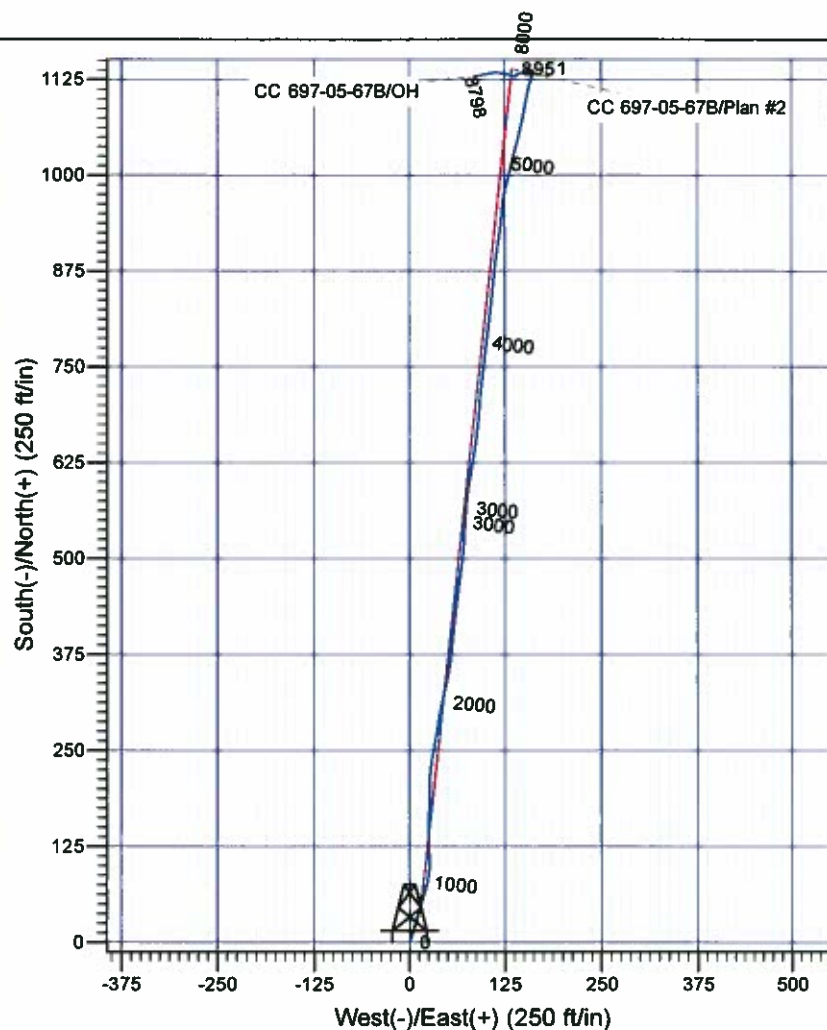
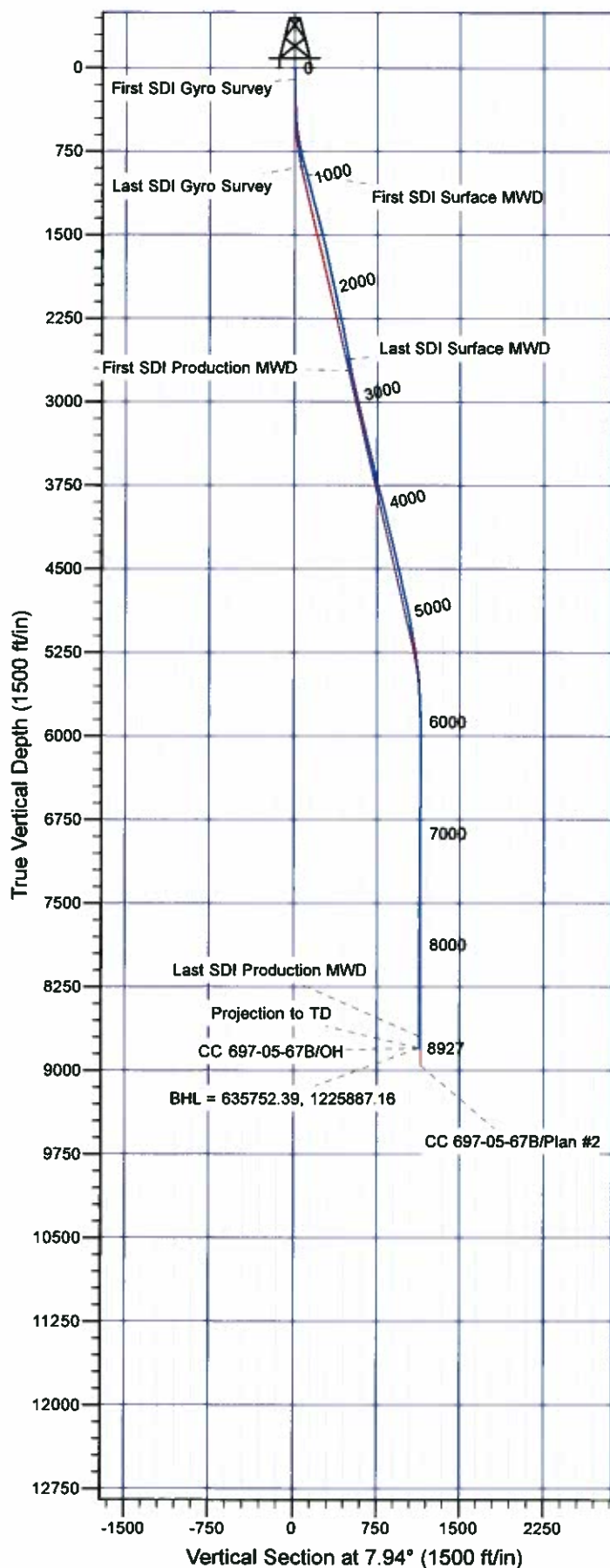




Scientific Drilling

Company: CAT USA RMAI
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-08A Pad
 Well: CC 697-05-67B
 Wellbore: OH
 Design: OH



Well Details: CC 697-05-67B

+N/-S	+E/-W	Northings	Easting	Latitude	Longitude	Slot
0.00	0.00	634625.17	1225759.25	39° 32' 37.469 N	108° 14' 44.855 W	I

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-67B - Slot I, True North
 Vertical (TVD) Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
 Section (VS) Reference: Slot - I(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

11:19, June 08 2012
 Created By: Janie Collins

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-05-67B - Slot I**

OH

Design: OH

Standard Survey Report

08 June, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-67B - Slot I
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 697-05-67B	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	
				Grid Convergence:	
				-1.73 °	
				Latitude:	
				39° 32' 48.728 N	
				Longitude:	
				108° 14' 45.434 W	

Well	CC 697-05-67B - Slot I, 327' FNL & 1799' FWL					
Well Position	+N/-S	0.00 ft	Northing:	634,625.17 usft	Latitude:	39° 32' 37.469 N
	+E/-W	0.00 ft	Easting:	1,225,759.25 usft	Longitude:	108° 14' 44.855 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	7.94	

Survey Program	Date	06/08/12			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
104.00	893.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
964.00	2,668.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,773.00	8,927.00	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	0.53	10.11	104.00	0.47	0.08	0.48	0.51	0.51	0.00
First SDI Gyro Survey									
164.00	1.14	13.97	163.99	1.33	0.28	1.35	1.02	1.02	6.43
255.00	1.67	15.38	254.96	3.48	0.85	3.57	0.58	0.58	1.55
347.00	2.20	28.12	346.91	6.33	2.04	6.55	0.74	0.58	13.85
439.00	3.87	19.07	438.78	10.82	3.88	11.26	1.88	1.82	-9.84
531.00	6.33	13.97	530.41	18.68	6.12	19.35	2.72	2.67	-5.54
620.00	9.59	17.40	618.54	30.52	9.52	31.54	3.70	3.66	3.85

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-67B - Slot I
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 697-05-67B	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	11.88	16.79	707.94	46.72	14.50	48.28	2.52	2.52	-0.67
802.00	13.37	16.88	796.74	65.76	20.26	67.93	1.64	1.64	0.10
893.00	14.89	9.23	884.99	87.37	25.19	90.02	2.64	1.67	-8.41
Last SDI Gyro Survey									
964.00	14.68	358.67	953.65	105.37	26.44	108.02	3.80	-0.30	-14.87
First SDI Surface MWD									
1,058.00	16.00	356.03	1,044.30	130.21	25.27	132.45	1.59	1.40	-2.81
1,153.00	15.04	3.42	1,135.85	155.57	25.10	157.55	2.31	-1.01	7.78
1,247.00	14.33	2.36	1,226.78	179.37	26.31	181.29	0.81	-0.76	-1.13
1,342.00	14.42	359.46	1,318.80	202.95	26.68	204.69	0.76	0.09	-3.05
1,436.00	14.68	6.85	1,409.80	226.48	27.99	228.17	1.99	0.28	7.86
1,531.00	13.81	10.80	1,501.88	249.57	31.55	251.53	1.37	-0.92	4.16
1,626.00	13.37	10.01	1,594.22	271.52	35.58	273.84	0.50	-0.46	-0.83
1,720.00	12.31	8.52	1,685.86	292.14	38.96	294.72	1.18	-1.13	-1.59
1,815.00	11.96	13.17	1,778.74	311.74	42.70	314.65	1.09	-0.37	4.89
1,909.00	12.75	13.35	1,870.57	331.31	47.31	334.67	0.84	0.84	0.19
2,004.00	12.66	10.45	1,963.24	351.75	51.62	355.51	0.68	-0.09	-3.05
2,098.00	12.40	6.14	2,055.00	371.92	54.57	375.89	1.03	-0.28	-4.59
2,193.00	11.52	6.41	2,147.94	391.49	56.72	395.57	0.93	-0.93	0.28
2,287.00	11.96	5.18	2,239.97	410.51	58.65	414.68	0.54	0.47	-1.31
2,382.00	12.05	7.37	2,332.90	430.15	60.81	434.43	0.49	0.09	2.31
2,476.00	12.40	7.02	2,424.77	449.90	63.30	454.33	0.38	0.37	-0.37
2,571.00	11.26	7.37	2,517.75	469.22	65.74	473.80	1.20	-1.20	0.37
2,668.00	10.46	6.93	2,613.01	487.35	68.01	492.08	0.83	-0.82	-0.45
Last SDI Surface MWD									
2,773.00	10.28	7.11	2,716.29	506.11	70.32	510.98	0.17	-0.17	0.17
First SDI Production MWD									
2,867.00	12.13	2.45	2,808.50	524.30	71.78	529.19	2.19	1.97	-4.96
2,962.00	14.16	4.56	2,901.01	545.86	73.14	550.73	2.20	2.14	2.22
3,057.00	12.84	4.30	2,993.38	567.97	74.85	572.87	1.39	-1.39	-0.27
3,151.00	13.54	9.22	3,084.90	589.25	77.40	594.29	1.41	0.74	5.23
3,246.00	12.75	8.95	3,177.41	610.58	80.81	615.89	0.83	-0.83	-0.28
3,340.00	15.12	9.22	3,268.64	632.93	84.39	638.52	2.52	2.52	0.29
3,435.00	14.86	7.64	3,360.41	657.24	87.99	663.09	0.51	-0.27	-1.66
3,529.00	13.81	5.44	3,451.48	680.35	90.66	686.35	1.26	-1.12	-2.34
3,624.00	12.13	3.24	3,544.05	701.61	92.30	707.63	1.84	-1.77	-2.32
3,718.00	14.16	7.28	3,635.59	722.88	94.31	728.97	2.37	2.16	4.30
3,813.00	13.01	5.79	3,727.93	745.04	96.87	751.28	1.27	-1.21	-1.57
3,907.00	15.56	7.55	3,819.01	768.07	99.59	774.46	2.75	2.71	1.87
4,001.00	14.95	7.02	3,909.70	792.60	102.73	799.20	0.67	-0.65	-0.56
4,096.00	13.54	5.79	4,001.78	815.83	105.35	822.56	1.52	-1.48	-1.29
4,190.00	15.04	6.67	4,092.87	838.89	107.87	845.75	1.61	1.60	0.94
4,285.00	13.81	5.44	4,184.87	862.42	110.38	869.40	1.33	-1.29	-1.29
4,379.00	12.40	6.76	4,276.42	883.62	112.63	890.70	1.53	-1.50	1.40

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-67B - Slot I
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 697-05-67B	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)
4,473.00	14.33	9.04	4,367.87	905.13	115.65	912.43	2.13	2.05	2.43
4,568.00	14.07	7.90	4,459.97	928.18	119.08	935.73	0.40	-0.27	-1.20
4,662.00	11.61	4.38	4,551.61	948.93	121.38	956.60	2.74	-2.62	-3.74
4,757.00	12.66	8.16	4,644.49	968.77	123.58	976.55	1.39	1.11	3.98
4,852.00	14.60	14.23	4,736.82	990.68	128.01	998.87	2.53	2.04	6.39
4,946.00	12.66	14.67	4,828.16	1,012.13	133.53	1,020.87	2.07	-2.06	0.47
5,041.00	11.08	13.79	4,921.13	1,031.07	138.34	1,040.29	1.67	-1.66	-0.93
5,135.00	10.26	13.96	5,013.50	1,047.97	142.51	1,057.61	0.87	-0.87	0.18
5,230.00	9.67	12.21	5,107.07	1,063.98	146.24	1,073.98	0.70	-0.62	-1.84
5,324.00	8.88	12.73	5,199.84	1,078.77	149.51	1,089.08	0.85	-0.84	0.55
5,419.00	8.62	10.59	5,293.73	1,092.92	152.43	1,103.50	0.44	-0.27	-2.25
5,513.00	7.56	11.15	5,386.80	1,105.91	154.92	1,116.71	1.13	-1.13	0.60
5,608.00	4.84	14.84	5,481.23	1,115.92	157.16	1,126.93	2.89	-2.86	3.88
5,703.00	3.96	14.93	5,575.95	1,122.96	159.03	1,134.16	0.93	-0.93	0.09
5,797.00	3.52	16.43	5,669.75	1,128.87	160.68	1,140.24	0.48	-0.47	1.60
5,892.00	1.41	25.83	5,764.66	1,132.72	162.02	1,144.24	2.25	-2.22	9.89
5,986.00	0.62	353.34	5,858.64	1,134.26	162.46	1,145.83	1.01	-0.84	-34.56
6,081.00	0.53	331.16	5,953.64	1,135.16	162.19	1,146.68	0.25	-0.09	-23.35
6,175.00	0.62	340.92	6,047.64	1,136.02	161.82	1,147.48	0.14	0.10	10.38
6,270.00	0.53	290.73	6,142.63	1,136.66	161.24	1,148.04	0.52	-0.09	-52.83
6,364.00	0.70	270.78	6,236.63	1,136.82	160.26	1,148.06	0.29	0.18	-21.22
6,459.00	1.14	253.47	6,331.61	1,136.56	158.77	1,147.60	0.54	0.46	-18.22
6,553.00	1.23	255.49	6,425.59	1,136.04	156.90	1,146.82	0.11	0.10	2.15
6,648.00	1.23	252.94	6,520.57	1,135.49	154.93	1,146.00	0.06	0.00	-2.68
6,743.00	0.97	253.38	6,615.55	1,134.96	153.19	1,145.24	0.27	-0.27	0.46
6,837.00	1.41	242.92	6,709.53	1,134.20	151.40	1,144.24	0.52	0.47	-11.13
6,932.00	1.06	278.78	6,804.51	1,133.81	149.49	1,143.59	0.87	-0.37	37.75
7,026.00	1.14	272.54	6,898.50	1,133.98	147.69	1,143.51	0.15	0.09	-6.64
7,121.00	1.23	247.40	6,993.48	1,133.63	145.81	1,142.90	0.55	0.09	-26.46
7,215.00	0.88	244.06	7,087.46	1,132.93	144.23	1,141.99	0.38	-0.37	-3.55
7,310.00	1.67	247.93	7,182.44	1,132.09	142.29	1,140.89	0.84	0.83	4.07
7,403.00	0.97	238.44	7,275.41	1,131.17	140.36	1,139.71	0.79	-0.75	-10.20
7,498.00	0.79	137.54	7,370.40	1,130.26	140.12	1,138.78	1.43	-0.19	-106.21
7,542.00	1.14	188.69	7,414.40	1,129.61	140.26	1,138.15	2.02	0.80	116.25
7,687.00	0.62	306.99	7,559.39	1,128.65	139.41	1,137.09	1.06	-0.36	81.59
7,781.00	1.32	277.46	7,653.37	1,129.10	137.93	1,137.33	0.89	0.74	-31.41
7,876.00	1.41	289.77	7,748.35	1,129.64	135.75	1,137.56	0.32	0.09	12.96
7,971.00	1.67	295.04	7,843.31	1,130.62	133.40	1,138.20	0.31	0.27	5.55
8,032.71	1.54	287.67	7,904.99	1,131.25	131.79	1,138.61	0.39	-0.20	-11.95
CC 697-05-67B Target									
8,065.00	1.49	283.35	7,937.28	1,131.48	130.97	1,138.72	0.39	-0.17	-13.37
8,160.00	1.85	274.47	8,032.24	1,131.88	128.23	1,138.74	0.47	0.38	-9.35
8,254.00	1.67	291.17	8,126.19	1,132.50	125.44	1,138.97	0.58	-0.19	17.77

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-67B - Slot I
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 697-05-67B	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)
8,349.00	2.02	286.78	8,221.14	1,133.48	122.55	1,139.54	0.40	0.37	-4.62
8,443.00	2.81	272.19	8,315.06	1,134.05	118.66	1,139.56	1.06	0.84	-15.52
8,538.00	3.34	265.51	8,409.92	1,133.92	113.58	1,138.73	0.67	0.56	-7.03
8,633.00	2.73	262.43	8,504.79	1,133.40	108.57	1,137.53	0.66	-0.64	-3.24
8,727.00	2.81	260.15	8,598.68	1,132.71	104.09	1,136.23	0.14	0.09	-2.43
8,821.00	3.08	257.77	8,692.56	1,131.79	99.35	1,134.65	0.32	0.29	-2.53
Last SDI Production MWD									
8,927.00	3.08	257.77	8,798.40	1,130.58	93.78	1,132.69	0.00	0.00	0.00
Projection to TD - BHL = 635752.39, 1225887.16									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
104.00	104.00	0.47	0.08	First SDI Gyro Survey
893.00	884.99	87.37	25.19	Last SDI Gyro Survey
964.00	953.65	105.37	26.44	First SDI Surface MWD
2,668.00	2,613.01	487.35	68.01	Last SDI Surface MWD
2,773.00	2,716.29	506.11	70.32	First SDI Production MWD
8,821.00	8,692.56	1,131.79	99.35	Last SDI Production MWD
8,927.00	8,798.40	1,130.58	93.78	Projection to TD
8,927.00	8,798.40	1,130.58	93.78	BHL = 635752.39, 1225887.16

Checked By: _____ Approved By: _____ Date: _____