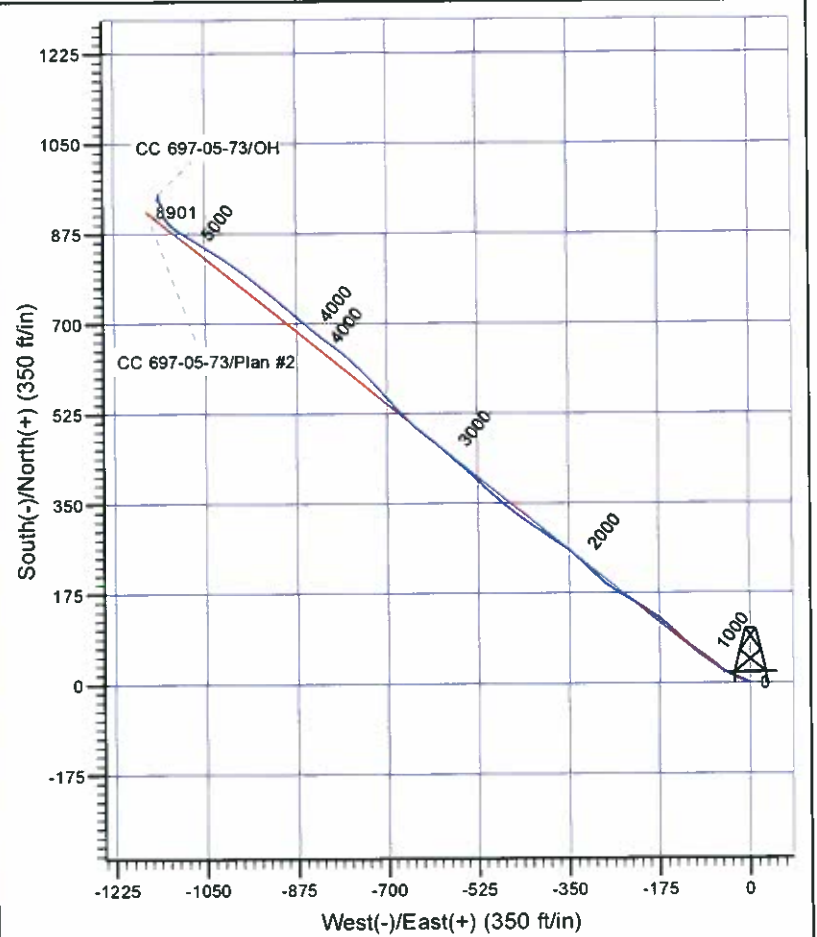
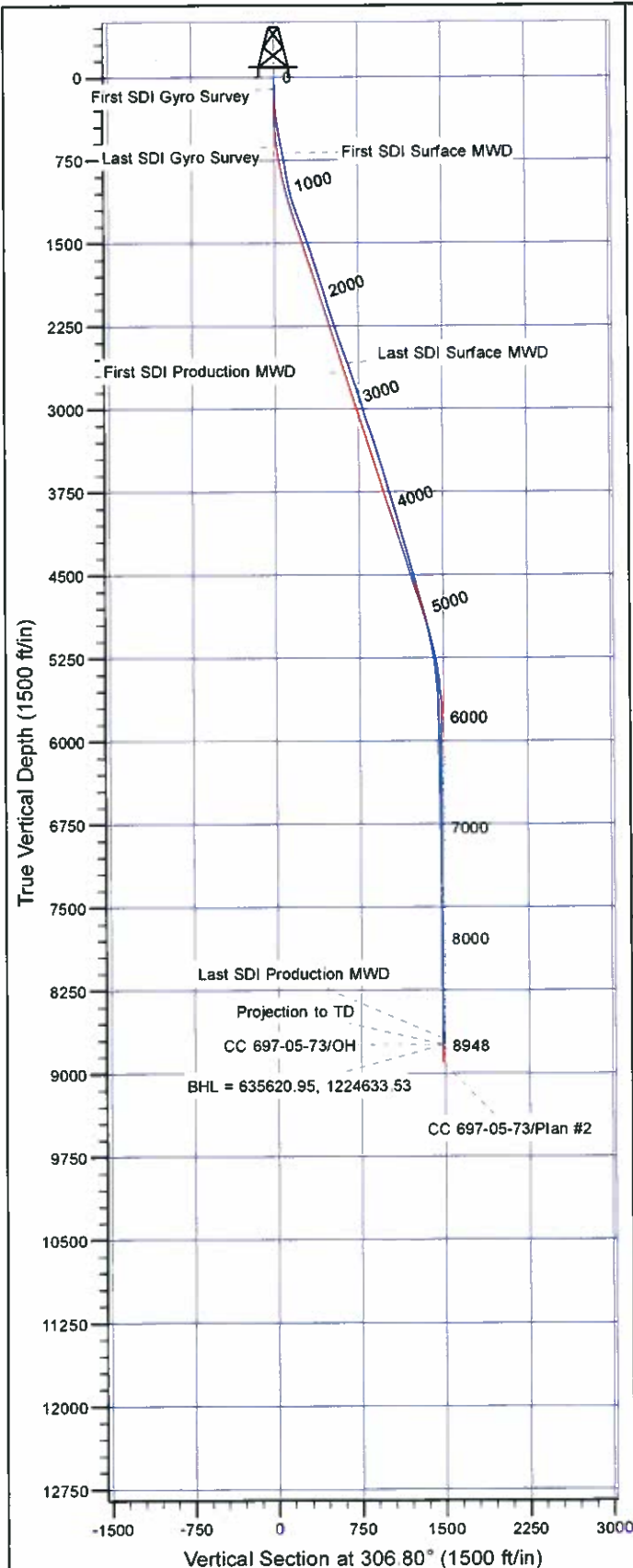




Scientific Drilling

Company: OXY USA RMAT
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-08A Pad
 Well: CC 697-05-73
 Wellbore: OH
 Design: OH



Well Details: CC 697-05-73

+N/S	+E/W	North	East	Latitude	Longitude	Slot
0.00	0.00	634635.84	1225744.73	39° 32' 37.571 N	108° 14' 45.045 W	F

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-73 - Slot F, True North
 Vertical (TVD) Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
 Section (VS) Reference: Slot - F(0.00N, 0.00E)
 Measured Depth Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
 Calculation Method: Minimum Curvature

PROJECT DETAILS: Garfield County, CO NAD27

Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: Colorado Central 502

System Datum: Mean Sea Level

Plan: OH

13:01, June 29 2012
 Created By: Janie Collins

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-05-73 - Slot F**

OH

Design: OH

Standard Survey Report

29 June, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-73 - Slot F
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Well:	CC 697-05-73	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

Project	Garfield County, CO NAD27		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado Central 502		

Site	Cascade Creek 697-08A Pad, Sec 8 T6S R97W				
Site Position:		Northing:	635,765.16 usft	Latitude:	39° 32' 48.728 N
From:	Lat/Long	Easting:	1,225,748.33 usft	Longitude:	108° 14' 45.434 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.73 °

Well	CC 697-05-73 - Slot F, 330' FNL & 1790' FWL					
Well Position	+N/-S	0.00 ft	Northing:	634,635.85 usft	Latitude:	39° 32' 37.571 N
	+E/-W	0.00 ft	Easting:	1,225,744.72 usft	Longitude:	108° 14' 45.045 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,401.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/22/08	10.77	65.81	52,498

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	306.80	

Survey Program	Date 06/29/12				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
104.00	621.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
691.00	2,681.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,773.00	8,948.00	Survey #3 - Production MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
104.00	1.50	284.41	103.99	0.34	-1.32	1.26	1.44	1.44	0.00	
First SDI Gyro Survey										
165.00	1.85	285.82	164.96	0.81	-3.04	2.92	0.58	0.57	2.31	
255.00	3.78	299.53	254.85	2.66	-7.02	7.22	2.26	2.14	15.23	
347.00	6.69	295.75	346.46	6.49	-14.49	15.49	3.18	3.16	-4.11	
439.00	8.62	294.70	437.63	11.70	-25.58	27.49	2.10	2.10	-1.14	
531.00	10.73	292.59	528.32	17.87	-39.75	42.53	2.33	2.29	-2.29	
621.00	12.49	307.00	616.49	26.95	-55.26	60.39	3.75	1.96	16.01	

Scientific Drilling International

Survey Report

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-08A Pad
Well: CC 697-05-73
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well CC 697-05-73 - Slot F
TVD Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
MD Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Rockies Compass Server

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Last SDI Gyro Survey									
691.00	10.64	310.86	685.07	35.73	-66.20	74.41	2.86	-2.64	5.51
First SDI Surface MWD									
783.00	8.88	308.57	775.74	45.72	-78.17	89.98	1.96	-1.91	-2.49
873.00	9.50	305.94	864.58	54.41	-89.62	104.35	0.83	0.69	-2.92
964.00	11.87	302.95	954.00	63.91	-103.55	121.20	2.67	2.60	-3.29
1,058.00	13.98	311.03	1,045.62	76.62	-120.23	142.17	2.95	2.24	8.60
1,153.00	16.97	312.88	1,137.16	93.59	-139.05	167.41	3.19	3.15	1.95
1,247.00	20.58	312.88	1,226.15	114.17	-161.22	197.49	3.84	3.84	0.00
1,342.00	20.93	303.74	1,315.01	134.97	-187.57	231.04	3.43	0.37	-9.62
1,437.00	18.29	301.19	1,404.49	152.11	-214.44	262.83	2.92	-2.78	-2.68
1,531.00	19.26	300.14	1,493.49	167.54	-240.47	292.91	1.09	1.03	-1.12
1,626.00	17.76	304.71	1,583.57	183.66	-265.93	322.95	2.20	-1.58	4.81
1,720.00	16.71	312.62	1,673.36	200.97	-287.66	350.73	2.73	-1.12	8.41
1,815.00	18.11	313.85	1,764.01	220.45	-308.36	378.97	1.52	1.47	1.29
1,909.00	19.26	313.50	1,853.05	241.24	-330.14	408.87	1.23	1.22	-0.37
2,004.00	16.09	306.20	1,943.57	259.81	-352.14	437.60	4.07	-3.34	-7.68
2,099.00	16.53	303.74	2,034.75	275.09	-374.00	464.26	0.86	0.46	-2.59
2,193.00	17.94	304.71	2,124.52	290.77	-397.02	492.08	1.53	1.50	1.03
2,287.00	18.64	305.67	2,213.78	307.77	-421.13	521.57	0.81	0.74	1.02
2,382.00	18.91	305.85	2,303.72	325.64	-445.94	552.14	0.29	0.28	0.19
2,477.00	18.73	309.98	2,393.65	344.45	-470.11	582.76	1.41	-0.19	4.35
2,571.00	18.82	311.65	2,482.64	364.23	-493.00	612.94	0.58	0.10	1.78
2,666.00	19.43	313.32	2,572.40	385.25	-515.95	643.91	0.86	0.64	1.76
2,681.00	19.61	313.58	2,586.54	388.70	-519.58	648.89	1.33	1.20	1.73
Last SDI Surface MWD									
2,773.00	19.50	312.34	2,673.23	409.68	-542.12	679.50	0.47	-0.12	-1.35
First SDI Production MWD									
2,867.00	18.11	310.95	2,762.21	429.83	-564.75	709.69	1.55	-1.48	-1.48
2,962.00	18.55	311.56	2,852.39	449.53	-587.21	739.48	0.51	0.46	0.64
3,057.00	18.47	309.63	2,942.48	469.15	-610.11	769.57	0.65	-0.08	-2.03
3,151.00	15.56	306.82	3,032.36	486.21	-631.67	797.05	3.22	-3.10	-2.99
3,246.00	18.64	314.46	3,123.16	504.49	-652.72	824.85	4.01	3.24	8.04
3,340.00	19.52	316.75	3,211.99	526.45	-674.20	855.21	1.23	0.94	2.44
3,435.00	18.38	317.45	3,301.84	549.04	-695.20	885.56	1.22	-1.20	0.74
3,529.00	17.94	317.98	3,391.16	570.71	-714.92	914.33	0.50	-0.47	0.56
3,624.00	16.09	317.19	3,482.00	591.24	-733.66	941.63	1.96	-1.95	-0.83
3,718.00	16.80	314.02	3,572.16	610.24	-752.28	967.92	1.22	0.76	-3.37
3,813.00	16.88	312.44	3,663.08	629.09	-772.33	995.27	0.49	0.08	-1.66
3,907.00	16.71	308.05	3,753.08	646.63	-793.04	1,022.36	1.36	-0.18	-4.67
4,001.00	15.39	306.03	3,843.41	662.29	-813.77	1,048.34	1.52	-1.40	-2.15
4,096.00	16.27	309.28	3,934.81	678.14	-834.27	1,074.25	1.31	0.93	3.42
4,190.00	15.12	309.72	4,025.30	694.31	-853.89	1,099.65	1.23	-1.22	0.47
4,285.00	15.65	311.74	4,116.90	710.76	-872.99	1,124.79	0.79	0.56	2.13

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-73 - Slot F
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Well:	CC 697-05-73	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,372.00	15.74	309.98	4,200.66	726.15	-890.78	1,148.26	0.56	0.10	-2.02
4,473.00	15.92	309.89	4,297.82	743.84	-911.91	1,175.77	0.18	0.18	-0.09
4,568.00	15.56	311.21	4,389.26	760.59	-931.49	1,201.48	0.53	-0.38	1.39
4,662.00	15.65	307.96	4,479.80	776.69	-950.97	1,226.73	0.93	0.10	-3.46
4,757.00	14.86	307.61	4,571.45	792.01	-970.73	1,251.72	0.84	-0.83	-0.37
4,852.00	16.27	306.64	4,662.97	807.38	-991.06	1,277.21	1.51	1.48	-1.02
4,946.00	16.18	304.97	4,753.22	822.75	-1,012.35	1,303.47	0.51	-0.10	-1.78
5,041.00	14.16	301.81	4,844.91	836.46	-1,033.08	1,328.28	2.30	-2.13	-3.33
5,135.00	13.01	302.25	4,936.28	848.17	-1,051.80	1,350.28	1.23	-1.22	0.47
5,230.00	11.96	302.69	5,029.03	859.19	-1,069.13	1,370.76	1.11	-1.11	0.46
5,324.00	10.90	301.45	5,121.16	869.09	-1,084.91	1,389.32	1.16	-1.13	-1.32
5,419.00	8.62	306.38	5,214.78	878.00	-1,098.30	1,405.39	2.55	-2.40	5.19
5,513.00	8.27	305.76	5,307.76	886.13	-1,109.46	1,419.19	0.38	-0.37	-0.66
5,608.00	7.47	318.68	5,401.88	894.76	-1,119.08	1,432.07	2.04	-0.84	13.60
5,703.00	5.36	328.96	5,496.28	903.20	-1,125.45	1,442.22	2.52	-2.22	10.82
5,797.00	3.08	324.75	5,590.02	909.03	-1,129.17	1,448.69	2.45	-2.43	-4.48
5,892.00	1.93	1.40	5,684.93	912.71	-1,130.60	1,452.04	2.02	-1.21	38.58
5,986.00	1.76	11.50	5,778.88	915.71	-1,130.28	1,453.58	0.39	-0.18	10.74
6,081.00	1.58	7.72	5,873.84	918.43	-1,129.81	1,454.84	0.22	-0.19	-3.98
6,175.00	1.85	354.19	5,967.80	921.23	-1,129.79	1,456.50	0.52	0.29	-14.39
6,270.00	1.23	336.79	6,062.77	923.69	-1,130.35	1,458.42	0.81	-0.65	-18.32
6,364.00	1.32	334.24	6,156.74	925.59	-1,131.21	1,460.25	0.11	0.10	-2.71
6,459.00	1.06	333.89	6,251.72	927.37	-1,132.08	1,462.00	0.27	-0.27	-0.37
6,553.00	1.07	333.50	6,345.71	928.93	-1,132.85	1,463.56	0.01	0.01	-0.41
6,648.00	1.18	342.86	6,440.69	930.66	-1,133.54	1,465.15	0.23	0.12	9.85
6,743.00	0.87	338.50	6,535.67	932.27	-1,134.09	1,466.55	0.34	-0.33	-4.59
6,837.00	1.35	336.18	6,629.66	933.95	-1,134.80	1,468.12	0.51	0.51	-2.47
6,932.00	1.28	315.02	6,724.63	935.72	-1,136.00	1,470.15	0.51	-0.07	-22.27
7,026.00	1.07	330.62	6,818.61	937.23	-1,137.17	1,471.99	0.41	-0.22	16.60
7,121.00	1.14	310.60	6,913.59	938.61	-1,138.32	1,473.74	0.41	0.07	-21.07
7,215.00	1.29	304.33	7,007.57	939.82	-1,139.91	1,475.73	0.21	0.16	-6.67
7,310.00	0.53	298.03	7,102.56	940.63	-1,141.18	1,477.24	0.81	-0.80	-6.63
7,405.00	0.79	133.58	7,197.56	940.38	-1,141.09	1,477.02	1.38	0.27	-173.11
7,499.00	0.62	110.03	7,291.55	939.76	-1,140.15	1,475.89	0.35	-0.18	-25.05
7,594.00	0.79	83.13	7,386.54	939.67	-1,139.01	1,474.92	0.39	0.18	-28.32
7,688.00	0.53	59.93	7,480.54	939.96	-1,137.99	1,474.29	0.39	-0.28	-24.68
7,783.00	0.26	3.51	7,575.54	940.40	-1,137.60	1,474.23	0.47	-0.28	-59.39
7,877.00	0.35	345.58	7,669.53	940.89	-1,137.66	1,474.57	0.14	0.10	-19.07
7,972.00	0.44	315.69	7,764.53	941.43	-1,137.98	1,475.16	0.23	0.09	-31.46
8,064.59	0.53	269.03	7,857.12	941.68	-1,138.66	1,475.85	0.42	0.09	-50.40
CC 697-05-73 Target									
8,066.00	0.53	268.50	7,858.53	941.68	-1,138.67	1,475.86	0.42	0.24	-37.37
8,161.00	0.24	268.85	7,953.53	941.66	-1,139.31	1,476.36	0.31	-0.31	0.37

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-73 - Slot F
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Well:	CC 697-05-73	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,256.00	0.62	255.93	8,048.52	941.53	-1,140.01	1,476.84	0.41	0.40	-13.60
8,350.00	0.79	257.68	8,142.52	941.27	-1,141.13	1,477.58	0.18	0.18	1.86
8,445.00	0.35	16.95	8,237.51	941.41	-1,141.69	1,478.11	1.06	-0.46	125.55
8,539.00	1.67	35.15	8,331.50	942.80	-1,140.82	1,478.25	1.43	1.40	19.36
8,634.00	1.85	24.29	8,426.45	945.33	-1,139.39	1,478.62	0.40	0.19	-11.43
8,728.00	1.23	347.07	8,520.42	947.70	-1,138.99	1,479.72	1.22	-0.66	-39.60
8,823.00	0.88	349.18	8,615.40	949.41	-1,139.36	1,481.04	0.37	-0.37	2.22
8,893.00	0.97	318.68	8,685.40	950.38	-1,139.85	1,482.01	0.71	0.13	-43.57
Last SDI Production MWD									
8,948.00	0.97	318.68	8,740.39	951.08	-1,140.46	1,482.92	0.00	0.00	0.00
Projection to TD - BHL = 635620.95, 1224633.53									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
104.00	103.99	0.34	-1.32	First SDI Gyro Survey
621.00	616.49	26.95	-55.26	Last SDI Gyro Survey
691.00	685.07	35.73	-66.20	First SDI Surface MWD
2,681.00	2,586.54	388.70	-519.58	Last SDI Surface MWD
2,773.00	2,673.23	409.68	-542.12	First SDI Production MWD
8,893.00	8,685.40	950.38	-1,139.85	Last SDI Production MWD
8,948.00	8,740.39	951.08	-1,140.46	Projection to TD
8,948.00	8,740.39	951.08	-1,140.46	BHL = 635620.95, 1224633.53

Checked By: _____ Approved By: _____ Date: _____