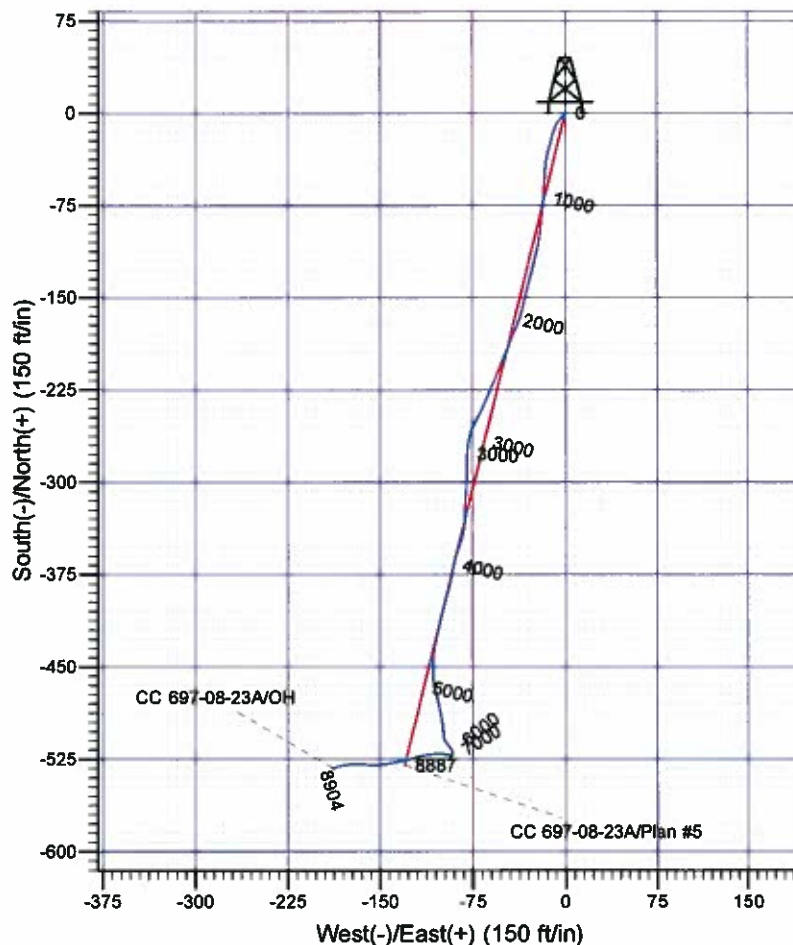
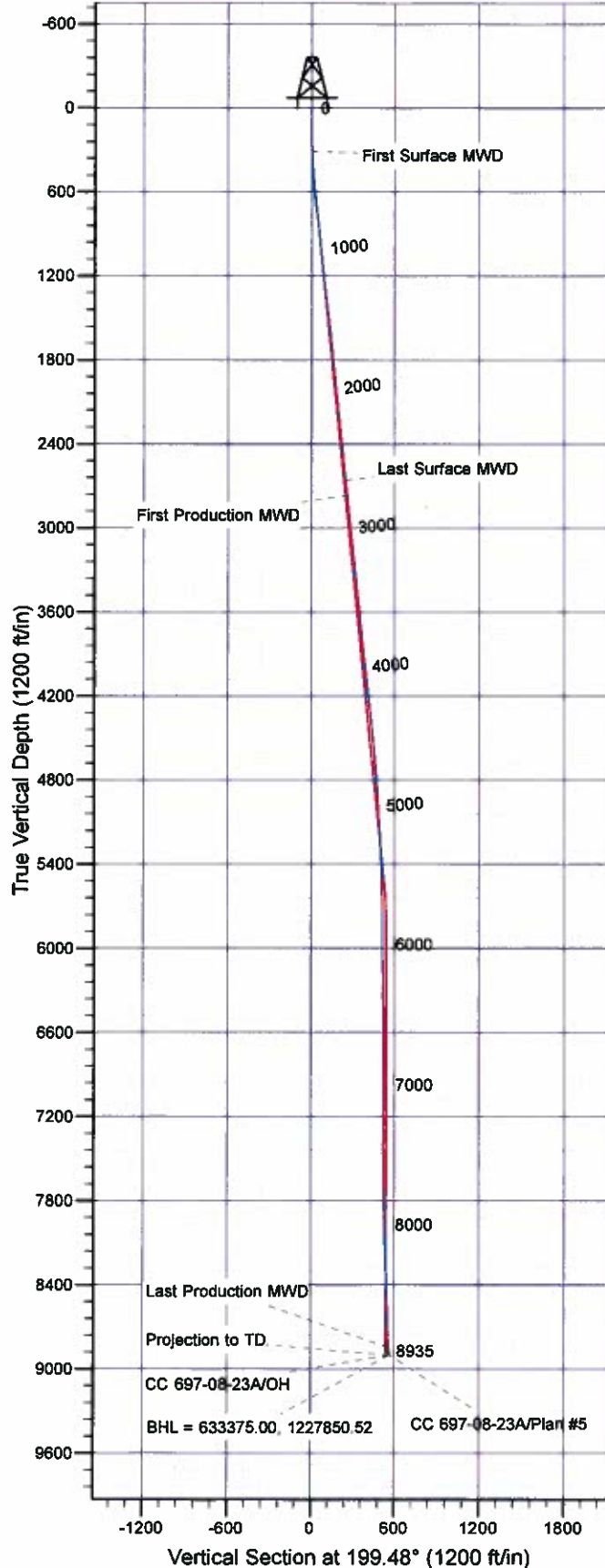




**Scientific Drilling**  
Rocky Mountain Operations

Company: OXY USA RMAT  
Project: Garfield County, CO NAD27  
Site: Cascade Creek 608-41 Pad  
Well: CC 697-08-23A  
Wellbore: OH  
Design: OH



#### Well Details: CC 697-08-23A

TVD Reference: GL 8407' & RKB 30' @ 8437.00ft (H&P)		Easting		Latitude		Longitude		Slot
+N/-S	+E/-W	North	East	39° 32'	31.005 N	108° 14'	15.288 W	L
0.00	0.00	633901.50	1228054.76					

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-08-23A - Slot L, True North  
Vertical (TVD) Reference: GL 8407' & RKB 30' @ 8437.00ft (H&P)  
Section (VS) Reference: Slot - L(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

14:16, April 18 2011  
Created By: Janie Cooke

# **OXY USA RMAT**

**Garfield County, CO NAD27**

**Cascade Creek 608-41 Pad**

**CC 697-08-23A - Slot L**

**OH**

**Design: OH**

## **Standard Survey Report**

**18 April, 2011**

**Scientific Drilling International, Inc.**  
Survey Report

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-08-23A - Slot L
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8407' & RKB 30' @ 8437.00ft (H&P)
<b>Site:</b>	Cascade Creek 608-41 Pad	<b>MD Reference:</b>	GL 8407' & RKB 30' @ 8437.00ft (H&P)
<b>Well:</b>	CC 697-08-23A	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM-R5000-JanieCooke-Local

<b>Project</b>	Garfield County, CO NAD27		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Colorado Central 502		

Site		Cascade Creek 608-41 Pad, SECTION 8 T6S R97W			
Site Position:		Northing:		633,966.95 usft	
From:		Easting:		1,228,168.67 usft	
Position Uncertainty:		Slot Radius:		13.200 in	
Map		Latitude:		39° 32' 31.685 N	
0.00 ft		Longitude:		108° 14' 13.859 W	
		Grid Convergence:		-1.73 °	

Well	CC 697-08-23A - Slot L,					
Well Position	+N/-S	0.00 ft	Northing:	633,901.50 usft	Latitude:	39° 32' 31.005 N
	+E/-W	0.00 ft	Easting:	1,228,054.76 usft	Longitude:	108° 14' 15.288 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,407.00 ft

<b>Wellbore</b>	OH
-----------------	----

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/15/2008	10.80	65.80	52,494

<b>Design</b>	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	199.48

Survey Program		Date	4/18/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
310.00	2,674.00	Survey #1 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,781.00	8,935.00	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
	310.00	1.11	218.37	309.98	-2.35	-1.88	2.84	0.36	0.36	0.00
<b>First Surface MWD</b>										
	340.00	1.64	225.56	339.97	-2.88	-2.35	3.50	1.85	1.77	23.97
	432.00	3.33	215.05	431.88	-5.99	-4.83	7.26	1.89	1.84	-11.42
	523.00	4.12	207.66	522.69	-11.05	-7.86	13.04	1.01	0.87	-8.12
	615.00	6.13	195.46	614.32	-18.71	-10.70	21.21	2.47	2.18	-13.26
	707.00	8.52	194.23	705.58	-30.06	-13.69	32.90	2.60	2.60	-1.34
	801.00	7.36	185.97	798.66	-42.79	-16.03	45.69	1.73	-1.23	-8.79
	895.00	5.79	182.58	892.04	-53.52	-16.87	58.08	1.72	-1.67	-3.61

# Scientific Drilling International, Inc.

## Survey Report

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-08-23A - Slot L
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8407' & RKB 30' @ 8437.00ft (H&P)
<b>Site:</b>	Cascade Creek 608-41 Pad	<b>MD Reference:</b>	GL 8407' & RKB 30' @ 8437.00ft (H&P)
<b>Well:</b>	CC 697-08-23A	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM-R5000-JanieCooke-Local

### 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)
990.00	6.99	181.65	986.45	-64.09	-17.25	66.17	1.27	1.26	-0.98
1,084.00	5.58	187.02	1,079.88	-74.34	-17.97	76.08	1.82	-1.50	5.71
1,179.00	6.06	186.52	1,174.39	-83.91	-19.11	85.48	0.51	0.51	-0.53
1,273.00	7.15	186.45	1,267.77	-94.65	-20.33	96.01	1.16	1.16	-0.07
1,368.00	7.32	190.71	1,362.01	-106.47	-22.12	107.75	0.59	0.18	4.48
1,463.00	6.80	195.16	1,456.29	-117.85	-24.71	119.34	0.79	-0.55	4.68
1,557.00	7.39	192.32	1,549.57	-129.12	-27.46	130.89	0.73	0.63	-3.02
1,652.00	5.79	196.94	1,643.94	-139.68	-30.16	141.74	1.77	-1.68	4.86
1,746.00	5.67	195.04	1,737.47	-148.70	-32.74	151.11	0.24	-0.13	-2.02
1,841.00	5.41	191.12	1,832.03	-157.62	-34.83	160.22	0.48	-0.27	-4.13
1,935.00	6.00	197.93	1,925.56	-166.65	-37.19	169.51	0.95	0.63	7.24
2,030.00	6.25	204.27	2,020.02	-176.08	-40.85	179.63	0.76	0.26	6.67
2,125.00	6.75	200.69	2,114.41	-186.02	-44.94	190.36	0.68	0.53	-3.77
2,219.00	6.08	202.84	2,207.82	-195.78	-48.83	200.86	0.76	-0.71	2.29
2,313.00	6.36	200.51	2,301.27	-205.24	-52.59	211.03	0.40	0.30	-2.48
2,408.00	6.00	203.86	2,395.72	-214.71	-56.44	221.24	0.54	-0.38	3.53
2,502.00	5.63	203.51	2,489.24	-223.43	-60.26	230.74	0.40	-0.39	-0.37
2,597.00	6.68	201.14	2,583.69	-232.86	-64.12	240.91	1.14	1.11	-2.49
2,674.00	6.33	205.36	2,660.19	-240.87	-67.55	249.61	0.77	-0.45	5.48
<b>Last Surface MWD</b>									
2,781.00	6.07	210.54	2,766.57	-251.07	-72.95	261.03	0.58	-0.24	4.84
<b>First Production MWD</b>									
2,876.00	6.07	194.11	2,861.04	-260.27	-76.73	270.96	1.82	0.00	-17.29
2,970.00	5.45	189.89	2,954.57	-269.49	-78.71	280.31	0.80	-0.66	-4.49
3,065.00	6.16	179.60	3,049.08	-279.03	-79.44	289.55	1.32	0.75	-10.83
3,159.00	5.80	180.83	3,142.57	-288.82	-79.48	298.80	0.41	-0.38	1.31
3,254.00	7.21	183.21	3,236.96	-299.58	-79.88	309.07	1.51	1.48	2.51
3,348.00	6.60	184.00	3,330.27	-310.85	-80.59	319.94	0.66	-0.65	0.84
3,443.00	6.51	181.63	3,424.65	-321.68	-81.12	330.33	0.30	-0.09	-2.49
3,538.00	5.63	181.80	3,519.12	-331.73	-81.42	339.89	0.93	-0.93	0.18
3,632.00	6.42	194.46	3,612.60	-341.42	-82.88	349.52	1.64	0.84	13.47
3,726.00	6.07	197.27	3,706.04	-351.26	-85.67	359.72	0.49	-0.37	2.99
3,821.00	5.54	197.18	3,800.56	-360.44	-88.51	369.32	0.56	-0.56	-0.09
3,915.00	6.77	190.24	3,894.02	-370.22	-90.84	379.33	1.53	1.31	-7.38
4,010.00	6.07	191.91	3,988.42	-380.65	-92.87	389.83	0.76	-0.74	1.76
4,104.00	5.63	198.95	4,081.93	-389.87	-95.39	399.37	0.89	-0.47	7.49
4,199.00	6.95	192.35	4,176.36	-399.90	-98.14	409.73	1.58	1.39	-6.95
4,293.00	6.60	192.00	4,269.70	-410.73	-100.48	420.73	0.37	-0.37	-0.37
4,388.00	6.24	193.93	4,364.11	-421.09	-102.85	431.29	0.44	-0.38	2.03
4,483.00	6.07	194.11	4,458.56	-430.97	-105.32	441.42	0.18	-0.18	0.19
4,577.00	6.24	183.47	4,552.02	-440.89	-106.84	451.28	1.23	0.18	-11.32
4,672.00	5.63	181.89	4,646.51	-450.70	-107.31	460.69	0.66	-0.64	-1.66
4,766.00	4.66	176.88	4,740.13	-459.12	-107.25	468.61	1.14	-1.03	-5.33



# Scientific Drilling International, Inc.

## Survey Report

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-08-23A - Slot L
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8407' & RKB 30' @ 8437.00ft (H&P)
<b>Site:</b>	Cascade Creek 608-41 Pad	<b>MD Reference:</b>	GL 8407' & RKB 30' @ 8437.00ft (H&P)
<b>Well:</b>	CC 697-08-23A	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM-R5000-JanieCooke-Local

### 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)
4,861.00	4.84	165.10	4,834.81	-486.85	-106.01	475.48	1.04	0.19	-12.40
4,955.00	4.40	164.66	4,928.50	-474.16	-104.04	481.71	0.47	-0.47	-0.47
5,050.00	4.04	166.68	5,023.24	-480.93	-102.30	487.52	0.41	-0.38	2.13
5,144.00	3.43	170.99	5,117.04	-486.93	-101.10	492.77	0.71	-0.65	4.59
5,239.00	3.17	169.14	5,211.88	-492.31	-100.16	497.54	0.30	-0.27	-1.95
5,333.00	2.99	172.48	5,305.75	-497.30	-99.35	501.97	0.27	-0.19	3.55
5,428.00	2.90	175.82	5,400.62	-502.15	-98.85	506.38	0.20	-0.09	3.52
5,522.00	2.73	175.47	5,494.51	-506.75	-98.50	510.60	0.18	-0.18	-0.37
5,617.00	1.41	147.70	5,589.45	-510.00	-97.70	513.39	1.71	-1.39	-29.23
5,711.00	1.32	136.19	5,683.42	-511.78	-96.33	514.59	0.31	-0.10	-12.24
5,806.00	0.97	149.98	5,778.40	-513.24	-95.17	515.61	0.47	-0.37	14.52
5,900.00	0.97	139.44	5,872.39	-514.53	-94.25	516.52	0.19	0.00	-11.21
5,995.00	0.88	138.12	5,967.38	-515.69	-93.24	517.27	0.10	-0.09	-1.39
6,089.00	0.97	148.58	6,061.36	-516.90	-92.35	518.12	0.20	0.10	11.13
6,184.00	0.88	154.38	6,156.35	-518.25	-91.61	519.14	0.14	-0.09	6.11
6,278.00	0.62	182.68	6,250.34	-519.41	-91.32	520.14	0.47	-0.28	30.11
6,373.00	0.79	187.78	6,345.34	-520.57	-91.44	521.27	0.19	0.18	5.37
6,468.00	0.44	185.49	6,440.33	-521.58	-91.58	522.27	0.37	-0.37	-2.41
6,562.00	0.70	226.36	6,534.33	-522.34	-92.01	523.13	0.50	0.28	43.48
6,657.00	0.88	230.40	6,629.32	-523.20	-92.99	524.27	0.20	0.19	4.25
6,751.00	0.18	55.41	6,723.32	-523.58	-93.43	524.77	1.13	-0.74	-186.16
6,846.00	0.35	52.07	6,818.31	-523.32	-93.08	524.41	0.18	0.18	-3.52
6,940.00	0.35	352.75	6,912.31	-522.86	-92.89	523.91	0.37	0.00	-63.11
7,035.00	0.44	326.91	7,007.31	-522.26	-93.12	523.43	0.21	0.09	-27.20
7,129.00	0.44	305.20	7,101.31	-521.75	-93.61	523.11	0.18	0.00	-23.10
7,224.00	0.79	276.46	7,196.30	-521.47	-94.56	523.16	0.48	0.37	-30.25
7,318.00	1.14	262.92	7,290.29	-521.51	-96.13	523.72	0.44	0.37	-14.40
7,413.00	0.53	301.24	7,385.28	-521.40	-97.45	524.06	0.84	-0.64	40.34
7,507.00	1.14	291.58	7,479.27	-520.83	-98.69	523.93	0.66	0.65	-10.28
7,602.00	1.32	268.02	7,574.25	-520.52	-100.66	524.30	0.56	0.19	-24.80
7,696.00	1.58	265.47	7,668.22	-520.66	-103.03	525.22	0.28	0.28	-2.71
7,791.00	1.76	266.18	7,763.18	-520.86	-105.80	526.33	0.19	0.19	0.75
7,885.00	2.11	264.42	7,857.12	-521.12	-108.96	527.63	0.38	0.37	-1.87
7,980.00	2.64	261.25	7,952.04	-521.63	-112.86	529.41	0.57	0.56	-3.34
8,074.00	3.25	254.31	8,045.92	-522.68	-117.57	531.97	0.75	0.65	-7.38
8,169.00	3.87	252.90	8,140.73	-524.35	-123.22	535.43	0.66	0.65	-1.48
8,263.00	4.40	258.79	8,234.49	-525.98	-129.79	539.16	0.72	0.56	6.27
8,357.00	5.19	258.35	8,328.16	-527.54	-137.49	543.20	0.84	0.84	-0.47
8,452.00	5.36	260.55	8,422.76	-529.14	-146.08	547.57	0.28	0.18	2.32
8,546.00	5.28	269.78	8,516.35	-529.87	-154.73	551.15	0.91	-0.09	9.82
8,641.00	4.75	275.67	8,610.99	-529.50	-163.02	553.56	0.78	-0.56	6.20
8,735.00	4.84	270.57	8,704.66	-529.08	-170.86	555.77	0.46	0.10	-5.43
8,829.00	4.75	260.02	8,798.33	-529.71	-178.66	558.97	0.94	-0.10	-11.22
8,880.00	5.63	252.82	8,849.13	-530.82	-183.13	561.50	2.14	1.73	-14.12

# Scientific Drilling International, Inc.

## Survey Report

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-08-23A - Slot L
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8407' & RKB 30' @ 8437.00ft (H&P)
<b>Site:</b>	Cascade Creek 608-41 Pad	<b>MD Reference:</b>	GL 8407' & RKB 30' @ 8437.00ft (H&P)
<b>Well:</b>	CC 697-08-23A	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM-R5000-JanieCooke-Local

### 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)
<b>Last Production MWD</b>									
8,935.00	5.63	252.82	8,903.86	-532.41	-188.28	564.72	0.00	0.00	0.00
<b>Projection to TD - BHL = 633375.00, 1227850.62</b>									

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
310.00	309.98	-2.35	-1.86	First Surface MWD
2,674.00	2,660.19	-240.87	-67.55	Last Surface MWD
2,781.00	2,766.57	-251.07	-72.95	First Production MWD
8,880.00	8,849.13	-530.82	-183.13	Last Production MWD
8,935.00	8,903.86	-532.41	-188.28	Projection to TD
8,935.00	8,903.86	-532.41	-188.28	BHL = 633375.00, 1227850.52

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_