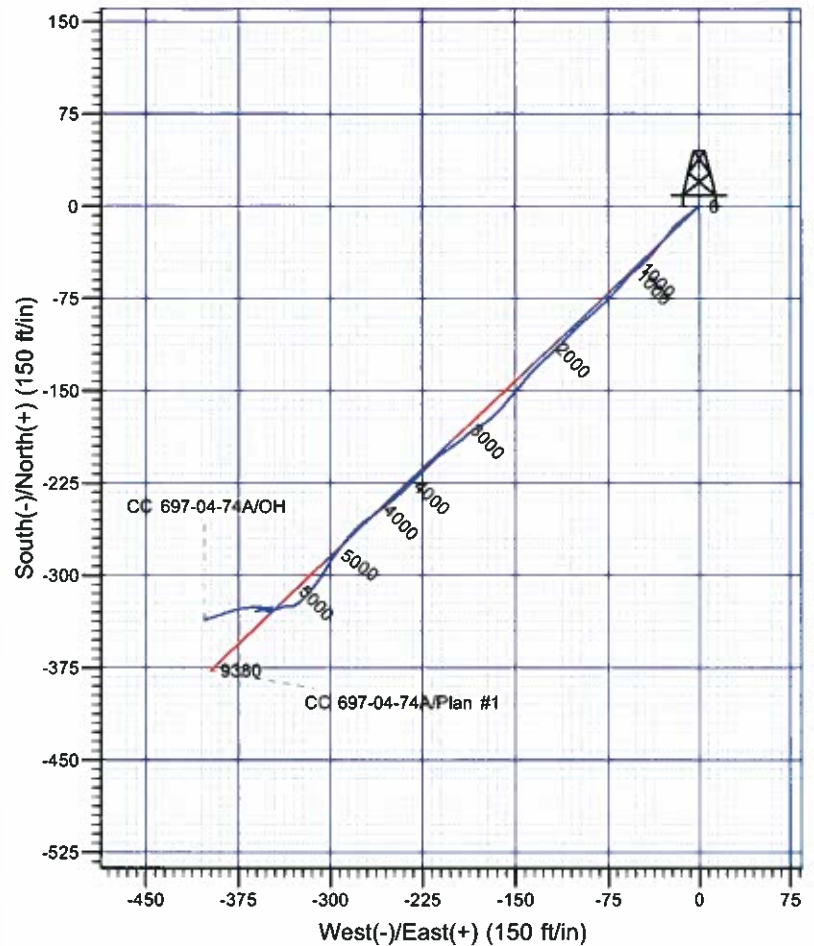
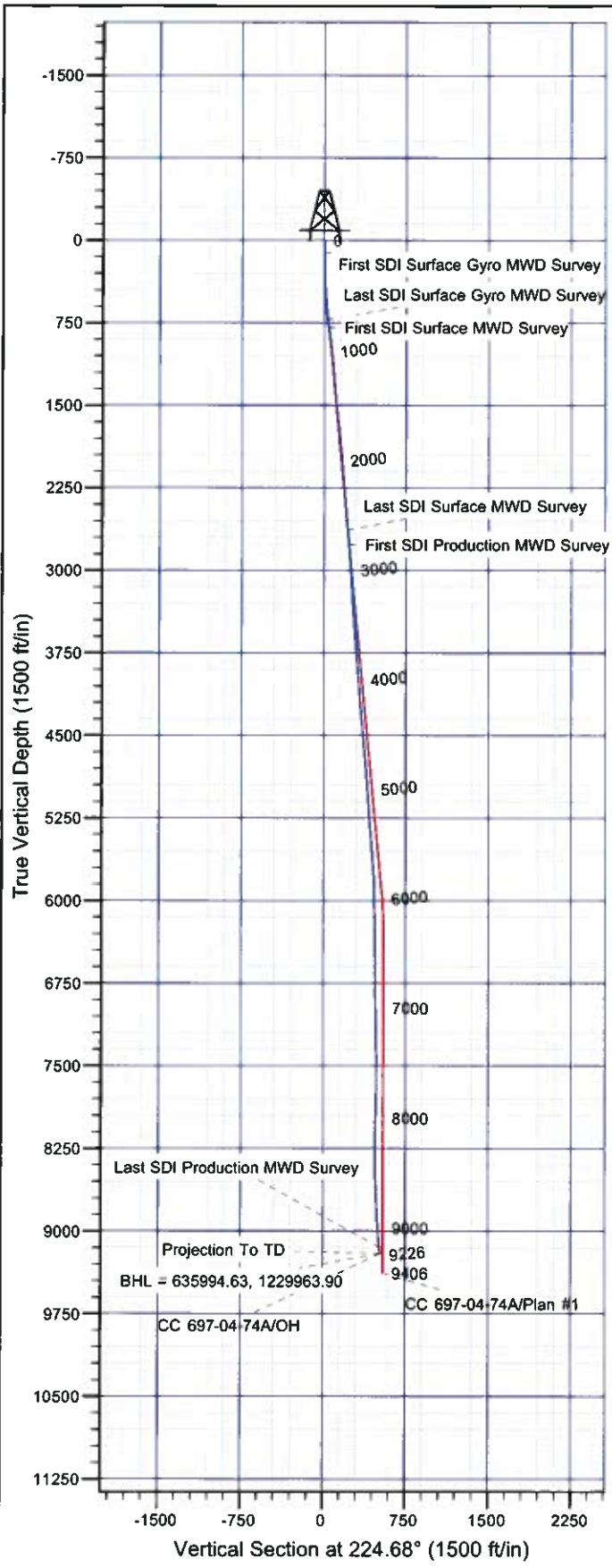




Scientific Drilling

Company: OXY USA RMAT
 Project: Garfield County, CO NAD27
 Site: Cascade Creek 697-04D Pad
 Well: CC 697-04-74A
 Wellbore: OH
 Design: OH



Well Details: CC 697-04-74A

TVD Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P) and Level: 8629.00
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.00 0.00 636318.81 1230376.45 39° 32' 55.576 N 108° 13' 46.592 W T

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-04-74A - Slot T, True North
 Vertical (TVD) Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P)
 Section (VS) Reference: Slot - T(0.00N, 0.00E)
 Measured Depth Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P)
 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

16:31, January 20 2012
 Created By: Rex Hall

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-04D Pad
CC 697-04-74A - Slot T**

OH

Design: OH

Standard Survey Report

20 January, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-04-74A - Slot T
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Well:	CC 697-04-74A	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 697-04D Pad		
Site Position:		Northing:	635,530.62 usft
From:	Map	Easting:	1,230,276.10 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 32' 47.760 N
		Longitude:	108° 13' 47.570 W
		Grid Convergence:	-1.72 °

Well	CC 697-04-74A - Slot T		
Well Position	+N/-S	0.00 ft	Northing: 636,318.81 usft
	+E/-W	0.00 ft	Easting: 1,230,376.45 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	39° 32' 55.576 N
		Longitude:	108° 13' 46.592 W
		Ground Level:	8,629.00 ft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2005-10	03/24/11	10.47
			Dip Angle (°)
			65.76
			Field Strength (nT)
			52,282

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)
	0.00	0.00	0.00
			Direction (°)
			224.68

Survey Program	Date 01/20/12		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name
111.00	720.00	Survey #1 - Surface Gyro MWD (OH)	SDI Gyro MWD 104
793.00	2,644.00	Survey #2 - Surface MWD (OH)	MWD-SDI
2,776.00	9,226.00	Survey #3 - Production MWD (OH)	MWD-SDI
			Description
			SDI Gyro MWD Error Model Ver 1.0.4
			MWD - Standard ISCWSA
			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
111.00	0.00	101.78	111.00	0.00	0.00	0.00	0.00	0.00	0.00
First SDI Surface Gyro MWD Survey									
172.00	0.00	129.02	172.00	0.00	0.00	0.00	0.00	0.00	0.00
264.00	0.18	230.62	264.00	-0.09	-0.11	0.14	0.20	0.20	0.00
356.00	1.23	232.56	355.99	-0.78	-1.01	1.27	1.14	1.14	2.11
448.00	2.11	233.17	447.95	-2.40	-3.15	3.92	0.96	0.96	0.66
539.00	3.87	230.80	538.82	-5.34	-6.87	8.63	1.94	1.93	-2.60
631.00	6.60	232.47	630.43	-10.53	-13.47	16.96	2.97	2.97	1.82

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-04-74A - Slot T
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Well:	CC 697-04-74A	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)
720.00	8.09	221.22	718.70	-18.36	-21.65	28.28	2.32	1.67	-12.64
Last SDI Surface Gyro MWD Survey									
793.00	8.88	217.03	790.90	-26.72	-28.43	38.99	1.37	1.08	-5.74
First SDI Surface MWD Survey									
883.00	8.88	221.69	879.83	-37.45	-37.23	52.81	0.80	0.00	5.18
973.00	7.21	226.17	968.94	-46.55	-45.93	65.39	1.98	-1.86	4.98
1,068.00	5.45	231.71	1,063.36	-53.47	-53.77	75.83	1.96	-1.85	5.83
1,162.00	4.40	221.51	1,157.01	-58.94	-59.66	83.86	1.45	-1.12	-10.85
1,257.00	5.36	219.67	1,251.67	-65.09	-64.91	91.92	1.02	1.01	-1.94
1,352.00	5.36	223.89	1,346.25	-71.70	-70.82	100.78	0.41	0.00	4.44
1,447.00	4.84	227.23	1,440.87	-77.62	-76.84	109.22	0.63	-0.55	3.52
1,541.00	6.07	227.84	1,534.45	-83.65	-83.43	118.14	1.31	1.31	0.65
1,636.00	7.30	228.81	1,628.80	-90.99	-91.70	129.18	1.30	1.29	1.02
1,731.00	6.16	227.31	1,723.14	-98.42	-99.99	140.29	1.21	-1.20	-1.58
1,826.00	5.72	222.22	1,817.63	-105.39	-106.92	150.11	0.72	-0.46	-5.36
1,920.00	4.75	223.53	1,911.24	-111.68	-112.75	158.68	1.04	-1.03	1.39
2,015.00	4.31	225.91	2,005.94	-117.01	-118.02	166.19	0.50	-0.46	2.51
2,110.00	4.57	230.39	2,100.66	-121.91	-123.50	173.52	0.46	0.27	4.72
2,205.00	4.48	222.57	2,195.36	-127.05	-128.92	180.99	0.66	-0.09	-8.23
2,299.00	4.57	224.85	2,289.07	-132.41	-134.05	188.41	0.21	0.10	2.43
2,394.00	5.28	220.11	2,383.72	-138.44	-139.53	196.55	0.86	0.75	-4.99
2,489.00	5.36	218.53	2,478.31	-145.25	-145.11	205.32	0.18	0.08	-1.66
2,583.00	5.72	222.39	2,571.87	-152.15	-151.01	214.36	0.55	0.38	4.11
2,644.00	5.19	219.23	2,632.59	-156.53	-154.80	220.15	1.00	-0.87	-5.18
Last SDI Surface MWD Survey									
2,776.00	4.12	219.41	2,764.16	-164.82	-161.59	230.81	0.81	-0.81	0.14
First SDI Production MWD Survey									
2,871.00	4.09	231.09	2,858.92	-169.58	-166.39	237.58	0.88	-0.03	12.29
2,965.00	3.87	225.73	2,952.69	-173.90	-171.27	244.08	0.46	-0.23	-5.70
3,060.00	3.78	241.73	3,047.48	-177.62	-176.32	250.28	1.12	-0.09	16.84
3,155.00	3.08	241.99	3,142.31	-180.31	-181.34	255.71	0.74	-0.74	0.27
3,249.00	3.78	228.81	3,236.14	-183.53	-185.90	261.21	1.12	0.74	-14.02
3,344.00	3.25	226.79	3,330.96	-187.44	-190.22	267.03	0.57	-0.56	-2.13
3,439.00	5.01	234.52	3,425.71	-191.69	-195.56	273.81	1.94	1.85	8.14
3,533.00	4.92	234.26	3,519.36	-196.43	-202.17	281.82	0.10	-0.10	-0.28
3,628.00	4.48	235.49	3,614.04	-200.91	-208.54	289.49	0.48	-0.46	1.29
3,723.00	3.61	232.76	3,708.80	-204.82	-213.97	296.09	0.94	-0.92	-2.87
3,817.00	4.92	221.69	3,802.54	-209.62	-219.01	303.05	1.64	1.39	-11.78
3,912.00	4.57	225.29	3,897.22	-215.33	-224.41	310.90	0.48	-0.37	3.79
4,007.00	4.44	223.01	3,991.92	-220.68	-229.61	318.36	0.23	-0.14	-2.40
4,102.00	4.48	225.91	4,086.64	-225.95	-234.78	325.75	0.24	0.04	3.05
4,196.00	4.66	226.44	4,180.34	-231.13	-240.19	333.23	0.20	0.19	0.56
4,291.00	5.10	229.51	4,274.99	-236.54	-246.19	341.30	0.54	0.46	3.23
4,386.00	5.01	231.62	4,369.62	-241.85	-252.66	349.62	0.22	-0.09	2.22

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-04-74A - Slot T
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Well:	CC 697-04-74A	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)
4,480.00	4.92	231.88	4,463.27	-246.89	-259.04	357.70	0.10	-0.10	0.28
4,575.00	5.01	233.55	4,557.91	-251.87	-265.59	365.84	0.18	0.09	1.76
4,670.00	4.57	234.78	4,652.58	-256.52	-272.02	373.66	0.48	-0.46	1.29
4,764.00	5.10	227.05	4,746.25	-261.52	-278.13	381.52	0.89	0.56	-8.22
4,859.00	5.36	218.79	4,840.85	-267.86	-284.00	390.16	0.84	0.27	-8.69
4,954.00	4.04	219.93	4,935.53	-273.88	-288.93	397.90	1.39	-1.39	1.20
5,049.00	2.99	213.87	5,030.35	-278.51	-292.46	403.67	1.17	-1.11	-6.38
5,143.00	2.99	219.84	5,124.22	-282.43	-295.40	408.52	0.33	0.00	6.35
5,238.00	4.84	212.55	5,219.00	-287.71	-299.14	414.91	2.01	1.95	-7.67
5,333.00	5.10	209.74	5,313.64	-294.75	-303.39	422.91	0.37	0.27	-2.96
5,427.00	4.84	214.66	5,407.29	-301.64	-307.72	430.85	0.53	-0.28	5.23
5,522.00	4.57	217.03	5,501.97	-307.96	-312.28	438.55	0.35	-0.28	2.49
5,617.00	4.40	219.84	5,596.68	-313.78	-316.89	445.93	0.29	-0.18	2.96
5,711.00	4.31	225.20	5,690.41	-319.04	-321.71	453.06	0.44	-0.10	5.70
5,806.00	3.78	234.96	5,785.17	-323.35	-326.81	459.71	0.91	-0.56	10.27
5,901.00	1.76	261.77	5,880.06	-325.36	-330.81	463.95	2.47	-2.13	28.22
5,995.00	0.79	279.35	5,974.04	-325.46	-332.88	465.48	1.10	-1.03	18.70
6,090.00	1.06	278.73	6,069.02	-325.22	-334.40	466.37	0.28	0.28	-0.65
6,184.00	1.23	266.78	6,163.00	-325.14	-336.26	467.63	0.31	0.18	-12.71
6,279.00	1.58	243.93	6,257.98	-325.78	-338.46	469.63	0.69	0.37	-24.05
6,373.00	0.79	255.18	6,351.96	-326.51	-340.25	471.41	0.87	-0.84	11.97
6,468.00	0.97	249.90	6,446.94	-326.95	-341.64	472.70	0.21	0.19	-5.56
6,563.00	1.23	255.53	6,541.93	-327.49	-343.38	474.30	0.30	0.27	5.93
6,657.00	0.79	249.37	6,635.91	-327.97	-344.96	475.76	0.48	-0.47	-6.55
6,752.00	0.18	74.21	6,730.91	-328.16	-345.43	476.22	1.02	-0.64	-184.38
6,846.00	0.18	222.74	6,824.91	-328.22	-345.39	476.24	0.37	0.00	158.01
6,941.00	0.53	237.42	6,919.91	-328.57	-345.86	476.82	0.38	0.37	15.45
7,035.00	1.32	254.21	7,013.89	-329.10	-347.27	478.19	0.88	0.84	17.86
7,129.00	1.23	279.26	7,107.87	-329.23	-349.31	479.71	0.60	-0.10	26.65
7,224.00	1.32	283.21	7,202.85	-328.82	-351.38	480.88	0.13	0.09	4.16
7,318.00	1.58	276.44	7,296.82	-328.42	-353.72	482.24	0.33	0.28	-7.20
7,413.00	1.76	268.80	7,391.78	-328.31	-356.48	484.10	0.30	0.19	-8.04
7,507.00	1.76	251.31	7,485.73	-328.80	-359.29	486.43	0.57	0.00	-18.61
7,602.00	0.53	219.84	7,580.71	-329.61	-360.95	488.17	1.41	-1.29	-33.13
7,696.00	1.76	60.67	7,674.70	-329.23	-359.97	487.21	2.41	1.31	-169.33
7,791.00	2.46	76.41	7,769.64	-328.04	-356.72	484.08	0.95	0.74	16.57
7,886.00	1.67	85.19	7,864.58	-327.44	-353.36	481.29	0.89	-0.83	9.24
7,980.00	1.32	78.43	7,958.54	-327.11	-350.93	479.35	0.42	-0.37	-7.19
8,075.00	1.06	64.19	8,053.52	-326.51	-349.07	477.61	0.41	-0.27	-14.99
8,170.00	0.53	94.25	8,148.51	-326.16	-347.84	476.50	0.69	-0.56	31.64
8,265.00	0.35	138.19	8,243.51	-326.41	-347.21	476.23	0.39	-0.19	46.25
8,359.00	0.53	252.89	8,337.51	-326.75	-347.43	476.63	0.79	0.19	122.02
8,454.00	1.23	261.15	8,432.50	-327.04	-348.86	477.84	0.75	0.74	8.69

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-04-74A - Slot T
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Well:	CC 697-04-74A	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)
8,549.00	1.85	281.98	8,527.46	-326.88	-351.37	479.49	0.87	0.65	21.93
8,644.00	2.37	279.35	8,622.40	-326.24	-354.81	481.45	0.56	0.55	-2.77
8,738.00	3.17	270.38	8,716.29	-325.90	-359.32	484.39	0.97	0.85	-9.54
8,833.00	4.31	263.00	8,811.09	-326.32	-365.49	489.03	1.30	1.20	-7.77
8,928.00	5.28	262.03	8,905.75	-327.36	-373.37	495.30	1.02	1.02	-1.02
9,023.00	5.54	249.37	9,000.33	-329.59	-381.99	502.94	1.28	0.27	-13.33
9,117.00	6.24	251.66	9,093.84	-332.79	-391.08	511.62	0.79	0.74	2.44
9,170.00	6.42	252.80	9,146.51	-334.57	-396.65	516.80	0.41	0.34	2.15
Last SDI Production MWD Survey									
9,226.00	6.42	252.80	9,202.16	-336.43	-402.63	522.32	0.00	0.00	0.00
Projection To TD - BHL = 635994.63, 1229963.90									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
111.00	111.00	0.00	0.00	First SDI Surface Gyro MWD Survey
720.00	718.70	-18.36	-21.65	Last SDI Surface Gyro MWD Survey
793.00	790.90	-26.72	-28.43	First SDI Surface MWD Survey
2,644.00	2,632.59	-156.53	-154.80	Last SDI Surface MWD Survey
2,776.00	2,764.16	-164.82	-161.59	First SDI Production MWD Survey
9,170.00	9,146.51	-334.57	-396.65	Last SDI Production MWD Survey
9,226.00	9,202.16	-336.43	-402.63	Projection To TD
9,226.00	9,202.16	-336.43	-402.63	BHL = 635994.63, 1229963.90

Checked By: _____ Approved By: _____ Date: _____