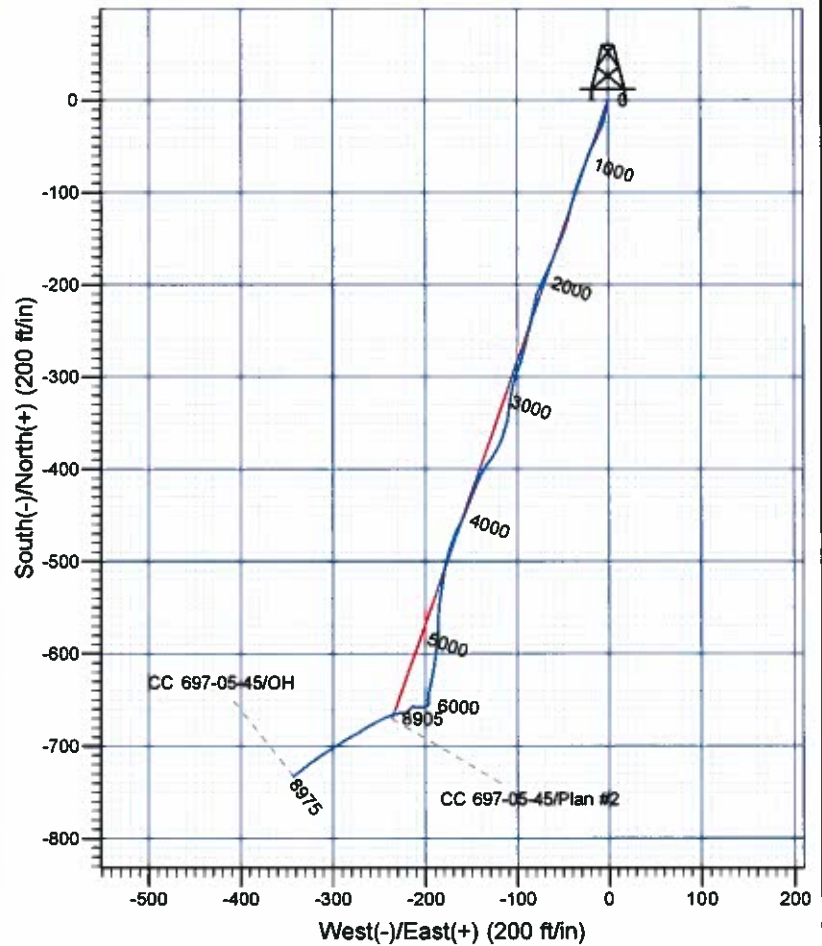
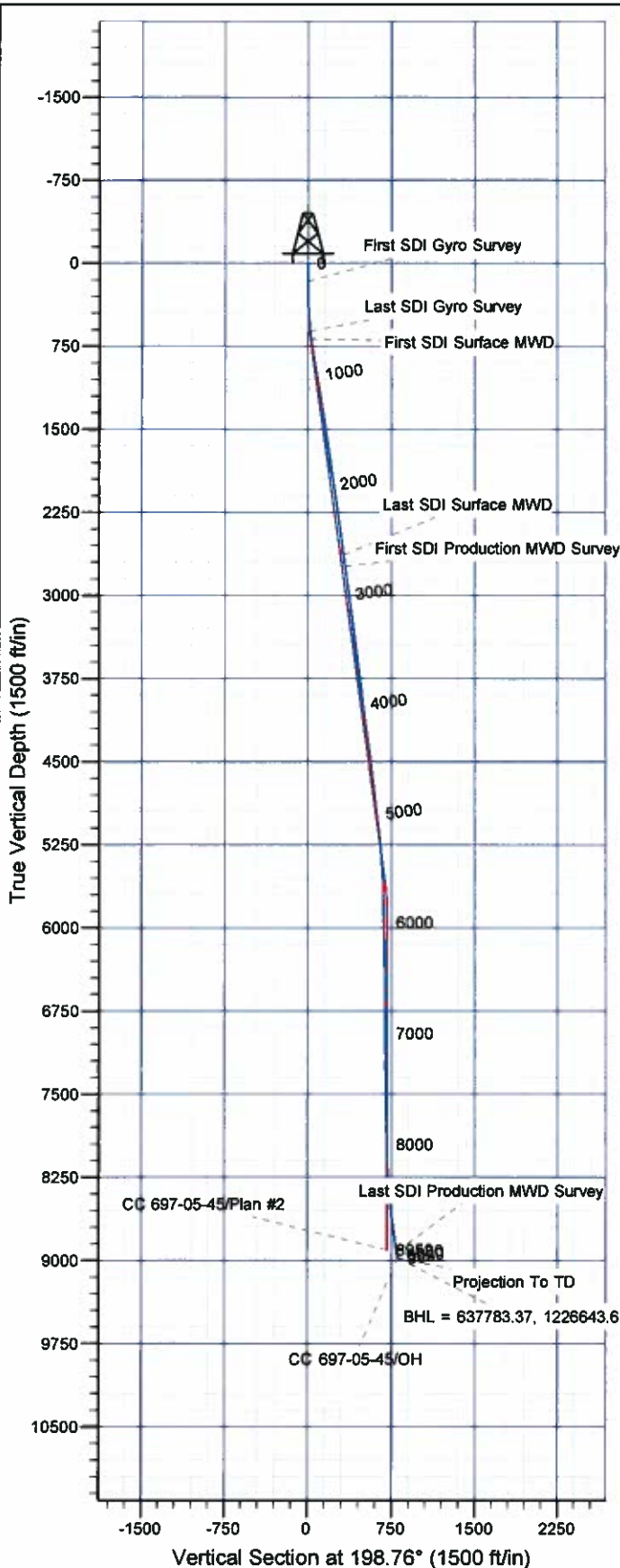




Scientific Drilling

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-05C Pad
Well: CC 697-05-45
Wellbore: OH
Design: OH



Well Details: CC 697-05-45

TVD Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353)		Level: 8423.00		Slot	
+N/-S	+E/-W	North	East	Latitude	Longitude
0.00	0.00	638505.57	1227007.93	39° 33' 16.177 N	108° 14' 30.418 W

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-45 - Slot C, True North

Vertical (TVD) Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353)

Section (VS) Reference: Slot - C(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

13:46, February 17 2012
Created By: Rex Hall

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-05C Pad
CC 697-05-45 - Slot C**

OH

Design: OH

Standard Survey Report

17 February, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-45 - Slot C
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 697-05-45	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 697-05-45 - Slot C					
Well Position	+N/-S	0.00 ft	Northing:	638,505.57 usft	Latitude:	39° 33' 16.177 N
	+E/-W	0.00 ft	Easting:	1,227,007.93 usft	Longitude:	108° 14' 30.418 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		198.76

Survey Program	Date	02/17/12			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
164.00	614.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
685.00	2,657.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard SCWSA	
2,763.00	9,030.00	Survey #3 - 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
164.00	0.09	55.81	164.00	0.07	0.11	-0.10	0.05	0.05	0.00
First SDI Gyro Survey									
255.00	0.44	201.36	255.00	-0.21	0.04	0.19	0.57	0.38	159.95
345.00	2.38	188.96	344.97	-2.38	-0.38	2.38	2.17	2.16	-13.78
435.00	2.55	195.47	434.88	-6.16	-1.20	6.22	0.36	0.19	7.23
525.00	4.84	189.84	524.69	-11.83	-2.39	11.97	2.57	2.54	-6.26
614.00	6.42	189.84	613.26	-20.43	-3.88	20.59	1.78	1.78	0.00

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-45 - Slot C
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 697-05-45	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 Gyro Survey									
685.00	7.83	206.40	683.72	-28.67	-6.71	29.31	3.49	1.99	23.32
First SDI Surface MWD									
775.00	9.85	205.60	772.64	-41.11	-12.76	43.03	2.25	2.24	-0.89
865.00	8.79	204.64	861.45	-54.30	-18.95	57.51	1.19	-1.18	-1.07
956.00	8.97	200.07	951.36	-67.29	-24.29	71.52	0.80	0.20	-5.02
1,050.00	10.29	202.35	1,044.04	-81.93	-30.00	87.23	1.46	1.40	2.43
1,145.00	8.35	197.25	1,137.78	-96.37	-35.27	102.59	2.22	-2.04	-5.37
1,240.00	8.53	194.62	1,231.75	-109.78	-39.09	116.52	0.45	0.19	-2.77
1,334.00	10.02	193.74	1,324.52	-124.47	-42.79	131.62	1.59	1.59	-0.94
1,428.00	8.00	200.51	1,417.36	-138.54	-47.03	146.30	2.42	-2.15	7.20
1,523.00	8.00	202.79	1,511.43	-150.83	-51.91	159.51	0.33	0.00	2.40
1,618.00	8.88	202.88	1,605.41	-163.68	-57.32	173.41	0.93	0.93	0.09
1,712.00	8.62	203.49	1,698.31	-176.82	-62.95	187.67	0.29	-0.28	0.65
1,807.00	8.62	204.64	1,792.24	-189.82	-68.75	201.85	0.18	0.00	1.21
1,901.00	8.88	207.45	1,885.14	-202.66	-75.03	216.03	0.53	0.28	2.99
1,996.00	7.47	191.98	1,979.19	-215.21	-79.70	229.41	2.74	-1.48	-16.28
2,090.00	7.47	191.89	2,072.39	-227.17	-82.22	241.54	0.01	0.00	-0.10
2,185.00	7.21	191.63	2,166.61	-239.05	-84.70	253.59	0.28	-0.27	-0.27
2,279.00	8.53	194.71	2,259.72	-251.57	-87.66	266.40	1.47	1.40	3.28
2,374.00	8.71	194.62	2,353.65	-265.35	-91.26	280.60	0.19	0.19	-0.09
2,468.00	8.18	195.67	2,446.63	-278.67	-94.86	294.38	0.59	-0.56	1.12
2,562.00	7.21	200.07	2,539.79	-290.65	-98.69	306.95	1.21	-1.03	4.68
2,657.00	7.12	197.87	2,634.04	-301.86	-102.55	318.80	0.30	-0.09	-2.32
Last SDI Surface MWD									
2,763.00	7.53	191.97	2,739.18	-314.90	-106.00	332.26	0.81	0.39	-5.57
First SDI Production MWD Survey									
2,857.00	7.74	188.90	2,832.35	-327.18	-108.26	344.62	0.49	0.22	-3.27
2,952.00	7.47	186.53	2,926.51	-339.64	-109.95	356.95	0.44	-0.28	-2.49
3,046.00	7.91	196.29	3,019.67	-351.92	-112.46	369.39	1.46	0.47	10.38
3,140.00	7.56	195.06	3,112.81	-364.10	-115.88	382.02	0.41	-0.37	-1.31
3,235.00	8.35	209.82	3,206.91	-376.12	-120.94	395.03	2.30	0.83	15.54
3,330.00	8.09	212.55	3,300.93	-387.74	-127.96	408.29	0.49	-0.27	2.87
3,424.00	7.83	215.80	3,394.03	-398.50	-135.27	420.84	0.55	-0.28	3.46
3,519.00	8.27	203.76	3,488.10	-410.01	-141.81	433.83	1.83	0.46	-12.67
3,614.00	7.56	201.74	3,582.19	-422.07	-146.87	446.88	0.80	-0.75	-2.13
3,708.00	7.12	201.65	3,675.42	-433.22	-151.31	458.87	0.47	-0.47	-0.10
3,803.00	6.68	201.91	3,769.73	-443.82	-155.55	470.27	0.46	-0.46	0.27
3,897.00	6.42	204.02	3,863.12	-453.69	-159.73	480.96	0.38	-0.28	2.24
3,992.00	6.07	206.66	3,957.56	-463.03	-164.14	491.23	0.48	-0.37	2.78
4,086.00	7.12	204.73	4,050.93	-472.77	-168.81	501.94	1.14	1.12	-2.05
4,181.00	8.35	195.76	4,145.07	-484.76	-173.15	514.69	1.81	1.29	-9.44
4,275.00	7.83	196.90	4,238.14	-497.45	-176.86	527.90	0.58	-0.55	1.21
4,369.00	8.44	187.59	4,331.19	-510.42	-179.63	541.07	1.54	0.65	-9.90

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-45 - Slot C
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 697-05-45	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	7.65	187.67	4,425.26	-523.59	-181.40	554.12	0.83	-0.83	0.08
4,559.00	7.30	188.03	4,519.45	-535.84	-183.09	566.25	0.37	-0.37	0.38
4,653.00	6.33	189.43	4,612.79	-546.86	-184.77	577.23	1.05	-1.03	1.49
4,748.00	6.51	181.79	4,707.19	-557.41	-185.80	587.55	0.92	0.19	-8.04
4,843.00	6.60	178.09	4,801.57	-568.25	-185.78	597.81	0.45	0.09	-3.89
4,937.00	7.12	185.21	4,894.90	-579.45	-186.13	608.53	1.06	0.55	7.57
5,032.00	7.12	187.85	4,989.17	-591.15	-187.47	620.03	0.34	0.00	2.78
5,126.00	6.51	188.82	5,082.50	-602.18	-189.08	631.00	0.66	-0.65	1.03
5,221.00	6.33	188.82	5,176.91	-612.68	-190.71	641.46	0.19	-0.19	0.00
5,315.00	5.98	188.64	5,270.36	-622.64	-192.24	651.39	0.37	-0.37	-0.19
5,410.00	4.57	194.88	5,364.96	-631.19	-193.96	660.04	1.60	-1.48	6.57
5,504.00	4.13	193.12	5,458.69	-638.11	-195.69	667.14	0.49	-0.47	-1.87
5,599.00	2.64	188.38	5,553.52	-643.61	-196.78	672.70	1.59	-1.57	-4.99
5,693.00	1.06	172.91	5,647.47	-646.61	-196.99	675.61	1.75	-1.68	-16.46
5,788.00	1.06	176.86	5,742.45	-648.36	-196.83	677.22	0.08	0.00	4.16
5,882.00	0.97	181.61	5,836.44	-650.02	-196.81	678.78	0.13	-0.10	5.05
5,977.00	1.14	185.13	5,931.42	-651.77	-196.92	680.47	0.19	0.18	3.71
6,071.00	0.79	182.93	6,025.41	-653.35	-197.03	682.00	0.37	-0.37	-2.34
6,166.00	1.49	181.96	6,120.39	-655.23	-197.11	683.81	0.74	0.74	-1.02
6,260.00	1.23	246.03	6,214.37	-656.87	-198.07	685.67	1.55	-0.28	68.16
6,355.00	1.67	260.54	6,309.34	-657.51	-200.37	687.02	0.60	0.46	15.27
6,449.00	2.73	263.35	6,403.27	-657.99	-203.94	688.62	1.13	1.13	2.99
6,543.00	2.37	267.65	6,497.17	-658.33	-208.11	690.28	0.43	-0.38	4.57
6,638.00	1.76	288.13	6,592.11	-657.96	-211.46	691.01	1.00	-0.64	21.56
6,732.00	0.70	301.93	6,686.09	-657.21	-213.32	690.89	1.16	-1.13	14.68
6,827.00	0.18	287.17	6,781.09	-656.85	-213.95	690.77	0.56	-0.55	-15.54
6,921.00	0.18	216.41	6,875.09	-656.93	-214.18	690.91	0.22	0.00	-75.28
7,016.00	0.70	204.73	6,970.08	-657.58	-214.51	691.63	0.55	0.55	-12.29
7,111.00	1.67	219.32	7,065.06	-659.17	-215.63	693.50	1.06	1.02	15.36
7,205.00	1.58	221.78	7,159.02	-661.20	-217.36	695.98	0.12	-0.10	2.62
7,300.00	1.85	239.09	7,253.98	-662.97	-219.55	698.35	0.61	0.28	18.22
7,394.00	1.32	258.69	7,347.95	-663.96	-221.92	700.05	0.80	-0.56	20.85
7,489.00	0.44	302.99	7,442.94	-663.97	-223.30	700.51	1.11	-0.93	46.63
7,583.00	0.97	269.41	7,536.93	-663.78	-224.39	700.69	0.69	0.56	-35.72
7,678.00	1.58	262.03	7,631.90	-663.97	-226.49	701.54	0.66	0.64	-7.77
7,772.00	1.49	244.54	7,725.87	-664.68	-228.88	702.98	0.51	-0.10	-18.61
7,867.00	1.06	261.33	7,820.85	-665.34	-230.87	704.24	0.60	-0.45	17.67
7,961.00	1.67	260.01	7,914.82	-665.71	-233.07	705.30	0.65	0.65	-1.40
8,056.00	2.55	251.22	8,009.76	-666.63	-236.44	707.26	0.98	0.93	-9.25
8,150.00	3.43	248.14	8,103.63	-668.35	-241.03	710.36	0.95	0.94	-3.28
8,245.00	4.48	244.45	8,198.40	-671.01	-247.01	714.80	1.14	1.11	-3.88
8,339.00	5.10	241.46	8,292.07	-674.59	-254.00	720.44	0.71	0.66	-3.18
8,434.00	6.68	239.18	8,386.57	-679.44	-262.45	727.75	1.68	1.66	-2.40

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 897-05-45 - Slot C
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 697-05-45	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)
8,528.00	8.35	238.91	8,479.76	-685.76	-272.99	737.13	1.78	1.78	-0.29
8,623.00	9.15	240.58	8,573.65	-693.04	-285.48	748.03	0.88	0.84	1.76
8,717.00	9.50	237.16	8,666.41	-700.92	-298.51	759.68	0.70	0.37	-3.64
8,812.00	9.94	235.84	8,760.04	-709.77	-311.88	772.37	0.52	0.46	-1.39
8,906.00	10.11	233.38	8,852.61	-719.25	-325.21	785.63	0.49	0.18	-2.62
8,975.00	10.20	230.83	8,920.53	-726.72	-334.81	795.79	0.66	0.13	-3.70
Last SDI Production MWD Survey									
9,030.00	10.20	230.83	8,974.66	-732.87	-342.36	804.05	0.00	0.00	0.00
Projection To TD - BHL = 637783.37, 1226643.61									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
164.00	164.00	0.07	0.11	First SDI Gyro Survey
614.00	613.26	-20.43	-3.88	Last SDI Gyro Survey
685.00	683.72	-28.67	-6.71	First SDI Surface MWD
2,657.00	2,634.04	-301.86	-102.55	Last SDI Surface MWD
2,763.00	2,739.18	-314.90	-106.00	First SDI Production MWD Survey
8,975.00	8,920.53	-726.72	-334.81	Last SDI Production MWD Survey
9,030.00	8,974.66	-732.87	-342.36	Projection To TD
9,030.00	8,974.66	-732.87	-342.36	BHL = 637783.37, 1226643.61

Checked By: _____ Approved By: _____ Date: _____