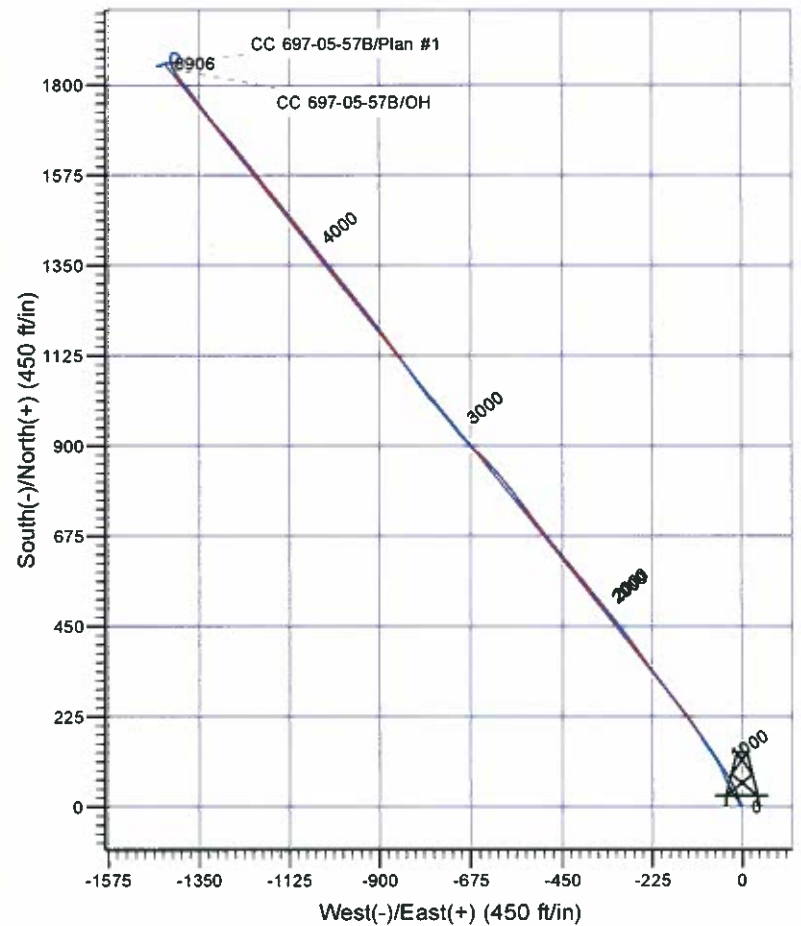
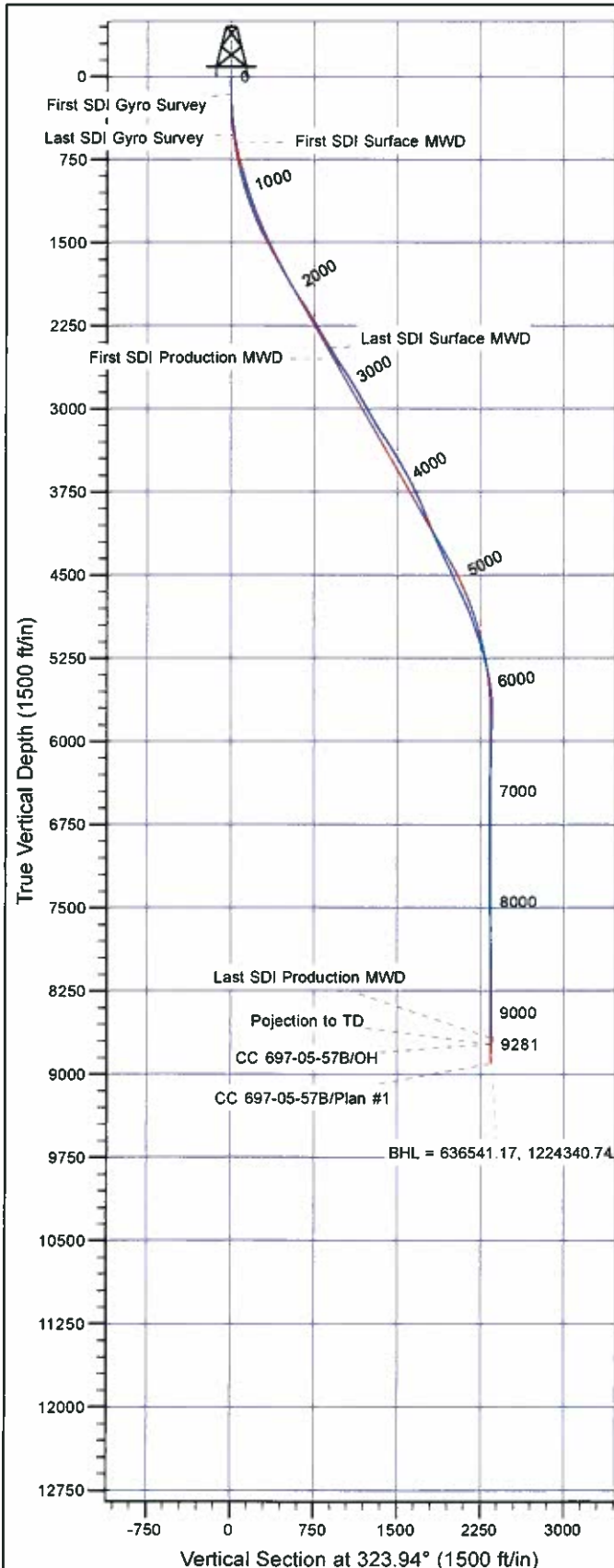




Scientific Drilling

Company: OXY USA RMAT
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-08A Pad
 Well: CC 697-05-57B
 Wellbore: OH
 Design: OH



Well Details: CC 697-05-57B

+N/-S	+E/-W	North	East	Latitude	Longitude	Slot
0.00	0.00	634649.94	1225739.60	39° 32' 37.708 N	108° 14' 45.116 W	B

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-57B - Slot B, True North
 Vertical (TVD) Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
 Section (VS) Reference: Slot - B(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

10:49, July 05 2012
 Created By: Janie Collins

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-05-57B - Slot B**

OH

Design: OH

Standard Survey Report

05 July, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-57B - Slot B
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 697-05-57B	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 697-05-57B - Slot B		
Well Position	+N/-S	0.00 ft	Northing: 634,649.94 usft
	+E/-W	0.00 ft	Easting: 1,225,739.59 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	39° 32' 37.708 N
		Longitude:	108° 14' 45.116 W
		Ground Level:	8,401.00 ft

Wellbore	OH
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/05/24	10.48	65.73	52,230

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	323.94

Survey Program		Date	2012/07/05	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
164.00	530.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3
600.00	2,658.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA
2,772.00	9,281.00	Survey #3 - Production MWD (OH)	MWD-SDI	MWD - Standard ISCWSA

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
164.00	0.79	312.71	163.99	0.77	-0.83	1.11	0.48	0.48	0.00
First SDI Gyro Survey									
255.00	2.11	317.64	254.96	2.43	-2.42	3.39	1.46	1.45	5.42
347.00	5.01	330.91	346.78	7.19	-5.52	9.06	3.26	3.15	14.42
439.00	7.13	332.40	438.26	15.76	-10.11	18.70	2.31	2.30	1.62
530.00	7.92	322.47	528.48	25.74	-16.55	30.55	1.67	0.87	-10.91
Last SDI Gyro Survey									

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-57B - Slot B
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 697-05-57B	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)
600.00	9.85	325.98	597.63	34.53	-22.84	41.36	2.86	2.76	5.01
First SDI Surface MWD									
691.00	13.28	334.33	686.78	50.41	-31.72	59.42	4.18	3.77	9.18
782.00	17.23	336.96	774.56	72.24	-41.53	82.84	4.41	4.34	2.89
873.00	16.71	335.29	861.59	96.53	-52.27	108.80	0.78	-0.57	-1.84
963.00	15.48	327.91	948.07	118.46	-64.07	133.47	2.65	-1.37	-8.20
1,058.00	18.29	323.25	1,038.97	141.15	-79.72	161.03	3.28	2.96	-4.91
1,152.00	18.29	326.86	1,128.23	165.32	-96.61	190.51	1.21	0.00	3.84
1,247.00	21.10	328.61	1,217.66	192.40	-113.67	222.45	3.02	2.96	1.84
1,342.00	21.54	322.99	1,306.17	220.93	-133.08	256.94	2.20	0.46	-5.92
1,436.00	24.71	320.79	1,392.61	249.94	-155.89	293.82	3.49	3.37	-2.34
1,531.00	24.45	322.20	1,479.00	280.86	-180.50	333.29	0.68	-0.27	1.48
1,625.00	27.17	322.81	1,563.61	313.34	-205.40	374.20	2.91	2.89	0.65
1,720.00	26.82	324.31	1,648.26	348.02	-231.01	417.32	0.81	-0.37	1.58
1,815.00	27.44	324.48	1,732.81	383.24	-256.23	460.64	0.66	0.65	0.18
1,909.00	28.84	322.90	1,815.70	418.96	-282.49	504.97	1.69	1.49	-1.68
2,004.00	30.51	321.14	1,898.24	456.01	-311.45	551.97	1.98	1.76	-1.85
2,098.00	32.71	320.18	1,978.29	494.11	-342.68	601.15	2.40	2.34	-1.02
2,193.00	35.09	321.32	2,057.13	535.14	-376.19	654.05	2.59	2.51	1.20
2,287.00	30.78	320.53	2,136.01	574.82	-408.38	705.07	4.61	-4.59	-0.84
2,382.00	30.51	320.70	2,217.74	612.25	-439.11	753.41	0.30	-0.28	0.18
2,476.00	31.13	321.05	2,298.47	649.61	-469.50	801.51	0.69	0.66	0.37
2,571.00	31.04	322.37	2,379.83	688.10	-499.89	850.52	0.72	-0.09	1.39
2,658.00	30.78	323.16	2,454.47	723.68	-526.93	895.20	0.55	-0.30	0.91
Last SDI Surface MWD									
2,772.00	31.50	324.24	2,552.04	771.20	-561.83	954.15	0.80	0.63	0.95
First SDI Production MWD									
2,867.00	34.19	320.57	2,631.86	811.97	-593.29	1,005.62	3.52	2.83	-3.86
2,961.00	33.59	318.77	2,709.89	851.92	-627.21	1,057.89	1.24	-0.64	-1.91
3,056.00	29.99	314.02	2,790.64	888.20	-661.62	1,107.47	4.61	-3.79	-5.00
3,150.00	29.99	317.10	2,872.06	921.74	-694.50	1,153.94	1.64	0.00	3.28
3,245.00	31.74	322.99	2,953.62	959.10	-725.72	1,202.52	3.67	1.84	6.20
3,339.00	27.52	318.59	3,035.32	995.15	-754.98	1,248.89	5.05	-4.49	-4.68
3,434.00	30.25	323.52	3,118.50	1,030.86	-783.74	1,294.68	3.81	2.87	5.19
3,529.00	34.21	325.89	3,198.85	1,072.23	-812.95	1,345.32	4.37	4.17	2.49
3,623.00	33.41	323.78	3,276.96	1,114.99	-843.06	1,397.62	1.51	-0.85	-2.24
3,717.00	31.57	323.25	3,356.24	1,155.59	-873.08	1,448.10	1.98	-1.96	-0.56
3,812.00	29.99	322.46	3,437.86	1,194.35	-902.43	1,496.71	1.72	-1.66	-0.83
3,906.00	30.60	322.20	3,519.02	1,231.88	-931.41	1,544.11	0.66	0.65	-0.28
4,001.00	28.05	321.41	3,601.84	1,268.45	-960.16	1,590.60	2.71	-2.68	-0.83
4,095.00	26.82	321.67	3,685.27	1,302.36	-987.10	1,633.87	1.31	-1.31	0.28
4,189.00	24.97	322.02	3,769.83	1,334.64	-1,012.47	1,674.89	1.97	-1.97	0.37
4,284.00	23.13	320.97	3,856.58	1,364.94	-1,036.56	1,713.57	1.99	-1.94	-1.11
4,378.00	22.07	319.91	3,943.36	1,392.79	-1,059.56	1,749.62	1.21	-1.13	-1.13

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-57B - Slot B
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 697-05-57B	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	22.69	322.55	4,031.20	1,420.99	-1,082.19	1,785.75	1.24	0.65	2.78
4,567.00	23.04	321.49	4,117.82	1,449.78	-1,104.67	1,822.25	0.57	0.37	-1.13
4,662.00	24.45	321.05	4,204.77	1,479.62	-1,128.61	1,860.46	1.50	1.48	-0.46
4,756.00	24.18	319.38	4,290.44	1,509.36	-1,153.37	1,899.08	0.79	-0.29	-1.78
4,851.00	25.59	321.41	4,376.61	1,540.17	-1,178.84	1,938.97	1.74	1.48	2.14
4,945.00	24.45	322.55	4,461.79	1,571.48	-1,203.33	1,978.70	1.32	-1.21	1.21
5,040.00	24.71	321.85	4,548.18	1,602.70	-1,227.55	2,018.20	0.41	0.27	-0.74
5,134.00	25.33	320.09	4,633.36	1,633.58	-1,252.59	2,057.90	1.03	0.66	-1.87
5,229.00	25.59	320.53	4,719.14	1,665.00	-1,278.67	2,098.65	0.34	0.27	0.46
5,323.00	22.69	318.24	4,804.91	1,694.21	-1,303.65	2,136.97	3.24	-3.09	-2.44
5,418.00	20.49	323.34	4,893.25	1,721.22	-1,325.79	2,171.83	3.04	-2.32	5.37
5,513.00	19.26	323.08	4,982.59	1,747.08	-1,345.13	2,204.13	1.30	-1.29	-0.27
5,607.00	18.20	323.16	5,071.61	1,771.23	-1,363.24	2,234.31	1.13	-1.13	0.09
5,702.00	15.48	321.93	5,162.53	1,793.09	-1,379.96	2,261.82	2.89	-2.86	-1.29
5,796.00	15.12	322.11	5,253.19	1,812.64	-1,395.22	2,286.61	0.39	-0.38	0.19
5,891.00	12.57	328.88	5,345.43	1,831.27	-1,408.18	2,309.30	3.18	-2.68	7.13
5,986.00	10.55	338.19	5,438.51	1,848.20	-1,416.75	2,328.03	2.89	-2.13	9.80
6,080.00	7.39	355.33	5,531.36	1,862.22	-1,420.44	2,341.54	4.37	-3.36	18.23
6,175.00	4.75	6.67	5,625.83	1,872.21	-1,420.49	2,349.64	3.04	-2.78	11.94
6,269.00	4.22	40.60	5,719.55	1,878.71	-1,417.78	2,353.30	2.83	-0.56	36.10
6,363.00	3.34	89.29	5,813.37	1,881.37	-1,412.79	2,352.51	3.42	-0.94	51.80
6,458.00	3.17	113.54	5,908.22	1,880.35	-1,407.62	2,348.65	1.45	-0.18	25.53
6,553.00	2.64	123.83	6,003.10	1,878.09	-1,403.39	2,344.33	0.78	-0.56	10.83
6,647.00	1.49	138.86	6,097.04	1,875.96	-1,400.79	2,341.08	1.34	-1.22	15.99
6,742.00	1.14	155.56	6,192.01	1,874.17	-1,399.58	2,338.92	0.54	-0.37	17.58
6,837.00	1.23	166.19	6,286.99	1,872.32	-1,398.95	2,337.05	0.25	0.09	11.19
6,931.00	1.14	201.61	6,380.98	1,870.47	-1,399.05	2,335.62	0.77	-0.10	37.68
7,025.00	1.32	203.72	6,474.95	1,868.61	-1,399.83	2,334.57	0.20	0.19	2.24
7,120.00	1.67	204.60	6,569.92	1,866.35	-1,400.85	2,333.34	0.37	0.37	0.93
7,215.00	1.58	214.09	6,664.88	1,864.01	-1,402.16	2,332.22	0.30	-0.09	9.99
7,309.00	1.49	215.59	6,758.85	1,861.94	-1,403.60	2,331.40	0.10	-0.10	1.60
7,404.00	1.41	217.96	6,853.82	1,860.01	-1,405.04	2,330.68	0.11	-0.08	2.49
7,498.00	1.32	225.96	6,947.79	1,858.35	-1,406.53	2,330.22	0.22	-0.10	8.51
7,593.00	1.76	232.81	7,042.76	1,856.71	-1,408.47	2,330.04	0.50	0.46	7.21
7,687.00	1.41	260.23	7,136.72	1,855.64	-1,410.76	2,330.52	0.88	-0.37	29.17
7,782.00	1.67	258.56	7,231.69	1,855.16	-1,413.27	2,331.61	0.28	0.27	-1.76
7,877.00	1.85	262.26	7,326.64	1,854.68	-1,416.15	2,332.92	0.22	0.19	3.89
7,971.00	2.46	255.75	7,420.58	1,853.98	-1,419.61	2,334.39	0.70	0.65	-6.93
8,066.00	1.32	276.49	7,515.52	1,853.60	-1,422.67	2,335.88	1.38	-1.20	21.83
8,160.00	1.32	278.60	7,609.50	1,853.89	-1,424.82	2,337.38	0.05	0.00	2.24
8,255.00	1.85	284.58	7,704.46	1,854.44	-1,427.38	2,339.33	0.58	0.56	6.29
8,349.00	2.20	271.13	7,798.41	1,854.86	-1,430.66	2,341.60	0.63	0.37	-14.31
8,409.67	1.00	258.76	7,859.05	1,854.77	-1,432.34	2,342.52	2.05	-1.98	-20.39

CC 697-05-57B Target

Scientific Drilling International

Survey Report

Company:	OXY USA RMAI	Local Co-ordinate Reference:	Well CC 697-05-57B - Slot B
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 697-05-57B	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)
8,444.00	0.44	221.47	7,893.38	1,854.62	-1,432.72	2,342.62	2.05	-1.63	-108.63
8,539.00	0.70	245.64	7,988.37	1,854.11	-1,433.49	2,342.66	0.37	0.27	25.44
8,633.00	1.32	246.26	8,082.36	1,853.43	-1,435.01	2,343.01	0.66	0.66	0.66
8,727.00	1.76	257.25	8,176.32	1,852.68	-1,437.40	2,343.81	0.56	0.47	11.69
8,822.00	2.29	246.87	8,271.26	1,851.61	-1,440.57	2,344.81	0.68	0.56	-10.93
8,916.00	2.90	238.70	8,365.17	1,849.64	-1,444.33	2,345.43	0.76	0.65	-8.69
9,011.00	2.37	240.46	8,460.07	1,847.42	-1,448.09	2,345.85	0.56	-0.56	1.85
9,105.00	1.49	288.27	8,554.02	1,846.85	-1,450.95	2,347.06	1.87	-0.94	50.86
9,200.00	1.32	281.94	8,648.99	1,847.46	-1,453.19	2,348.88	0.24	-0.18	-6.66
9,226.00	1.67	287.04	8,674.98	1,847.63	-1,453.84	2,349.41	1.44	1.35	19.62
Last SDI Production MWD									
9,281.00	1.67	287.04	8,729.96	1,848.10	-1,455.38	2,350.69	0.00	0.00	0.00
Projection to TD - BHL = 636541.17, 1224340.74									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
164.00	163.99	0.77	-0.83	First SDI Gyro Survey
530.00	528.48	25.74	-16.55	Last SDI Gyro Survey
600.00	597.63	34.53	-22.84	First SDI Surface MWD
2,658.00	2,454.47	723.68	-526.93	Last SDI Surface MWD
2,772.00	2,552.04	771.20	-561.83	First SDI Production MWD
9,226.00	8,674.98	1,847.63	-1,453.84	Last SDI Production MWD
9,281.00	8,729.96	1,848.10	-1,455.38	Projection to TD
9,281.00	8,729.96	1,848.10	-1,455.38	BHL = 636541.17, 1224340.74

Checked By: _____ Approved By: _____ Date: _____