



**Scientific Drilling**  
Rocky Mountain Operations

Company: OXY USA RMAT  
Project: Garfield County, CO NAD27  
Site: Cascade Creek 697-05C Pad



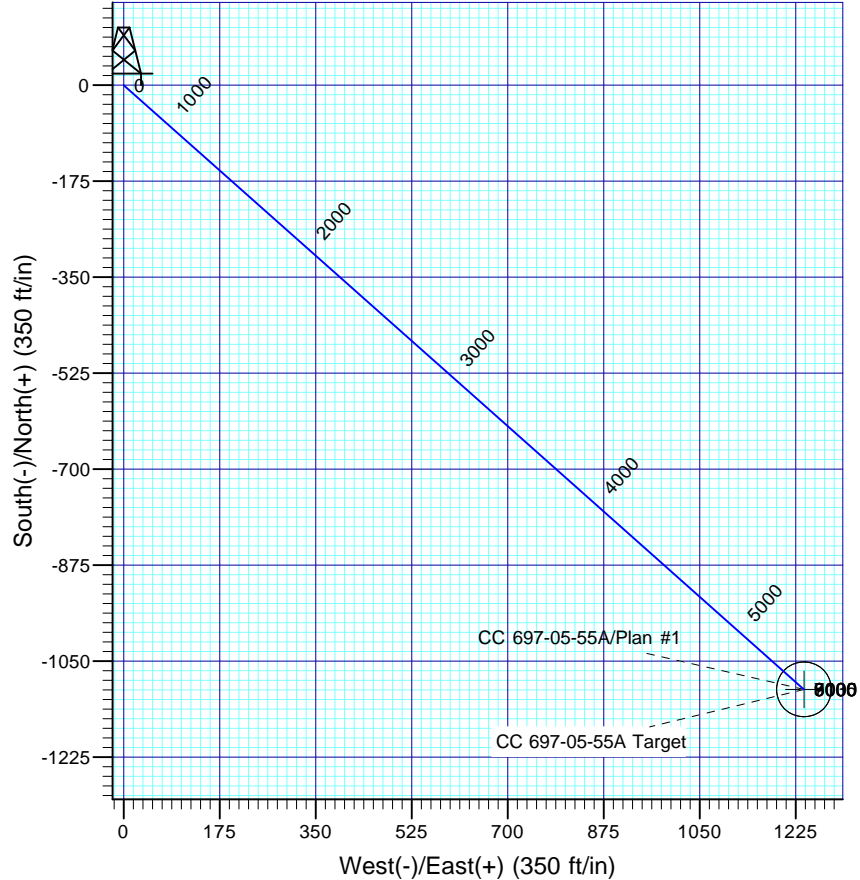
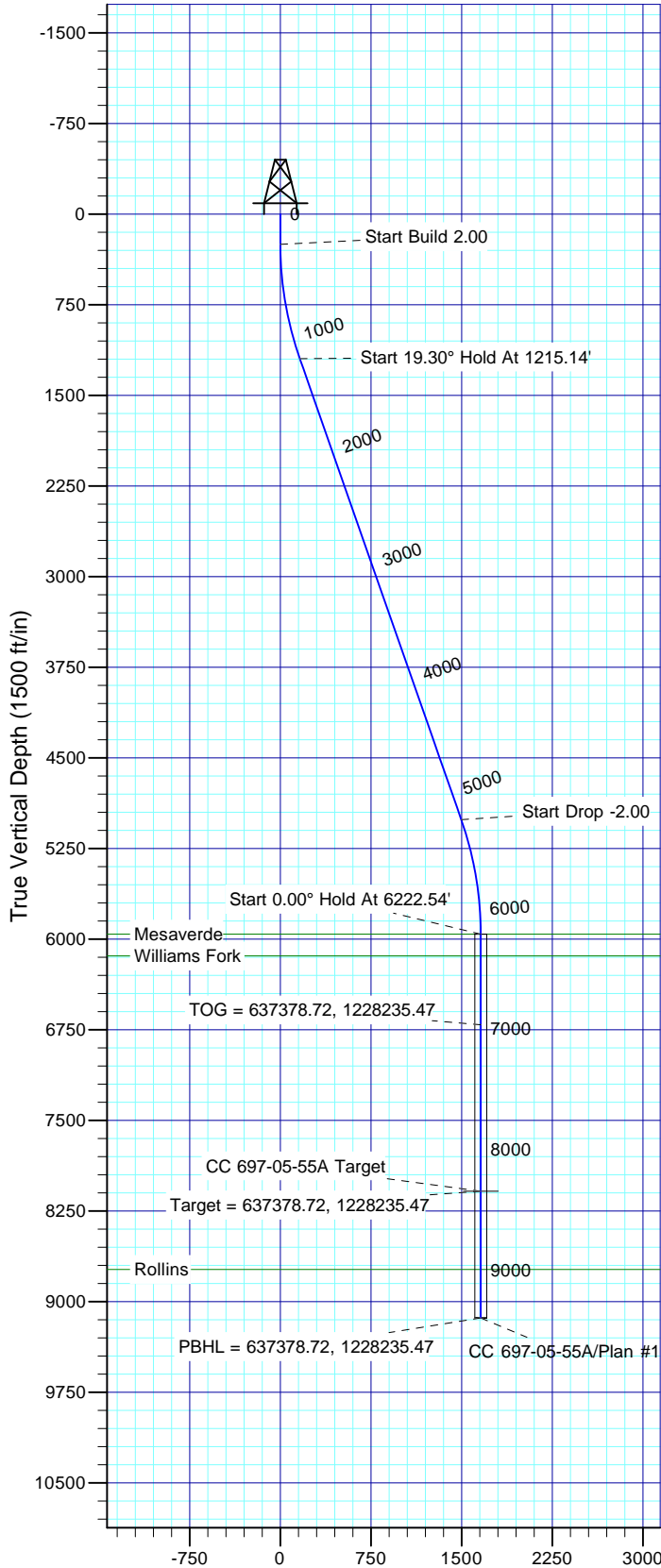
Well Details: CC 697-05-55A

TVD Reference: GL 8429' & RKB 30' @ 8459.00ft (H&P) Ground Level: 8429.00  
+N/-S 0.00 +E/-W 0.00 Northing 638516.89 Easting 1227029.44 Latitude 39° 33' 16.295 N Longitude 108° 14' 30.148 W Slot J



Azimuths to True North  
Magnetic North: 10.51°

Magnetic Field  
Strength: 52311.6snT  
Dip Angle: 65.77°  
Date: 2010/12/16  
Model: IGRF2005-10



#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5959.00	6222.54	Mesaverde
6139.00	6402.54	Williams Fork
8735.00	8998.54	Rollins

Plan: Plan #1

15:00, December 28 2010  
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	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1215.14	19.30	131.61	1196.98	-106.95	120.40	2.00	131.61	161.04	
4	5257.41	19.30	131.61	5012.02	-994.31	1119.42	0.00	0.00	1497.25	
5	6222.54	0.00	0.00	5959.00	-1101.26	1239.83	2.00	180.00	1658.30	
6	8349.54	0.00	0.00	8086.00	-1101.26	1239.83	0.00	0.00	1658.30	CC 697-05-55A Target
7	9398.54	0.00	0.00	9135.00	-1101.26	1239.83	0.00	0.00	1658.30	

# **OXY USA RMAT**

**Garfield County, CO NAD27  
Cascade Creek 697-05C Pad  
CC 697-05-55A - Slot J**

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**28 December, 2010**

# Scientific Drilling International

## Planning Report

<b>Database:</b>	EDM-RexH-Local	<b>Local Co-ordinate Reference:</b>	Well CC 697-05-55A - Slot J
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8429' & RKB 30' @ 8459.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8429' & RKB 30' @ 8459.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-05C Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-05-55A	<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		

<b>Site</b>	Cascade Creek 697-05C Pad, Sec. 5 T6S R97W		
<b>Site Position:</b>		<b>Northing:</b>	637,463.43 usft
<b>From:</b>	Map	<b>Easting:</b>	1,226,150.07 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	0.000 in
		<b>Latitude:</b>	39° 33' 5.626 N
		<b>Longitude:</b>	108° 14' 40.963 W
		<b>Grid Convergence:</b>	-1.73 °

<b>Well</b>	CC 697-05-55A - Slot J		
<b>Well Position</b>	<b>+N/-S</b>	1,079.55 ft	<b>Northing:</b> 638,516.89 usft
	<b>+E/-W</b>	847.15 ft	<b>Easting:</b> 1,227,029.44 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	<b>Latitude:</b> 39° 33' 16.295 N
			<b>Longitude:</b> 108° 14' 30.148 W
			<b>Ground Level:</b> 8,429.00 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	2010/12/16	10.51	65.77	52,312

<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	131.61

<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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,215.14	19.30	131.61	1,196.98	-106.95	120.40	2.00	2.00	0.00	131.61	
5,257.41	19.30	131.61	5,012.02	-994.31	1,119.42	0.00	0.00	0.00	0.00	
6,222.54	0.00	0.00	5,959.00	-1,101.26	1,239.83	2.00	-2.00	0.00	180.00	
8,349.54	0.00	0.00	8,086.00	-1,101.26	1,239.83	0.00	0.00	0.00	0.00	CC 697-05-55A Target
9,398.54	0.00	0.00	9,135.00	-1,101.26	1,239.83	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 697-05-55A - Slot J
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8429' & RKB 30' @ 8459.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8429' & RKB 30' @ 8459.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-05C Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-05-55A	<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
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
300.00	1.00	131.61	300.00	-0.29	0.33	0.44	2.00	2.00	0.00
400.00	3.00	131.61	399.93	-2.61	2.94	3.93	2.00	2.00	0.00
500.00	5.00	131.61	499.68	-7.24	8.15	10.90	2.00	2.00	0.00
600.00	7.00	131.61	599.13	-14.18	15.97	21.35	2.00	2.00	0.00
700.00	9.00	131.61	698.15	-23.42	26.37	35.27	2.00	2.00	0.00
800.00	11.00	131.61	796.63	-34.95	39.35	52.63	2.00	2.00	0.00
900.00	13.00	131.61	894.44	-48.76	54.90	73.42	2.00	2.00	0.00
1,000.00	15.00	131.61	991.46	-64.83	72.98	97.62	2.00	2.00	0.00
1,100.00	17.00	131.61	1,087.58	-83.13	93.59	125.18	2.00	2.00	0.00
1,200.00	19.00	131.61	1,182.68	-103.65	116.69	156.08	2.00	2.00	0.00
1,215.14	19.30	131.61	1,196.98	-106.95	120.40	161.04	2.00	2.00	0.00
Start 19.30° Hold At 1215.14'									
1,300.00	19.30	131.61	1,277.08	-125.58	141.38	189.10	0.00	0.00	0.00
1,400.00	19.30	131.61	1,371.45	-147.53	166.09	222.15	0.00	0.00	0.00
1,500.00	19.30	131.61	1,465.83	-169.48	190.81	255.21	0.00	0.00	0.00
1,600.00	19.30	131.61	1,560.21	-191.43	215.52	288.26	0.00	0.00	0.00
1,700.00	19.30	131.61	1,654.59	-213.39	240.23	321.32	0.00	0.00	0.00
1,800.00	19.30	131.61	1,748.97	-235.34	264.95	354.38	0.00	0.00	0.00
1,900.00	19.30	131.61	1,843.35	-257.29	289.66	387.43	0.00	0.00	0.00
2,000.00	19.30	131.61	1,937.73	-279.24	314.38	420.49	0.00	0.00	0.00
2,100.00	19.30	131.61	2,032.10	-301.19	339.09	453.54	0.00	0.00	0.00
2,200.00	19.30	131.61	2,126.48	-323.15	363.81	486.60	0.00	0.00	0.00
2,300.00	19.30	131.61	2,220.86	-345.10	388.52	519.66	0.00	0.00	0.00
2,400.00	19.30	131.61	2,315.24	-367.05	413.23	552.71	0.00	0.00	0.00
2,500.00	19.30	131.61	2,409.62	-389.00	437.95	585.77	0.00	0.00	0.00
2,600.00	19.30	131.61	2,504.00	-410.96	462.66	618.82	0.00	0.00	0.00
2,700.00	19.30	131.61	2,598.38	-432.91	487.38	651.88	0.00	0.00	0.00
2,800.00	19.30	131.61	2,692.75	-454.86	512.09	684.94	0.00	0.00	0.00
2,900.00	19.30	131.61	2,787.13	-476.81	536.81	717.99	0.00	0.00	0.00
3,000.00	19.30	131.61	2,881.51	-498.76	561.52	751.05	0.00	0.00	0.00
3,100.00	19.30	131.61	2,975.89	-520.72	586.23	784.10	0.00	0.00	0.00
3,200.00	19.30	131.61	3,070.27	-542.67	610.95	817.16	0.00	0.00	0.00
3,300.00	19.30	131.61	3,164.65	-564.62	635.66	850.21	0.00	0.00	0.00
3,400.00	19.30	131.61	3,259.02	-586.57	660.38	883.27	0.00	0.00	0.00
3,500.00	19.30	131.61	3,353.40	-608.53	685.09	916.33	0.00	0.00	0.00
3,600.00	19.30	131.61	3,447.78	-630.48	709.81	949.38	0.00	0.00	0.00
3,700.00	19.30	131.61	3,542.16	-652.43	734.52	982.44	0.00	0.00	0.00
3,800.00	19.30	131.61	3,636.54	-674.38	759.23	1,015.49	0.00	0.00	0.00
3,900.00	19.30	131.61	3,730.92	-696.33	783.95	1,048.55	0.00	0.00	0.00
4,000.00	19.30	131.61	3,825.30	-718.29	808.66	1,081.61	0.00	0.00	0.00
4,100.00	19.30	131.61	3,919.67	-740.24	833.38	1,114.66	0.00	0.00	0.00
4,200.00	19.30	131.61	4,014.05	-762.19	858.09	1,147.72	0.00	0.00	0.00
4,300.00	19.30	131.61	4,108.43	-784.14	882.81	1,180.77	0.00	0.00	0.00
4,400.00	19.30	131.61	4,202.81	-806.10	907.52	1,213.83	0.00	0.00	0.00
4,500.00	19.30	131.61	4,297.19	-828.05	932.23	1,246.89	0.00	0.00	0.00
4,600.00	19.30	131.61	4,391.57	-850.00	956.95	1,279.94	0.00	0.00	0.00
4,700.00	19.30	131.61	4,485.95	-871.95	981.66	1,313.00	0.00	0.00	0.00
4,800.00	19.30	131.61	4,580.32	-893.90	1,006.38	1,346.05	0.00	0.00	0.00
4,900.00	19.30	131.61	4,674.70	-915.86	1,031.09	1,379.11	0.00	0.00	0.00

# Scientific Drilling International

## Planning Report

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<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8429' & RKB 30' @ 8459.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8429' & RKB 30' @ 8459.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-05C Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-05-55A	<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	19.30	131.61	4,769.08	-937.81	1,055.81	1,412.17	0.00	0.00	0.00
5,100.00	19.30	131.61	4,863.46	-959.76	1,080.52	1,445.22	0.00	0.00	0.00
5,200.00	19.30	131.61	4,957.84	-981.71	1,105.23	1,478.28	0.00	0.00	0.00
5,257.41	19.30	131.61	5,012.02	-994.31	1,119.42	1,497.25	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,300.00	18.45	131.61	5,052.32	-1,003.47	1,129.73	1,511.03	2.00	-2.00	0.00
5,400.00	16.45	131.61	5,147.71	-1,023.38	1,152.15	1,541.02	2.00	-2.00	0.00
5,500.00	14.45	131.61	5,244.09	-1,041.07	1,172.06	1,567.66	2.00	-2.00	0.00
5,600.00	12.45	131.61	5,341.35	-1,056.52	1,189.45	1,590.92	2.00	-2.00	0.00
5,700.00	10.45	131.61	5,439.35	-1,069.70	1,204.30	1,610.77	2.00	-2.00	0.00
5,800.00	8.45	131.61	5,537.99	-1,080.61	1,216.57	1,627.19	2.00	-2.00	0.00
5,900.00	6.45	131.61	5,637.14	-1,089.22	1,226.27	1,640.16	2.00	-2.00	0.00
6,000.00	4.45	131.61	5,736.68	-1,095.53	1,233.37	1,649.66	2.00	-2.00	0.00
6,100.00	2.45	131.61	5,836.49	-1,099.52	1,237.87	1,655.68	2.00	-2.00	0.00
6,200.00	0.45	131.61	5,936.46	-1,101.20	1,239.76	1,658.21	2.00	-2.00	0.00
6,222.54	0.00	0.00	5,959.00	-1,101.26	1,239.83	1,658.30	2.00	-2.00	0.00
<b>Start 0.00° Hold At 6222.54' - Mesaverde</b>									
6,300.00	0.00	0.00	6,036.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
6,400.00	0.00	0.00	6,136.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
6,402.54	0.00	0.00	6,139.00	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
<b>Williams Fork</b>									
6,500.00	0.00	0.00	6,236.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
6,600.00	0.00	0.00	6,336.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
6,700.00	0.00	0.00	6,436.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
6,800.00	0.00	0.00	6,536.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
6,900.00	0.00	0.00	6,636.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
6,972.54	0.00	0.00	6,709.00	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
<b>TOG = 637378.72, 1228235.47</b>									
7,000.00	0.00	0.00	6,736.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
7,100.00	0.00	0.00	6,836.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
7,200.00	0.00	0.00	6,936.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
7,300.00	0.00	0.00	7,036.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
7,400.00	0.00	0.00	7,136.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
7,500.00	0.00	0.00	7,236.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
7,600.00	0.00	0.00	7,336.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
7,700.00	0.00	0.00	7,436.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
7,800.00	0.00	0.00	7,536.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
7,900.00	0.00	0.00	7,636.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,000.00	0.00	0.00	7,736.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,100.00	0.00	0.00	7,836.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,200.00	0.00	0.00	7,936.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,300.00	0.00	0.00	8,036.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,349.54	0.00	0.00	8,086.00	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
<b>Target = 637378.72, 1228235.47</b>									
8,400.00	0.00	0.00	8,136.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,500.00	0.00	0.00	8,236.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,600.00	0.00	0.00	8,336.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,700.00	0.00	0.00	8,436.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,800.00	0.00	0.00	8,536.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,900.00	0.00	0.00	8,636.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
8,998.54	0.00	0.00	8,735.00	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
<b>Rollins</b>									
9,000.00	0.00	0.00	8,736.46	-1,101.26	1,239.83	1,658.30	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 697-05-55A - Slot J
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 8429' & RKB 30' @ 8459.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 8429' & RKB 30' @ 8459.00ft (H&P)
<b>Site:</b>	Cascade Creek 697-05C Pad	<b>North Reference:</b>	True
<b>Well:</b>	CC 697-05-55A	<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	8,836.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
9,200.00	0.00	0.00	8,936.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
9,300.00	0.00	0.00	9,036.46	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
9,398.54	0.00	0.00	9,135.00	-1,101.26	1,239.83	1,658.30	0.00	0.00	0.00
PBHL = 637378.72, 1228235.47									

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 697-05-55A Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,086.00	-1,101.26	1,239.83	637,378.72	1,228,235.47	39° 33' 5.411 N	108° 14' 14.319 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,222.54	5,959.00	Mesaverde		0.00	
6,402.54	6,139.00	Williams Fork		0.00	
8,998.54	8,735.00	Rollins		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
250.00	250.00	0.00	0.00	Start Build 2.00
1,215.14	1,196.98	-106.95	120.40	Start 19.30° Hold At 1215.14'
5,257.41	5,012.02	-994.31	1,119.42	Start Drop -2.00
6,222.54	5,959.00	-1,101.26	1,239.83	Start 0.00° Hold At 6222.54'
6,972.54	6,709.00	-1,101.26	1,239.83	TOG = 637378.72, 1228235.47
8,349.54	8,086.00	-1,101.26	1,239.83	Target = 637378.72, 1228235.47
9,398.54	9,135.00	-1,101.26	1,239.83	PBHL = 637378.72, 1228235.47