



**Scientific Drilling**  
Rocky Mountain Operations

Company: OXY USA RMAT  
Project: Garfield County, CO NAD27  
Site: Cascade Creek 697-04D Pad



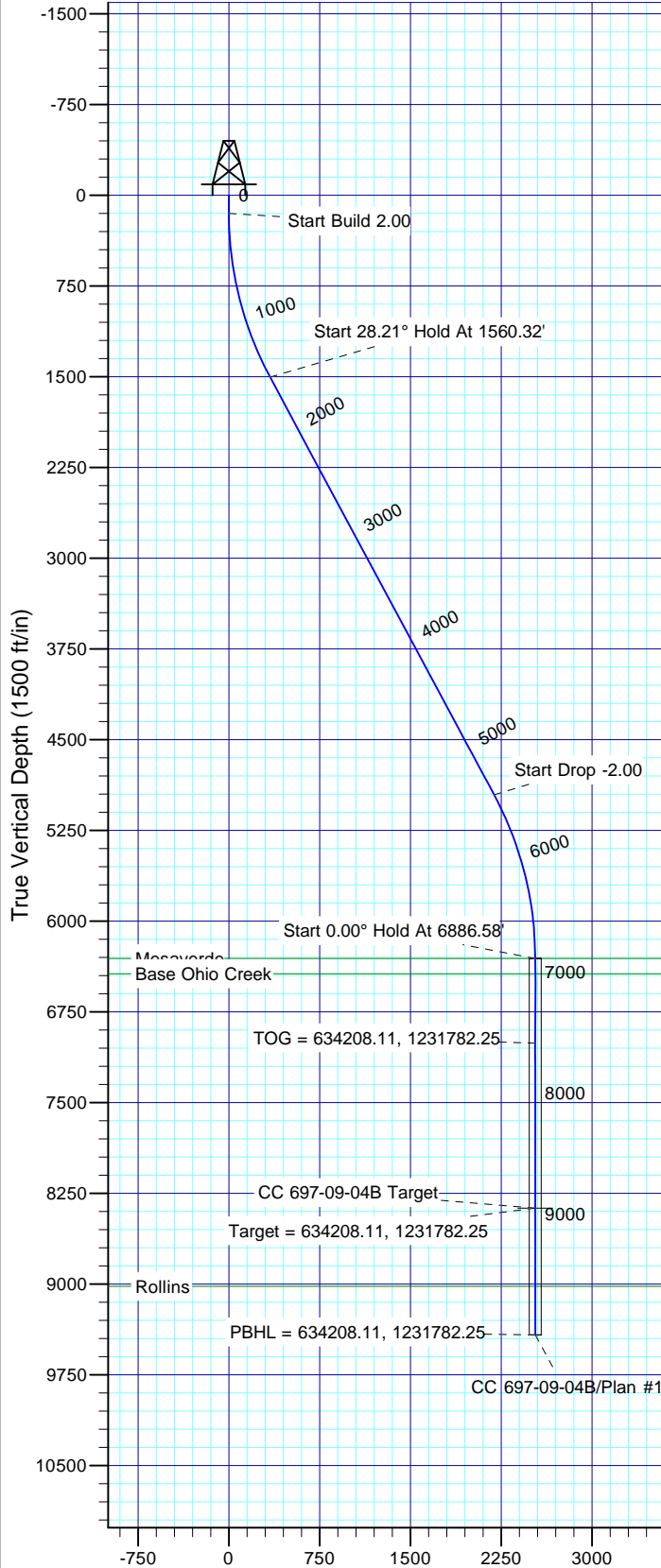
Well Details: CC 697-09-04B

TVD Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P) Ground Level: 8629.00  
+N/-S 0.00 +E/-W 0.00 Northing 636324.28 Easting 1230393.34 Latitude 39° 32' 55.635 N Longitude 108° 13' 46.378 W Slot O

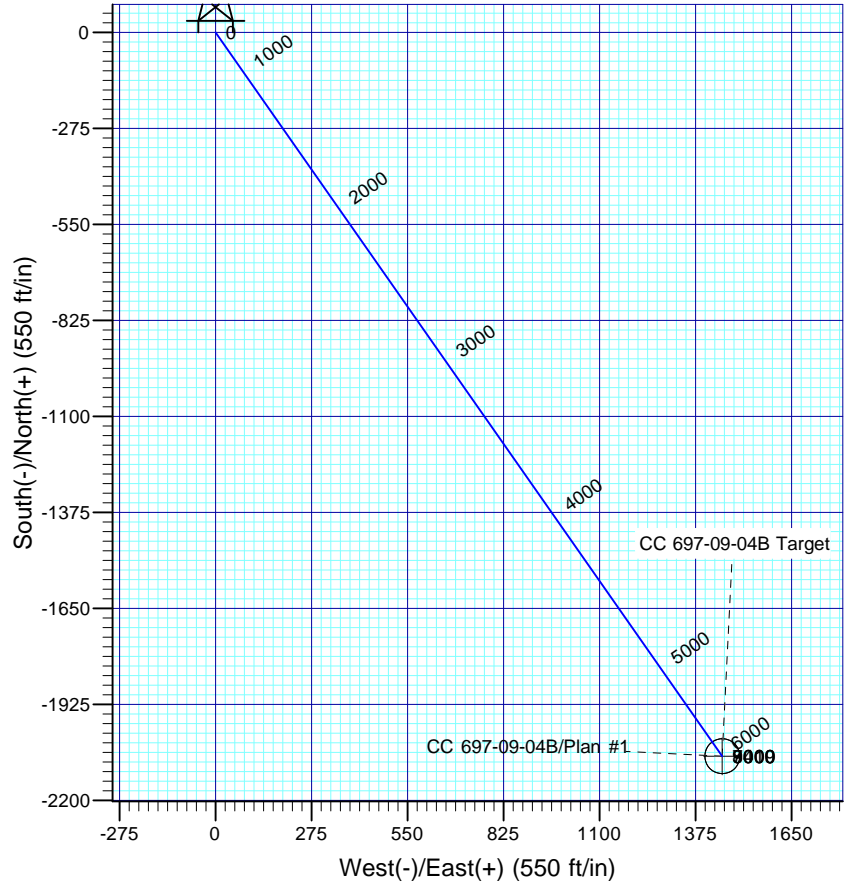


Azimuths to True North  
Magnetic North: 10.47°

Magnetic Field  
Strength: 52282.4snT  
Dip Angle: 65.76°  
Date: 2011/03/24  
Model: IGRF2005-10



Vertical Section at 145.00° (1500 ft/in)



#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6309.00	6886.58	Mesaverde
6434.00	7011.58	Base Ohio Creek
9019.00	9596.58	Rollins

Plan: Plan #1

**15:59, March 29 2011**  
**Created By: Rex Hall**

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

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	
3	1560.32	28.21	145.00	1504.04	-278.67	195.13	2.00	145.00	340.19	
4	5476.25	28.21	145.00	4954.96	-1794.82	1256.73	0.00	0.00	2191.06	
5	6886.58	0.00	0.00	6309.00	-2073.49	1451.86	2.00	180.00	2531.25	
6	8950.58	0.00	0.00	8373.00	-2073.49	1451.86	0.00	0.00	2531.25	CC 697-09-04B Target
7	9996.58	0.00	0.00	9419.00	-2073.49	1451.86	0.00	0.00	2531.25	

# **OXY USA RMAT**

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

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**29 March, 2011**

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM-RexH-Local	<b>Local Co-ordinate Reference:</b>	Well CC 697-09-04B - Slot O
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-04D Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-09-04B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #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 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 697-09-04B - Slot O					
Well Position	+N/-S	796.83 ft	Northing:	636,324.28 usft	Latitude:	39° 32' 55.635 N
	+E/-W	93.34 ft	Easting:	1,230,393.34 usft	Longitude:	108° 13' 46.378 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		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	2011/03/24	10.47	65.76	52,282

<b>Design</b>	Plan #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN		<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	145.00	

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,560.32	28.21	145.00	1,504.04	-278.67	195.13	2.00	2.00	0.00	145.00	
5,476.25	28.21	145.00	4,954.96	-1,794.82	1,256.73	0.00	0.00	0.00	0.00	
6,886.58	0.00	0.00	6,309.00	-2,073.49	1,451.86	2.00	-2.00	0.00	180.00	
8,950.58	0.00	0.00	8,373.00	-2,073.49	1,451.86	0.00	0.00	0.00	0.00	CC 697-09-04B Target
9,996.58	0.00	0.00	9,419.00	-2,073.49	1,451.86	0.00	0.00	0.00	0.00	

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM-RexH-Local	<b>Local Co-ordinate Reference:</b>	Well CC 697-09-04B - Slot O
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-04D Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-09-04B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Planned 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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
200.00	1.00	145.00	200.00	-0.36	0.25	0.44	2.00	2.00	0.00
300.00	3.00	145.00	299.93	-3.22	2.25	3.93	2.00	2.00	0.00
400.00	5.00	145.00	399.68	-8.93	6.25	10.90	2.00	2.00	0.00
500.00	7.00	145.00	499.13	-17.49	12.25	21.35	2.00	2.00	0.00
600.00	9.00	145.00	598.15	-28.89	20.23	35.27	2.00	2.00	0.00
700.00	11.00	145.00	696.63	-43.12	30.19	52.63	2.00	2.00	0.00
800.00	13.00	145.00	794.44	-60.15	42.11	73.42	2.00	2.00	0.00
900.00	15.00	145.00	891.46	-79.96	55.99	97.62	2.00	2.00	0.00
1,000.00	17.00	145.00	987.58	-102.54	71.80	125.18	2.00	2.00	0.00
1,100.00	19.00	145.00	1,082.68	-127.85	89.52	156.08	2.00	2.00	0.00
1,200.00	21.00	145.00	1,176.65	-155.87	109.14	190.28	2.00	2.00	0.00
1,300.00	23.00	145.00	1,269.36	-186.55	130.62	227.74	2.00	2.00	0.00
1,400.00	25.00	145.00	1,360.71	-219.87	153.95	268.41	2.00	2.00	0.00
1,500.00	27.00	145.00	1,450.59	-255.78	179.09	312.24	2.00	2.00	0.00
1,560.32	28.21	145.00	1,504.04	-278.67	195.13	340.19	2.00	2.00	0.00
Start 28.21° Hold At 1560.32'									
1,600.00	28.21	145.00	1,539.01	-294.03	205.88	358.95	0.00	0.00	0.00
1,700.00	28.21	145.00	1,627.13	-332.75	232.99	406.21	0.00	0.00	0.00
1,800.00	28.21	145.00	1,715.26	-371.47	260.10	453.48	0.00	0.00	0.00
1,900.00	28.21	145.00	1,803.38	-410.19	287.21	500.74	0.00	0.00	0.00
2,000.00	28.21	145.00	1,891.51	-448.90	314.32	548.01	0.00	0.00	0.00
2,100.00	28.21	145.00	1,979.63	-487.62	341.43	595.27	0.00	0.00	0.00
2,200.00	28.21	145.00	2,067.76	-526.34	368.54	642.54	0.00	0.00	0.00
2,300.00	28.21	145.00	2,155.88	-565.06	395.65	689.80	0.00	0.00	0.00
2,400.00	28.21	145.00	2,244.01	-603.77	422.76	737.07	0.00	0.00	0.00
2,500.00	28.21	145.00	2,332.13	-642.49	449.87	784.33	0.00	0.00	0.00
2,600.00	28.21	145.00	2,420.26	-681.21	476.98	831.60	0.00	0.00	0.00
2,700.00	28.21	145.00	2,508.38	-719.92	504.09	878.86	0.00	0.00	0.00
2,800.00	28.21	145.00	2,596.51	-758.64	531.20	926.13	0.00	0.00	0.00
2,900.00	28.21	145.00	2,684.63	-797.36	558.31	973.39	0.00	0.00	0.00
3,000.00	28.21	145.00	2,772.76	-836.08	585.42	1,020.66	0.00	0.00	0.00
3,100.00	28.21	145.00	2,860.88	-874.79	612.53	1,067.92	0.00	0.00	0.00
3,200.00	28.21	145.00	2,949.01	-913.51	639.64	1,115.19	0.00	0.00	0.00
3,300.00	28.21	145.00	3,037.13	-952.23	666.75	1,162.45	0.00	0.00	0.00
3,400.00	28.21	145.00	3,125.26	-990.95	693.86	1,209.72	0.00	0.00	0.00
3,500.00	28.21	145.00	3,213.38	-1,029.66	720.97	1,256.98	0.00	0.00	0.00
3,600.00	28.21	145.00	3,301.51	-1,068.38	748.08	1,304.25	0.00	0.00	0.00
3,700.00	28.21	145.00	3,389.63	-1,107.10	775.19	1,351.51	0.00	0.00	0.00
3,800.00	28.21	145.00	3,477.76	-1,145.82	802.30	1,398.78	0.00	0.00	0.00
3,900.00	28.21	145.00	3,565.88	-1,184.53	829.41	1,446.04	0.00	0.00	0.00
4,000.00	28.21	145.00	3,654.01	-1,223.25	856.52	1,493.31	0.00	0.00	0.00
4,100.00	28.21	145.00	3,742.13	-1,261.97	883.63	1,540.57	0.00	0.00	0.00
4,200.00	28.21	145.00	3,830.26	-1,300.69	910.74	1,587.84	0.00	0.00	0.00
4,300.00	28.21	145.00	3,918.38	-1,339.40	937.85	1,635.10	0.00	0.00	0.00
4,400.00	28.21	145.00	4,006.51	-1,378.12	964.96	1,682.37	0.00	0.00	0.00
4,500.00	28.21	145.00	4,094.63	-1,416.84	992.07	1,729.63	0.00	0.00	0.00
4,600.00	28.21	145.00	4,182.76	-1,455.56	1,019.18	1,776.90	0.00	0.00	0.00
4,700.00	28.21	145.00	4,270.88	-1,494.27	1,046.29	1,824.16	0.00	0.00	0.00
4,800.00	28.21	145.00	4,359.01	-1,532.99	1,073.40	1,871.43	0.00	0.00	0.00
4,900.00	28.21	145.00	4,447.13	-1,571.71	1,100.51	1,918.69	0.00	0.00	0.00

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM-RexH-Local	<b>Local Co-ordinate Reference:</b>	Well CC 697-09-04B - Slot O
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-04D Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-09-04B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Planned 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)
5,000.00	28.21	145.00	4,535.26	-1,610.43	1,127.62	1,965.96	0.00	0.00	0.00
5,100.00	28.21	145.00	4,623.38	-1,649.14	1,154.73	2,013.22	0.00	0.00	0.00
5,200.00	28.21	145.00	4,711.51	-1,687.86	1,181.84	2,060.49	0.00	0.00	0.00
5,300.00	28.21	145.00	4,799.63	-1,726.58	1,208.95	2,107.75	0.00	0.00	0.00
5,400.00	28.21	145.00	4,887.76	-1,765.30	1,236.06	2,155.02	0.00	0.00	0.00
5,476.25	28.21	145.00	4,954.96	-1,794.82	1,256.73	2,191.06	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,500.00	27.73	145.00	4,975.93	-1,803.94	1,263.12	2,202.20	2.00	-2.00	0.00
5,600.00	25.73	145.00	5,065.24	-1,840.79	1,288.92	2,247.18	2.00	-2.00	0.00
5,700.00	23.73	145.00	5,156.06	-1,875.06	1,312.91	2,289.01	2.00	-2.00	0.00
5,800.00	21.73	145.00	5,248.29	-1,906.71	1,335.07	2,327.65	2.00	-2.00	0.00
5,900.00	19.73	145.00	5,341.81	-1,935.70	1,355.38	2,363.05	2.00	-2.00	0.00
6,000.00	17.73	145.00	5,436.51	-1,962.01	1,373.80	2,395.16	2.00	-2.00	0.00
6,100.00	15.73	145.00	5,532.27	-1,985.59	1,390.31	2,423.95	2.00	-2.00	0.00
6,200.00	13.73	145.00	5,628.98	-2,006.42	1,404.89	2,449.37	2.00	-2.00	0.00
6,300.00	11.73	145.00	5,726.51	-2,024.47	1,417.53	2,471.41	2.00	-2.00	0.00
6,400.00	9.73	145.00	5,824.76	-2,039.72	1,428.21	2,490.03	2.00	-2.00	0.00
6,500.00	7.73	145.00	5,923.59	-2,052.16	1,436.92	2,505.21	2.00	-2.00	0.00
6,600.00	5.73	145.00	6,022.90	-2,061.76	1,443.64	2,516.93	2.00	-2.00	0.00
6,700.00	3.73	145.00	6,122.55	-2,068.52	1,448.37	2,525.18	2.00	-2.00	0.00
6,800.00	1.73	145.00	6,222.44	-2,072.42	1,451.11	2,529.95	2.00	-2.00	0.00
6,886.58	0.00	0.00	6,309.00	-2,073.49	1,451.86	2,531.25	2.00	-2.00	-167.48
<b>Start 0.00° Hold At 6886.58' - Mesaverde</b>									
6,900.00	0.00	0.00	6,322.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,000.00	0.00	0.00	6,422.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,011.58	0.00	0.00	6,434.00	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
<b>Base Ohio Creek</b>									
7,100.00	0.00	0.00	6,522.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,200.00	0.00	0.00	6,622.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,300.00	0.00	0.00	6,722.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,400.00	0.00	0.00	6,822.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,500.00	0.00	0.00	6,922.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,586.58	0.00	0.00	7,009.00	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
<b>TOG = 634208.11, 1231782.25</b>									
7,600.00	0.00	0.00	7,022.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,700.00	0.00	0.00	7,122.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,800.00	0.00	0.00	7,222.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
7,900.00	0.00	0.00	7,322.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,000.00	0.00	0.00	7,422.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,100.00	0.00	0.00	7,522.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,200.00	0.00	0.00	7,622.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,300.00	0.00	0.00	7,722.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,400.00	0.00	0.00	7,822.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,500.00	0.00	0.00	7,922.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,600.00	0.00	0.00	8,022.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,700.00	0.00	0.00	8,122.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,800.00	0.00	0.00	8,222.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,900.00	0.00	0.00	8,322.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
8,950.58	0.00	0.00	8,373.00	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
<b>Target = 634208.11, 1231782.25</b>									
9,000.00	0.00	0.00	8,422.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
9,100.00	0.00	0.00	8,522.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
9,200.00	0.00	0.00	8,622.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM-RexH-Local	<b>Local Co-ordinate Reference:</b>	Well CC 697-09-04B - Slot O
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8629' & RKB 30' @ 8659.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-04D Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-09-04B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Planned 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)
9,300.00	0.00	0.00	8,722.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
9,400.00	0.00	0.00	8,822.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
9,500.00	0.00	0.00	8,922.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
9,596.58	0.00	0.00	9,019.00	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
<b>Rollins</b>									
9,600.00	0.00	0.00	9,022.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
9,700.00	0.00	0.00	9,122.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
9,800.00	0.00	0.00	9,222.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
9,900.00	0.00	0.00	9,322.42	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
9,996.58	0.00	0.00	9,419.00	-2,073.49	1,451.86	2,531.25	0.00	0.00	0.00
<b>PBHL = 634208.11, 1231782.25</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
CC 697-09-04B Target	0.00	0.00	8,373.00	-2,073.49	1,451.86	634,208.12	1,231,782.24	39° 32' 35.141 N	108° 13' 27.845 W
- plan hits target center									
- Circle (radius 50.00)									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,886.58	6,309.00	Mesaverde		0.00	
7,011.58	6,434.00	Base Ohio Creek		0.00	
9,596.58	9,019.00	Rollins		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
150.00	150.00	0.00	0.00	Start Build 2.00
1,560.32	1,504.04	-278.67	195.13	Start 28.21° Hold At 1560.32'
5,476.25	4,954.96	-1,794.82	1,256.73	Start Drop -2.00
6,886.58	6,309.00	-2,073.49	1,451.86	Start 0.00° Hold At 6886.58'
7,586.58	7,009.00	-2,073.49	1,451.86	TOG = 634208.11, 1231782.25
8,950.58	8,373.00	-2,073.49	1,451.86	Target = 634208.11, 1231782.25
9,996.58	9,419.00	-2,073.49	1,451.86	PBHL = 634208.11, 1231782.25