



# Scientific Drilling

Rocky Mountain Operations

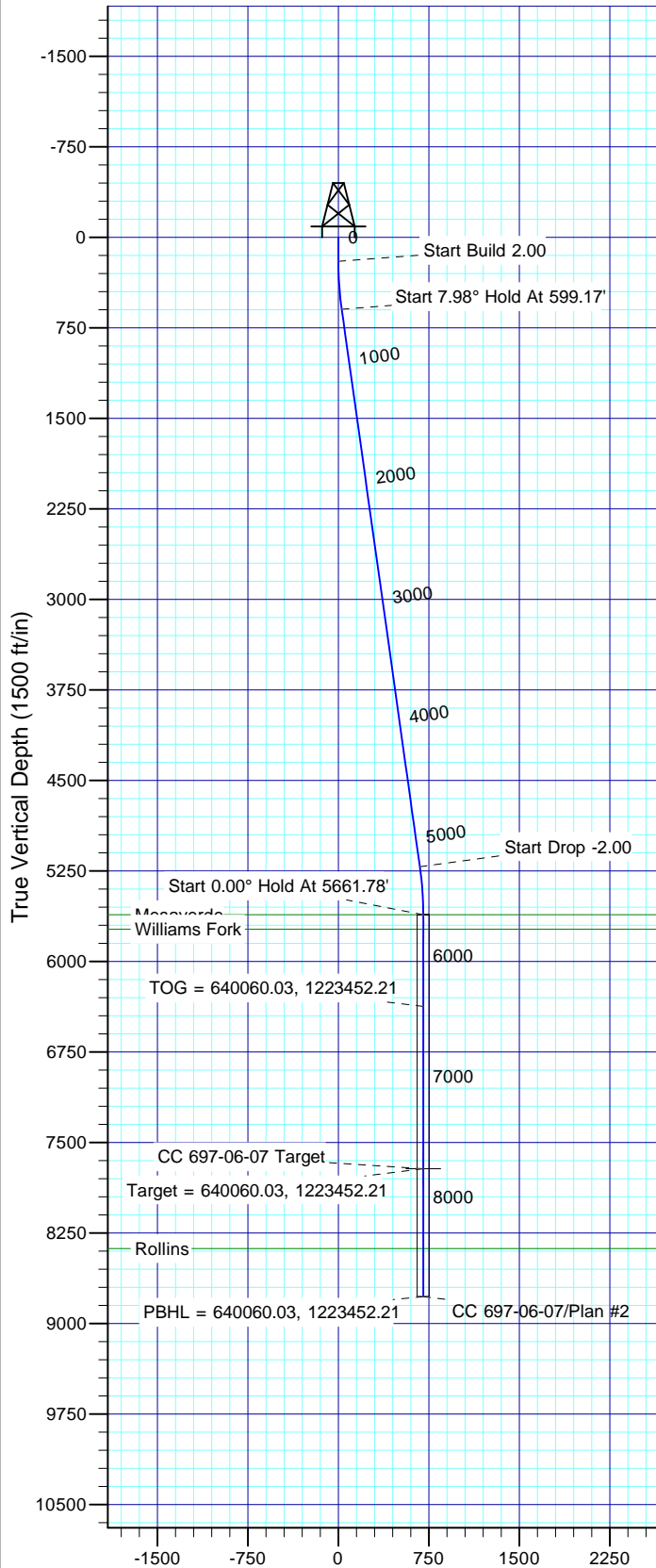
Company: OXY USA RMAT  
Project: Garfield County, CO NAD27  
Site: Cascade Creek 697-06A Pad



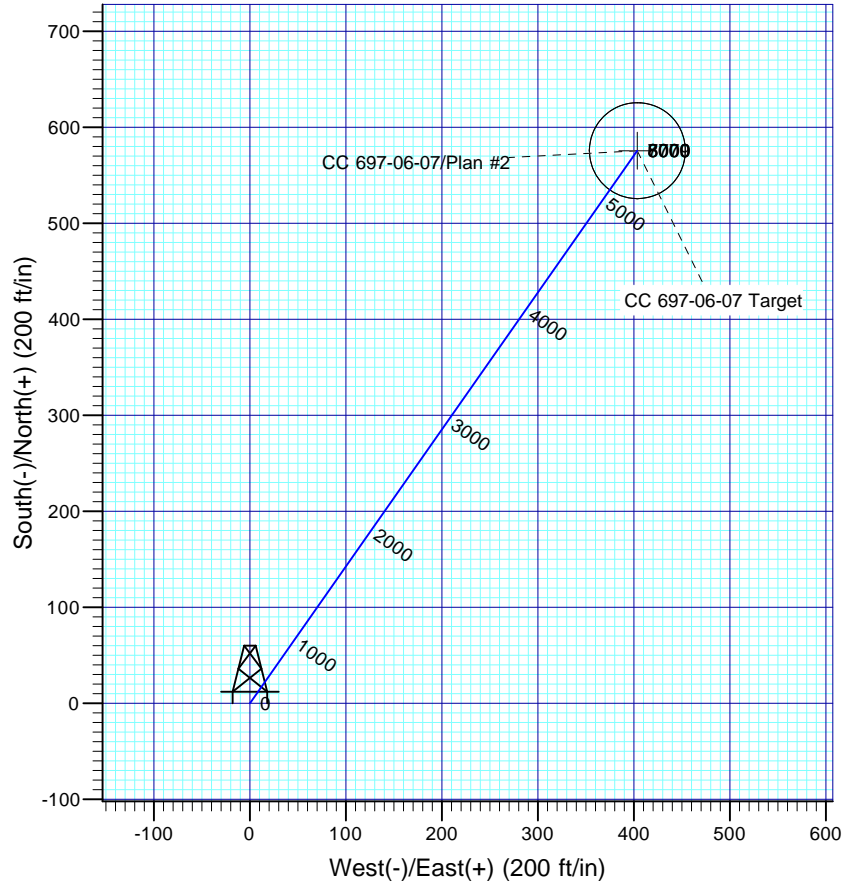
Well Details: CC 697-06-07

TVD Reference: GL 8184' & RKB 30' @ 8214.00ft (H&P) Ground Level: 8184.00  
+N/-S 0.00 +E/-W 0.00 Northing 639496.75 Easting 1223031.22 Latitude 39° 33' 24.780 N Longitude 108° 15' 21.549 W Slot A

T M Azimuths to True North  
Magnetic North: 10.51°  
Magnetic Field  
Strength: 52311.9snT  
Dip Angle: 65.77°  
Date: 2010/12/20  
Model: IGRF2005-10



Vertical Section at 35.04° (1500 ft/in)



## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5614.00	5661.78	Mesaverde
5734.00	5781.78	Williams Fork
8379.00	8426.78	Rollins

Plan: Plan #2

20:25, February 03 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	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	599.17	7.98	35.04	597.88	22.73	15.94	2.00	35.04	27.76	
4	5262.61	7.98	35.04	5216.12	553.06	387.77	0.00	0.00	675.45	
5	5661.78	0.00	0.00	5614.00	575.79	403.71	2.00	180.00	703.22	
6	7765.78	0.00	0.00	7718.00	575.79	403.71	0.00	0.00	703.22	CC 697-06-07 Target
7	8826.78	0.00	0.00	8779.00	575.79	403.71	0.00	0.00	703.22	

# **OXY USA RMAT**

**Garfield County, CO NAD27  
Cascade Creek 697-06A Pad  
CC 697-06-07 - Slot A**

**OH**

**Plan: Plan #2**

## **Standard Planning Report**

**03 February, 2011**

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM-RexH-Local	<b>Local Co-ordinate Reference:</b>	Well CC 697-06-07 - Slot A
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8184' & RKB 30' @ 8214.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8184' & RKB 30' @ 8214.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-06A Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-06-07	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

<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 697-06A Pad, Sec 6 T6S R97W			
Site Position:		Northing:	639,442.25 usft	Latitude:	39° 33' 24.203 N
From:	Map	Easting:	1,222,903.93 usft	Longitude:	108° 15' 23.153 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.74 °

Well	CC 697-06-07 - Slot A					
Well Position	+N/-S	58.34 ft	Northing:	639,496.75 usft	Latitude:	39° 33' 24.780 N
	+E/-W	125.58 ft	Easting:	1,223,031.22 usft	Longitude:	108° 15' 21.549 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	8,184.00 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	2010/12/20	10.51	65.77	52,312

<b>Design</b>	Plan #2			
<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	35.04

<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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
599.17	7.98	35.04	597.88	22.73	15.94	2.00	2.00	0.00	35.04	
5,262.61	7.98	35.04	5,216.12	553.06	387.77	0.00	0.00	0.00	0.00	
5,661.78	0.00	0.00	5,614.00	575.79	403.71	2.00	-2.00	0.00	180.00	
7,765.78	0.00	0.00	7,718.00	575.79	403.71	0.00	0.00	0.00	0.00	CC 697-06-07 Target
8,826.78	0.00	0.00	8,779.00	575.79	403.71	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 697-06-07 - Slot A
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8184' & RKB 30' @ 8214.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8184' & RKB 30' @ 8214.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-06A Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-06-07	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

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
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
300.00	2.00	35.04	299.98	1.43	1.00	1.75	2.00	2.00	0.00
400.00	4.00	35.04	399.84	5.71	4.01	6.98	2.00	2.00	0.00
500.00	6.00	35.04	499.45	12.85	9.01	15.69	2.00	2.00	0.00
599.17	7.98	35.04	597.88	22.73	15.94	27.76	2.00	2.00	0.00
Start 7.98° Hold At 599.17'									
600.00	7.98	35.04	598.70	22.83	16.01	27.88	0.00	0.00	0.00
700.00	7.98	35.04	697.73	34.20	23.98	41.77	0.00	0.00	0.00
800.00	7.98	35.04	796.76	45.57	31.95	55.66	0.00	0.00	0.00
900.00	7.98	35.04	895.79	56.94	39.93	69.55	0.00	0.00	0.00
1,000.00	7.98	35.04	994.82	68.32	47.90	83.43	0.00	0.00	0.00
1,100.00	7.98	35.04	1,093.86	79.69	55.87	97.32	0.00	0.00	0.00
1,200.00	7.98	35.04	1,192.89	91.06	63.85	111.21	0.00	0.00	0.00
1,300.00	7.98	35.04	1,291.92	102.43	71.82	125.10	0.00	0.00	0.00
1,400.00	7.98	35.04	1,390.95	113.80	79.79	138.99	0.00	0.00	0.00
1,500.00	7.98	35.04	1,489.98	125.18	87.77	152.88	0.00	0.00	0.00
1,600.00	7.98	35.04	1,589.01	136.55	95.74	166.77	0.00	0.00	0.00
1,700.00	7.98	35.04	1,688.04	147.92	103.71	180.66	0.00	0.00	0.00
1,800.00	7.98	35.04	1,787.07	159.29	111.69	194.54	0.00	0.00	0.00
1,900.00	7.98	35.04	1,886.10	170.66	119.66	208.43	0.00	0.00	0.00
2,000.00	7.98	35.04	1,985.13	182.04	127.63	222.32	0.00	0.00	0.00
2,100.00	7.98	35.04	2,084.16	193.41	135.61	236.21	0.00	0.00	0.00
2,200.00	7.98	35.04	2,183.19	204.78	143.58	250.10	0.00	0.00	0.00
2,300.00	7.98	35.04	2,282.23	216.15	151.55	263.99	0.00	0.00	0.00
2,400.00	7.98	35.04	2,381.26	227.52	159.53	277.88	0.00	0.00	0.00
2,500.00	7.98	35.04	2,480.29	238.90	167.50	291.76	0.00	0.00	0.00
2,600.00	7.98	35.04	2,579.32	250.27	175.47	305.65	0.00	0.00	0.00
2,700.00	7.98	35.04	2,678.35	261.64	183.45	319.54	0.00	0.00	0.00
2,800.00	7.98	35.04	2,777.38	273.01	191.42	333.43	0.00	0.00	0.00
2,900.00	7.98	35.04	2,876.41	284.38	199.39	347.32	0.00	0.00	0.00
3,000.00	7.98	35.04	2,975.44	295.76	207.37	361.21	0.00	0.00	0.00
3,100.00	7.98	35.04	3,074.47	307.13	215.34	375.10	0.00	0.00	0.00
3,200.00	7.98	35.04	3,173.50	318.50	223.31	388.99	0.00	0.00	0.00
3,300.00	7.98	35.04	3,272.53	329.87	231.29	402.87	0.00	0.00	0.00
3,400.00	7.98	35.04	3,371.56	341.24	239.26	416.76	0.00	0.00	0.00
3,500.00	7.98	35.04	3,470.60	352.61	247.23	430.65	0.00	0.00	0.00
3,600.00	7.98	35.04	3,569.63	363.99	255.21	444.54	0.00	0.00	0.00
3,700.00	7.98	35.04	3,668.66	375.36	263.18	458.43	0.00	0.00	0.00
3,800.00	7.98	35.04	3,767.69	386.73	271.15	472.32	0.00	0.00	0.00
3,900.00	7.98	35.04	3,866.72	398.10	279.13	486.21	0.00	0.00	0.00
4,000.00	7.98	35.04	3,965.75	409.47	287.10	500.10	0.00	0.00	0.00
4,100.00	7.98	35.04	4,064.78	420.85	295.07	513.98	0.00	0.00	0.00
4,200.00	7.98	35.04	4,163.81	432.22	303.05	527.87	0.00	0.00	0.00
4,300.00	7.98	35.04	4,262.84	443.59	311.02	541.76	0.00	0.00	0.00
4,400.00	7.98	35.04	4,361.87	454.96	318.99	555.65	0.00	0.00	0.00
4,500.00	7.98	35.04	4,460.90	466.33	326.97	569.54	0.00	0.00	0.00
4,600.00	7.98	35.04	4,559.93	477.71	334.94	583.43	0.00	0.00	0.00
4,700.00	7.98	35.04	4,658.97	489.08	342.91	597.32	0.00	0.00	0.00
4,800.00	7.98	35.04	4,758.00	500.45	350.89	611.20	0.00	0.00	0.00
4,900.00	7.98	35.04	4,857.03	511.82	358.86	625.09	0.00	0.00	0.00
5,000.00	7.98	35.04	4,956.06	523.19	366.83	638.98	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 697-06-07 - Slot A
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8184' & RKB 30' @ 8214.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8184' & RKB 30' @ 8214.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-06A Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-06-07	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

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)
5,100.00	7.98	35.04	5,055.09	534.57	374.81	652.87	0.00	0.00	0.00
5,200.00	7.98	35.04	5,154.12	545.94	382.78	666.76	0.00	0.00	0.00
5,262.61	7.98	35.04	5,216.12	553.06	387.77	675.45	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,300.00	7.24	35.04	5,253.18	557.11	390.61	680.41	2.00	-2.00	0.00
5,400.00	5.24	35.04	5,352.59	566.01	396.85	691.27	2.00	-2.00	0.00
5,500.00	3.24	35.04	5,452.31	572.05	401.09	698.65	2.00	-2.00	0.00
5,600.00	1.24	35.04	5,552.23	575.25	403.33	702.55	2.00	-2.00	0.00
5,661.78	0.00	0.00	5,614.00	575.79	403.71	703.22	2.00	-2.00	0.00
<b>Start 0.00° Hold At 5661.78' - Mesaverde</b>									
5,700.00	0.00	0.00	5,652.22	575.79	403.71	703.22	0.00	0.00	0.00
5,781.78	0.00	0.00	5,734.00	575.79	403.71	703.22	0.00	0.00	0.00
<b>Williams Fork</b>									
5,800.00	0.00	0.00	5,752.22	575.79	403.71	703.22	0.00	0.00	0.00
5,900.00	0.00	0.00	5,852.22	575.79	403.71	703.22	0.00	0.00	0.00
6,000.00	0.00	0.00	5,952.22	575.79	403.71	703.22	0.00	0.00	0.00
6,100.00	0.00	0.00	6,052.22	575.79	403.71	703.22	0.00	0.00	0.00
6,200.00	0.00	0.00	6,152.22	575.79	403.71	703.22	0.00	0.00	0.00
6,300.00	0.00	0.00	6,252.22	575.79	403.71	703.22	0.00	0.00	0.00
6,400.00	0.00	0.00	6,352.22	575.79	403.71	703.22	0.00	0.00	0.00
6,421.78	0.00	0.00	6,374.00	575.79	403.71	703.22	0.00	0.00	0.00
<b>TOG = 640060.03, 1223452.21</b>									
6,500.00	0.00	0.00	6,452.22	575.79	403.71	703.22	0.00	0.00	0.00
6,600.00	0.00	0.00	6,552.22	575.79	403.71	703.22	0.00	0.00	0.00
6,700.00	0.00	0.00	6,652.22	575.79	403.71	703.22	0.00	0.00	0.00
6,800.00	0.00	0.00	6,752.22	575.79	403.71	703.22	0.00	0.00	0.00
6,900.00	0.00	0.00	6,852.22	575.79	403.71	703.22	0.00	0.00	0.00
7,000.00	0.00	0.00	6,952.22	575.79	403.71	703.22	0.00	0.00	0.00
7,100.00	0.00	0.00	7,052.22	575.79	403.71	703.22	0.00	0.00	0.00
7,200.00	0.00	0.00	7,152.22	575.79	403.71	703.22	0.00	0.00	0.00
7,300.00	0.00	0.00	7,252.22	575.79	403.71	703.22	0.00	0.00	0.00
7,400.00	0.00	0.00	7,352.22	575.79	403.71	703.22	0.00	0.00	0.00
7,500.00	0.00	0.00	7,452.22	575.79	403.71	703.22	0.00	0.00	0.00
7,600.00	0.00	0.00	7,552.22	575.79	403.71	703.22	0.00	0.00	0.00
7,700.00	0.00	0.00	7,652.22	575.79	403.71	703.22	0.00	0.00	0.00
7,765.78	0.00	0.00	7,718.00	575.79	403.71	703.22	0.00	0.00	0.00
<b>Target = 640060.03, 1223452.21</b>									
7,800.00	0.00	0.00	7,752.22	575.79	403.71	703.22	0.00	0.00	0.00
7,900.00	0.00	0.00	7,852.22	575.79	403.71	703.22	0.00	0.00	0.00
8,000.00	0.00	0.00	7,952.22	575.79	403.71	703.22	0.00	0.00	0.00
8,100.00	0.00	0.00	8,052.22	575.79	403.71	703.22	0.00	0.00	0.00
8,200.00	0.00	0.00	8,152.22	575.79	403.71	703.22	0.00	0.00	0.00
8,300.00	0.00	0.00	8,252.22	575.79	403.71	703.22	0.00	0.00	0.00
8,400.00	0.00	0.00	8,352.22	575.79	403.71	703.22	0.00	0.00	0.00
8,426.78	0.00	0.00	8,379.00	575.79	403.71	703.22	0.00	0.00	0.00
<b>Rollins</b>									
8,500.00	0.00	0.00	8,452.22	575.79	403.71	703.22	0.00	0.00	0.00
8,600.00	0.00	0.00	8,552.22	575.79	403.71	703.22	0.00	0.00	0.00
8,700.00	0.00	0.00	8,652.22	575.79	403.71	703.22	0.00	0.00	0.00
8,800.00	0.00	0.00	8,752.22	575.79	403.71	703.22	0.00	0.00	0.00
8,826.78	0.00	0.00	8,779.00	575.79	403.71	703.22	0.00	0.00	0.00
<b>PBHL = 640060.03, 1223452.21</b>									

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM-RexH-Local	<b>Local Co-ordinate Reference:</b>	Well CC 697-06-07 - Slot A
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8184' & RKB 30' @ 8214.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8184' & RKB 30' @ 8214.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-06A Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-06-07	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
CC 697-06-07 Target	0.00	0.00	7,718.00	575.79	403.71	640,060.03	1,223,452.21	39° 33' 30.471 N	108° 15' 16.395 W
- plan hits target center									
- Circle (radius 50.00)									

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
5,661.78	5,614.00	Mesaverde		0.00	
5,781.78	5,734.00	Williams Fork		0.00	
8,426.78	8,379.00	Rollins		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
200.00	200.00	0.00	0.00	Start Build 2.00
599.17	597.88	22.73	15.94	Start 7.98° Hold At 599.17'
5,262.61	5,216.12	553.06	387.77	Start Drop -2.00
5,661.78	5,614.00	575.79	403.71	Start 0.00° Hold At 5661.78'
6,421.78	6,374.00	575.79	403.71	TOG = 640060.03, 1223452.21
7,765.78	7,718.00	575.79	403.71	Target = 640060.03, 1223452.21
8,826.78	8,779.00	575.79	403.71	PBHL = 640060.03, 1223452.21