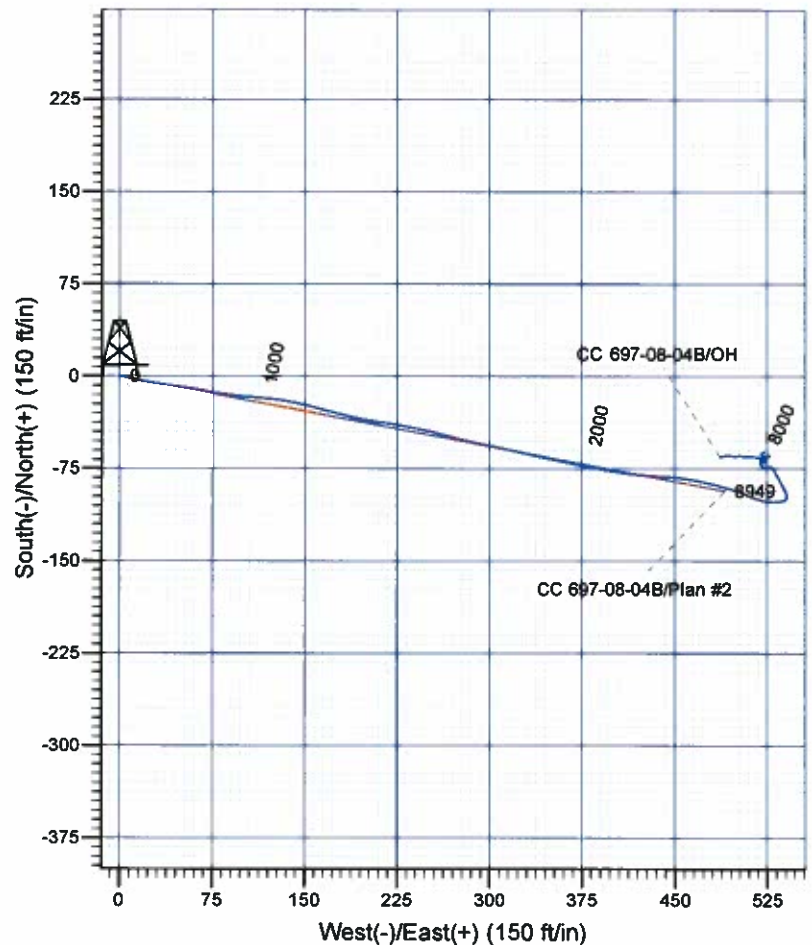
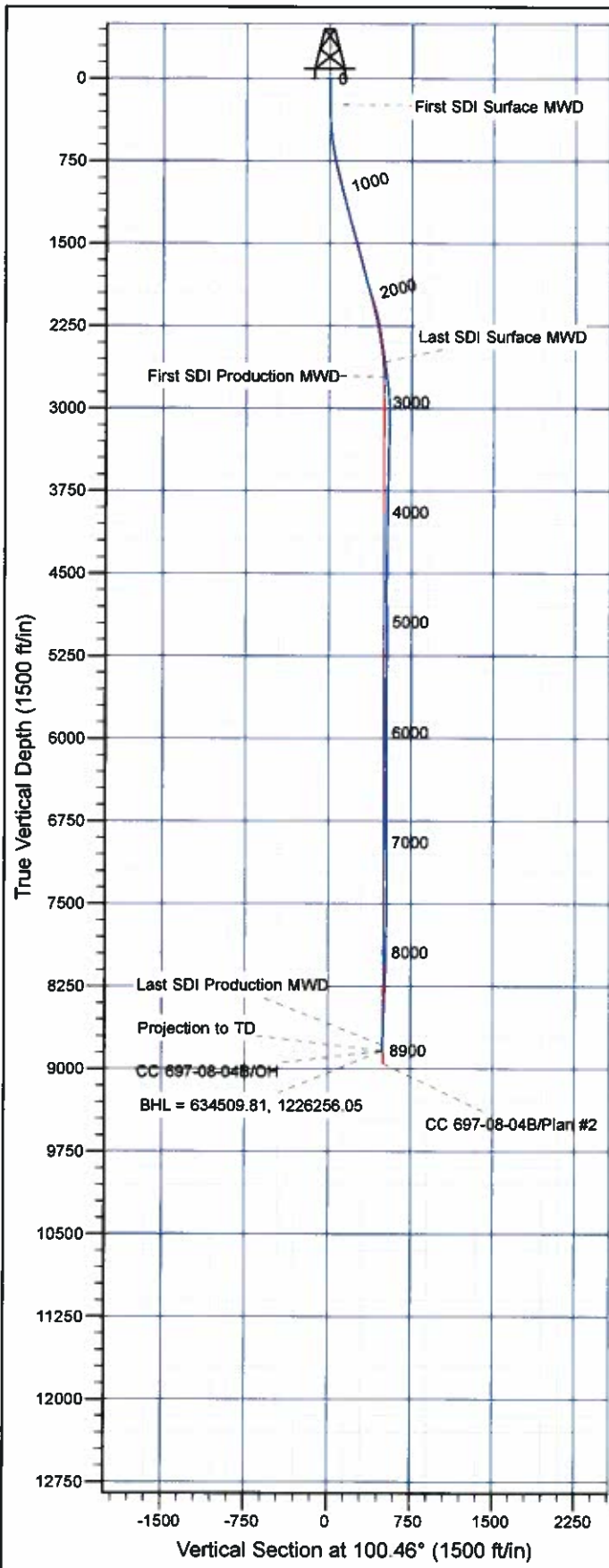




**Scientific Drilling**  
Rocky Mountain Operations

Company: OXY USA RMAT  
Project: Garfield County, CO NAD27  
Site: Cascade Creek 697-08A Pad  
Well: CC 697-08-04B  
Wellbore: OH  
Design: OH



#### Well Details: CC 697-08-04B

+N/-S	+E/-W	North	East	Latitude	Longitude	Slot
0.00	0.00	634589.93	1225772.07	39° 32' 37.125 N	108° 14' 44.678 W	S

#### REFERENCE INFORMATION

Co-ordinate (NE) Reference: Well CC 697-08-04B - Slot S, True North  
Vertical (TVD) Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)  
Section (VS) Reference: Slot - S(0.00N, 0.00E)  
Measured Depth Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)  
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

15:02, March 27 2012  
Created By: Janie Cooke

# **OXY USA RMAT**

**Garfield County, CO NAD27  
Cascade Creek 697-08A Pad  
CC 697-08-04B - Slot S**

**OH**

**Design: OH**

## **Standard Survey Report**

**27 March, 2012**



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



<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-08-04B - Slot S
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
<b>Site:</b>	Cascade Creek 697-08A Pad	<b>MD Reference:</b>	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
<b>Well:</b>	CC 697-08-04B	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Rockies Compass Server

<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 697-08A Pad, Sec 8 T6S R97W				
Site Position:		Northing:	635,765.16 usft	Latitude:	39° 32' 48.728 N
From:	Lat/Long	Easting:	1,225,748.33 usft	Longitude:	108° 14' 45.434 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.73 °

Well	CC 697-08-04B - Slot S, 361' FNL & 1813' FWL					
Well Position	+N/-S	0.00 ft	Northing:	634,589.93 usft	Latitude:	39° 32' 37.125 N
	+E/-W	0.00 ft	Easting:	1,225,772.07 usft	Longitude:	108° 14' 44.678 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,401.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2005-10	12/23/2008	10.77	65.81	52,498

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<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	100.46	

<b>Survey Program</b>	<b>Date</b>	03/27/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
234.00	2,637.00	Survey #1 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,771.00	8,900.00	Survey #2 - Production MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	

<b>Survey</b>									
<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
234.00	1.02	109.86	233.99	-0.71	1.96	2.05	0.44	0.44	0.00
<b>First SDI Surface MWD</b>									
327.00	1.77	101.08	326.96	-1.26	4.15	4.31	0.84	0.81	-9.44
419.00	3.52	104.04	418.86	-2.22	8.28	8.55	1.91	1.90	3.22
509.00	6.68	102.71	508.49	-4.05	16.07	16.54	3.51	3.51	-1.48
599.00	9.06	97.53	597.84	-6.13	28.20	28.85	2.76	2.64	-5.76
690.00	10.64	95.86	687.29	-7.92	43.66	44.38	1.76	1.74	-1.84
781.00	12.49	100.69	776.44	-10.61	61.69	62.59	2.29	2.03	5.31
842.00	13.28	100.08	835.91	-13.06	75.07	76.20	1.31	1.30	-1.00

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



<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-08-04B - Slot S
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
<b>Site:</b>	Cascade Creek 697-08A Pad	<b>MD Reference:</b>	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
<b>Well:</b>	CC 697-08-04B	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	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)
935.00	13.63	96.39	926.36	-16.15	96.48	97.81	1.00	0.38	-3.97
1,030.00	13.89	94.10	1,018.63	-18.21	118.98	120.31	0.64	0.27	-2.41
1,124.00	14.51	102.01	1,109.77	-21.46	141.75	143.29	2.17	0.66	8.41
1,219.00	16.00	105.79	1,201.42	-27.50	165.99	168.23	1.88	1.57	3.98
1,314.00	15.74	102.19	1,292.80	-33.79	191.19	194.14	1.07	-0.27	-3.79
1,408.00	14.77	97.70	1,383.49	-38.08	215.53	218.86	1.63	-1.03	-4.78
1,503.00	16.09	101.57	1,475.07	-42.35	240.42	244.12	1.76	1.39	4.07
1,597.00	16.00	105.26	1,565.41	-48.37	265.68	270.05	1.09	-0.10	3.93
1,692.00	13.19	102.45	1,657.33	-54.15	288.90	293.94	3.05	-2.96	-2.96
1,786.00	13.01	101.83	1,748.89	-58.64	309.73	315.23	0.24	-0.19	-0.66
1,881.00	15.72	102.46	1,840.91	-63.61	332.77	338.79	2.86	2.85	0.66
1,976.00	18.47	101.92	1,931.70	-69.49	360.07	366.70	2.90	2.89	-0.57
2,070.00	17.32	100.78	2,021.15	-75.18	388.38	395.58	1.28	-1.22	-1.21
2,165.00	14.25	97.09	2,112.56	-79.27	413.88	421.40	3.40	-3.23	-3.88
2,259.00	12.66	92.69	2,203.98	-81.18	435.65	443.15	2.01	-1.69	-4.68
2,354.00	9.67	96.82	2,297.18	-82.62	453.98	461.43	3.26	-3.15	4.35
2,448.00	8.35	102.27	2,390.02	-85.01	468.49	476.14	1.67	-1.40	5.80
2,543.00	8.00	103.42	2,484.05	-88.01	481.66	489.63	0.41	-0.37	1.21
2,637.00	7.65	105.44	2,577.17	-91.19	494.05	502.40	0.47	-0.37	2.15
<b>Last SDI Surface MWD</b>									
2,771.00	8.89	113.68	2,709.78	-97.73	512.13	521.36	1.28	0.93	6.15
<b>First SDI Production MWD</b>									
2,866.00	6.84	99.77	2,803.89	-101.64	524.43	534.17	2.93	-2.16	-14.64
2,961.00	4.79	83.30	2,898.41	-102.13	533.95	543.62	2.76	-2.16	-17.34
3,055.00	2.46	62.46	2,992.21	-100.74	539.64	548.96	2.81	-2.48	-22.17
3,149.00	1.85	1.11	3,086.16	-98.29	541.46	550.30	2.40	-0.65	-65.27
3,244.00	3.17	334.48	3,181.07	-94.39	540.35	548.51	1.82	1.39	-28.03
3,339.00	2.73	333.60	3,275.94	-89.99	538.22	545.61	0.47	-0.46	-0.93
3,433.00	2.73	332.20	3,369.84	-86.01	536.18	542.88	0.07	0.00	-1.49
3,528.00	2.55	329.21	3,464.74	-82.19	534.04	540.09	0.24	-0.19	-3.15
3,622.00	2.55	324.90	3,558.64	-78.68	531.77	537.22	0.20	0.00	-4.59
3,717.00	1.23	336.06	3,653.59	-76.02	530.14	535.13	1.44	-1.39	11.75
3,811.00	1.41	330.44	3,747.56	-74.09	529.16	533.82	0.24	0.19	-5.98
3,905.00	0.62	256.96	3,841.55	-73.20	528.09	532.61	1.46	-0.84	-78.17
4,000.00	0.53	249.49	3,936.55	-73.47	527.18	531.76	0.12	-0.09	-7.86
4,094.00	0.53	276.21	4,030.54	-73.58	526.34	530.95	0.26	0.00	28.43
4,189.00	0.88	255.91	4,125.54	-73.71	525.20	529.85	0.45	0.37	-21.37
4,283.00	0.70	268.48	4,219.53	-73.90	523.92	528.63	0.26	-0.19	13.37
4,377.00	0.79	260.04	4,313.52	-74.03	522.71	527.46	0.15	0.10	-8.98
4,472.00	0.79	327.80	4,408.51	-73.58	521.72	526.41	0.93	0.00	71.33
4,567.00	0.97	298.89	4,503.50	-72.64	520.66	525.20	0.50	0.19	-30.43
4,661.00	1.58	349.16	4,597.48	-70.98	519.72	523.97	1.29	0.65	53.48
4,755.00	2.29	20.45	4,691.43	-67.95	520.13	523.83	1.33	0.76	33.29



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



<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-08-04B - Slot S
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
<b>Site:</b>	Cascade Creek 697-08A Pad	<b>MD Reference:</b>	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
<b>Well:</b>	CC 697-08-04B	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	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)
4,850.00	1.67	80.30	4,786.38	-65.94	522.16	525.48	2.15	-0.65	63.00
4,945.00	0.97	163.97	4,881.36	-66.48	523.75	527.12	1.93	-0.74	88.07
5,039.00	0.97	187.35	4,975.35	-68.03	523.87	527.51	0.42	0.00	24.87
5,134.00	0.82	203.08	5,070.34	-69.30	523.58	527.44	0.43	-0.37	18.58
5,228.00	0.26	239.21	5,164.34	-69.88	523.18	527.17	0.47	-0.38	38.44
5,323.00	0.53	282.89	5,259.33	-69.89	522.57	526.57	0.41	0.28	45.98
5,417.00	0.70	276.21	5,353.33	-69.73	521.57	525.57	0.20	0.18	-7.11
5,512.00	1.06	290.80	5,448.32	-69.36	520.17	524.12	0.44	0.38	15.36
5,606.00	0.09	291.68	5,542.31	-69.02	519.29	523.19	1.03	-1.03	0.94
5,701.00	0.18	104.74	5,637.31	-69.03	519.37	523.27	0.28	0.09	182.17
5,796.00	0.18	108.87	5,732.31	-69.12	519.65	523.57	0.01	0.00	4.35
5,890.00	0.35	41.19	5,826.31	-68.95	519.98	523.86	0.35	0.18	-72.00
5,985.00	1.06	22.73	5,921.30	-67.92	520.51	524.19	0.78	0.75	-19.43
6,079.00	1.14	355.49	6,015.29	-66.19	520.77	524.14	0.56	0.09	-28.98
6,174.00	1.14	338.88	6,110.27	-64.37	520.36	523.40	0.35	0.00	-17.48
6,268.00	0.70	22.56	6,204.26	-62.96	520.24	523.03	0.85	-0.47	46.47
6,363.00	0.53	62.99	6,299.25	-62.23	520.86	523.50	0.48	-0.18	42.56
6,457.00	0.44	63.25	6,393.25	-61.87	521.57	524.13	0.10	-0.10	0.28
6,552.00	0.44	71.34	6,488.24	-61.59	522.24	524.74	0.07	0.00	8.52
6,647.00	0.09	274.89	6,583.24	-61.46	522.51	524.99	0.55	-0.37	-164.68
6,741.00	0.62	237.19	6,677.24	-61.73	522.01	524.54	0.59	0.58	-40.11
6,836.00	0.53	194.65	6,772.24	-62.44	521.48	524.14	0.45	-0.09	-44.78
6,930.00	0.79	185.77	6,866.23	-63.50	521.29	524.16	0.30	0.28	-9.45
7,025.00	0.44	173.29	6,961.23	-64.52	521.27	524.32	0.39	-0.37	-13.14
7,119.00	0.35	129.52	7,055.22	-65.06	521.53	524.68	0.33	-0.10	-46.56
7,214.00	2.29	75.03	7,150.19	-64.75	523.59	526.64	2.22	2.04	-57.36
7,308.00	1.23	99.11	7,244.15	-64.43	526.40	529.35	1.35	-1.13	25.62
7,403.00	0.18	225.41	7,339.14	-64.69	527.30	530.28	1.42	-1.11	132.95
7,498.00	1.14	249.40	7,434.14	-65.13	526.31	529.39	1.03	1.01	25.25
7,592.00	1.58	238.24	7,528.11	-66.14	524.33	527.63	0.54	0.47	-11.87
7,686.00	1.41	259.60	7,622.08	-67.03	522.09	525.59	0.62	-0.18	22.72
7,781.00	0.09	293.52	7,717.07	-67.21	520.87	524.42	1.41	-1.39	35.71
7,876.00	0.18	322.97	7,812.07	-67.06	520.72	524.24	0.12	0.09	31.00
7,970.00	0.44	294.58	7,906.07	-66.80	520.30	523.78	0.31	0.28	-30.20
7,971.16	0.45	294.53	7,907.23	-66.79	520.29	523.77	0.65	0.65	-4.39
<b>CC 697-08-04B Target</b>									
8,065.00	1.06	292.82	8,001.06	-66.30	519.16	522.57	0.65	0.65	-1.82
8,160.00	2.02	280.60	8,096.02	-65.65	516.70	520.03	1.06	1.01	-12.86
8,254.00	2.37	271.90	8,189.95	-65.28	513.13	516.46	0.51	0.37	-9.26
8,349.00	2.02	272.61	8,284.88	-65.14	509.49	512.85	0.37	-0.37	0.75
8,443.00	2.02	274.63	8,378.83	-64.93	506.19	509.57	0.08	0.00	2.15
8,538.00	2.46	271.99	8,473.75	-64.73	502.48	505.88	0.48	0.46	-2.78
8,632.00	2.37	265.22	8,567.67	-64.82	498.53	502.01	0.32	-0.10	-7.20
8,727.00	2.55	277.26	8,662.58	-64.72	494.47	498.01	0.57	0.19	12.67

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



<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-08-04B - Slot S
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
<b>Site:</b>	Cascade Creek 697-08A Pad	<b>MD Reference:</b>	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
<b>Well:</b>	CC 697-08-04B	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	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)
8,821.00	2.73	263.73	8,756.48	-64.70	490.17	493.78	0.69	0.19	-14.39
8,845.00	2.99	258.54	8,780.45	-64.88	488.99	492.65	1.53	1.08	-21.63
<b>Last SDI Production MWD</b>									
8,900.00	2.99	258.54	8,835.38	-65.45	486.18	489.99	0.00	0.00	0.00
<b>Projection to TD - BHL = 634509.81, 1226256.05</b>									

**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
234.00	233.99	-0.71	1.96	First SDI Surface MWD
2,637.00	2,577.17	-91.19	494.05	Last SDI Surface MWD
2,771.00	2,709.78	-97.73	512.13	First SDI Production MWD
8,845.00	8,780.45	-64.88	488.99	Last SDI Production MWD
8,900.00	8,835.38	-65.45	486.18	Projection to TD
8,900.00	8,835.38	-65.45	486.18	BHL = 634509.81, 1226256.05

Checked By: _____	Approved By: _____	Date: _____
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