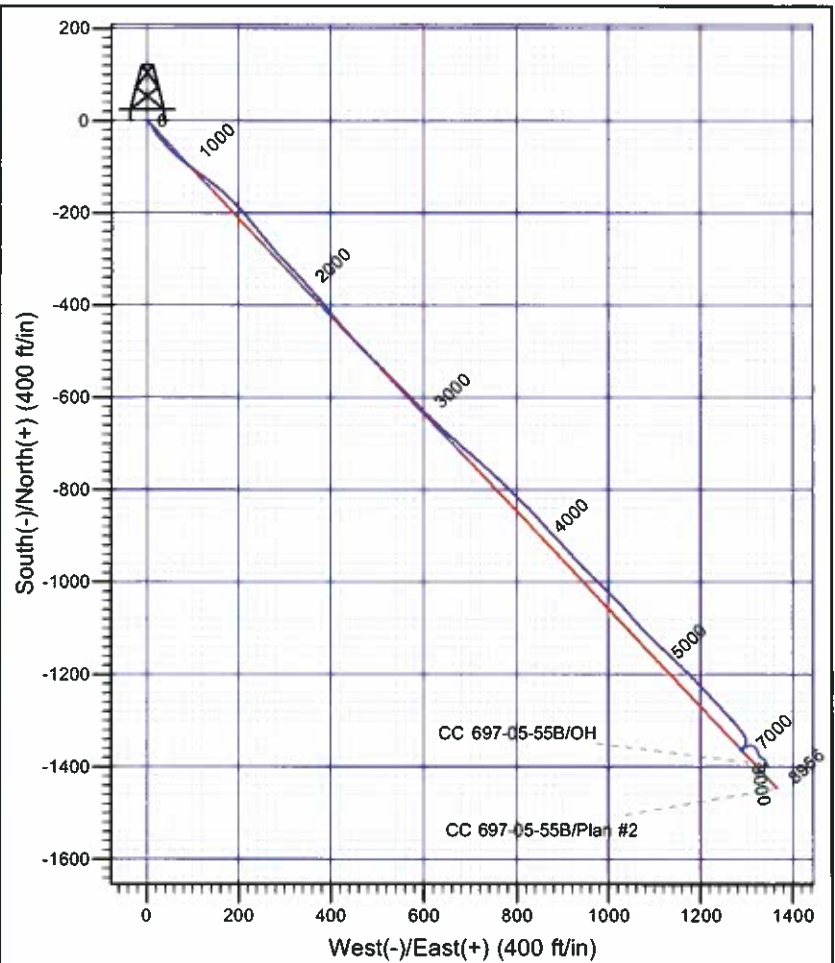
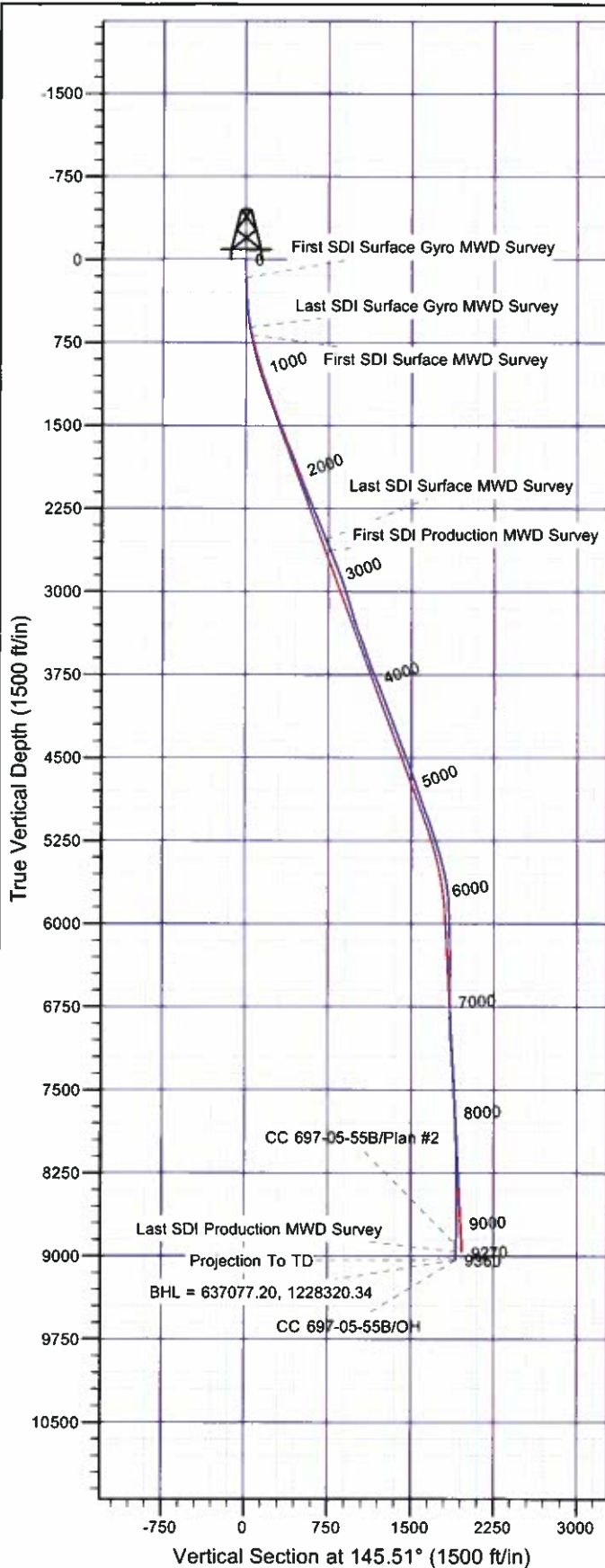




Scientific Drilling

Company: OXY USA RMAT
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-05C Pad
 Well: CC 697-05-55B
 Wellbore: OH
 Design: OH



Well Details: CC 697-05-55B

+N/-S	+E/-W	North	East	Lat	Long	Slot
0.00	0.00	638511.32	1227024.52	39° 33' 16.239 N	108° 14' 30.208 W	H

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-55B - Slot H, True North
 Vertical (TVD) Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
 Section (VS) Reference: Slot - H(0.00N, 0.00E)
 Measured Depth Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
 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

12:21, January 30 2012
 Created By: Rex Hall

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-05C Pad
CC 697-05-55B - Slot H**

OH

Design: OH

Standard Survey Report

30 January, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-55B - Slot H
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	MD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-55B	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 697-05C Pad, Sec. 5 T6S R97W			
Site Position:		Northing:	637,463.43 usft	Latitude:	39° 33' 5.626 N
From:	Map	Easting:	1,226,150.07 usft	Longitude:	108° 14' 40.963 W
Position Uncertainty:	0.00 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.73 °

Well	CC 697-05-55B - Slot H					
Well Position	+N/-S	0.00 ft	Northing:	638,511.32 usft	Latitude:	39° 33' 16.239 N
	+E/-W	0.00 ft	Easting:	1,227,024.52 usft	Longitude:	108° 14' 30.208 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,423.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/16/10	10.51	65.77	52,312

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	145.51	

Survey Program	Date	01/30/12		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
164.00	614.00	Survey #1 - Surface Gyro MWD (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4
684.00	2,656.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA
2,763.00	9,360.00	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)	Bulld 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	1.67	135.18	163.98	-1.70	1.68	2.35	1.02	1.02	0.00
First SDI Surface Gyro MWD Survey									
254.00	2.20	134.91	253.93	-3.85	3.83	5.34	0.59	0.59	-0.30
344.00	2.82	130.43	343.84	-6.50	6.74	9.17	0.72	0.69	-4.98
434.00	5.28	151.52	433.61	-11.58	10.40	15.43	3.15	2.73	23.43
524.00	7.48	157.41	523.05	-20.63	14.63	25.28	2.55	2.44	6.54
614.00	10.73	139.83	611.92	-32.44	22.29	39.36	4.71	3.61	-19.53

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-55B - Slot H
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	MD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-55B	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)
Last SDI Surface Gyro MWD Survey									
684.00	12.75	139.51	680.45	-43.30	31.51	53.53	2.89	2.89	-0.46
First SDI Surface MWD Survey									
774.00	15.64	136.18	767.70	-59.61	46.36	75.38	3.34	3.21	-3.70
865.00	15.83	129.84	855.29	-76.41	64.38	99.44	1.90	0.21	-6.97
955.00	17.15	128.26	941.59	-92.49	84.23	123.93	1.55	1.47	-1.76
1,050.00	20.40	124.83	1,031.53	-110.63	108.82	152.80	3.61	3.42	-3.61
1,144.00	19.52	127.21	1,119.88	-129.48	134.78	183.04	1.27	-0.94	2.53
1,239.00	17.76	132.04	1,209.90	-148.79	158.18	212.20	2.46	-1.85	5.08
1,333.00	19.61	131.07	1,298.94	-168.75	180.73	241.42	2.00	1.97	-1.03
1,428.00	20.40	138.37	1,388.22	-191.60	203.75	273.30	2.76	0.83	7.68
1,522.00	22.07	140.83	1,475.84	-217.54	225.79	307.15	2.01	1.78	2.62
1,617.00	21.46	140.65	1,564.07	-244.82	248.08	342.26	0.65	-0.64	-0.19
1,711.00	22.69	140.30	1,651.17	-272.07	270.56	377.45	1.32	1.31	-0.37
1,806.00	21.10	136.61	1,739.32	-298.59	294.02	412.59	2.21	-1.67	-3.88
1,901.00	21.10	135.56	1,827.95	-323.23	317.74	446.33	0.40	0.00	-1.11
1,995.00	21.63	137.58	1,915.49	-348.10	341.27	480.15	0.96	0.56	2.15
2,090.00	21.37	138.90	2,003.88	-374.07	364.46	514.69	0.58	-0.27	1.39
2,184.00	21.72	140.48	2,091.32	-400.39	386.79	549.03	0.72	0.37	1.68
2,278.00	21.54	142.15	2,178.70	-427.43	408.44	583.58	0.68	-0.19	1.78
2,373.00	22.69	136.96	2,266.72	-454.60	431.65	619.11	2.39	1.21	-5.46
2,467.00	23.39	138.37	2,353.22	-481.80	456.42	655.56	0.95	0.74	1.50
2,562.00	23.04	134.68	2,440.53	-508.97	482.17	692.53	1.57	-0.37	-3.88
2,656.00	22.25	135.03	2,527.28	-534.49	507.83	728.09	0.85	-0.84	0.37
Last SDI Surface MWD Survey									
2,763.00	22.25	136.53	2,626.32	-563.52	536.08	768.02	0.53	0.00	1.40
First SDI Production MWD Survey									
2,857.00	22.34	135.56	2,713.29	-589.20	560.83	803.20	0.40	0.10	-1.03
2,952.00	22.42	136.43	2,801.14	-615.21	585.96	838.87	0.36	0.08	0.92
3,046.00	19.52	135.47	2,888.90	-639.40	609.33	872.04	3.11	-3.09	-1.02
3,141.00	18.38	133.71	2,978.75	-661.07	631.29	902.33	1.34	-1.20	-1.85
3,235.00	16.62	131.69	3,068.40	-680.25	652.04	929.89	1.98	-1.87	-2.15
3,330.00	16.80	132.13	3,159.39	-698.49	672.37	956.44	0.23	0.19	0.46
3,425.00	18.29	130.81	3,249.96	-717.45	693.84	984.22	1.62	1.57	-1.39
3,519.00	21.02	131.95	3,338.48	-738.36	717.54	1,014.88	2.93	2.90	1.21
3,614.00	20.58	132.57	3,427.29	-761.05	742.51	1,047.72	0.52	-0.46	0.65
3,708.00	19.26	132.83	3,515.66	-782.76	766.05	1,078.94	1.41	-1.40	0.28
3,803.00	20.05	134.76	3,605.13	-804.88	789.10	1,110.23	1.08	0.83	2.03
3,897.00	21.98	133.71	3,692.87	-828.39	813.26	1,143.28	2.09	2.05	-1.12
3,992.00	23.04	137.66	3,780.64	-854.41	838.64	1,179.10	1.94	1.12	4.16
4,086.00	21.81	137.49	3,867.53	-880.88	862.83	1,214.62	1.31	-1.31	-0.18
4,181.00	20.31	135.99	3,956.18	-905.75	886.21	1,248.35	1.68	-1.58	-1.58
4,275.00	21.46	137.23	4,044.00	-930.11	909.22	1,281.46	1.31	1.22	1.32
4,370.00	19.87	138.28	4,132.89	-954.92	931.77	1,314.68	1.72	-1.67	1.11

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-55B - Slot H
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	MD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-55B	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)
4,464.00	21.81	134.68	4,220.74	-979.12	954.82	1,347.68	2.47	2.06	-3.83
4,559.00	20.05	132.74	4,309.47	-1,002.59	979.33	1,380.90	1.99	-1.85	-2.04
4,654.00	20.93	134.59	4,398.46	-1,025.55	1,003.37	1,413.44	1.15	0.93	1.95
4,748.00	22.07	137.40	4,485.92	-1,050.34	1,027.29	1,447.41	1.63	1.21	2.99
4,843.00	20.22	138.63	4,574.52	-1,075.80	1,050.22	1,481.38	2.00	-1.95	1.29
4,937.00	20.14	136.52	4,662.75	-1,099.73	1,072.09	1,513.49	0.78	-0.09	-2.24
5,032.00	18.55	134.94	4,752.38	-1,122.28	1,094.04	1,544.50	1.76	-1.67	-1.66
5,126.00	19.26	133.27	4,841.31	-1,143.47	1,115.91	1,574.35	0.95	0.76	-1.78
5,221.00	20.75	132.04	4,930.58	-1,165.48	1,139.82	1,606.03	1.63	1.57	-1.29
5,315.00	21.98	135.38	5,018.12	-1,189.15	1,164.55	1,639.54	1.84	1.31	3.55
5,410.00	19.87	136.35	5,106.85	-1,213.49	1,188.18	1,672.99	2.25	-2.22	1.02
5,504.00	18.55	136.43	5,195.61	-1,235.88	1,209.52	1,703.52	1.40	-1.40	0.09
5,599.00	17.15	136.26	5,286.04	-1,256.95	1,229.62	1,732.27	1.47	-1.47	-0.18
5,693.00	16.44	137.58	5,376.03	-1,276.78	1,248.17	1,759.13	0.86	-0.76	1.40
5,788.00	14.07	139.07	5,467.67	-1,295.43	1,264.81	1,783.92	2.53	-2.49	1.57
5,882.00	11.52	140.48	5,559.33	-1,311.31	1,278.27	1,804.63	2.73	-2.71	1.50
5,977.00	9.41	142.15	5,652.75	-1,324.76	1,289.07	1,821.83	2.24	-2.22	1.76
6,071.00	6.16	155.59	5,745.88	-1,335.43	1,295.87	1,834.47	3.94	-3.46	14.30
6,166.00	2.81	178.27	5,840.58	-1,342.40	1,298.05	1,841.45	3.92	-3.53	23.87
6,260.00	1.93	187.50	5,934.50	-1,346.27	1,297.91	1,844.56	1.02	-0.94	9.82
6,355.00	2.11	196.99	6,029.44	-1,349.53	1,297.19	1,846.84	0.40	0.19	9.99
6,449.00	2.73	201.12	6,123.35	-1,353.27	1,295.88	1,849.19	0.68	0.66	4.39
6,544.00	2.20	214.22	6,218.27	-1,356.89	1,294.04	1,851.13	0.81	-0.56	13.79
6,638.00	2.81	219.58	6,312.18	-1,360.16	1,291.56	1,852.41	0.69	0.65	5.70
6,733.00	2.73	221.42	6,407.06	-1,363.65	1,288.58	1,853.60	0.13	-0.08	1.94
6,827.00	1.32	273.10	6,501.01	-1,365.27	1,286.01	1,853.49	2.31	-1.50	54.98
6,922.00	1.14	3.10	6,596.00	-1,364.27	1,284.97	1,852.07	1.84	-0.19	94.74
7,016.00	2.55	46.17	6,689.95	-1,361.88	1,286.53	1,850.99	2.01	1.50	45.82
7,111.00	3.78	62.96	6,784.80	-1,359.00	1,290.85	1,851.05	1.61	1.29	17.67
7,205.00	3.87	63.92	6,878.59	-1,356.19	1,296.45	1,851.92	0.12	0.10	1.02
7,300.00	4.57	80.18	6,973.34	-1,354.14	1,303.06	1,853.97	1.45	0.74	17.12
7,394.00	5.72	106.29	7,066.97	-1,354.81	1,311.25	1,859.16	2.74	1.22	27.78
7,489.00	5.54	132.30	7,161.53	-1,359.23	1,319.19	1,867.29	2.67	-0.19	27.38
7,583.00	4.48	159.46	7,255.18	-1,365.72	1,323.83	1,875.27	2.73	-1.13	28.89
7,678.00	3.34	169.83	7,349.96	-1,371.92	1,325.62	1,881.40	1.41	-1.20	10.92
7,772.00	2.81	148.39	7,443.83	-1,376.58	1,327.32	1,886.19	1.34	-0.56	-22.81
7,867.00	2.55	123.60	7,538.73	-1,379.73	1,330.30	1,890.48	1.24	-0.27	-26.09
7,962.00	1.85	116.66	7,633.66	-1,381.59	1,333.43	1,893.78	0.79	-0.74	-7.31
8,056.00	2.73	126.06	7,727.58	-1,383.59	1,336.59	1,897.22	1.01	0.94	10.00
8,151.00	2.64	144.26	7,822.48	-1,386.69	1,339.70	1,901.55	0.90	-0.09	19.16
8,246.00	2.02	153.92	7,917.40	-1,389.97	1,341.71	1,905.39	0.77	-0.65	10.17
8,340.00	2.64	174.84	8,011.32	-1,393.62	1,342.64	1,908.92	1.11	0.66	22.26
8,435.00	2.02	167.90	8,106.24	-1,397.43	1,343.18	1,912.37	0.72	-0.65	-7.31

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-55B - Slot H
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	MD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-55B	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)
8,529.00	0.79	152.87	8,200.21	-1,399.63	1,343.83	1,914.55	1.35	-1.31	-15.99
8,624.00	0.35	168.51	8,295.21	-1,400.50	1,344.18	1,915.46	0.49	-0.46	16.46
8,718.00	0.62	40.72	8,389.21	-1,400.39	1,344.57	1,915.60	0.94	0.29	-135.95
8,813.00	0.97	29.47	8,484.20	-1,399.30	1,345.30	1,915.11	0.40	0.37	-11.84
8,907.00	0.70	31.05	8,578.19	-1,398.12	1,345.99	1,914.53	0.29	-0.29	1.68
9,002.00	0.70	349.04	8,673.18	-1,397.05	1,346.18	1,913.75	0.53	0.00	-44.22
9,096.00	1.23	307.73	8,767.17	-1,395.87	1,345.27	1,912.27	0.90	0.56	-43.95
9,191.00	1.49	309.05	8,862.14	-1,394.47	1,343.51	1,910.11	0.28	0.27	1.39
9,286.00	1.93	260.54	8,957.10	-1,393.95	1,340.97	1,908.25	1.54	0.46	-51.06
Last SDI Production MWD Survey									
9,360.00	1.93	260.54	9,031.06	-1,394.36	1,338.51	1,907.19	0.00	0.00	0.00
Projection To TD - BHL = 637077.20, 1228320.34									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
164.00	163.98	-1.70	1.68	First SDI Surface Gyro MWD Survey
614.00	611.92	-32.44	22.29	Last SDI Surface Gyro MWD Survey
684.00	680.45	-43.30	31.51	First SDI Surface MWD Survey
2,656.00	2,527.28	-534.49	507.83	Last SDI Surface MWD Survey
2,763.00	2,626.32	-563.52	536.08	First SDI Production MWD Survey
9,286.00	8,957.10	-1,393.95	1,340.97	Last SDI Production MWD Survey
9,360.00	9,031.06	-1,394.36	1,338.51	Projection To TD
9,360.00	9,031.06	-1,394.36	1,338.51	BHL = 637077.20, 1228320.34

Checked By: _____ Approved By: _____ Date: _____