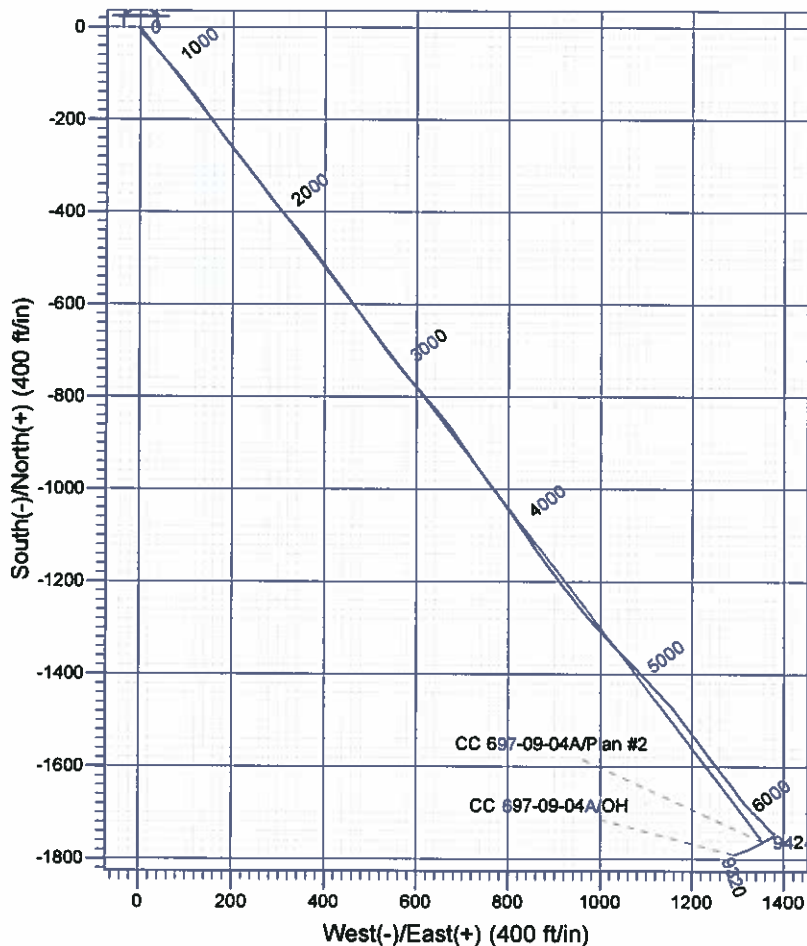
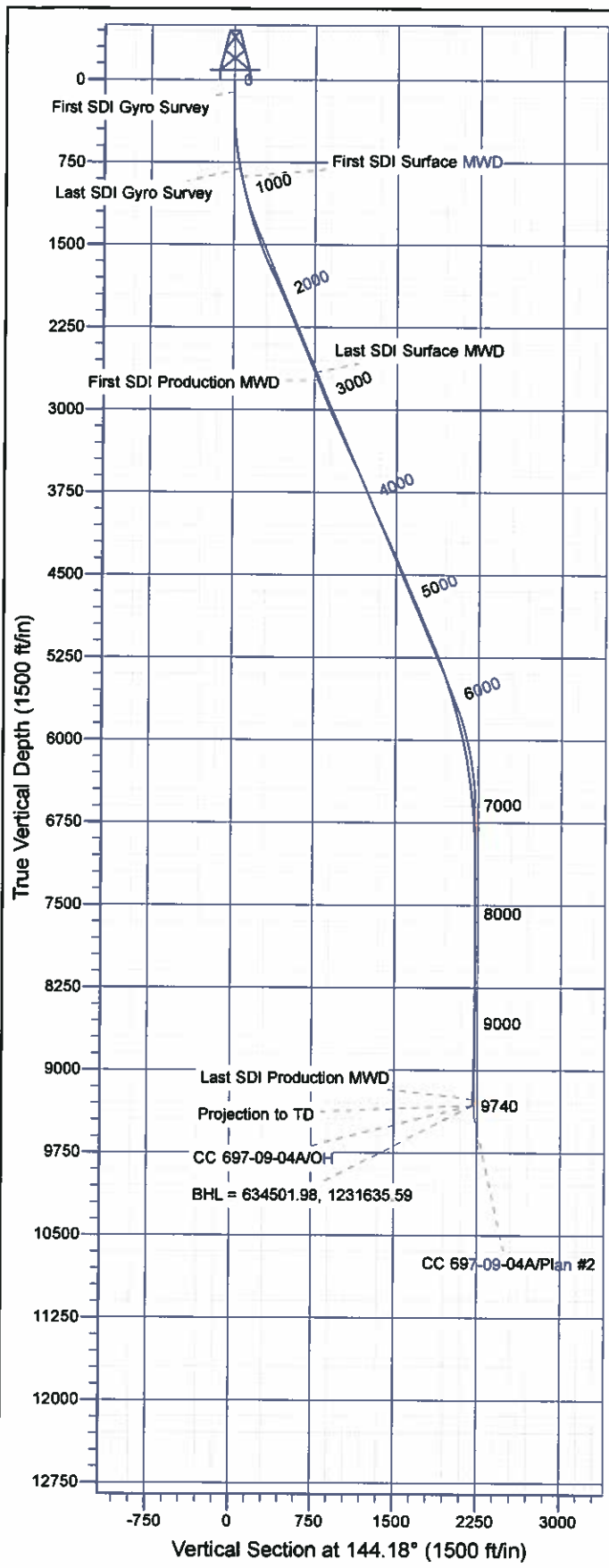




**Scientific Drilling**  
Rocky Mountain Operations

Company: OXY USA RMAT  
Project: Garfield County, CO NAD27  
Site: Cascade Creek 697-04D Pad  
Well: CC 697-09-04A  
Wellbore: OH  
Design: OH



#### Well Details: CC 697-09-04A

TVD Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P) Level: 8629.00  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.00 0.00 636330.05 1230398.13 39° 32' 55.694 N 108° 13' 46.320 W M

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-09-04A - Slot M, True North  
Vertical (TVD) Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P)  
Section (VS) Reference: Slot - M(0.00N, 0.00E)  
Measured Depth Reference: GL 8629' & RKB 30' @ 8659.00ft (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

15:21, April 05 2012  
Created By: Janie Cooke

# **OXY USA RMAT**

**Garfield County, CO NAD27  
Cascade Creek 697-04D Pad  
CC 697-09-04A - Slot M**

**OH**

**Design: OH**

## **Standard Survey Report**

**05 April, 2012**



# Scientific Drilling International, Inc.

## Survey Report



<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-09-04A - Slot M
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-04D Pad	<b>MD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Well:</b>	CC 697-09-04A	<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 697-04D Pad				
Site Position:		Northing:	635,530.62 usft	Latitude:	39° 32' 47.760 N
From:	Map	Easting:	1,230,276.10 usft	Longitude:	108° 13' 47.570 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.72 °

Well	CC 697-09-04A - Slot M					
Well Position	+N-S	0.00 ft	Northing:	636,330.05 usft	Latitude:	39° 32' 55.694
	+E-W	0.00 ft	Easting:	1,230,398.13 usft	Longitude:	108° 13' 46.320 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,629.00 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	03/24/2011	10.47	65.76	52,282

<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	144.18	

<b>Survey Program</b>	<b>Date</b>	04/05/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
110.00	809.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
882.00	2,799.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,871.00	9,740.00	Survey #3 - 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
110.00	0.53	238.97	110.00	-0.26	-0.44	-0.04	0.48	0.48	0.00
<b>First SDI Gyro Survey</b>									
172.00	0.26	301.55	172.00	-0.34	-0.80	-0.20	0.76	-0.44	100.94
264.00	0.88	191.34	263.99	-0.92	-1.12	0.09	1.09	0.67	-119.79
356.00	2.02	171.47	355.96	-3.22	-1.02	2.01	1.34	1.24	-21.60
447.00	3.70	148.54	446.85	-7.31	0.75	6.37	2.20	1.85	-25.20
539.00	5.89	146.78	538.52	-13.79	4.89	14.04	2.39	2.38	-1.91
630.00	7.83	139.66	628.87	-22.42	11.46	24.89	2.32	2.13	-7.82

# Scientific Drilling International, Inc.

## Survey Report



<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-09-04A - Slot M
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-04D Pad	<b>MD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Well:</b>	CC 697-09-04A	<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)
720.00	10.56	136.41	717.70	-33.07	21.12	39.17	3.09	3.03	-3.61
809.00	11.70	138.43	805.03	-45.73	32.73	56.23	1.35	1.28	2.27
<b>Last SDI Gyro Survey</b>									
882.00	11.96	140.90	876.48	-57.14	42.41	71.15	0.78	0.36	3.38
<b>First SDI Surface MWD</b>									
973.00	13.28	138.26	965.28	-72.25	55.32	90.96	1.58	1.45	-2.90
1,067.00	13.89	137.47	1,056.85	-88.62	70.13	112.90	0.68	0.65	-0.84
1,162.00	14.51	142.74	1,148.75	-106.50	85.04	136.13	1.51	0.65	5.55
1,257.00	16.62	143.80	1,240.26	-126.94	100.28	161.61	2.24	2.22	1.12
1,352.00	18.38	140.81	1,330.86	-149.51	117.77	190.15	2.08	1.85	-3.15
1,446.00	19.26	145.82	1,419.84	-173.82	135.84	220.45	1.96	0.94	5.33
1,541.00	21.19	144.59	1,508.98	-200.78	154.59	253.28	2.08	2.03	-1.29
1,636.00	23.92	143.45	1,596.71	-230.25	176.02	289.71	2.91	2.87	-1.20
1,730.00	24.89	142.92	1,682.31	-261.34	199.29	328.55	1.06	1.03	-0.56
1,825.00	25.32	142.57	1,768.33	-293.43	223.69	368.84	0.48	0.45	-0.37
1,920.00	25.68	141.69	1,854.08	-325.71	248.80	409.71	0.55	0.38	-0.93
2,015.00	23.57	144.15	1,940.43	-357.26	272.69	449.28	2.47	-2.22	2.59
2,109.00	24.09	140.11	2,026.43	-387.22	296.00	487.21	1.82	0.55	-4.30
2,204.00	23.13	138.44	2,113.47	-416.05	320.81	525.11	1.23	-1.01	-1.76
2,299.00	23.13	139.67	2,200.84	-444.24	345.27	562.28	0.51	0.00	1.29
2,393.00	25.15	143.01	2,286.82	-474.27	369.24	600.66	2.59	2.15	3.55
2,488.00	21.46	143.97	2,373.85	-504.46	391.61	638.23	3.90	-3.88	1.01
2,583.00	21.02	143.62	2,462.40	-532.23	411.94	672.65	0.48	-0.46	-0.37
2,678.00	23.92	142.48	2,550.18	-561.23	433.78	708.95	3.09	3.05	-1.20
2,772.00	23.65	144.68	2,636.19	-591.73	456.29	746.85	0.99	-0.29	2.34
2,799.00	22.86	144.68	2,661.00	-600.43	462.45	757.51	2.93	-2.93	0.00
<b>Last SDI Surface MWD</b>									
2,871.00	20.52	146.24	2,727.90	-622.34	477.55	784.11	3.35	-3.25	2.17
<b>First SDI Production MWD</b>									
2,965.00	22.25	142.74	2,815.43	-650.20	497.48	818.37	2.29	1.84	-3.72
3,060.00	23.83	144.24	2,902.85	-680.09	519.59	855.54	1.77	1.66	1.58
3,155.00	24.89	142.83	2,989.39	-711.59	542.88	894.72	1.27	1.12	-1.48
3,249.00	24.36	140.55	3,074.84	-742.33	567.15	933.84	1.16	-0.56	-2.43
3,344.00	22.42	138.00	3,162.03	-770.92	591.73	971.41	2.30	-2.04	-2.68
3,439.00	24.71	139.32	3,249.11	-799.45	616.80	1,009.21	2.47	2.41	1.39
3,533.00	24.71	138.35	3,334.50	-829.03	642.66	1,048.33	0.43	0.00	-1.03
3,628.00	24.80	142.39	3,420.78	-859.65	668.02	1,088.01	1.78	0.09	4.25
3,723.00	25.68	146.70	3,506.71	-892.64	691.48	1,128.49	2.14	0.93	4.54
3,817.00	24.45	145.12	3,591.86	-925.62	713.79	1,168.29	1.49	-1.31	-1.68
3,912.00	22.86	146.00	3,678.87	-957.05	735.35	1,206.39	1.71	-1.67	0.93
4,007.00	22.80	142.13	3,766.50	-986.76	756.88	1,243.08	1.60	-0.27	-4.07
4,102.00	23.30	143.27	3,853.98	-1,016.23	779.32	1,280.11	0.87	0.74	1.20
4,196.00	24.53	144.85	3,939.91	-1,047.09	801.67	1,318.21	1.48	1.31	1.68
4,291.00	24.62	144.94	4,026.31	-1,079.41	824.39	1,357.72	0.10	0.09	0.09



# Scientific Drilling International, Inc.

## Survey Report



<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-09-04A - Slot M
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8629' & RKB 30' @ 8659 00ft (H&P)
<b>Site:</b>	Cascade Creek 697-04D Pad	<b>MD Reference:</b>	GL 8629' & RKB 30' @ 8659 00ft (H&P)
<b>Well:</b>	CC 697-09-04A	<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)
4,386.00	24.36	146.70	4,112.76	-1,111.98	846.52	1,397.08	0.82	-0.27	1.85
4,480.00	24.45	143.62	4,198.36	-1,143.85	868.70	1,435.90	1.36	0.10	-3.28
4,575.00	23.83	143.97	4,285.06	-1,175.20	891.65	1,474.75	0.67	-0.65	0.37
4,670.00	23.39	142.57	4,372.10	-1,205.69	914.40	1,512.79	0.75	-0.46	-1.47
4,764.00	23.39	141.07	4,458.38	-1,235.02	937.47	1,550.07	0.63	0.00	-1.60
4,859.00	22.86	141.60	4,545.75	-1,264.18	960.78	1,587.34	0.60	-0.56	0.58
4,954.00	23.74	137.47	4,633.00	-1,292.71	985.17	1,624.76	1.95	0.93	-4.35
5,049.00	23.57	137.47	4,720.02	-1,320.80	1,010.93	1,662.62	0.18	-0.18	0.00
5,143.00	23.48	136.15	4,806.21	-1,348.15	1,036.61	1,699.83	0.57	-0.10	-1.40
5,238.00	22.77	134.75	4,893.58	-1,374.75	1,062.78	1,738.70	0.95	-0.75	-1.47
5,333.00	22.71	134.74	4,981.19	-1,400.60	1,088.86	1,772.93	0.06	-0.06	-0.01
5,427.00	23.39	138.70	5,067.69	-1,427.39	1,114.07	1,809.40	1.80	0.72	4.21
5,522.00	22.69	135.80	5,155.12	-1,454.69	1,139.29	1,846.30	1.40	-0.74	-3.05
5,617.00	21.19	142.57	5,243.25	-1,481.47	1,162.50	1,881.60	3.09	-1.58	7.13
5,711.00	20.49	142.39	5,331.10	-1,507.99	1,182.87	1,915.03	0.75	-0.74	-0.19
5,806.00	18.20	142.39	5,420.73	-1,532.92	1,202.07	1,946.48	2.41	-2.41	0.00
5,901.00	17.32	144.68	5,511.20	-1,556.21	1,219.30	1,975.45	1.18	-0.93	2.41
5,995.00	17.50	142.30	5,600.90	-1,578.81	1,236.03	2,003.57	0.78	0.19	-2.53
6,090.00	15.74	141.60	5,691.92	-1,600.21	1,252.77	2,030.72	1.86	-1.85	-0.74
6,184.00	15.48	141.42	5,782.46	-1,620.01	1,268.52	2,055.98	0.28	-0.28	-0.19
6,279.00	13.28	143.45	5,874.48	-1,638.69	1,282.92	2,079.56	2.38	-2.32	2.14
6,373.00	13.28	143.36	5,965.96	-1,656.03	1,295.79	2,101.15	0.02	0.00	-0.10
6,468.00	11.43	139.05	6,058.76	-1,671.89	1,308.48	2,121.44	2.17	-1.95	-4.54
6,563.00	10.73	139.58	6,151.99	-1,685.73	1,320.38	2,139.63	0.74	-0.74	0.56
6,657.00	8.71	136.59	6,244.63	-1,697.57	1,330.95	2,155.41	2.21	-2.15	-3.18
6,752.00	8.09	129.91	6,338.62	-1,707.08	1,341.02	2,169.02	1.22	-0.65	-7.03
6,846.00	7.03	133.60	6,431.80	-1,715.29	1,350.26	2,181.08	1.24	-1.13	3.93
6,941.00	6.33	136.77	6,526.15	-1,723.12	1,358.05	2,191.99	0.83	-0.74	3.34
7,035.00	5.36	139.05	6,619.68	-1,730.21	1,364.48	2,201.50	1.06	-1.03	2.43
7,129.00	4.31	137.21	6,713.33	-1,736.12	1,369.76	2,209.38	1.13	-1.12	-1.96
7,224.00	2.99	127.54	6,808.13	-1,740.25	1,374.15	2,215.30	1.53	-1.39	-10.18
7,318.00	2.29	132.46	6,902.03	-1,743.01	1,377.48	2,219.49	0.78	-0.74	5.23
7,413.00	1.06	178.34	6,997.00	-1,745.17	1,378.90	2,222.07	1.82	-1.29	48.29
7,507.00	0.79	186.42	7,090.98	-1,746.68	1,378.86	2,223.27	0.32	-0.29	8.60
7,602.00	0.88	189.59	7,185.97	-1,748.05	1,378.66	2,224.27	0.11	0.09	3.34
7,696.00	0.70	173.50	7,279.96	-1,749.34	1,378.61	2,225.28	0.30	-0.19	-17.12
7,791.00	0.70	217.80	7,374.96	-1,750.37	1,378.32	2,225.94	0.56	0.00	46.63
7,886.00	1.32	240.13	7,469.94	-1,751.37	1,377.01	2,226.00	0.76	0.65	23.51
7,980.00	0.35	24.35	7,563.94	-1,751.65	1,376.19	2,225.74	1.72	-1.03	153.43
8,075.00	0.88	42.02	7,658.93	-1,750.84	1,376.80	2,225.44	0.59	0.56	18.60
8,170.00	0.00	25.85	7,753.93	-1,750.30	1,377.29	2,225.29	0.93	-0.93	0.00
8,265.00	0.53	207.17	7,848.93	-1,750.69	1,377.09	2,225.49	0.56	0.56	0.00
8,359.00	1.06	237.14	7,942.92	-1,751.55	1,376.16	2,225.64	0.70	0.56	31.88

# Scientific Drilling International, Inc.

## Survey Report



<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well CC 697-09-04A - Slot M
<b>Project:</b>	Garfield County, CO NAD27	<b>TVD Reference:</b>	GL 8629' & RKB 30' @ 8659 00ft (H&P)
<b>Site:</b>	Cascade Creek 697-04D Pad	<b>MD Reference:</b>	GL 8629' & RKB 30' @ 8659 00ft (H&P)
<b>Well:</b>	CC 697-09-04A	<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)
8,454.00	1.23	256.39	8,037.90	-1,752.27	1,374.43	2,225.21	0.44	0.18	20.26
8,549.00	1.14	243.03	8,132.88	-1,752.94	1,372.59	2,224.68	0.31	-0.09	-14.06
8,644.00	1.32	241.18	8,227.86	-1,753.89	1,370.79	2,224.40	0.19	0.19	-1.95
8,738.00	2.20	242.15	8,321.81	-1,755.26	1,368.25	2,224.02	0.94	0.94	1.03
8,796.78	2.53	243.38	8,380.54	-1,756.37	1,366.09	2,223.66	0.56	0.56	2.09
<b>CC 697-09-04A Target</b>									
8,833.00	2.73	243.99	8,416.72	-1,757.10	1,364.60	2,223.38	0.56	0.56	1.69
8,928.00	3.52	241.80	8,511.58	-1,759.47	1,360.00	2,222.61	0.84	0.83	-2.31
9,023.00	3.43	238.46	8,606.41	-1,762.34	1,355.01	2,222.01	0.23	-0.09	-3.52
9,117.00	4.04	235.73	8,700.21	-1,765.67	1,349.88	2,221.71	0.68	0.65	-2.90
9,212.00	4.75	242.32	8,794.93	-1,769.38	1,343.63	2,221.06	0.92	0.75	6.94
9,307.00	5.45	245.14	8,889.55	-1,773.11	1,336.05	2,219.65	0.78	0.74	2.97
9,401.00	5.80	245.84	8,983.10	-1,776.93	1,327.67	2,217.84	0.38	0.37	0.74
9,496.00	5.98	250.59	9,077.60	-1,780.54	1,318.62	2,215.47	0.55	0.19	5.00
9,589.00	6.68	250.67	9,170.03	-1,783.94	1,308.95	2,212.57	0.75	0.75	0.09
9,684.00	7.03	250.15	9,264.35	-1,787.74	1,298.26	2,209.40	0.37	0.37	-0.55
<b>Last SDI Production MWD</b>									
9,740.00	7.03	250.15	9,319.93	-1,790.07	1,291.82	2,207.52	0.00	0.00	0.00
<b>Projection to TD - BHL = 634501.98, 1231635.59</b>									

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
110.00	110.00	-0.26	-0.44	First SDI Gyro Survey
809.00	805.03	-45.73	32.73	Last SDI Gyro Survey
882.00	876.48	-57.14	42.41	First SDI Surface MWD
2,799.00	2,661.00	-600.43	462.45	Last SDI Surface MWD
2,871.00	2,727.90	-622.34	477.55	First SDI Production MWD
9,684.00	9,264.35	-1,787.74	1,298.26	Last SDI Production MWD
9,740.00	9,319.93	-1,790.07	1,291.82	Projection to TD
9,740.00	9,319.93	-1,790.07	1,291.82	BHL = 634501.98, 1231635.59

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