.00	0.88	139.48	115.00	-0.67	0.57	0.88	0.77	0.77	0.00
First SDI Gyro MWD Survey									
150.00	1.76	141.33	149.99	-1.30	1.08	1.69	2.52	2.51	5.29
240.00	4.40	142.03	239.85	-5.10	4.07	6.51	2.93	2.93	0.78
331.00	7.21	140.54	330.37	-12.26	9.85	15.70	3.09	3.09	-1.64
422.00	10.12	142.38	420.32	-23.00	18.36	29.39	3.21	3.20	2.02
Last SDI Gyro MWD Survey									

Company:	TEP Rocky Mountain LLC	**Local Co-ordinate Reference:**	Well RU 323-7 - Slot RU 323-7 (A4)
Project:	Garfield County, CO NAD83	**TVD Reference:**	GL 7339' & RKB 24' @ 7363.00usft (H&P 318)
Site:	RU 22-7 Pad	**MD Reference:**	GL 7339' & RKB 24' @ 7363.00usft (H&P 318)
Well:	RU 323-7	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	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)
491.00	11.32	141.56	488.12	-33.11	26.27	42.19	1.75	1.74	-1.19
First SDI Surface MWD Survey									
583.00	12.52	140.80	578.13	-47.91	38.19	61.17	1.32	1.30	-0.83
673.00	13.54	138.72	665.82	-63.39	51.31	81.45	1.25	1.13	-2.31
764.00	14.73	137.67	754.06	-79.95	66.12	103.67	1.34	1.31	-1.15
855.00	15.35	136.27	841.94	-97.20	82.24	127.28	0.79	0.68	-1.54
946.00	16.09	136.75	929.54	-115.09	99.21	151.92	0.83	0.81	0.53
1,036.00	16.49	139.68	1,015.93	-133.91	116.02	177.16	1.02	0.44	3.26
1,114.00	17.32	139.52	1,090.55	-151.19	130.72	199.83	1.07	1.06	-0.21
Last SDI Surfacve MWD Survey									
1,249.00	18.11	139.90	1,219.15	-182.52	157.28	240.90	0.59	0.59	0.28
First SDI Production MWD Survey									
1,344.00	18.32	139.19	1,309.39	-205.12	176.55	270.58	0.32	0.22	-0.75
1,438.00	16.71	138.10	1,399.03	-226.36	195.23	298.87	1.75	-1.71	-1.16
1,533.00	16.93	138.06	1,489.97	-246.81	213.60	326.36	0.23	0.23	-0.04
1,627.00	15.36	138.80	1,580.26	-266.36	230.94	352.49	1.68	-1.67	0.79
1,722.00	14.23	137.65	1,672.11	-284.46	247.10	376.75	1.23	-1.19	-1.21
1,816.00	14.20	141.53	1,763.23	-302.02	262.05	399.82	1.01	-0.03	4.13
1,911.00	13.78	137.56	1,855.41	-319.50	276.94	422.76	1.10	-0.44	-4.18
2,005.00	13.67	142.83	1,946.73	-336.61	291.20	445.03	1.33	-0.12	5.61
2,099.00	13.37	139.82	2,038.13	-353.76	304.93	466.96	0.81	-0.32	-3.20
2,194.00	13.27	137.66	2,130.57	-370.22	319.36	488.84	0.53	-0.11	-2.27
2,288.00	13.93	142.03	2,221.94	-387.11	333.59	510.92	1.30	0.70	4.65
2,382.00	13.77	142.03	2,313.21	-404.85	347.43	533.37	0.17	-0.17	0.00
2,477.00	13.24	140.64	2,405.58	-422.17	361.29	555.52	0.65	-0.56	-1.46
2,571.00	13.09	139.98	2,497.11	-438.65	374.96	576.92	0.23	-0.16	-0.70
2,666.00	12.69	140.51	2,589.72	-454.94	388.51	598.10	0.44	-0.42	0.56
2,760.00	14.15	140.85	2,681.15	-471.82	402.33	619.89	1.56	1.55	0.36
2,854.00	14.03	141.37	2,772.32	-489.63	416.70	642.74	0.19	-0.13	0.55
2,949.00	13.89	140.35	2,864.51	-507.41	431.16	665.64	0.30	-0.15	-1.07
3,043.00	13.76	140.22	2,955.79	-524.68	445.52	688.08	0.14	-0.14	-0.14
3,137.00	13.43	139.87	3,047.16	-541.62	459.71	710.17	0.36	-0.35	-0.37
3,232.00	15.36	140.64	3,139.17	-559.79	474.80	733.77	2.04	2.03	0.81
3,326.00	14.68	140.88	3,229.96	-578.65	490.21	758.10	0.73	-0.72	0.26
3,421.00	13.51	139.64	3,322.10	-596.45	504.99	781.22	1.27	-1.23	-1.31
3,515.00	14.62	138.16	3,413.28	-613.65	520.01	804.06	1.24	1.18	-1.57
3,610.00	13.62	137.43	3,505.40	-630.82	535.58	827.23	1.07	-1.05	-0.77
3,704.00	15.57	137.13	3,596.37	-648.22	551.65	850.92	2.08	2.07	-0.32
3,798.00	15.14	137.22	3,687.01	-666.48	568.57	875.80	0.46	-0.46	0.10
3,892.00	14.74	135.92	3,777.83	-684.08	585.23	900.03	0.56	-0.43	-1.38
3,987.00	14.13	135.62	3,869.83	-701.05	601.74	923.69	0.65	-0.64	-0.32
4,081.00	13.49	135.51	3,961.12	-717.07	617.45	946.10	0.68	-0.68	-0.12
4,175.00	11.92	132.99	4,052.81	-731.51	632.24	966.72	1.77	-1.67	-2.68
4,269.00	11.47	131.74	4,144.86	-744.35	646.31	985.68	0.55	-0.48	-1.33

Company:	TEP Rocky Mountain LLC	**Local Co-ordinate Reference:**	Well RU 323-7 - Slot RU 323-7 (A4)
Project:	Garfield County, CO NAD83	**TVD Reference:**	GL 7339' & RKB 24' @ 7363.00usft (H&P 318)
Site:	RU 22-7 Pad	**MD Reference:**	GL 7339' & RKB 24' @ 7363.00usft (H&P 318)
Well:	RU 323-7	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	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)
4,364.00	9.67	136.10	4,238.25	-756.39	658.89	1,003.04	2.07	-1.89	4.59
4,458.00	10.40	135.04	4,330.81	-768.08	670.36	1,019.40	0.80	0.78	-1.13
4,553.00	7.81	136.77	4,424.60	-778.86	680.85	1,034.42	2.74	-2.73	1.82
4,647.00	6.49	126.29	4,517.87	-786.66	689.50	1,046.00	1.97	-1.40	-11.15
4,741.00	6.37	130.56	4,611.28	-793.19	697.75	1,056.37	0.52	-0.13	4.54
4,835.00	5.65	122.89	4,704.77	-799.09	705.59	1,066.00	1.15	-0.77	-8.16
4,930.00	4.22	132.22	4,799.42	-803.98	712.11	1,073.99	1.72	-1.51	9.82
5,024.00	3.99	130.71	4,893.17	-808.44	717.15	1,080.67	0.27	-0.24	-1.61
5,119.00	3.59	122.80	4,987.97	-812.21	722.16	1,086.82	0.69	-0.42	-8.33
5,213.00	3.33	119.80	5,081.80	-815.16	727.00	1,092.25	0.34	-0.28	-3.19
5,307.00	1.95	115.04	5,175.69	-817.19	730.82	1,096.31	1.49	-1.47	-5.06
5,401.00	0.49	90.10	5,269.67	-817.87	732.67	1,098.05	1.62	-1.55	-26.53
5,496.00	0.25	214.99	5,364.67	-818.04	732.96	1,098.37	0.70	-0.25	131.46
5,590.00	0.34	172.67	5,458.67	-818.48	732.87	1,098.64	0.24	0.10	-45.02
5,684.00	0.71	197.61	5,552.66	-819.32	732.73	1,099.17	0.45	0.39	26.53
5,778.00	0.37	17.86	5,646.66	-819.58	732.65	1,099.31	1.15	-0.36	-191.22
5,872.00	0.31	334.65	5,740.66	-819.06	732.63	1,098.92	0.27	-0.06	-45.97
5,967.00	0.30	348.05	5,835.66	-818.59	732.47	1,098.45	0.08	-0.01	14.11
6,062.00	0.09	336.21	5,930.66	-818.28	732.39	1,098.17	0.22	-0.22	-12.46
6,157.00	0.65	195.77	6,025.66	-818.73	732.21	1,098.39	0.76	0.59	-147.83
6,251.00	0.33	248.02	6,119.65	-819.34	731.82	1,098.58	0.55	-0.34	55.59
6,345.00	0.94	226.65	6,213.65	-819.97	731.01	1,098.51	0.69	0.65	-22.73
6,439.00	0.38	12.32	6,307.64	-820.20	730.51	1,098.35	1.35	-0.60	154.97
6,534.00	0.34	127.48	6,402.64	-820.06	730.80	1,098.44	0.64	-0.04	121.22
6,628.00	0.37	93.57	6,496.64	-820.25	731.33	1,098.93	0.22	0.03	-36.07
6,722.00	0.31	24.98	6,590.64	-820.04	731.74	1,099.04	0.41	-0.06	-72.97
6,817.00	0.67	289.82	6,685.64	-819.62	731.32	1,098.45	0.80	0.38	-100.17
6,911.00	0.51	239.94	6,779.63	-819.64	730.44	1,097.89	0.55	-0.17	-53.06
7,006.00	0.63	305.71	6,874.63	-819.55	729.65	1,097.29	0.66	0.13	69.23
7,101.00	0.30	268.45	6,969.63	-819.25	728.98	1,096.62	0.45	-0.35	-39.22
7,195.00	0.42	244.25	7,063.62	-819.40	728.43	1,096.36	0.20	0.13	-25.74
7,290.00	0.50	257.68	7,158.62	-819.64	727.71	1,096.06	0.14	0.08	14.14
7,384.00	0.88	258.61	7,252.61	-819.87	726.60	1,095.50	0.40	0.40	0.99
7,479.00	0.18	165.92	7,347.61	-820.16	725.92	1,095.26	0.95	-0.74	-97.57
7,573.00	0.20	231.56	7,441.61	-820.41	725.83	1,095.38	0.22	0.02	69.83
7,668.00	0.07	12.07	7,536.61	-820.45	725.71	1,095.34	0.27	-0.14	147.91
7,762.00	0.79	237.43	7,630.61	-820.75	725.18	1,095.20	0.89	0.77	-143.23
7,856.00	0.68	214.12	7,724.60	-821.56	724.32	1,095.23	0.34	-0.12	-24.80
7,951.00	0.77	248.22	7,819.59	-822.26	723.41	1,095.15	0.46	0.09	35.89
8,045.00	0.47	244.83	7,913.59	-822.66	722.47	1,094.82	0.32	-0.32	-3.61
8,139.00	0.75	310.85	8,007.58	-822.42	721.66	1,094.10	0.75	0.30	70.23
8,234.00	0.90	88.60	8,102.58	-822.00	721.93	1,093.97	1.62	0.16	145.00
8,328.00	0.79	82.47	8,196.57	-821.89	723.31	1,094.81	0.15	-0.12	-6.52

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Site:	RU 22-7 Pad	**MD Reference:**	GL 7339' & RKB 24' @ 7363.00usft (H&P 318)
Well:	RU 323-7	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	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)
8,423.00	0.91	73.51	8,291.56	-821.59	724.69	1,095.50	0.19	0.13	-9.43
8,517.00	0.79	63.73	8,385.55	-821.09	725.98	1,095.99	0.20	-0.13	-10.40
8,612.00	0.43	7.56	8,480.54	-820.45	726.62	1,095.94	0.69	-0.38	-59.13
8,706.00	0.28	4.38	8,574.54	-819.87	726.68	1,095.55	0.16	-0.16	-3.38
8,801.00	0.18	294.71	8,669.54	-819.58	726.56	1,095.25	0.29	-0.11	-73.34
8,895.00	0.75	19.63	8,763.54	-818.94	726.64	1,094.82	0.80	0.61	90.34
8,989.00	0.44	19.02	8,857.53	-818.02	726.96	1,094.35	0.33	-0.33	-0.65
9,084.00	0.27	263.86	8,952.53	-817.70	726.86	1,094.04	0.64	-0.18	-121.22
9,178.00	1.06	233.65	9,046.52	-818.23	725.94	1,093.83	0.89	0.84	-32.14
9,272.00	1.87	246.24	9,140.49	-819.37	723.83	1,093.27	0.92	0.86	13.39
9,366.00	2.13	245.39	9,234.44	-820.71	720.84	1,092.28	0.28	0.28	-0.90
9,461.00	2.10	239.65	9,329.37	-822.33	717.73	1,091.41	0.23	-0.03	-6.04
9,505.00	1.93	243.49	9,373.34	-823.07	716.37	1,091.06	0.49	-0.39	8.73
Last SDI Production MWD Survey									
9,565.00	1.93	243.49	9,433.31	-823.97	714.57	1,090.52	0.00	0.00	0.00
Projection to TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
115.00	115.00	-0.67	0.57	First SDI Gyro MWD Survey
422.00	420.32	-23.00	18.36	Last SDI Gyro MWD Survey
491.00	488.12	-33.11	26.27	First SDI Surface MWD Survey
1,114.00	1,090.55	-151.19	130.72	Last SDI Surfacve MWD Survey
1,249.00	1,219.15	-182.52	157.28	First SDI Production MWD Survey
9,505.00	9,373.34	-823.07	716.37	Last SDI Production MWD Survey
9,565.00	9,433.31	-823.97	714.57	Projection to TD

Checked By: _____ Approved By: _____ Date: _____