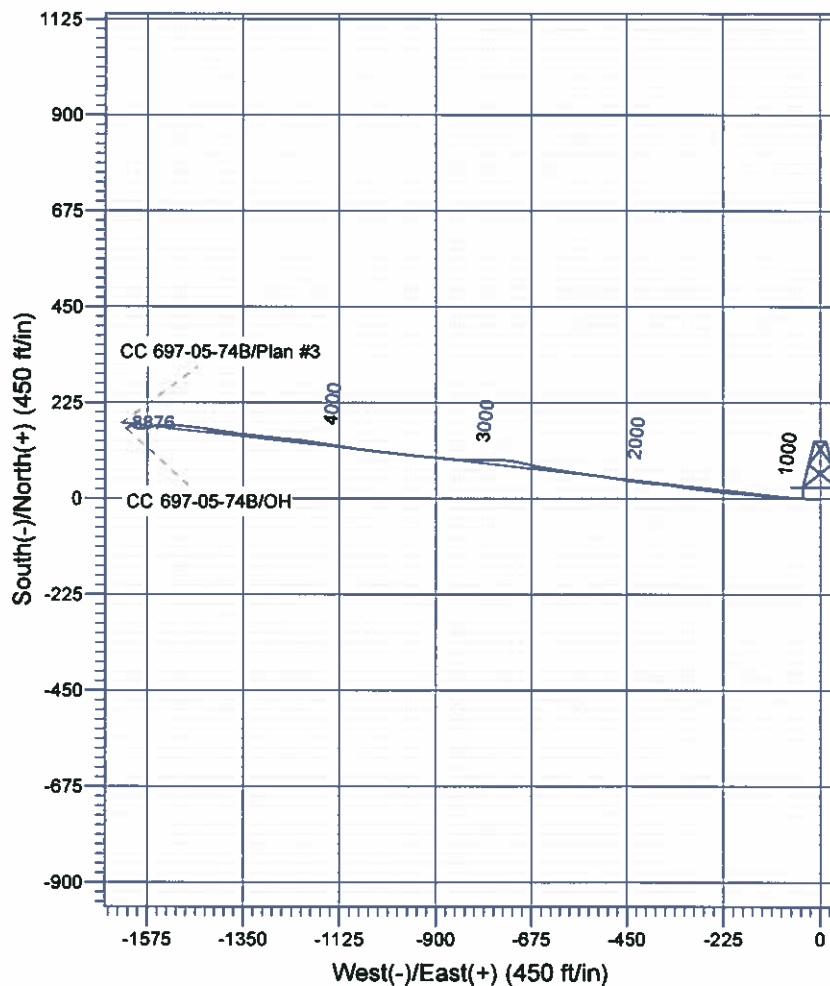
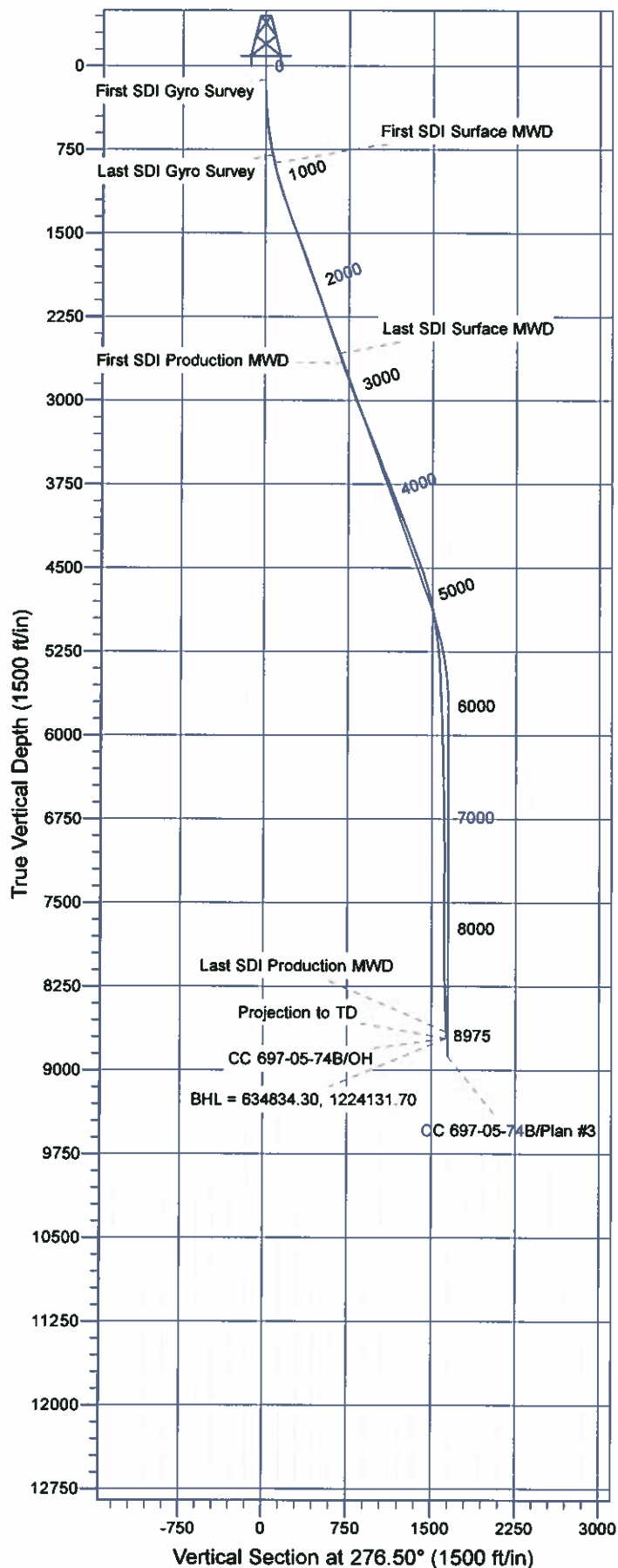




Scientific Drilling

Company: OXY USA RMAI
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-08A Pad
 Well: CC 697-05-74B
 Wellbore: OH
 Design: OH



Well Details: CC 697-05-74B

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	634821.74	1225749.65	39° 32' 37.433 N	108° 14' 44.974 W	J

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-74B - Slot J, True North
 Vertical (TVD) Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
 Section (VS) Reference: Slot - J(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

13:33, June 05 2012
 Created By: Janie Collins

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-05-74B - Slot J**

OH

Design: OH

Standard Survey Report

05 June, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-74B - Slot J
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 697-05-74B	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
From:	Lat/Long	Easting:	1,225,748.33 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 32' 48.728 N
		Longitude:	108° 14' 45.434 W
		Grid Convergence:	-1.73 °

Well	CC 697-05-74B - Slot J, 344' FNL & 1795' FWL		
Well Position	+N/-S	0.00 ft	Northing: 634,621.75 usft
	+E/-W	0.00 ft	Easting: 1,225,749.85 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	39° 32' 37.433 N
		Longitude:	108° 14' 44.974 W
		Ground Level:	8,401.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2008/12/22	10.78	65.80	52,475

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	276.50	

Survey Program	Date	2012/06/05			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
123.00	803.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
874.00	2,683.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,772.00	8,975.00	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
123.00	0.09	248.55	123.00	-0.04	-0.09	0.09	0.07	0.07	0.00
First SDI Gyro Survey									
165.00	0.09	253.92	165.00	-0.06	-0.15	0.14	0.02	0.00	12.79
256.00	1.58	271.23	255.99	-0.05	-1.48	1.46	1.64	1.64	19.02
348.00	3.52	254.88	347.89	-0.76	-5.47	5.35	2.23	2.11	-17.77
440.00	5.81	266.57	439.58	-1.77	-12.85	12.56	2.68	2.49	12.71
531.00	7.04	273.25	530.01	-1.73	-23.01	22.67	1.58	1.35	7.34
621.00	9.33	280.55	619.09	-0.09	-35.69	35.45	2.79	2.54	8.11

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-74B - Slot J
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 697-05-74B	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)
711.00	10.21	271.05	707.79	1.40	-50.84	50.67	2.04	0.98	-10.56
803.00	11.17	268.77	798.19	1.36	-67.90	67.62	1.14	1.04	-2.48
Last SDI Gyro Survey									
874.00	12.75	272.36	867.65	1.53	-82.61	82.25	2.46	2.23	5.06
First SDI Surface MWD									
964.00	14.60	274.21	955.10	2.77	-103.85	103.49	2.11	2.06	2.06
1,059.00	17.59	277.19	1,046.36	5.45	-130.03	129.82	3.26	3.15	3.14
1,153.00	18.91	276.32	1,135.63	8.90	-159.27	159.25	1.43	1.40	-0.93
1,248.00	18.20	273.42	1,225.70	11.48	-189.38	189.46	1.23	-0.75	-3.05
1,342.00	18.99	274.91	1,314.79	13.67	-219.27	219.41	0.98	0.84	1.59
1,437.00	19.26	277.02	1,404.55	16.91	-250.22	250.53	0.78	0.28	2.22
1,532.00	20.84	278.52	1,493.79	21.32	-282.49	283.08	1.75	1.66	1.58
1,626.00	21.98	278.08	1,581.30	26.27	-316.44	317.38	1.22	1.21	-0.47
1,721.00	21.37	277.64	1,669.58	31.07	-351.20	352.46	0.66	-0.64	-0.46
1,815.00	18.73	274.74	1,757.88	34.60	-383.22	384.67	3.00	-2.81	-3.09
1,910.00	18.73	276.41	1,847.85	37.56	-413.58	415.17	0.56	0.00	1.76
2,004.00	19.08	278.43	1,936.78	41.50	-443.77	445.62	0.79	0.37	2.15
2,099.00	20.93	279.75	2,026.04	46.65	-475.86	478.08	2.00	1.95	1.39
2,194.00	17.67	277.64	2,115.69	51.44	-506.88	509.44	3.51	-3.43	-2.22
2,288.00	17.24	277.81	2,205.37	55.23	-534.82	537.63	0.46	-0.46	0.18
2,383.00	19.35	277.72	2,295.56	59.26	-564.37	567.45	2.22	2.22	-0.09
2,477.00	20.14	278.43	2,384.03	63.72	-595.81	599.19	0.88	0.84	0.76
2,572.00	19.79	279.92	2,473.32	68.89	-627.83	631.59	0.65	-0.37	1.57
2,666.00	18.38	281.24	2,562.15	74.52	-658.04	662.25	1.57	-1.50	1.40
2,683.00	18.38	281.50	2,578.29	75.58	-663.29	667.59	0.48	0.00	1.53
Last SDI Surface MWD									
2,772.00	18.70	283.54	2,662.67	81.72	-690.92	695.72	0.81	0.36	2.29
First SDI Production MWD									
2,867.00	20.05	278.69	2,752.29	87.74	-721.82	727.12	2.21	1.42	-5.11
2,961.00	20.93	270.34	2,840.36	90.28	-754.55	759.92	3.24	0.94	-8.88
3,056.00	20.58	267.97	2,929.20	89.79	-788.20	793.30	0.96	-0.37	-2.49
3,150.00	20.49	271.92	3,017.23	89.75	-821.16	826.04	1.48	-0.10	4.20
3,245.00	23.39	274.30	3,105.34	91.72	-856.59	861.47	3.19	3.05	2.51
3,339.00	23.04	275.88	3,191.73	95.01	-893.49	898.50	0.76	-0.37	1.68
3,434.00	21.10	274.30	3,279.77	98.19	-929.04	934.18	2.14	-2.04	-1.66
3,529.00	22.51	276.49	3,367.97	101.53	-964.16	969.46	1.71	1.48	2.31
3,623.00	21.46	276.14	3,455.13	105.41	-999.14	1,004.65	1.13	-1.12	-0.37
3,717.00	18.73	276.41	3,543.40	108.93	-1,031.24	1,036.94	2.91	-2.90	0.29
3,812.00	20.40	278.25	3,632.92	113.01	-1,062.79	1,068.75	1.87	1.76	1.94
3,906.00	22.07	278.95	3,720.53	118.11	-1,096.45	1,102.77	1.80	1.78	0.74
4,001.00	20.40	279.04	3,809.08	123.49	-1,130.43	1,137.14	1.76	-1.76	0.09
4,095.00	21.81	278.16	3,896.77	128.54	-1,163.90	1,170.97	1.54	1.50	-0.94
4,190.00	20.49	279.22	3,985.37	133.71	-1,197.78	1,205.22	1.45	-1.39	1.12
4,284.00	21.63	275.18	4,073.09	137.91	-1,231.28	1,238.97	1.96	1.21	-4.30

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-74B - Slot J
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 697-05-74B	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)
4,378.00	20.49	274.91	4,160.81	140.88	-1,264.92	1,272.74	1.22	-1.21	-0.29
4,473.00	21.10	277.11	4,249.63	144.42	-1,298.46	1,306.46	1.04	0.64	2.32
4,567.00	20.31	274.74	4,337.56	147.86	-1,331.51	1,339.69	1.22	-0.84	-2.52
4,662.00	21.63	278.78	4,426.27	151.90	-1,365.24	1,373.66	2.06	1.39	4.25
4,756.00	19.70	279.57	4,514.21	157.18	-1,397.99	1,406.80	2.07	-2.05	0.84
4,851.00	17.15	278.25	4,604.34	161.85	-1,427.65	1,436.79	2.72	-2.68	-1.39
4,946.00	15.39	276.85	4,695.53	165.36	-1,454.03	1,463.40	1.90	-1.85	-1.47
5,040.00	13.10	275.35	4,786.63	167.85	-1,477.02	1,486.53	2.47	-2.44	-1.60
5,134.00	10.73	278.34	4,878.60	170.11	-1,496.29	1,505.93	2.60	-2.52	3.18
5,229.00	9.67	266.12	4,972.11	170.85	-1,513.00	1,522.62	2.53	-1.12	-12.86
5,323.00	7.65	271.31	5,065.04	170.46	-1,527.13	1,536.61	2.30	-2.15	5.52
5,418.00	6.95	270.87	5,159.27	170.69	-1,539.20	1,548.63	0.74	-0.74	-0.46
5,513.00	5.54	274.82	5,253.70	171.16	-1,549.52	1,558.94	1.55	-1.48	4.16
5,607.00	3.43	249.16	5,347.42	170.55	-1,556.67	1,565.97	3.05	-2.24	-27.30
5,702.00	2.99	248.19	5,442.27	168.61	-1,561.63	1,570.68	0.47	-0.46	-1.02
5,796.00	2.90	255.14	5,536.14	167.09	-1,566.20	1,575.05	0.39	-0.10	7.39
5,891.00	2.64	256.45	5,631.03	165.96	-1,570.65	1,579.34	0.28	-0.27	1.38
5,986.00	2.29	261.38	5,725.94	165.17	-1,574.66	1,583.23	0.43	-0.37	5.19
6,080.00	1.93	250.57	5,819.88	164.36	-1,578.00	1,586.47	0.57	-0.38	-11.50
6,175.00	2.02	259.62	5,914.82	163.53	-1,581.16	1,589.51	0.34	0.09	9.53
6,269.00	2.20	269.81	6,008.76	163.22	-1,584.59	1,592.89	0.44	0.19	10.84
6,364.00	2.02	265.51	6,103.70	163.08	-1,588.09	1,596.34	0.25	-0.19	-4.53
6,458.00	1.41	263.40	6,197.65	162.82	-1,590.89	1,599.09	0.65	-0.65	-2.24
6,553.00	1.32	266.56	6,292.63	162.62	-1,593.14	1,601.31	0.12	-0.09	3.33
6,647.00	1.23	279.57	6,386.60	162.72	-1,595.22	1,603.38	0.32	-0.10	13.84
6,742.00	1.23	285.28	6,481.58	163.16	-1,597.21	1,605.41	0.13	0.00	6.01
6,837.00	0.97	290.47	6,576.56	163.71	-1,598.94	1,607.20	0.29	-0.27	5.46
6,931.00	1.23	301.28	6,670.55	164.51	-1,600.55	1,608.88	0.35	0.28	11.50
7,026.00	0.97	324.75	6,765.53	165.70	-1,601.89	1,610.35	0.54	-0.27	24.71
7,120.00	0.97	338.90	6,859.52	167.09	-1,602.63	1,611.24	0.25	0.00	15.05
7,215.00	0.97	328.53	6,954.50	168.53	-1,603.34	1,612.11	0.18	0.00	-10.92
7,309.00	1.14	358.14	7,048.49	170.14	-1,603.79	1,612.74	0.60	0.18	31.50
7,404.00	0.70	9.92	7,143.47	171.66	-1,603.72	1,612.84	0.50	-0.46	12.40
7,498.00	1.06	14.14	7,237.46	173.07	-1,603.41	1,612.69	0.39	0.38	4.49
7,593.00	1.41	16.86	7,332.44	175.04	-1,602.85	1,612.36	0.37	0.37	2.86
7,687.00	1.14	13.96	7,426.42	177.05	-1,602.29	1,612.03	0.30	-0.29	-3.09
7,782.00	1.06	21.87	7,521.40	178.78	-1,601.74	1,611.68	0.18	-0.08	8.33
7,877.00	0.79	9.48	7,616.39	180.25	-1,601.30	1,611.41	0.35	-0.28	-13.04
7,971.00	0.70	15.81	7,710.38	181.44	-1,601.04	1,611.28	0.13	-0.10	6.73
8,066.00	0.26	355.68	7,805.38	182.21	-1,600.90	1,611.23	0.49	-0.46	-21.19
8,097.66	0.10	332.81	7,837.03	182.31	-1,600.91	1,611.26	0.54	-0.50	-72.25
CC 697-05-74B Rev Target									
8,160.00	0.26	202.75	7,899.38	182.23	-1,600.99	1,611.33	0.54	0.25	-208.62

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-74B - Slot J
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 697-05-74B	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)
8,255.00	0.79	207.76	7,994.37	181.45	-1,601.38	1,611.63	0.56	0.56	5.27
8,349.00	2.37	210.84	8,088.33	179.21	-1,602.68	1,612.66	1.68	1.68	3.28
8,444.00	2.90	222.44	8,183.23	175.75	-1,605.31	1,614.88	0.79	0.56	12.21
8,539.00	2.73	233.16	8,278.12	172.62	-1,608.74	1,617.94	0.58	-0.18	11.28
8,633.00	2.11	235.89	8,372.04	170.30	-1,611.97	1,620.88	0.67	-0.66	2.90
8,728.00	2.20	236.15	8,466.97	168.31	-1,614.93	1,623.60	0.10	0.09	0.27
8,822.00	2.55	247.67	8,560.89	166.51	-1,618.36	1,626.81	0.63	0.37	12.26
8,918.00	2.24	238.67	8,656.80	164.72	-1,621.94	1,630.16	0.51	-0.32	-9.38
Last SDI Production MWD									
8,975.00	2.24	238.67	8,713.76	163.56	-1,623.84	1,631.92	0.00	0.00	0.00
Projection to TD - BHL = 634834.30, 1224131.70									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
123.00	123.00	-0.04	-0.09	First SDI Gyro Survey
803.00	798.19	1.36	-67.90	Last SDI Gyro Survey
874.00	867.65	1.53	-82.61	First SDI Surface MWD
2,683.00	2,578.29	75.58	-663.29	Last SDI Surface MWD
2,772.00	2,662.67	81.72	-690.92	First SDI Production MWD
8,918.00	8,656.80	164.72	-1,621.94	Last SDI Production MWD
8,975.00	8,713.76	163.56	-1,623.84	Projection to TD
8,975.00	8,713.76	163.56	-1,623.84	BHL = 634834.30, 1224131.70

Checked By: _____	Approved By: _____	Date: _____
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