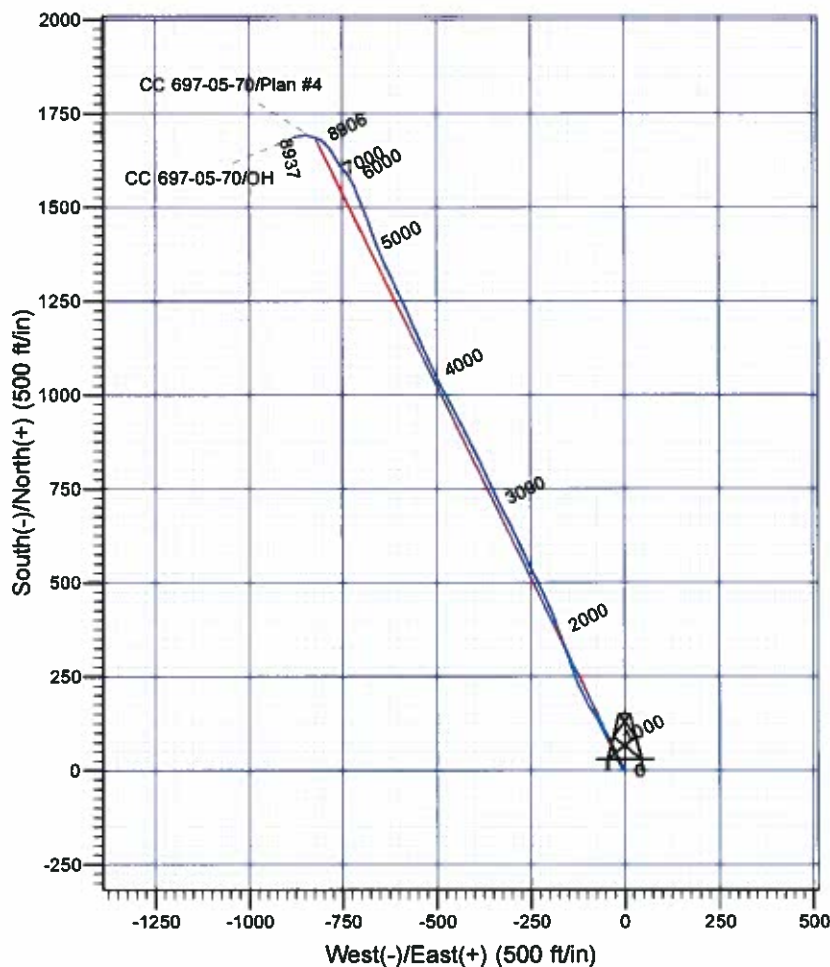
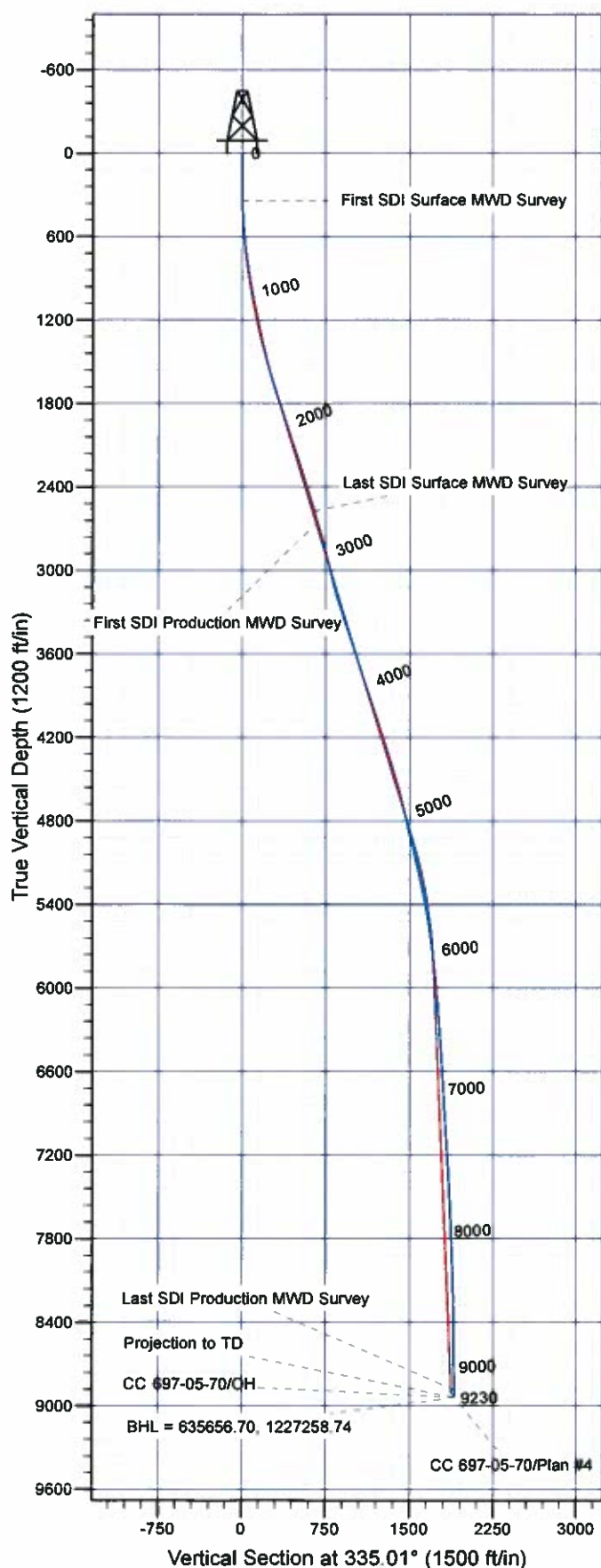




Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMA
Project: Garfield County, CO NAD27
Site: Cascade Creek 608-41 Pad
Well: CC 697-05-70
Wellbore: OH
Design: OH



Well Details: CC 697-05-70

+N/-S	+E/-W	North	East	Latitude	Longitude	Slot
0.00	0.00	633944.31	1228085.39	39° 32' 31.437 N	108° 14' 14.913 W	Q

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-05-70 - Slot Q, True North
Vertical (TVD) Reference: GL 8407' & RKB 30' @ 8437.00ft (H&P)
Section (VS) Reference: Slot - Q(0.00N, 0.00E)
Measured Depth Reference: GL 8407' & RKB 30' @ 8437.00ft (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

10:52, July 26 2011
Created By: Janie Cooke

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 608-41 Pad
CC 697-05-70 - Slot Q**

OH

Design: OH

Standard Survey Report

26 July, 2011





Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-70 - Slot Q
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Site:	Cascade Creek 608-41 Pad	MD Reference:	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Well:	CC 697-05-70	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 608-41 Pad, Section 8 T6S R97W				
Site Position:		Northing:	633,966.95 usft	Latitude:	39° 32' 31.685 N
From:	Map	Easting:	1,228,168.67 usft	Longitude:	108° 14' 13.859 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.73 °

Well	CC 697-05-70 - Slot Q				
Well Position	+N/-S	0.00 ft	Northing:	633,944.31 usft	Latitude: 39° 32' 31.437 N
	+E/-W	0.00 ft	Easting:	1,228,085.39 usft	Longitude: 108° 14' 14.913 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level: 8,407.00 ft

Wellbore	OH				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/31/2009	10.63	65.78	52,399

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	335.01

Survey Program		Date	7/26/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
341.00	2,681.00	Survey #1 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,763.00	9,230.00	Survey #2 - 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)	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
341.00	1.19	295.77	340.98	1.54	-3.19	2.74	0.35	0.35	0.00
First SDI Surface MWD Survey									
432.00	3.17	329.43	431.91	4.12	-5.32	5.98	2.50	2.18	36.99
524.00	5.01	330.05	523.67	9.79	-8.62	12.51	2.00	2.00	0.67
616.00	7.30	333.47	615.13	18.50	-13.24	22.36	2.52	2.49	3.72
708.00	9.15	335.93	706.18	30.41	-18.83	35.52	2.05	2.01	2.67
800.00	11.02	333.25	796.76	44.94	-25.77	51.62	2.10	2.03	-2.91
892.00	11.87	331.89	886.93	61.14	-34.19	69.86	0.97	0.92	-1.48
984.00	12.57	334.62	976.84	78.53	-42.94	89.32	0.99	0.76	2.97



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-70 - Slot Q
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Site:	Cascade Creek 608-41 Pad	MD Reference:	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Well:	CC 697-05-70	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)	
1,079.00	13.72	333.21	1,069.35	97.93	-52.45	110.92	1.26	1.21	-1.48	
1,173.00	14.86	332.77	1,160.44	118.60	-62.99	134.10	1.22	1.21	-0.47	
1,268.00	15.21	329.52	1,252.19	140.17	-74.88	158.68	0.96	0.37	-3.42	
1,362.00	15.30	325.92	1,342.88	161.07	-88.09	183.20	1.01	0.10	-3.83	
1,457.00	16.44	330.84	1,434.26	183.19	-101.66	208.99	1.86	1.20	5.18	
1,552.00	18.38	334.27	1,524.91	208.43	-114.72	237.38	2.31	2.04	3.61	
1,646.00	20.22	338.31	1,613.63	236.87	-127.15	268.42	2.42	1.96	4.30	
1,741.00	22.07	340.42	1,702.23	268.95	-139.20	302.58	2.11	1.95	2.22	
1,835.00	22.16	341.56	1,789.31	302.40	-150.73	337.77	0.47	0.10	1.21	
1,930.00	22.42	340.33	1,877.22	336.46	-162.50	373.61	0.56	0.27	-1.29	
2,024.00	22.34	340.24	1,964.14	370.15	-174.57	409.25	0.09	-0.09	-0.10	
2,119.00	22.07	337.87	2,052.09	403.68	-187.40	445.05	0.98	-0.28	-2.49	
2,213.00	22.07	336.46	2,139.20	436.23	-201.10	480.35	0.56	0.00	-1.50	
2,308.00	21.63	334.44	2,227.38	468.39	-215.79	515.70	0.92	-0.46	-2.13	
2,403.00	21.81	333.83	2,315.64	500.02	-231.12	550.85	0.30	0.19	-0.64	
2,497.00	21.98	332.68	2,402.86	531.32	-246.90	585.88	0.49	0.18	-1.22	
2,592.00	21.02	334.53	2,491.25	562.50	-262.38	620.69	1.24	-1.01	1.95	
2,681.00	19.79	336.02	2,574.66	590.68	-275.37	651.71	1.50	-1.38	1.67	
Last SDI Surface MWD Survey										
2,763.00	19.36	336.29	2,651.92	615.81	-286.48	679.18	0.54	-0.52	0.33	
First SDI Production MWD Survey										
2,858.00	19.61	333.65	2,741.48	644.51	-299.89	710.86	0.96	0.26	-2.78	
2,952.00	17.59	330.75	2,830.57	671.04	-313.83	740.80	2.36	-2.15	-3.09	
3,047.00	16.71	332.95	2,921.35	695.73	-327.06	768.76	1.15	-0.93	2.32	
3,142.00	17.23	335.06	3,012.21	720.65	-339.20	796.48	0.85	0.55	2.22	
3,236.00	16.62	335.58	3,102.14	745.51	-350.63	823.85	0.67	-0.65	0.55	
3,331.00	20.58	335.41	3,192.16	773.08	-363.20	854.14	4.17	4.17	-0.18	
3,425.00	22.07	334.00	3,279.72	803.98	-377.82	888.32	1.68	1.59	-1.50	
3,520.00	22.34	334.35	3,367.67	836.29	-393.46	924.22	0.32	0.28	0.37	
3,614.00	22.42	334.18	3,454.59	868.53	-409.00	960.01	0.11	0.09	-0.18	
3,709.00	21.54	332.86	3,542.69	900.36	-424.84	995.55	1.06	-0.93	-1.39	
3,803.00	21.81	332.95	3,630.04	931.27	-440.65	1,030.24	0.29	0.29	0.10	
3,898.00	22.07	332.33	3,718.16	962.79	-456.97	1,065.71	0.37	0.27	-0.65	
3,992.00	21.19	331.28	3,805.54	993.33	-473.33	1,100.30	1.02	-0.94	-1.12	
4,082.00	22.42	332.42	3,889.10	1,022.81	-489.10	1,133.68	1.45	1.37	1.27	
4,181.00	22.86	335.14	3,980.48	1,056.99	-505.92	1,171.77	1.15	0.44	2.75	
4,276.00	22.07	336.37	4,068.27	1,090.09	-520.83	1,208.07	0.97	-0.83	1.29	
4,370.00	21.72	335.93	4,155.49	1,122.15	-535.01	1,243.11	0.41	-0.37	-0.47	
4,465.00	21.37	336.46	4,243.85	1,154.07	-549.09	1,277.99	0.42	-0.37	0.56	
4,559.00	21.54	336.02	4,331.33	1,185.53	-562.94	1,312.37	0.25	0.18	-0.47	
4,654.00	20.22	335.32	4,420.09	1,216.39	-576.88	1,346.22	1.41	-1.39	-0.74	
4,749.00	19.96	336.46	4,509.31	1,246.17	-590.22	1,378.85	0.49	-0.27	1.20	
4,843.00	18.82	336.02	4,597.98	1,274.73	-602.79	1,410.05	1.22	-1.21	-0.47	



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-70 - Slot Q
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Site:	Cascade Creek 608-41 Pad	MD Reference:	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Well:	CC 697-05-70	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)
4,937.00	16.53	334.27	4,687.54	1,300.64	-614.76	1,438.58	2.50	-2.44	-1.86
5,032.00	15.56	332.33	4,778.84	1,324.10	-626.54	1,464.83	1.17	-1.02	-2.04
5,127.00	15.83	336.55	4,870.30	1,347.27	-637.61	1,490.51	1.23	0.28	4.44
5,221.00	16.27	336.73	4,960.63	1,371.13	-647.92	1,516.49	0.47	0.47	0.19
5,315.00	16.71	339.10	5,050.77	1,395.85	-657.94	1,543.13	0.86	0.47	2.52
5,410.00	16.09	340.24	5,141.90	1,421.00	-667.26	1,569.86	0.74	-0.65	1.20
5,504.00	16.00	340.68	5,232.24	1,445.48	-675.95	1,595.72	0.16	-0.10	0.47
5,599.00	14.33	339.98	5,323.93	1,468.89	-684.31	1,620.47	1.77	-1.76	-0.74
5,694.00	12.40	337.52	5,416.35	1,489.36	-692.24	1,642.37	2.12	-2.03	-2.59
5,788.00	11.70	338.40	5,508.28	1,507.55	-699.60	1,661.97	0.77	-0.74	0.94
5,883.00	9.94	337.60	5,601.59	1,524.08	-706.28	1,679.78	1.86	-1.85	-0.84
5,977.00	8.79	338.75	5,694.33	1,538.28	-711.97	1,695.05	1.24	-1.22	1.22
6,072.00	7.83	339.98	5,788.34	1,551.13	-716.82	1,708.74	1.03	-1.01	1.29
6,166.00	7.12	333.83	5,881.54	1,562.37	-721.58	1,720.94	1.14	-0.76	-6.54
6,261.00	6.95	330.31	5,975.82	1,572.65	-727.02	1,732.56	0.49	-0.18	-3.71
6,355.00	6.77	328.20	6,069.15	1,582.30	-732.76	1,743.73	0.33	-0.19	-2.24
6,450.00	5.80	321.43	6,163.58	1,590.81	-738.70	1,753.95	1.28	-1.02	-7.13
6,544.00	5.45	316.69	6,257.13	1,597.77	-744.73	1,762.81	0.62	-0.37	-5.04
6,639.00	4.92	318.80	6,351.74	1,604.12	-750.50	1,771.00	0.59	-0.56	2.22
6,733.00	4.40	328.90	6,445.43	1,610.24	-755.02	1,778.46	1.03	-0.55	10.74
6,828.00	3.96	327.76	6,540.18	1,616.13	-758.65	1,785.34	0.47	-0.46	-1.20
6,922.00	3.87	322.40	6,633.96	1,621.39	-762.32	1,791.65	0.40	-0.10	-5.70
7,017.00	4.57	324.95	6,728.70	1,627.03	-766.45	1,798.51	0.76	0.74	2.68
7,111.00	4.75	332.42	6,822.39	1,633.55	-770.40	1,806.08	0.67	0.19	7.95
7,206.00	4.66	332.24	6,917.07	1,640.45	-774.02	1,813.87	0.10	-0.09	-0.19
7,300.00	4.57	326.62	7,010.76	1,646.95	-777.86	1,821.38	0.49	-0.10	-5.98
7,395.00	4.48	326.71	7,105.47	1,653.22	-781.98	1,828.80	0.10	-0.09	0.09
7,489.00	3.78	325.04	7,199.22	1,658.82	-785.77	1,835.48	0.76	-0.74	-1.78
7,584.00	3.87	317.74	7,294.01	1,663.76	-789.72	1,841.63	0.52	0.09	-7.68
7,678.00	4.31	307.81	7,387.77	1,668.28	-794.64	1,847.80	0.89	0.47	-10.56
7,773.00	3.52	316.25	7,482.55	1,672.57	-799.48	1,853.74	1.03	-0.83	8.88
7,867.00	3.69	310.10	7,576.37	1,676.60	-803.79	1,859.21	0.45	0.18	-6.54
7,962.00	3.78	295.59	7,671.17	1,679.93	-808.95	1,864.41	1.00	0.09	-15.27
8,057.00	3.78	296.03	7,765.96	1,682.65	-814.59	1,869.26	0.03	0.00	0.46
8,151.00	4.66	285.31	7,859.71	1,685.02	-821.06	1,874.14	1.25	0.94	-11.40
8,245.00	4.75	282.23	7,953.39	1,686.85	-828.54	1,878.96	0.29	0.10	-3.28
8,340.00	3.43	281.35	8,048.15	1,688.25	-835.18	1,883.03	1.39	-1.39	-0.93
8,434.00	2.55	287.24	8,142.02	1,689.42	-839.93	1,886.10	0.99	-0.94	6.27
8,528.00	1.58	306.84	8,235.96	1,690.82	-842.96	1,888.65	1.26	-1.03	20.85
8,623.00	1.41	293.48	8,330.92	1,692.07	-845.08	1,890.68	0.41	-0.18	-14.06
8,717.00	1.85	264.66	8,424.89	1,692.39	-847.66	1,892.05	0.97	0.47	-30.66
8,811.00	2.55	257.71	8,518.82	1,691.80	-851.21	1,893.02	0.80	0.74	-7.39
8,906.00	2.99	260.00	8,613.71	1,690.92	-855.71	1,894.13	0.48	0.46	2.41
9,001.00	3.43	260.17	8,708.56	1,690.01	-860.95	1,895.51	0.46	0.46	0.18



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-70 - Slot Q
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Site:	Cascade Creek 608-41 Pad	MD Reference:	GL 8407' & RKB 30' @ 8437.00ft (H&P)
Well:	CC 697-05-70	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)
9,095.00	4.22	259.47	8,802.35	1,688.89	-867.13	1,897.11	0.84	0.84	-0.74
9,175.00	4.84	258.15	8,882.10	1,687.66	-873.32	1,898.62	0.79	0.78	-1.65
Last SDI Production MWD Survey									
9,230.00	4.84	258.15	8,936.90	1,686.71	-877.86	1,899.67	0.00	0.00	0.00
Projection to TD - BHL = 635656.70, 1227258.74									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
341.00	340.98	1.54	-3.19	First SDI Surface MWD Survey
2,681.00	2,574.66	590.68	-275.37	Last SDI Surface MWD Survey
2,763.00	2,651.92	615.81	-286.48	First SDI Production MWD Survey
9,175.00	8,882.10	1,687.66	-873.32	Last SDI Production MWD Survey
9,230.00	8,936.90	1,686.71	-877.86	Projection to TD
9,230.00	8,936.90	1,686.71	-877.86	BHL = 635656.70, 1227258.74

Checked By: _____ Approved By: _____ Date: _____