

OXY USA RMAT

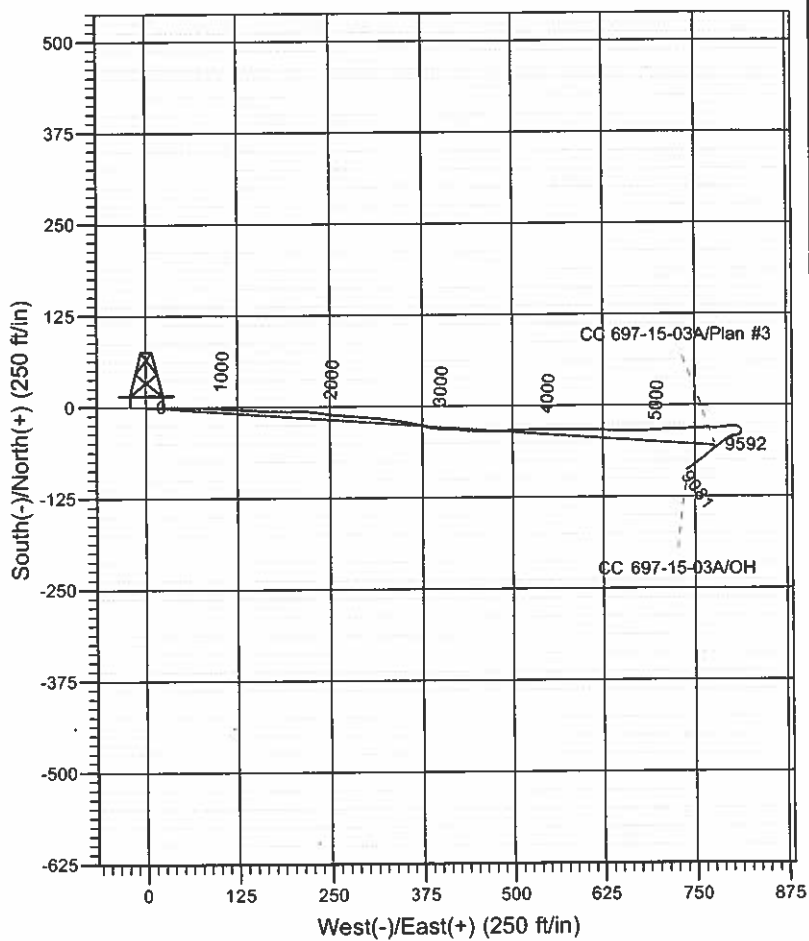
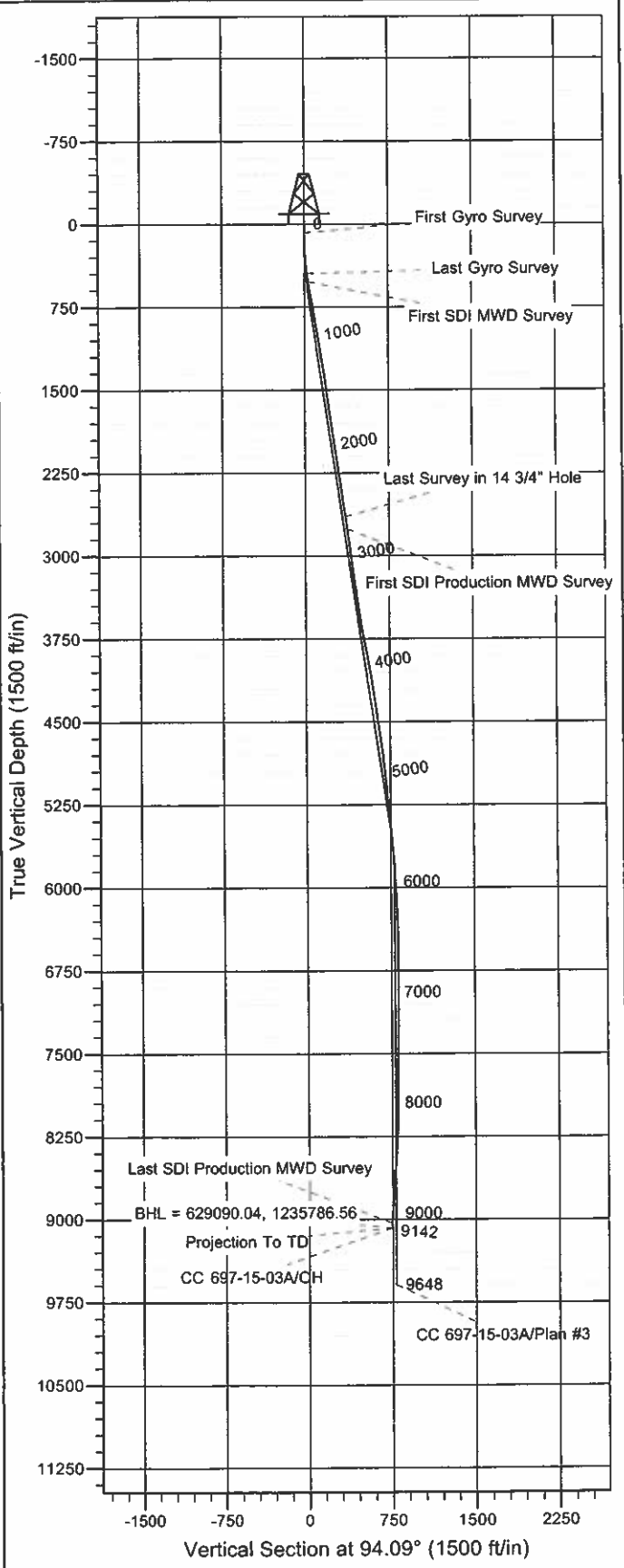
**Garfield County, CO NAD27
Cascade Creek 697-15-01 Pad
CC 697-15-03A - Slot G**

OH

Design: OH

Standard Survey Report

29 November, 2010



Well Details: CC 697-15-03A

TVD Reference: GL 8348' & RKB 30' @ 8378.00ft					Ground Level: 8348.00
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	629199.90	1235050.66	39° 31' 46.630 N	108° 12' 44.234 W
					Slot G

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-15-03A - Slot G, True North
 Vertical (TVD) Reference: GL 8348' & RKB 30' @ 8378.00ft
 Section (VS) Reference: Slot - G(0.00N, 0.00E)
 Measured Depth Reference: GL 8348' & RKB 30' @ 8378.00ft
 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

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-15-03A - Slot G
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8348' & RKB 30' @ 8378.00ft
Site:	Cascade Creek 697-15-01 Pad	MD Reference:	GL 8348' & RKB 30' @ 8378.00ft
Well:	CC 697-15-03A	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

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 697-15-01 Pad, Sec 15 T6S R97W			
Site Position:		Northing:	629,156.97 usft
From:	Map	Easting:	1,234,961.93 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 31' 46.180 N
		Longitude:	108° 12' 45.350 W
		Grid Convergence:	-1.71 °

Well CC 697-15-03A - Slot G, 249' FNL 679' FWL			
Well Position	+N/-S	0.00 ft	Northing: 629,199.90 usft
	+E/-W	0.00 ft	Easting: 1,235,050.68 usft
Position Uncertainty		0.00 ft	Wellhead Elevation: ft
			Latitude: 39° 31' 46.630 N
			Longitude: 108° 12' 44.234 W
			Ground Level: 8,348.00 ft

Wellbore	OH
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	9/24/2008	10.78	65.81	52,519

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	94.09

Survey Program		Date			
From (ft)	To (ft)	11/29/2010	Survey (Wellbore)	Tool Name	Description
81.00	450.00		Survey #1 - Surface Gyro (OH)	Standard Keeper 103	Standard Wireline Keeper ver 1.0.3
526.00	2,675.00		Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA
2,789.00	9,142.00		Survey #3 - Production MWD (OH)	MWD-SDI	MWD - Standard ISCWSA

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	
81.00	0.07	277.24	81.00	0.01	-0.05	-0.05	0.09	0.09	0.00	
First Gyro Survey										
112.00	0.30	82.79	112.00	0.02	0.01	0.01	1.19	0.74	534.03	
143.00	0.95	90.42	143.00	0.03	0.35	0.35	2.11	2.10	24.61	
173.00	1.77	94.09	172.99	-0.01	1.06	1.06	2.75	2.73	12.23	
204.00	2.43	99.81	203.97	-0.15	2.19	2.19	2.23	2.13	18.45	
235.00	3.16	101.68	234.93	-0.44	3.67	3.69	2.37	2.35	6.03	
266.00	3.77	97.59	265.87	-0.75	5.52	5.56	2.12	1.97	-13.19	

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Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-15-03A - Slot G
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8348' & RKB 30' @ 8378.00ft
Site:	Cascade Creek 697-15-01 Pad	MD Reference:	GL 8348' & RKB 30' @ 8378.00ft
Well:	CC 697-15-03A	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)	
296.00	4.25	94.05	295.80	-0.96	7.60	7.65	1.80	1.60	-11.80	
327.00	4.86	91.01	326.70	-1.06	10.06	10.11	2.12	1.97	-9.81	
358.00	5.52	92.04	357.58	-1.14	12.87	12.91	2.15	2.13	3.32	
389.00	6.01	89.76	388.42	-1.18	15.98	16.02	1.74	1.58	-7.35	
450.00	7.08	86.20	449.02	-0.92	22.92	22.93	1.88	1.75	-5.84	
Last Gyro Survey										
526.00	8.29	87.80	524.34	-0.40	33.07	33.02	1.62	1.59	2.11	
First SDI MWD Survey										
618.00	9.68	91.54	615.21	-0.35	47.43	47.34	1.64	1.51	4.07	
712.00	10.11	90.24	707.81	-0.60	63.58	63.46	0.52	0.46	-1.38	
804.00	9.23	92.00	798.50	-0.89	79.03	78.89	1.01	-0.96	1.91	
899.00	10.38	93.76	892.11	-1.72	95.19	95.07	1.25	1.21	1.85	
993.00	10.11	94.28	984.61	-2.89	111.86	111.78	0.30	-0.29	0.55	
1,088.00	8.44	89.27	1,078.37	-3.42	127.15	127.07	1.95	-1.76	-5.27	
1,182.00	8.44	94.55	1,171.35	-3.88	140.93	140.84	0.82	0.00	5.62	
1,277.00	9.67	96.57	1,265.17	-5.35	155.80	155.79	1.34	1.29	2.13	
1,371.00	9.23	89.80	1,357.89	-6.22	171.18	171.19	1.27	-0.47	-7.20	
1,466.00	7.91	90.59	1,451.83	-6.27	185.34	185.32	1.39	-1.39	0.83	
1,560.00	7.91	90.24	1,544.94	-6.36	198.28	198.22	0.05	0.00	-0.37	
1,655.00	8.09	88.40	1,639.01	-6.20	211.49	211.40	0.33	0.19	-1.94	
1,750.00	8.35	97.36	1,733.04	-6.90	225.02	224.94	1.37	0.27	9.43	
1,844.00	8.62	100.08	1,826.01	-9.00	238.72	238.76	0.51	0.29	2.89	
1,939.00	8.53	95.78	1,919.95	-10.96	252.74	252.88	0.68	-0.09	-4.53	
2,033.00	8.35	93.40	2,012.93	-12.07	266.49	266.67	0.42	-0.19	-2.53	
2,127.00	8.27	94.81	2,105.95	-13.04	280.04	280.26	0.23	-0.09	1.50	
2,222.00	7.83	95.07	2,200.01	-14.18	293.30	293.56	0.46	-0.46	0.27	
2,317.00	8.71	95.16	2,294.02	-15.40	306.91	307.22	0.93	0.93	0.09	
2,411.00	8.71	98.77	2,386.94	-17.13	321.03	321.43	0.58	0.00	3.84	
2,506.00	8.35	96.83	2,480.89	-19.04	334.99	335.49	0.49	-0.38	-2.04	
2,600.00	8.53	99.47	2,573.87	-21.00	348.64	349.25	0.45	0.19	2.81	
2,675.00	8.44	100.17	2,648.05	-22.89	359.54	360.26	0.18	-0.12	0.93	
Last Survey In 14 3/4" Hole										
2,789.00	7.74	106.83	2,760.91	-26.59	375.13	376.07	1.03	-0.61	5.84	
First SDI Production MWD Survey										
2,883.00	7.47	99.89	2,854.09	-29.47	387.21	388.32	1.02	-0.29	-7.38	
2,977.00	7.21	93.12	2,947.32	-30.84	399.12	400.30	0.96	-0.28	-7.20	
3,072.00	7.74	91.36	3,041.51	-31.32	411.46	412.65	0.61	0.56	-1.85	
3,167.00	8.62	94.44	3,135.55	-32.02	424.96	426.16	1.03	0.93	3.24	
3,261.00	8.00	96.37	3,228.56	-33.29	438.48	439.74	0.72	-0.66	2.05	
3,355.00	8.27	91.27	3,321.61	-34.17	451.74	453.03	0.82	0.29	-5.43	
3,450.00	8.27	90.04	3,415.63	-34.32	465.40	466.67	0.19	0.00	-1.29	
3,544.00	8.35	90.22	3,508.64	-34.36	478.99	480.22	0.09	0.09	0.19	
3,639.00	8.97	84.51	3,602.56	-33.67	493.26	494.41	1.12	0.65	-6.01	
3,733.00	11.43	89.78	3,695.07	-32.94	509.87	510.92	2.80	2.62	5.61	

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-15-03A - Slot G
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8348' & RKB 30' @ 8378.00ft
Site:	Cascade Creek 697-15-01 Pad	MD Reference:	GL 8348' & RKB 30' @ 8378.00ft
Well:	CC 697-15-03A	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)	
3,828.00	10.73	88.72	3,788.30	-32.70	528.13	529.11	0.77	-0.74	-1.12	
3,922.00	10.29	89.25	3,880.72	-32.40	545.27	546.19	0.48	-0.47	0.56	
4,017.00	10.11	90.31	3,974.22	-32.33	562.09	562.97	0.27	-0.19	1.12	
4,111.00	9.67	90.75	4,066.82	-32.48	578.24	579.08	0.47	-0.47	0.47	
4,206.00	9.32	91.01	4,160.52	-32.72	593.91	594.73	0.37	-0.37	0.27	
4,301.00	8.71	91.63	4,254.35	-33.06	608.79	609.60	0.65	-0.64	0.65	
4,395.00	8.18	90.66	4,347.33	-33.34	622.59	623.38	0.58	-0.56	-1.03	
4,490.00	7.12	92.77	4,441.48	-33.70	635.23	636.01	1.15	-1.12	2.22	
4,584.00	8.09	94.17	4,534.65	-34.46	647.64	648.45	1.05	1.03	1.49	
4,679.00	8.97	90.13	4,628.60	-34.97	661.72	662.53	1.12	0.93	-4.25	
4,773.00	7.83	90.13	4,721.59	-35.00	675.45	676.22	1.21	-1.21	0.00	
4,868.00	7.74	81.61	4,815.72	-34.08	688.25	688.93	1.22	-0.09	-8.97	
4,962.00	5.54	88.81	4,909.08	-33.06	699.05	699.63	2.50	-2.34	7.66	
5,057.00	5.10	90.83	5,003.67	-33.03	707.86	708.41	0.50	-0.46	2.13	
5,149.00	5.80	88.29	5,095.26	-32.95	716.59	717.12	0.80	0.76	-2.76	
5,244.00	6.42	88.55	5,189.72	-32.67	726.70	727.18	0.65	0.65	0.27	
5,338.00	5.98	85.56	5,283.17	-32.16	736.83	737.25	0.58	-0.47	-3.18	
5,433.00	5.54	87.41	5,377.69	-31.57	746.35	746.70	0.50	-0.46	1.95	
5,528.00	5.28	87.41	5,472.26	-31.16	755.30	755.60	0.27	-0.27	0.00	
5,622.00	5.10	89.43	5,565.88	-30.93	763.80	764.06	0.27	-0.19	2.15	
5,716.00	4.57	90.83	5,659.54	-30.94	771.72	771.96	0.58	-0.56	1.49	
5,811.00	4.75	93.56	5,754.23	-31.24	779.43	779.67	0.30	0.19	2.87	
5,905.00	3.69	80.90	5,847.98	-31.00	786.30	786.51	1.49	-1.13	-13.47	
6,000.00	3.43	81.25	5,942.79	-30.09	792.13	792.26	0.27	-0.27	0.37	
6,095.00	2.81	80.38	6,037.65	-29.26	797.23	797.29	0.65	-0.65	-0.92	
6,189.00	2.64	88.02	6,131.55	-28.80	801.67	801.68	0.43	-0.18	8.13	
6,284.00	1.85	106.65	6,226.47	-29.17	805.32	805.35	1.12	-0.83	19.61	
6,378.00	1.76	111.40	6,320.43	-30.13	808.12	808.21	0.19	-0.10	5.05	
6,473.00	1.41	105.34	6,415.39	-30.97	810.61	810.75	0.41	-0.37	-6.38	
6,567.00	1.41	131.53	6,509.36	-32.04	812.59	812.80	0.68	0.00	27.86	
6,662.00	1.06	168.62	6,604.34	-33.68	813.64	813.97	0.90	-0.37	39.04	
6,756.00	1.32	188.13	6,698.32	-35.60	813.65	814.12	0.51	0.28	20.76	
6,851.00	1.23	200.96	6,793.30	-37.64	813.13	813.75	0.31	-0.09	13.51	
6,945.00	1.58	207.99	6,887.27	-39.73	812.16	812.93	0.41	0.37	7.48	
7,040.00	0.44	151.04	6,982.26	-41.20	811.73	812.60	1.46	-1.20	-59.95	
7,135.00	0.26	352.84	7,077.25	-41.31	811.88	812.76	0.72	-0.19	-166.53	
7,229.00	0.53	276.02	7,171.25	-41.05	811.42	812.28	0.57	0.29	-81.72	
7,324.00	0.70	265.65	7,266.25	-41.05	810.40	811.27	0.21	0.18	-10.92	
7,418.00	1.23	250.44	7,360.23	-41.43	808.88	809.77	0.62	0.56	-16.18	
7,513.00	1.41	245.08	7,455.21	-42.26	806.86	807.82	0.23	0.19	-5.64	
7,607.00	1.32	257.04	7,549.18	-42.99	804.75	805.77	0.32	-0.10	12.72	
7,702.00	1.32	278.57	7,644.16	-43.08	802.61	803.63	0.52	0.00	22.66	
7,796.00	0.44	281.64	7,738.15	-42.84	801.18	802.20	0.94	-0.94	3.27	

Scientific Drilling International

Survey Report

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Project:	Garfield County, CO NAD27	TVD Reference:	GL 8348' & RKB 30' @ 8378.00ft
Site:	Cascade Creek 697-15-01 Pad	MD Reference:	GL 8348' & RKB 30' @ 8378.00ft
Well:	CC 697-15-03A	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
7,891.00	0.62	38.71	7,833.14	-42.37	801.15	802.13	0.96	0.19	123.23
7,986.00	0.53	54.18	7,928.14	-41.71	801.82	802.76	0.19	-0.09	16.28
8,080.00	0.26	204.65	8,022.14	-41.65	802.09	803.02	0.82	-0.29	160.07
8,175.00	1.85	232.78	8,117.12	-42.77	800.78	801.79	1.71	1.67	29.61
8,269.00	3.52	237.17	8,211.01	-45.25	797.14	798.34	1.79	1.78	4.67
8,364.00	3.25	238.23	8,305.85	-48.25	792.40	793.83	0.29	-0.28	1.12
8,458.00	4.48	237.88	8,399.63	-51.61	787.03	788.70	1.31	1.31	-0.37
8,553.00	5.01	233.22	8,494.31	-56.06	780.56	782.57	0.69	0.56	-4.91
8,647.00	5.80	227.24	8,587.89	-61.75	773.79	776.22	1.03	0.84	-6.36
8,742.00	5.45	229.09	8,682.43	-67.96	766.85	769.75	0.41	-0.37	1.95
8,837.00	4.84	234.18	8,777.05	-73.26	760.20	763.48	0.80	-0.64	5.36
8,931.00	5.01	236.12	8,870.70	-77.87	753.57	757.21	0.25	0.18	2.06
9,025.00	5.01	236.47	8,964.34	-82.42	746.74	750.72	0.03	0.00	0.37
9,095.00	4.57	235.15	9,034.10	-85.71	741.91	746.13	0.65	-0.63	-1.89
Last SDI Production MWD Survey									
9,142.00	4.57	235.15	9,080.95	-87.85	738.83	743.22	0.00	0.00	0.00
Projection To TD - BHL = 629090.04, 1235786.56									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
81.00	81.00	0.01	-0.05	First Gyro Survey
450.00	449.02	-0.92	22.92	Last Gyro Survey
526.00	524.34	-0.40	33.07	First SDI MWD Survey
2,675.00	2,648.05	-22.89	359.54	Last Survey in 14 3/4" Hole
2,789.00	2,760.91	-26.59	375.13	First SDI Production MWD Survey
9,095.00	9,034.10	-85.71	741.91	Last SDI Production MWD Survey
9,142.00	9,080.95	-87.85	738.83	Projection To TD
9,142.00	9,080.95	-87.85	738.83	BHL = 629090.04, 1235786.56

Checked By: _____	Approved By: _____	Date: _____
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