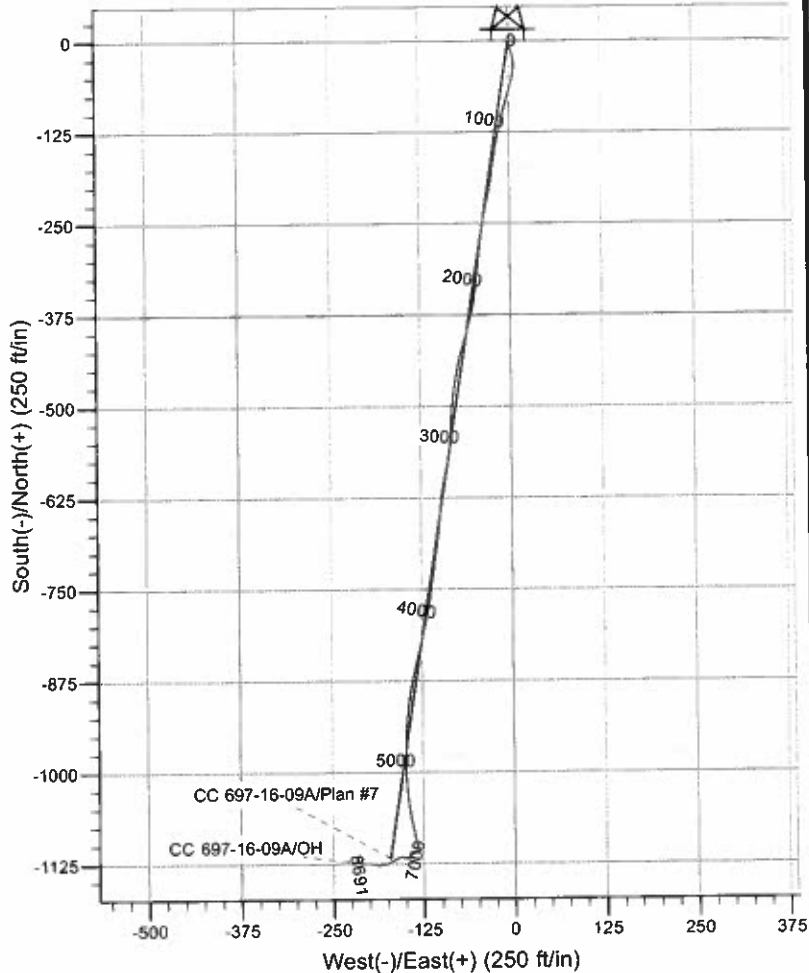
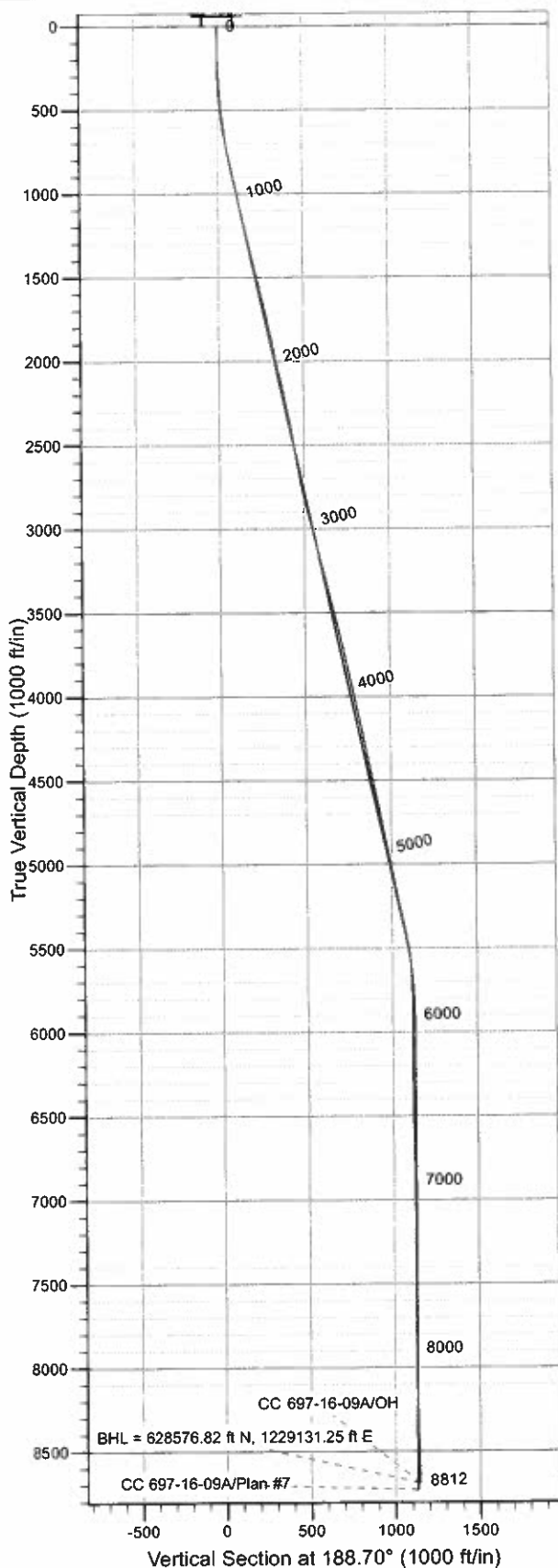




Scientific Drilling

Project: Garfield County, CO NAD27  
Site: Cascade Creek 609-14 Pad  
Well: CC 697-16-09A  
Wellbore: OH  
Design: OH

OXY USA RMAT



WELL DETAILS: CC 697-16-09A

Ground Level	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
0.00	0.00
North	629697.89
East	1229353.54
Latitude	39° 31' 49.863 N
Longitude	108° 13' 57.103 W
V	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-16-09A - Slot V, True North  
Vertical (TVD) Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)  
Section (VS) Reference: Slot - V(0.00N, 0.00E)  
Measured Depth Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)  
Calculation Method: Minimum Curvature  
Local North: True  
Location: Sec 9 T6S R97W

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

Design: OH (CC 697-16-09A/OH)

Created By: Julie Cruse Date: 2010-08-03

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-16-09A - Slot V
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
<b>Site:</b>	Cascade Creek 609-14 Pad	<b>MD Reference:</b>	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
<b>Well:</b>	CC 697-16-09A	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Rockies-R5000.1

<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 609-14 Pad, Sec 9 T6S R97W

<b>Site Position:</b>		<b>Northing:</b>	629,789.23 usft	<b>Latitude:</b>	39° 31' 50.765 N
<b>From:</b>	Map	<b>Easting:</b>	1,229,350.88 usft	<b>Longitude:</b>	108° 13' 57.172 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	-1.72 °

**Well** CC 697-16-09A - Slot V, 124' FSL 265' FWL

<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	629,697.89 usft	<b>Latitude:</b>	39° 31' 49.863 N
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,229,353.54 usft	<b>Longitude:</b>	108° 13' 57.103 W
<b>Position Uncertainty</b>	0.00 ft		<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	8,393.00 ft

**Wellbore** OH

<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	2008-06-24	10.83	65.81	52,540

**Design** OH

**Audit Notes:**

<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
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<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	188.70

**Survey Program** Date 2010-08-03

<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
92.00	491.00	Survey #1 - Surface Gyro (OH)	Standard Keeper 103	Standard Wireline Keeper ver 1.0.3
525.00	2,635.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA
2,699.00	8,812.00	Survey #3 - Production (OH)	MWD-SDI	MWD - Standard ISCWSA

**Survey**

<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92.00	0.86	63.36	92.00	0.31	0.62	-0.40	0.93	0.93	0.00
184.00	0.96	177.08	183.99	-0.15	1.27	-0.04	1.66	0.11	123.61
276.00	2.72	185.71	275.94	-3.09	1.10	2.89	1.93	1.91	9.38
368.00	5.35	171.57	367.71	-9.51	1.51	9.17	3.04	2.86	-15.37
430.00	5.03	152.12	429.46	-14.77	3.20	14.12	2.87	-0.52	-31.37
491.00	5.67	165.11	490.19	-20.05	5.23	19.03	2.24	1.05	21.30
<b>Last SDI Gyro Survey</b>									
525.00	5.54	169.85	524.03	-23.29	5.95	22.12	1.41	-0.38	13.94

**Company:** OXY USA RMAT  
**Project:** Garfield County, CO NAD27  
**Site:** Cascade Creek 609-14 Pad  
**Well:** CC 697-16-09A  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well CC 697-16-09A - Slot V  
**TVD Reference:** GL 8393' & RKB 30' @ 8423.00ft (H&P 330)  
**MD Reference:** GL 8393' & RKB 30' @ 8423.00ft (H&P 330)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Rockies-R5000.1

**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>First SDI MWD Survey</b>									
617.00	8.18	179.43	615.37	-34.20	6.80	32.78	3.12	2.87	10.41
709.00	9.32	192.79	706.30	-48.02	5.21	46.67	2.52	1.24	14.52
802.00	10.64	196.30	797.89	-63.60	1.13	62.70	1.56	1.42	3.77
895.00	13.10	196.83	888.90	-81.93	-4.33	81.64	2.65	2.65	0.57
987.00	13.28	194.63	978.47	-102.14	-10.02	102.48	0.58	0.20	-2.39
1,082.00	12.75	192.52	1,071.03	-122.93	-15.04	123.79	0.75	-0.56	-2.22
1,177.00	13.28	189.54	1,163.59	-143.92	-19.12	145.16	0.90	0.56	-3.14
1,271.00	12.84	187.87	1,255.16	-164.92	-22.34	166.40	0.62	-0.47	-1.78
1,366.00	12.75	188.83	1,347.80	-185.73	-25.40	187.44	0.24	-0.09	1.01
1,461.00	12.57	191.29	1,440.49	-206.23	-29.03	208.25	0.60	-0.19	2.59
1,555.00	13.72	193.05	1,532.03	-227.12	-33.55	229.58	1.30	1.22	1.87
1,650.00	14.25	189.27	1,624.22	-249.63	-37.98	252.51	1.11	0.56	-3.98
1,744.00	13.19	186.11	1,715.53	-271.72	-40.98	274.79	1.38	-1.13	-3.36
1,839.00	11.34	186.46	1,808.36	-291.78	-43.19	294.95	1.95	-1.95	0.37
1,934.00	11.26	187.25	1,901.52	-310.26	-45.41	313.56	0.18	-0.08	0.83
2,029.00	12.57	187.16	1,994.47	-329.72	-47.87	333.16	1.38	1.38	-0.09
2,123.00	13.63	187.25	2,086.02	-350.85	-50.54	354.46	1.13	1.13	0.10
2,218.00	12.22	191.73	2,178.62	-371.80	-54.00	375.69	1.82	-1.48	4.72
2,313.00	10.99	195.69	2,271.67	-390.36	-58.49	394.72	1.54	-1.29	4.17
2,407.00	11.43	196.92	2,363.88	-407.90	-63.63	412.83	0.53	0.47	1.31
2,502.00	10.90	195.42	2,457.08	-425.57	-68.75	431.07	0.64	-0.56	-1.58
2,597.00	10.02	190.41	2,550.50	-442.35	-72.64	448.25	1.33	-0.93	-5.27
2,635.00	9.41	190.41	2,587.96	-448.66	-73.79	454.66	1.61	-1.61	0.00
<b>Last Survey in 14 3/4" Hole</b>									
2,699.00	9.47	190.38	2,651.09	-458.99	-75.69	465.15	0.09	0.09	-0.05
<b>First Survey in 8 3/4" Hole</b>									
2,794.00	12.13	188.66	2,744.40	-476.54	-78.60	482.95	2.82	2.80	-1.81
2,889.00	13.54	185.67	2,837.03	-497.48	-81.20	504.04	1.64	1.48	-3.15
2,984.00	14.60	183.91	2,929.18	-520.49	-83.12	527.07	1.20	1.12	-1.85
3,078.00	13.89	183.12	3,020.28	-543.58	-84.54	550.11	0.78	-0.76	-0.84
3,173.00	13.37	189.27	3,112.61	-565.81	-86.93	572.44	1.62	-0.55	6.47
3,268.00	14.95	189.45	3,204.72	-588.73	-90.71	595.68	1.66	1.66	0.19
3,362.00	15.21	190.24	3,295.49	-612.83	-94.89	620.13	0.35	0.28	0.84
3,457.00	14.86	184.88	3,387.24	-637.23	-98.14	644.75	1.51	-0.37	-5.64
3,552.00	13.10	183.83	3,479.42	-660.11	-99.90	667.63	1.87	-1.85	-1.11
3,646.00	12.75	187.78	3,571.04	-681.02	-102.02	688.61	1.01	-0.37	4.20
3,741.00	13.28	190.24	3,663.60	-702.14	-105.38	710.00	0.81	0.56	2.59
3,836.00	13.54	188.22	3,756.01	-723.89	-108.90	732.03	0.56	0.27	-2.13
3,930.00	12.40	187.34	3,847.61	-744.79	-111.77	753.13	1.23	-1.21	-0.94
4,025.00	11.78	188.75	3,940.51	-764.49	-114.55	773.02	0.72	-0.65	1.48
4,120.00	12.22	191.03	4,033.43	-783.94	-117.94	792.76	0.68	0.46	2.40
4,215.00	12.22	191.47	4,126.28	-803.67	-121.87	812.85	0.10	0.00	0.46
4,309.00	11.61	193.58	4,218.25	-822.61	-126.07	832.21	0.80	-0.65	2.24

**Company:** OXY USA RMAT  
**Project:** Garfield County, CO NAD27  
**Site:** Cascade Creek 609-14 Pad  
**Well:** CC 697-16-09A  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well CC 697-16-09A - Slot V  
**TVD Reference:** GL 8393' & RKB 30' @ 8423.00ft (H&P 330)  
**MD Reference:** GL 8393' & RKB 30' @ 8423.00ft (H&P 330)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Rockies-R5000.1

**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)
4,404.00	12.31	194.99	4,311.19	-841.68	-130.93	851.80	0.80	0.74	1.48
4,499.00	12.31	190.59	4,404.01	-861.42	-135.41	871.99	0.99	0.00	-4.63
4,594.00	11.78	192.61	4,496.92	-880.84	-139.39	891.79	0.71	-0.56	2.13
4,688.00	11.96	188.13	4,588.91	-899.85	-142.86	911.10	1.00	0.19	-4.77
4,783.00	10.90	186.81	4,682.02	-918.51	-145.32	929.92	1.15	-1.12	-1.39
4,878.00	11.34	184.97	4,775.24	-936.73	-147.19	948.22	0.59	0.46	-1.94
4,972.00	11.78	181.98	4,867.33	-955.53	-148.33	966.97	0.79	0.47	-3.18
5,067.00	11.08	182.42	4,960.45	-974.34	-149.05	985.68	0.74	-0.74	0.46
5,162.00	11.96	178.73	5,053.54	-993.30	-149.21	1,004.45	1.21	0.93	-3.88
5,256.00	13.28	174.16	5,145.26	-1,013.78	-147.90	1,024.49	1.76	1.40	-4.86
5,351.00	12.57	174.86	5,237.86	-1,034.93	-145.86	1,045.09	0.77	-0.75	0.74
5,446.00	12.05	170.11	5,330.67	-1,055.00	-143.23	1,064.53	1.20	-0.55	-5.00
5,541.00	11.61	168.18	5,423.66	-1,074.13	-139.57	1,082.88	0.62	-0.46	-2.03
5,635.00	8.97	168.62	5,516.14	-1,090.57	-136.19	1,098.62	2.81	-2.81	0.47
5,730.00	5.89	162.29	5,610.33	-1,102.48	-133.24	1,109.95	3.35	-3.24	-6.66
5,825.00	2.73	155.17	5,705.05	-1,109.18	-130.81	1,116.20	3.37	-3.33	-7.49
5,919.00	0.70	335.88	5,799.02	-1,110.68	-130.10	1,117.58	3.65	-2.16	-190.73
6,014.00	0.97	296.76	5,894.01	-1,109.79	-131.06	1,116.85	0.65	0.28	-41.18
6,109.00	0.97	294.57	5,989.00	-1,109.10	-132.51	1,116.38	0.04	0.00	-2.31
6,204.00	1.06	263.19	6,083.98	-1,108.87	-134.11	1,116.39	0.58	0.09	-33.03
6,298.00	0.97	242.80	6,177.97	-1,109.33	-135.68	1,117.09	0.39	-0.10	-21.69
6,393.00	1.06	249.13	6,272.95	-1,110.01	-137.22	1,118.00	0.15	0.09	6.66
6,488.00	1.06	244.82	6,367.94	-1,110.70	-138.84	1,118.92	0.08	0.00	-4.54
6,582.00	1.67	245.88	6,461.91	-1,111.63	-140.87	1,120.15	0.65	0.65	1.13
6,677.00	0.79	194.81	6,556.89	-1,112.83	-142.30	1,121.55	1.39	-0.93	-53.76
6,772.00	1.06	188.31	6,651.88	-1,114.33	-142.60	1,123.08	0.30	0.28	-6.84
6,866.00	1.41	190.86	6,745.86	-1,116.33	-142.94	1,125.10	0.38	0.37	2.71
6,961.00	0.26	258.44	6,840.85	-1,117.52	-143.37	1,126.35	1.40	-1.21	71.14
7,056.00	0.35	277.43	6,935.84	-1,117.52	-143.87	1,126.43	0.14	0.09	19.99
7,151.00	0.97	283.32	7,030.84	-1,117.30	-144.94	1,126.37	0.66	0.65	6.20
7,246.00	1.23	277.25	7,125.82	-1,116.99	-146.74	1,126.33	0.30	0.27	-6.39
7,340.00	1.32	274.18	7,219.80	-1,116.78	-148.82	1,126.44	0.12	0.10	-3.27
7,435.00	1.85	271.28	7,314.76	-1,116.67	-151.44	1,126.73	0.56	0.56	-3.05
7,530.00	0.62	287.54	7,409.74	-1,116.48	-153.46	1,126.84	1.33	-1.29	17.12
7,625.00	0.44	274.26	7,504.73	-1,116.30	-154.32	1,126.79	0.23	-0.19	-13.98
7,719.00	0.44	276.02	7,598.73	-1,116.23	-155.04	1,126.84	0.01	0.00	1.87
7,814.00	0.70	265.30	7,693.72	-1,116.24	-155.98	1,126.99	0.29	0.27	-11.28
7,909.00	0.70	276.73	7,788.72	-1,116.22	-157.13	1,127.14	0.15	0.00	12.03
8,003.00	0.79	243.06	7,882.71	-1,116.45	-158.28	1,127.54	0.47	0.10	-35.82
8,098.00	0.97	241.83	7,977.70	-1,117.12	-159.57	1,128.41	0.19	0.19	-1.29
8,193.00	1.41	242.71	8,072.68	-1,118.04	-161.32	1,129.58	0.46	0.46	0.93
8,288.00	1.67	243.42	8,167.64	-1,119.19	-163.60	1,131.06	0.27	0.27	0.75
8,382.00	2.11	244.12	8,261.59	-1,120.56	-166.38	1,132.84	0.47	0.47	0.74



**SDI**  
Survey Report



**Company:** OXY USA RMAT  
**Project:** Garfield County, CO NAD27  
**Site:** Cascade Creek 609-14 Pad  
**Well:** CC 697-16-09A  
**Wellbore:** OH  
**Design:** OH

**Local Co-ordinate Reference:** Well CC 697-16-09A - Slot V  
**TVD Reference:** GL 8393' & RKB 30' @ 8423.00ft (H&P 330)  
**MD Reference:** GL 8393' & RKB 30' @ 8423.00ft (H&P 330)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Rockies-R5000.1

**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)
8,477.00	2.46	241.66	8,356.52	-1,122.29	-169.75	1,135.06	0.38	0.37	-2.59
8,572.00	2.37	243.68	8,451.43	-1,124.13	-173.30	1,137.41	0.13	-0.09	2.13
8,667.00	3.69	259.24	8,546.30	-1,125.57	-178.07	1,139.56	1.62	1.39	16.38
8,761.00	4.40	261.52	8,640.06	-1,126.67	-184.60	1,141.63	0.77	0.76	2.43
<b>Last SDI MWD Survey</b>									
8,812.00	4.40	261.52	8,690.91	-1,127.25	-188.47	1,142.79	0.00	0.00	0.00
<b>Projection to TD - BHL = 628576.82 ft N, 1229131.25 ft E</b>									

**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
491.00	490.19	-20.05	5.23	Last SDI Gyro Survey
525.00	524.03	-23.29	5.95	First SDI MWD Survey
2,635.00	2,587.96	-448.66	-73.79	Last Survey in 14 3/4" Hole
2,699.00	2,651.09	-458.99	-75.69	First Survey in 8 3/4" Hole
8,761.00	8,640.06	-1,126.67	-184.60	Last SDI MWD Survey
8,812.00	8,690.91	-1,127.25	-188.47	Projection to TD
8,812.00	8,690.91	-1,127.25	-188.47	BHL = 628576.82 ft N, 1229131.25 ft E

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