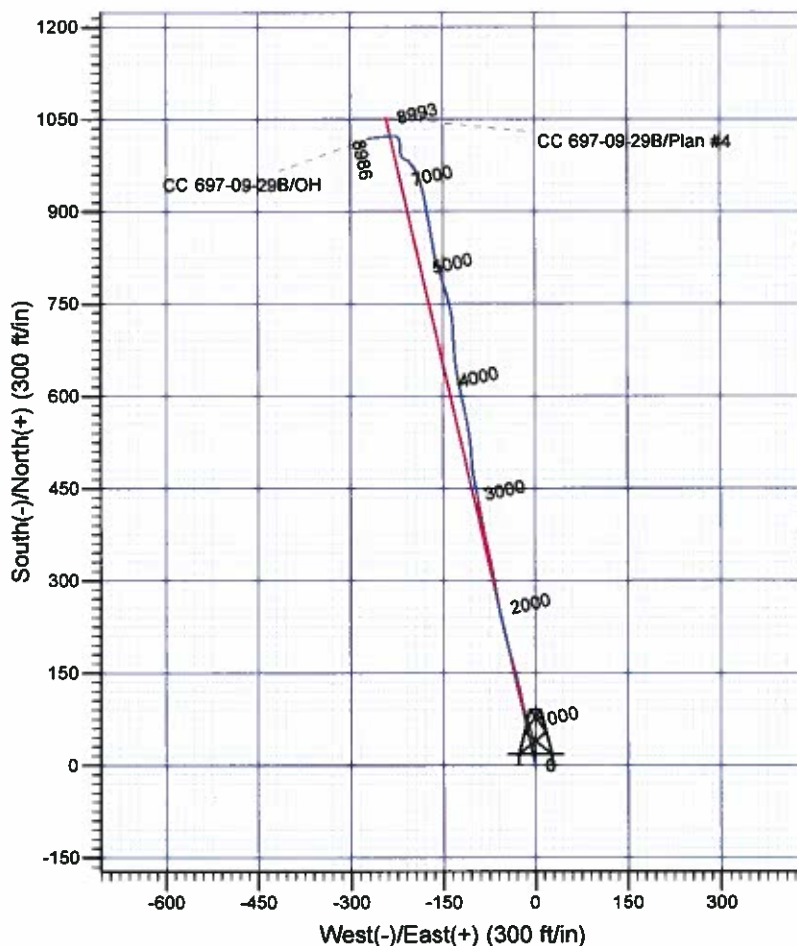
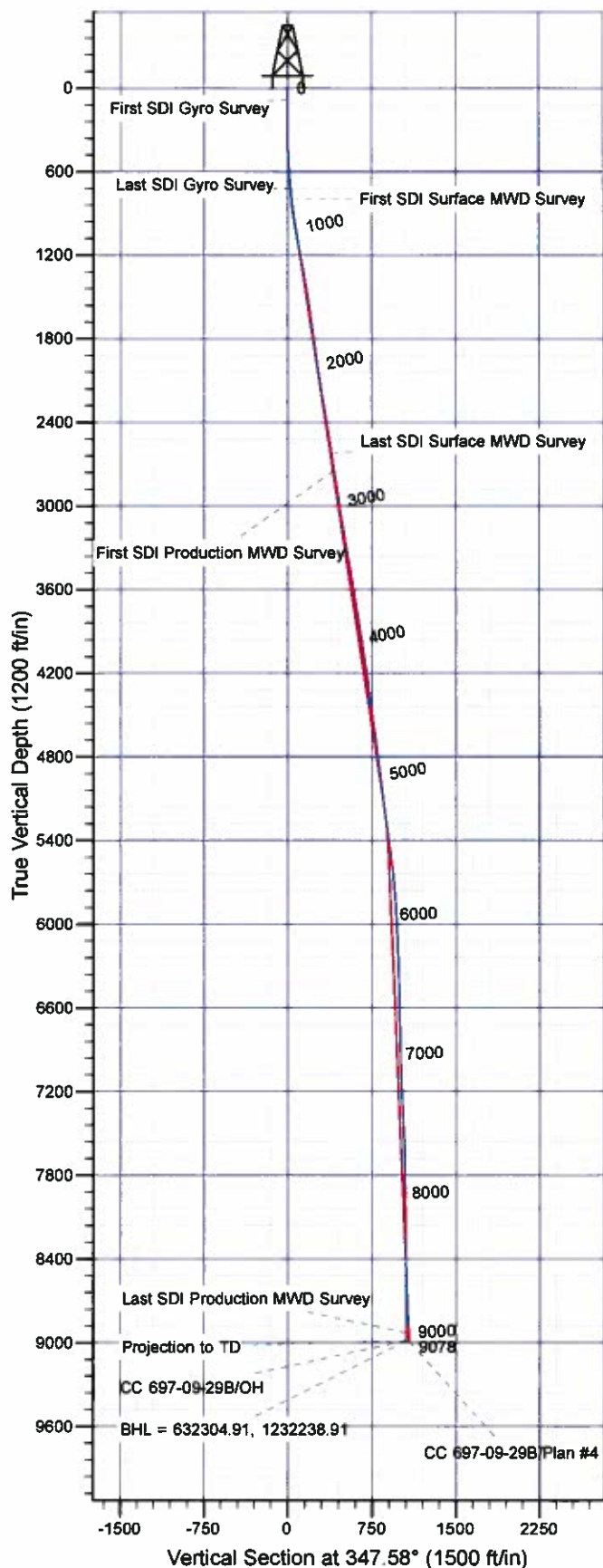




Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 609-33 Pad
Well: CC 697-09-29B
Wellbore: OH
Design: OH



Well Details: CC 697-09-29B

+N/-S	+E/-W	North	East	Latitude	Longitude	Slot
0.00	0.00	631279.10	1232479.84	39° 32' 6.412 N	108° 13' 17.825 W	J

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-09-29B - Slot J, True North
Vertical (TVD) Reference: GL 8381' & RKB 30' @ 8411.00ft (H&P 353)
Section (VS) Reference: Slot - J(0.00N, 0.00E)
Measured Depth Reference: GL 8381' & RKB 30' @ 8411.00ft (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

13:34, June 29 2011
Created By: Janie Cooke

OXY USA RMAT

Garfield County, CO NAD27

Cascade Creek 609-33 Pad

CC 697-09-29B - Slot J

OH

Design: OH

Standard Survey Report

29 June, 2011



Scientific Drilling International, Inc.

Survey Report



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-29B - Slot J
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8381' & RKB 30' @ 8411.00ft (H&P 353)
Site:	Cascade Creek 609-33 Pad	MD Reference:	GL 8381' & RKB 30' @ 8411.00ft (H&P 353)
Well:	CC 697-09-29B	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 609-33 Pad, Sec 9 T6S R97W			
Site Position:		Northing:	631,314.66 usft	Latitude: 39° 32' 6.734 N
From:	Map	Easting:	1,232,383.54 usft	Longitude: 108° 13' 19.067 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: -1.72 °

Well	CC 697-09-29B - Slot J			
Well Position	+N/-S	0.00 ft	Northing: 631,279.11 usft	Latitude: 39° 32' 6.412 N
	+E/-W	0.00 ft	Easting: 1,232,479.84 usft	Longitude: 108° 13' 17.825 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level: 8,381.00 ft

Wellbore	OH			
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/31/2009	10.62	65.78	52,397

Design	OH			
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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	347.58

Survey Program		Date	8/29/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
78.00	722.00	Survey #1 - Surface Wireline Gyro (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
800.00	2,659.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard SCWSA	
2,784.00	9,078.00	Survey #4 - Production MWD (OH)	MWD-SDI	MWD - Standard SCWSA	

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
78.00	0.64	215.26	78.00	-0.36	-0.25	-0.29	0.82	0.82	0.00
First SDI Gyro Survey									
170.00	0.31	158.35	170.00	-1.01	-0.46	-0.88	0.58	-0.36	-61.86
262.00	0.49	81.74	261.99	-1.18	0.02	-1.16	0.56	0.20	-83.27
354.00	0.97	341.03	353.99	-0.39	0.16	-0.41	1.27	0.52	-109.47
446.00	1.81	345.50	445.96	1.75	-0.46	1.81	0.92	0.91	4.86
538.00	4.50	346.50	537.81	6.67	-1.66	6.87	2.92	2.92	1.09
630.00	6.54	351.04	629.38	15.36	-3.32	15.71	2.27	2.22	4.93

Scientific Drilling International, Inc.

Survey Report



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-29B - Slot J
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8381' & RKB 30' @ 8411.00ft (H&P 353)
Site:	Cascade Creek 609-33 Pad	MD Reference:	GL 8381' & RKB 30' @ 8411.00ft (H&P 353)
Well:	CC 697-09-29B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockles 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)
722.00	5.69	0.66	720.86	25.09	-4.08	25.38	1.44	-0.92	10.46
Last SDI Gyro Survey									
800.00	6.41	3.58	798.43	33.31	-3.77	33.34	1.00	0.92	3.74
First SDI Surface MWD Survey									
892.00	9.07	347.79	889.59	45.52	-4.98	45.53	3.68	2.89	-17.16
983.00	11.61	342.51	979.11	61.27	-9.25	61.82	2.98	2.79	-5.80
1,078.00	13.10	339.16	1,071.90	80.45	-15.95	82.00	1.74	1.57	-3.53
1,172.00	13.06	349.43	1,163.48	100.85	-21.69	103.15	2.47	-0.04	10.93
1,267.00	13.88	349.47	1,255.86	122.60	-25.74	125.27	0.86	0.86	0.04
1,362.00	12.48	344.03	1,348.36	143.68	-30.65	146.91	1.97	-1.47	-5.73
1,456.00	11.90	343.82	1,440.24	162.75	-36.15	166.71	0.62	-0.62	-0.22
1,551.00	10.90	344.82	1,533.37	180.82	-41.23	185.46	1.07	-1.05	1.05
1,645.00	9.15	346.40	1,625.93	196.67	-45.31	201.81	1.88	-1.86	1.68
1,740.00	10.55	346.58	1,719.53	212.47	-49.11	218.06	1.47	1.47	0.19
1,834.00	8.71	348.34	1,812.20	227.81	-52.54	233.78	1.98	-1.96	1.87
1,929.00	9.50	344.91	1,906.00	242.43	-56.04	248.81	1.01	0.83	-3.61
2,024.00	9.50	350.53	1,999.70	257.73	-59.37	264.47	0.98	0.00	5.92
2,118.00	11.34	349.57	2,092.15	274.47	-62.32	281.45	1.97	1.96	-1.02
2,213.00	12.40	349.65	2,185.11	293.69	-65.84	300.98	1.12	1.12	0.08
2,307.00	11.43	350.27	2,277.09	312.80	-69.23	320.37	1.04	-1.03	0.66
2,402.00	11.70	347.37	2,370.16	331.48	-72.93	339.40	0.67	0.28	-3.05
2,497.00	11.96	348.34	2,463.14	350.52	-77.02	358.88	0.34	0.27	1.02
2,591.00	10.73	346.58	2,555.30	368.57	-81.02	377.37	1.36	-1.31	-1.87
2,659.00	10.99	347.19	2,622.09	381.05	-83.93	390.18	0.42	0.38	0.90
Last SDI Surface MWD Survey									
2,784.00	10.82	349.81	2,744.83	404.21	-88.65	413.82	0.42	-0.14	2.10
First SDI Production MWD Survey									
2,878.00	10.02	349.81	2,837.28	420.94	-91.65	430.81	0.85	-0.85	0.00
2,973.00	10.99	349.37	2,930.68	437.98	-94.79	448.12	1.02	1.02	-0.46
3,067.00	11.26	348.31	3,022.92	455.77	-98.30	466.25	0.36	0.29	-1.13
3,162.00	11.61	351.56	3,116.03	474.31	-101.58	485.06	0.77	0.37	3.42
3,257.00	12.40	356.31	3,208.96	493.95	-103.64	504.68	1.33	0.83	5.00
3,352.00	11.52	356.40	3,301.89	513.59	-104.89	524.13	0.93	-0.93	0.09
3,446.00	12.57	351.65	3,393.83	533.08	-106.97	543.61	1.54	1.12	-5.05
3,541.00	12.31	349.54	3,486.60	553.27	-110.31	564.04	0.55	-0.27	-2.22
3,636.00	11.43	346.47	3,579.56	572.38	-114.35	583.58	1.14	-0.93	-3.23
3,730.00	10.29	347.08	3,671.88	589.62	-118.40	601.29	1.22	-1.21	0.65
3,825.00	11.70	349.01	3,765.13	607.35	-122.14	619.40	1.53	1.48	2.03
3,920.00	11.08	350.07	3,858.26	625.79	-125.55	638.15	0.69	-0.65	1.12
4,014.00	10.11	349.45	3,950.66	642.80	-128.62	655.42	1.04	-1.03	-0.66
4,109.00	11.52	354.90	4,043.97	660.45	-130.99	673.16	1.83	1.48	5.74
4,204.00	11.08	357.01	4,137.13	679.01	-132.31	691.58	0.64	-0.46	2.22
4,299.00	10.02	356.13	4,230.52	696.38	-133.34	708.76	1.13	-1.12	-0.93
4,393.00	9.15	357.01	4,323.21	712.00	-134.28	724.22	0.94	-0.93	0.94

Scientific Drilling International, Inc.
Survey Report



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-29B - Slot J
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8381' & RKB 30' @ 8411.00ft (H&P 353)
Site:	Cascade Creek 609-33 Pad	MD Reference:	GL 8381' & RKB 30' @ 8411.00ft (H&P 353)
Well:	CC 697-09-29B	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)
4,488.00	9.24	352.49	4,416.99	727.10	-135.67	739.27	0.77	0.09	-4.76
4,583.00	9.32	346.55	4,510.75	742.15	-138.46	754.56	1.01	0.08	-6.25
4,677.00	10.54	345.23	4,603.34	757.86	-142.42	770.76	1.32	1.30	-1.40
4,772.00	9.23	341.37	4,696.93	773.49	-147.07	787.02	1.54	-1.38	-4.06
4,867.00	9.67	346.82	4,790.64	788.48	-151.32	802.57	1.05	0.46	5.74
4,962.00	7.91	341.10	4,884.52	802.43	-155.26	817.04	2.07	-1.85	-8.02
5,056.00	7.91	338.56	4,977.63	814.57	-159.72	829.86	0.37	0.00	-2.70
5,151.00	8.27	348.40	5,071.69	827.35	-163.48	843.15	1.50	0.38	10.36
5,246.00	9.50	349.89	5,165.55	841.76	-166.23	857.81	1.32	1.29	1.57
5,340.00	10.55	350.86	5,258.11	857.89	-168.96	874.15	1.13	1.12	1.03
5,435.00	9.76	350.68	5,351.62	874.43	-171.65	890.88	0.83	-0.83	-0.19
5,530.00	9.23	349.72	5,445.32	889.87	-174.31	906.53	0.58	-0.56	-1.01
5,624.00	8.44	350.16	5,538.20	904.08	-176.84	920.96	0.84	-0.84	0.47
5,719.00	8.53	351.21	5,632.16	917.91	-179.10	934.95	0.19	0.09	1.11
5,814.00	6.42	346.03	5,726.35	930.03	-181.46	947.30	2.33	-2.22	-5.45
5,909.00	4.57	343.13	5,820.91	938.81	-183.84	956.38	1.97	-1.95	-3.05
6,003.00	4.04	340.67	5,914.64	945.52	-186.03	963.40	0.60	-0.56	-2.62
6,098.00	3.78	337.94	6,009.42	951.58	-188.31	969.81	0.34	-0.27	-2.87
6,193.00	3.52	345.67	6,104.23	957.31	-190.21	975.81	0.59	-0.27	8.14
6,288.00	2.81	341.54	6,199.09	962.34	-191.67	981.04	0.78	-0.75	-4.35
6,382.00	2.02	332.84	6,293.00	966.00	-193.15	984.94	0.92	-0.84	-9.26
6,477.00	1.85	315.26	6,387.95	968.58	-195.00	987.85	0.65	-0.18	-18.51
6,572.00	1.76	335.57	6,482.90	971.00	-196.68	990.57	0.68	-0.09	21.38
6,666.00	1.76	323.00	6,576.86	973.46	-198.15	993.30	0.41	0.00	-13.37
6,761.00	1.49	310.87	6,671.82	975.44	-199.96	995.62	0.46	-0.28	-12.77
6,856.00	2.46	325.20	6,766.76	977.92	-202.06	998.49	1.14	1.02	15.08
6,950.00	2.02	338.03	6,860.69	981.11	-203.83	1,001.99	0.71	-0.47	13.65
7,045.00	2.11	279.32	6,955.64	982.95	-206.18	1,004.29	2.13	0.09	-61.80
7,140.00	2.73	288.37	7,050.56	983.94	-210.05	1,006.09	0.76	0.65	9.53
7,234.00	3.61	312.89	7,144.41	986.66	-214.35	1,009.67	1.70	0.94	26.09
7,329.00	4.04	344.18	7,239.21	991.92	-217.45	1,015.48	2.21	0.45	32.94
7,423.00	3.87	359.30	7,332.99	998.28	-218.39	1,021.89	1.12	-0.18	16.09
7,518.00	3.08	353.94	7,427.82	1,004.02	-218.70	1,027.56	0.90	-0.83	-5.64
7,612.00	2.55	350.77	7,521.70	1,008.60	-219.30	1,032.16	0.59	-0.56	-3.37
7,707.00	2.29	353.06	7,616.62	1,012.57	-219.87	1,036.16	0.29	-0.27	2.41
7,802.00	1.93	349.19	7,711.55	1,016.02	-220.40	1,039.65	0.41	-0.38	-4.07
7,896.00	1.49	341.72	7,805.51	1,018.74	-221.08	1,042.45	0.52	-0.47	-7.95
7,991.00	1.41	312.72	7,900.48	1,020.70	-222.33	1,044.63	0.77	-0.08	-30.53
8,086.00	1.49	293.12	7,995.45	1,021.98	-224.32	1,046.31	0.53	0.08	-20.63
8,180.00	1.67	277.03	8,089.42	1,022.63	-226.80	1,047.48	0.51	0.19	-17.12
8,275.00	1.85	269.74	8,184.37	1,022.79	-229.71	1,048.26	0.30	0.19	-7.67
8,369.00	2.73	266.57	8,278.30	1,022.65	-233.46	1,048.93	0.95	0.94	-3.37
8,464.00	2.73	264.99	8,373.19	1,022.32	-237.98	1,049.58	0.08	0.00	-1.66

Scientific Drilling International, Inc.

Survey Report



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-29B - Slot J
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8381' & RKB 30' @ 8411.00ft (H&P 353)
Site:	Cascade Creek 609-33 Pad	MD Reference:	GL 8381' & RKB 30' @ 8411.00ft (H&P 353)
Well:	CC 697-09-29B	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)
8,559.00	2.64	265.08	8,468.08	1,021.93	-242.41	1,050.15	0.09	-0.09	0.09
8,653.00	2.55	264.38	8,561.99	1,021.54	-246.65	1,050.68	0.10	-0.10	-0.74
8,748.00	3.78	266.40	8,656.84	1,021.14	-251.88	1,051.41	1.30	1.29	2.13
8,843.00	3.17	259.10	8,751.67	1,020.45	-257.58	1,051.96	0.79	-0.64	-7.68
8,937.00	3.25	263.59	8,845.52	1,019.66	-262.78	1,052.31	0.28	0.09	4.78
9,021.00	3.78	258.84	8,929.36	1,018.85	-267.86	1,052.62	0.72	0.63	-5.65
Last SDI Production MWD Survey									
9,078.00	3.78	258.84	8,986.24	1,018.13	-271.55	1,052.71	0.00	0.00	0.00
Projection to TD - BHL = 632304.91, 1232238.91									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
78.00	78.00	-0.36	-0.25	First SDI Gyro Survey
722.00	720.86	25.09	-4.08	Last SDI Gyro Survey
800.00	798.43	33.31	-3.77	First SDI Surface MWD Survey
2,659.00	2,622.09	381.05	-83.93	Last SDI Surface MWD Survey
2,784.00	2,744.83	404.21	-88.65	First SDI Production MWD Survey
9,021.00	8,929.36	1,018.85	-267.86	Last SDI Production MWD Survey
9,078.00	8,986.24	1,018.13	-271.55	Projection to TD
9,078.00	8,986.24	1,018.13	-271.55	BHL = 632304.91, 1232238.91

Checked By: _____ Approved By: _____ Date: _____