



# Scientific Drilling

Rocky Mountain Operations

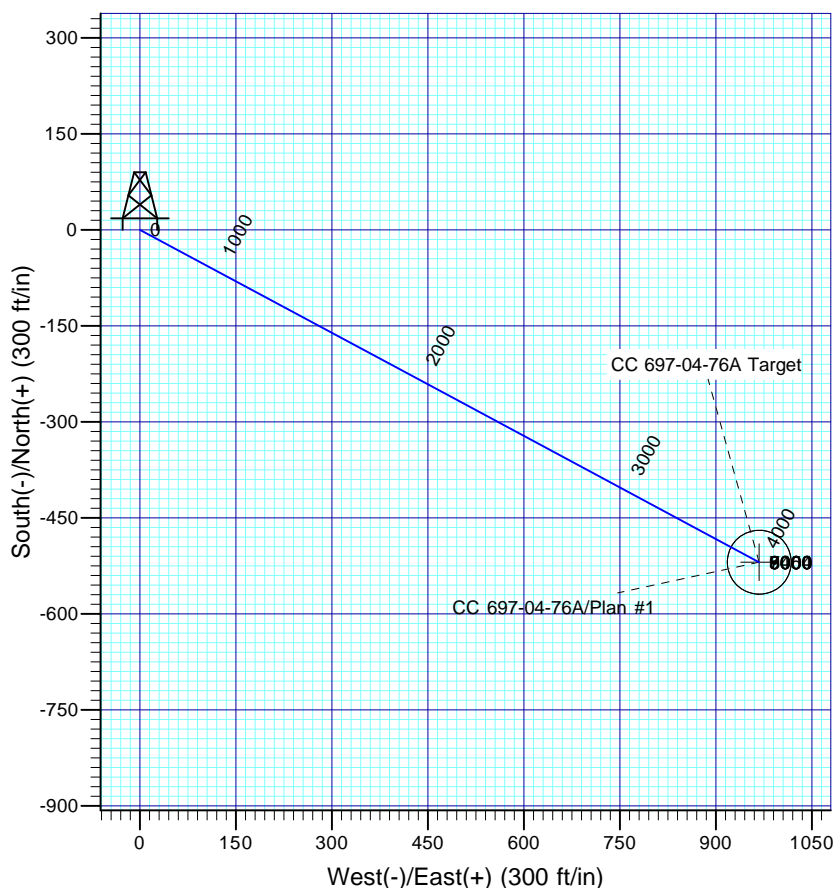
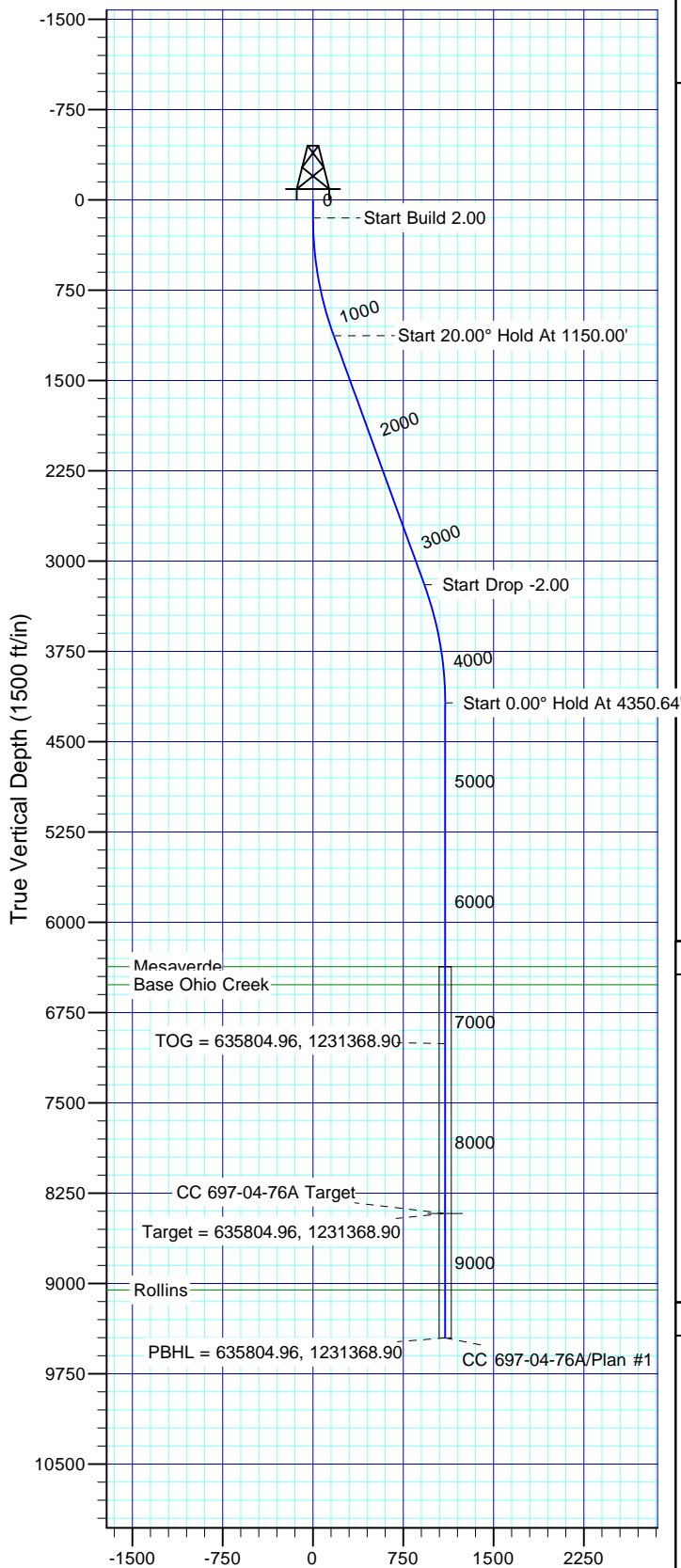
Company: OXY USA RMAT  
Project: Garfield County, CO NAD27  
Site: Cascade Creek 697-04D Pad



Well Details: CC 697-04-76A

TVD Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P) Ground Level: 8629.00  
+N/-S 0.00 +E/-W 0.00 Northing 636353.14 Easting 1230417.30 Latitude 39° 32' 55.928 N Longitude 108° 13' 46.084 W Slot E

T M Azimuths to True North  
Magnetic North: 10.47°  
Magnetic Field  
Strength: 52282.5nT  
Dip Angle: 65.76°  
Date: 2011/03/24  
Model: IGRF2005-10



## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6369.00	6542.08	Mesaverde
6519.00	6692.08	Base Ohio Creek
9054.00	9227.08	Rollins

Plan: Plan #1

14:45, 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	1150.00	20.00	118.22	1129.82	-81.70	152.23	2.00	118.22	172.77	
4	3350.64	20.00	118.22	3197.74	-437.64	815.41	0.00	0.00	925.43	
5	4350.64	0.00	0.00	4177.56	-519.34	967.64	2.00	180.00	1098.20	
6	8593.08	0.00	0.00	8420.00	-519.34	967.64	0.00	0.00	1098.20	CC 697-04-76A Target
7	9627.08	0.00	0.00	9454.00	-519.34	967.64	0.00	0.00	1098.20	

# **OXY USA RMAT**

**Garfield County, CO NAD27  
Cascade Creek 697-04D Pad  
CC 697-04-76A - Slot E**

**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 697-04-76A - Slot E
<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 697-04-76A	<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 697-04-76A - Slot E					
Well Position	+N/-S	826.39 ft	Northing:	636,353.14 usft	Latitude:	39° 32' 55.928 N
	+E/-W	116.42 ft	Easting:	1,230,417.30 usft	Longitude:	108° 13' 46.084 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	118.22

<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	
1,150.00	20.00	118.22	1,129.82	-81.70	152.23	2.00	2.00	0.00	118.22	
3,350.64	20.00	118.22	3,197.74	-437.64	815.41	0.00	0.00	0.00	0.00	
4,350.64	0.00	0.00	4,177.56	-519.34	967.64	2.00	-2.00	0.00	180.00	
8,593.08	0.00	0.00	8,420.00	-519.34	967.64	0.00	0.00	0.00	0.00	CC 697-04-76A Target
9,627.08	0.00	0.00	9,454.00	-519.34	967.64	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 697-04-76A - Slot E
<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 697-04-76A	<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	118.22	200.00	-0.21	0.38	0.44	2.00	2.00	0.00
300.00	3.00	118.22	299.93	-1.86	3.46	3.93	2.00	2.00	0.00
400.00	5.00	118.22	399.68	-5.16	9.61	10.90	2.00	2.00	0.00
500.00	7.00	118.22	499.13	-10.10	18.82	21.35	2.00	2.00	0.00
600.00	9.00	118.22	598.15	-16.68	31.08	35.27	2.00	2.00	0.00
700.00	11.00	118.22	696.63	-24.89	46.38	52.63	2.00	2.00	0.00
800.00	13.00	118.22	794.44	-34.72	64.70	73.42	2.00	2.00	0.00
900.00	15.00	118.22	891.46	-46.16	86.01	97.62	2.00	2.00	0.00
1,000.00	17.00	118.22	987.58	-59.20	110.30	125.18	2.00	2.00	0.00
1,100.00	19.00	118.22	1,082.68	-73.81	137.52	156.08	2.00	2.00	0.00
1,150.00	20.00	118.22	1,129.82	-81.70	152.23	172.77	2.00	2.00	0.00
Start 20.00° Hold At 1150.00'									
1,200.00	20.00	118.22	1,176.80	-89.79	167.30	189.87	0.00	0.00	0.00
1,300.00	20.00	118.22	1,270.77	-105.96	197.43	224.07	0.00	0.00	0.00
1,400.00	20.00	118.22	1,364.74	-122.14	227.57	258.27	0.00	0.00	0.00
1,500.00	20.00	118.22	1,458.71	-138.31	257.70	292.47	0.00	0.00	0.00
1,600.00	20.00	118.22	1,552.68	-154.49	287.84	326.68	0.00	0.00	0.00
1,700.00	20.00	118.22	1,646.65	-170.66	317.98	360.88	0.00	0.00	0.00
1,800.00	20.00	118.22	1,740.62	-186.84	348.11	395.08	0.00	0.00	0.00
1,900.00	20.00	118.22	1,834.59	-203.01	378.25	429.28	0.00	0.00	0.00
2,000.00	20.00	118.22	1,928.55	-219.18	408.38	463.49	0.00	0.00	0.00
2,100.00	20.00	118.22	2,022.52	-235.36	438.52	497.69	0.00	0.00	0.00
2,200.00	20.00	118.22	2,116.49	-251.53	468.65	531.89	0.00	0.00	0.00
2,300.00	20.00	118.22	2,210.46	-267.71	498.79	566.09	0.00	0.00	0.00
2,400.00	20.00	118.22	2,304.43	-283.88	528.93	600.29	0.00	0.00	0.00
2,500.00	20.00	118.22	2,398.40	-300.06	559.06	634.50	0.00	0.00	0.00
2,600.00	20.00	118.22	2,492.37	-316.23	589.20	668.70	0.00	0.00	0.00
2,700.00	20.00	118.22	2,586.34	-332.40	619.33	702.90	0.00	0.00	0.00
2,800.00	20.00	118.22	2,680.31	-348.58	649.47	737.10	0.00	0.00	0.00
2,900.00	20.00	118.22	2,774.28	-364.75	679.61	771.30	0.00	0.00	0.00
3,000.00	20.00	118.22	2,868.25	-380.93	709.74	805.51	0.00	0.00	0.00
3,100.00	20.00	118.22	2,962.22	-397.10	739.88	839.71	0.00	0.00	0.00
3,200.00	20.00	118.22	3,056.19	-413.28	770.01	873.91	0.00	0.00	0.00
3,300.00	20.00	118.22	3,150.15	-429.45	800.15	908.11	0.00	0.00	0.00
3,350.64	20.00	118.22	3,197.74	-437.64	815.41	925.43	0.00	0.00	0.00
Start Drop -2.00									
3,400.00	19.01	118.22	3,244.27	-445.44	829.93	941.91	2.00	-2.00	0.00
3,500.00	17.01	118.22	3,339.36	-460.06	857.18	972.83	2.00	-2.00	0.00
3,600.00	15.01	118.22	3,435.48	-473.10	881.48	1,000.42	2.00	-2.00	0.00
3,700.00	13.01	118.22	3,532.50	-484.55	902.82	1,024.63	2.00	-2.00	0.00
3,800.00	11.01	118.22	3,630.30	-494.40	921.15	1,045.44	2.00	-2.00	0.00
3,900.00	9.01	118.22	3,728.77	-502.62	936.47	1,062.83	2.00	-2.00	0.00
4,000.00	7.01	118.22	3,827.79	-509.21	948.75	1,076.77	2.00	-2.00	0.00
4,100.00	5.01	118.22	3,927.24	-514.16	957.98	1,087.24	2.00	-2.00	0.00
4,200.00	3.01	118.22	4,026.99	-517.47	964.15	1,094.24	2.00	-2.00	0.00
4,300.00	1.01	118.22	4,126.92	-519.13	967.24	1,097.75	2.00	-2.00	0.00
4,350.64	0.00	0.00	4,177.56	-519.34	967.64	1,098.20	2.00	-2.00	0.00
Start 0.00° Hold At 4350.64'									
4,400.00	0.00	0.00	4,226.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
4,500.00	0.00	0.00	4,326.92	-519.34	967.64	1,098.20	0.00	0.00	0.00

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## Planning Report

<b>Database:</b>	EDM-RexH-Local	<b>Local Co-ordinate Reference:</b>	Well CC 697-04-76A - Slot E
<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 697-04-76A	<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)
4,600.00	0.00	0.00	4,426.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
4,700.00	0.00	0.00	4,526.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
4,800.00	0.00	0.00	4,626.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
4,900.00	0.00	0.00	4,726.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,000.00	0.00	0.00	4,826.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,100.00	0.00	0.00	4,926.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,200.00	0.00	0.00	5,026.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,300.00	0.00	0.00	5,126.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,400.00	0.00	0.00	5,226.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,500.00	0.00	0.00	5,326.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,600.00	0.00	0.00	5,426.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,700.00	0.00	0.00	5,526.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,800.00	0.00	0.00	5,626.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
5,900.00	0.00	0.00	5,726.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,000.00	0.00	0.00	5,826.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,100.00	0.00	0.00	5,926.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,200.00	0.00	0.00	6,026.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,300.00	0.00	0.00	6,126.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,400.00	0.00	0.00	6,226.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,500.00	0.00	0.00	6,326.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,542.08	0.00	0.00	6,369.00	-519.34	967.64	1,098.20	0.00	0.00	0.00
<b>Mesaverde</b>									
6,600.00	0.00	0.00	6,426.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,692.08	0.00	0.00	6,519.00	-519.34	967.64	1,098.20	0.00	0.00	0.00
<b>Base Ohio Creek</b>									
6,700.00	0.00	0.00	6,526.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,800.00	0.00	0.00	6,626.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
6,900.00	0.00	0.00	6,726.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,000.00	0.00	0.00	6,826.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,100.00	0.00	0.00	6,926.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,182.08	0.00	0.00	7,009.00	-519.34	967.64	1,098.20	0.00	0.00	0.00
<b>TOG = 635804.96, 1231368.90</b>									
7,200.00	0.00	0.00	7,026.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,300.00	0.00	0.00	7,126.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,400.00	0.00	0.00	7,226.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,500.00	0.00	0.00	7,326.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,600.00	0.00	0.00	7,426.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,700.00	0.00	0.00	7,526.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,800.00	0.00	0.00	7,626.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
7,900.00	0.00	0.00	7,726.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,000.00	0.00	0.00	7,826.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,100.00	0.00	0.00	7,926.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,200.00	0.00	0.00	8,026.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,300.00	0.00	0.00	8,126.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,400.00	0.00	0.00	8,226.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,500.00	0.00	0.00	8,326.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,593.08	0.00	0.00	8,420.00	-519.34	967.64	1,098.20	0.00	0.00	0.00
<b>Target = 635804.96, 1231368.90</b>									
8,600.00	0.00	0.00	8,426.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,700.00	0.00	0.00	8,526.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,800.00	0.00	0.00	8,626.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
8,900.00	0.00	0.00	8,726.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
9,000.00	0.00	0.00	8,826.92	-519.34	967.64	1,098.20	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 697-04-76A - Slot E
<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 697-04-76A	<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)
9,100.00	0.00	0.00	8,926.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
9,200.00	0.00	0.00	9,026.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
9,227.08	0.00	0.00	9,054.00	-519.34	967.64	1,098.20	0.00	0.00	0.00
<b>Rollins</b>									
9,300.00	0.00	0.00	9,126.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
9,400.00	0.00	0.00	9,226.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
9,500.00	0.00	0.00	9,326.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
9,600.00	0.00	0.00	9,426.92	-519.34	967.64	1,098.20	0.00	0.00	0.00
9,627.08	0.00	0.00	9,454.00	-519.34	967.64	1,098.20	0.00	0.00	0.00

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
CC 697-04-76A Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,420.00	-519.34	967.64	635,804.97	1,231,368.90	39° 32' 50.794 N	108° 13' 33.731 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,542.08	6,369.00	Mesaverde		0.00	
6,692.08	6,519.00	Base Ohio Creek		0.00	
9,227.08	9,054.00	Rollins		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
150.00	150.00	0.00	0.00	Start Build 2.00
1,150.00	1,129.82	-81.70	152.23	Start 20.00° Hold At 1150.00'
3,350.64	3,197.74	-437.64	815.41	Start Drop -2.00
4,350.64	4,177.56	-519.34	967.64	Start 0.00° Hold At 4350.64'
7,182.08	7,009.00	-519.34	967.64	TOG = 635804.96, 1231368.90
8,593.08	8,420.00	-519.34	967.64	Target = 635804.96, 1231368.90
9,627.08	9,454.00	-519.34	967.64	PBHL = 635804.96, 1231368.90