



**Scientific Drilling**  
Rocky Mountain Operations

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



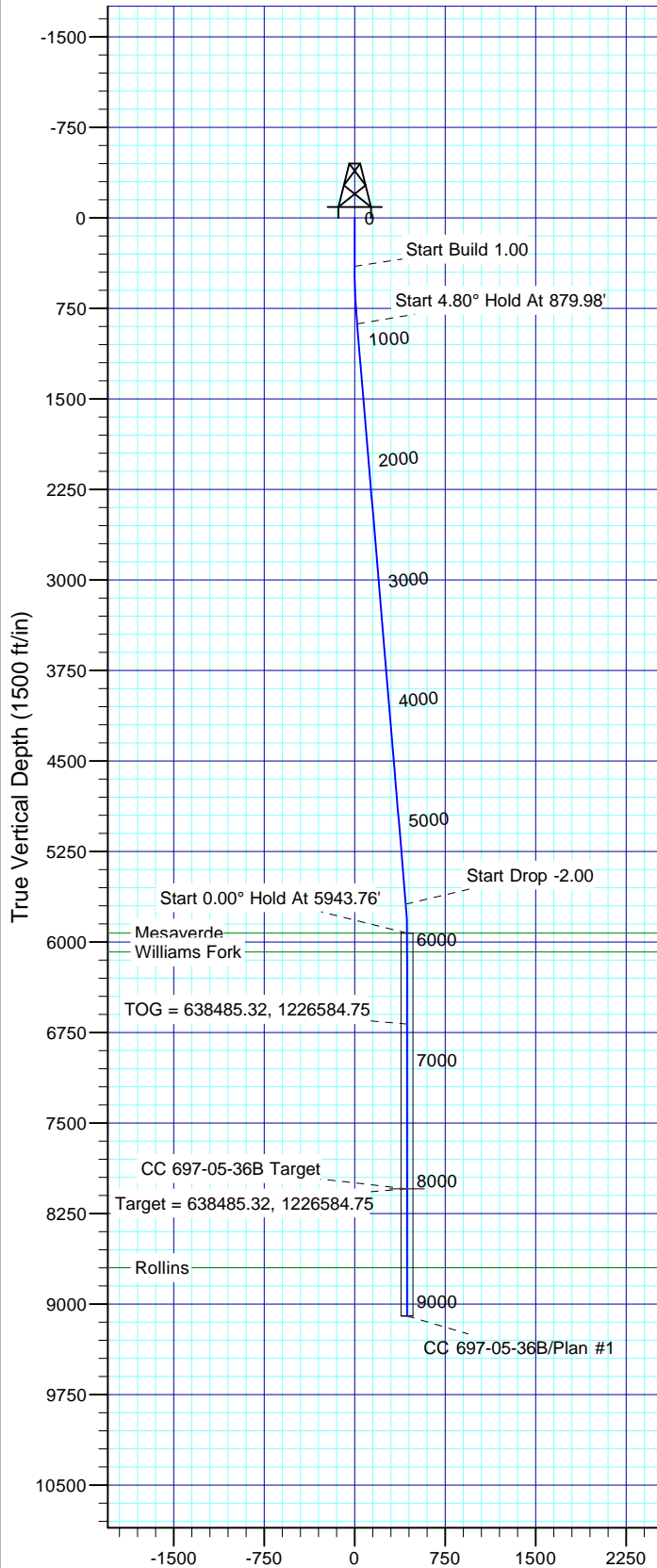
Well Details: CC 697-05-36B

TVD Reference: GL 8429' & RKB 30' @ 8459.00ft (H&P) Ground Level: 8429.00  
+N/-S 0.00 +E/-W 0.00 Northing 638517.25 Easting 1227017.34 Latitude 39° 33' 16.295 N Longitude 108° 14' 30.302 W Slot G

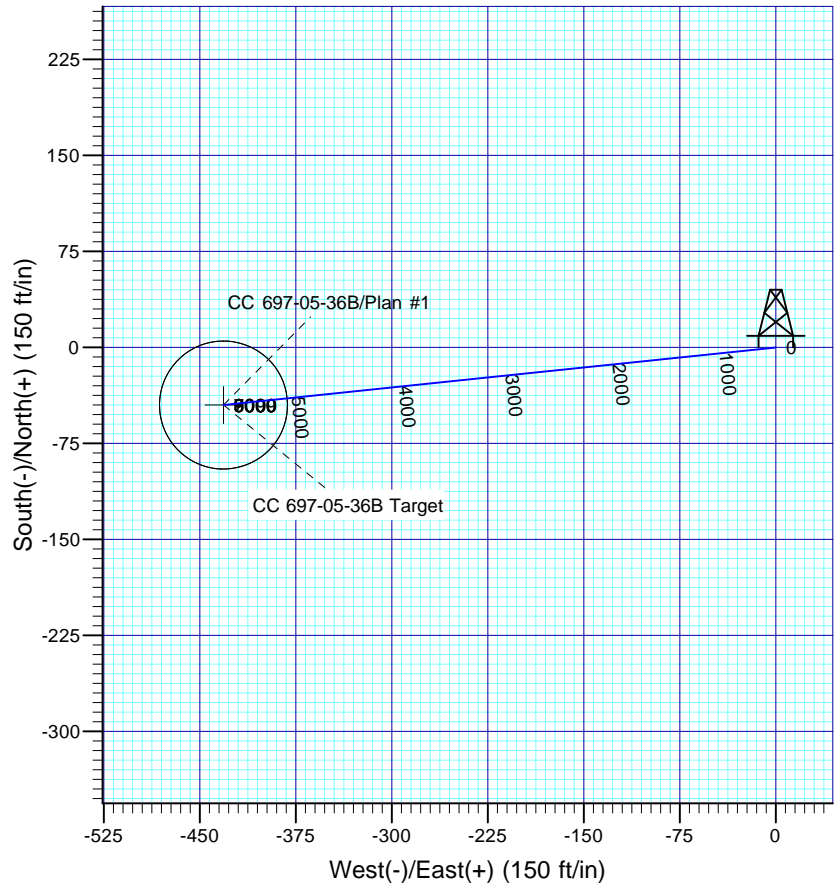


Azimuths to True North  
Magnetic North: 10.51°

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



Vertical Section at 264.05° (1500 ft/in)



#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5926.00	5943.76	Mesaverde
6082.00	6099.76	Williams Fork
8699.00	8716.76	Rollins

Plan: Plan #1

**14:27, 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	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	879.98	4.80	264.05	879.42	-2.08	-19.98	1.00	264.05	20.09	
4	5703.77	4.80	264.05	5686.29	-43.92	-421.43	0.00	0.00	423.72	
5	5943.76	0.00	0.00	5926.00	-44.96	-431.43	2.00	180.00	433.76	
6	8062.76	0.00	0.00	8045.00	-44.96	-431.43	0.00	0.00	433.76	CC 697-05-36B Target
7	9116.76	0.00	0.00	9099.00	-44.96	-431.43	0.00	0.00	433.76	

# **OXY USA RMAT**

**Garfield County, CO NAD27  
Cascade Creek 697-05C Pad  
CC 697-05-36B - Slot G**

**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 697-05-36B - Slot G
<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 697-05-36B	<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 697-05-36B - Slot G		
<b>Well Position</b>	<b>+N/-S</b>	1,079.54 ft	<b>Northing:</b> 638,517.25 usft
	<b>+E/-W</b>	835.04 ft	<b>Easting:</b> 1,227,017.33 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' 30.302 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	264.05

<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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
879.98	4.80	264.05	879.42	-2.08	-19.98	1.00	1.00	0.00	264.05	
5,703.77	4.80	264.05	5,686.29	-43.92	-421.43	0.00	0.00	0.00	0.00	
5,943.76	0.00	0.00	5,926.00	-44.96	-431.43	2.00	-2.00	0.00	180.00	
8,062.76	0.00	0.00	8,045.00	-44.96	-431.43	0.00	0.00	0.00	0.00	CC 697-05-36B Target
9,116.76	0.00	0.00	9,099.00	-44.96	-431.43	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 697-05-36B - Slot G
<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 697-05-36B	<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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.00									
500.00	1.00	264.05	499.99	-0.09	-0.87	0.87	1.00	1.00	0.00
600.00	2.00	264.05	599.96	-0.36	-3.47	3.49	1.00	1.00	0.00
700.00	3.00	264.05	699.86	-0.81	-7.81	7.85	1.00	1.00	0.00
800.00	4.00	264.05	799.68	-1.45	-13.88	13.96	1.00	1.00	0.00
879.98	4.80	264.05	879.42	-2.08	-19.98	20.09	1.00	1.00	0.00
Start 4.80° Hold At 879.98'									
900.00	4.80	264.05	899.37	-2.26	-21.65	21.77	0.00	0.00	0.00
1,000.00	4.80	264.05	999.02	-3.12	-29.97	30.14	0.00	0.00	0.00
1,100.00	4.80	264.05	1,098.67	-3.99	-38.30	38.50	0.00	0.00	0.00
1,200.00	4.80	264.05	1,198.32	-4.86	-46.62	46.87	0.00	0.00	0.00
1,300.00	4.80	264.05	1,297.97	-5.73	-54.94	55.24	0.00	0.00	0.00
1,400.00	4.80	264.05	1,397.62	-6.59	-63.26	63.60	0.00	0.00	0.00
1,500.00	4.80	264.05	1,497.26	-7.46	-71.58	71.97	0.00	0.00	0.00
1,600.00	4.80	264.05	1,596.91	-8.33	-79.91	80.34	0.00	0.00	0.00
1,700.00	4.80	264.05	1,696.56	-9.19	-88.23	88.71	0.00	0.00	0.00
1,800.00	4.80	264.05	1,796.21	-10.06	-96.55	97.07	0.00	0.00	0.00
1,900.00	4.80	264.05	1,895.86	-10.93	-104.87	105.44	0.00	0.00	0.00
2,000.00	4.80	264.05	1,995.51	-11.80	-113.20	113.81	0.00	0.00	0.00
2,100.00	4.80	264.05	2,095.16	-12.66	-121.52	122.18	0.00	0.00	0.00
2,200.00	4.80	264.05	2,194.81	-13.53	-129.84	130.54	0.00	0.00	0.00
2,300.00	4.80	264.05	2,294.46	-14.40	-138.16	138.91	0.00	0.00	0.00
2,400.00	4.80	264.05	2,394.11	-15.27	-146.49	147.28	0.00	0.00	0.00
2,500.00	4.80	264.05	2,493.76	-16.13	-154.81	155.65	0.00	0.00	0.00
2,600.00	4.80	264.05	2,593.41	-17.00	-163.13	164.01	0.00	0.00	0.00
2,700.00	4.80	264.05	2,693.06	-17.87	-171.45	172.38	0.00	0.00	0.00
2,800.00	4.80	264.05	2,792.71	-18.74	-179.77	180.75	0.00	0.00	0.00
2,900.00	4.80	264.05	2,892.36	-19.60	-188.10	189.12	0.00	0.00	0.00
3,000.00	4.80	264.05	2,992.00	-20.47	-196.42	197.48	0.00	0.00	0.00
3,100.00	4.80	264.05	3,091.65	-21.34	-204.74	205.85	0.00	0.00	0.00
3,200.00	4.80	264.05	3,191.30	-22.20	-213.06	214.22	0.00	0.00	0.00
3,300.00	4.80	264.05	3,290.95	-23.07	-221.39	222.58	0.00	0.00	0.00
3,400.00	4.80	264.05	3,390.60	-23.94	-229.71	230.95	0.00	0.00	0.00
3,500.00	4.80	264.05	3,490.25	-24.81	-238.03	239.32	0.00	0.00	0.00
3,600.00	4.80	264.05	3,589.90	-25.67	-246.35	247.69	0.00	0.00	0.00
3,700.00	4.80	264.05	3,689.55	-26.54	-254.68	256.05	0.00	0.00	0.00
3,800.00	4.80	264.05	3,789.20	-27.41	-263.00	264.42	0.00	0.00	0.00
3,900.00	4.80	264.05	3,888.85	-28.28	-271.32	272.79	0.00	0.00	0.00
4,000.00	4.80	264.05	3,988.50	-29.14	-279.64	281.16	0.00	0.00	0.00
4,100.00	4.80	264.05	4,088.15	-30.01	-287.96	289.52	0.00	0.00	0.00
4,200.00	4.80	264.05	4,187.80	-30.88	-296.29	297.89	0.00	0.00	0.00
4,300.00	4.80	264.05	4,287.45	-31.75	-304.61	306.26	0.00	0.00	0.00
4,400.00	4.80	264.05	4,387.09	-32.61	-312.93	314.63	0.00	0.00	0.00
4,500.00	4.80	264.05	4,486.74	-33.48	-321.25	322.99	0.00	0.00	0.00
4,600.00	4.80	264.05	4,586.39	-34.35	-329.58	331.36	0.00	0.00	0.00
4,700.00	4.80	264.05	4,686.04	-35.21	-337.90	339.73	0.00	0.00	0.00
4,800.00	4.80	264.05	4,785.69	-36.08	-346.22	348.10	0.00	0.00	0.00
4,900.00	4.80	264.05	4,885.34	-36.95	-354.54	356.46	0.00	0.00	0.00
5,000.00	4.80	264.05	4,984.99	-37.82	-362.87	364.83	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 697-05-36B	<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)
5,100.00	4.80	264.05	5,084.64	-38.68	-371.19	373.20	0.00	0.00	0.00
5,200.00	4.80	264.05	5,184.29	-39.55	-379.51	381.57	0.00	0.00	0.00
5,300.00	4.80	264.05	5,283.94	-40.42	-387.83	389.93	0.00	0.00	0.00
5,400.00	4.80	264.05	5,383.59	-41.29	-396.15	398.30	0.00	0.00	0.00
5,500.00	4.80	264.05	5,483.24	-42.15	-404.48	406.67	0.00	0.00	0.00
5,600.00	4.80	264.05	5,582.89	-43.02	-412.80	415.03	0.00	0.00	0.00
5,700.00	4.80	264.05	5,682.54	-43.89	-421.12	423.40	0.00	0.00	0.00
5,703.77	4.80	264.05	5,686.29	-43.92	-421.43	423.72	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,800.00	2.88	264.05	5,782.30	-44.59	-427.84	430.16	2.00	-2.00	0.00
5,900.00	0.88	264.05	5,882.24	-44.93	-431.09	433.43	2.00	-2.00	0.00
5,943.76	0.00	0.00	5,926.00	-44.96	-431.43	433.76	2.00	-2.00	0.00
<b>Start 0.00° Hold At 5943.76' - Mesaverde</b>									
6,000.00	0.00	0.00	5,982.24	-44.96	-431.43	433.76	0.00	0.00	0.00
6,099.76	0.00	0.00	6,082.00	-44.96	-431.43	433.76	0.00	0.00	0.00
<b>Williams Fork</b>									
6,100.00	0.00	0.00	6,082.24	-44.96	-431.43	433.76	0.00	0.00	0.00
6,200.00	0.00	0.00	6,182.24	-44.96	-431.43	433.76	0.00	0.00	0.00
6,300.00	0.00	0.00	6,282.24	-44.96	-431.43	433.76	0.00	0.00	0.00
6,400.00	0.00	0.00	6,382.24	-44.96	-431.43	433.76	0.00	0.00	0.00
6,500.00	0.00	0.00	6,482.24	-44.96	-431.43	433.76	0.00	0.00	0.00
6,600.00	0.00	0.00	6,582.24	-44.96	-431.43	433.76	0.00	0.00	0.00
6,696.76	0.00	0.00	6,679.00	-44.96	-431.43	433.76	0.00	0.00	0.00
<b>TOG = 638485.32, 1226584.75</b>									
6,700.00	0.00	0.00	6,682.24	-44.96	-431.43	433.76	0.00	0.00	0.00
6,800.00	0.00	0.00	6,782.24	-44.96	-431.43	433.76	0.00	0.00	0.00
6,900.00	0.00	0.00	6,882.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,000.00	0.00	0.00	6,982.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,100.00	0.00	0.00	7,082.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,200.00	0.00	0.00	7,182.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,300.00	0.00	0.00	7,282.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,400.00	0.00	0.00	7,382.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,500.00	0.00	0.00	7,482.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,600.00	0.00	0.00	7,582.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,700.00	0.00	0.00	7,682.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,800.00	0.00	0.00	7,782.24	-44.96	-431.43	433.76	0.00	0.00	0.00
7,900.00	0.00	0.00	7,882.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,000.00	0.00	0.00	7,982.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,062.76	0.00	0.00	8,045.00	-44.96	-431.43	433.76	0.00	0.00	0.00
<b>Target = 638485.32, 1226584.75</b>									
8,100.00	0.00	0.00	8,082.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,200.00	0.00	0.00	8,182.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,300.00	0.00	0.00	8,282.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,400.00	0.00	0.00	8,382.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,500.00	0.00	0.00	8,482.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,600.00	0.00	0.00	8,582.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,700.00	0.00	0.00	8,682.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,716.76	0.00	0.00	8,699.00	-44.96	-431.43	433.76	0.00	0.00	0.00
<b>Rollins</b>									
8,800.00	0.00	0.00	8,782.24	-44.96	-431.43	433.76	0.00	0.00	0.00
8,900.00	0.00	0.00	8,882.24	-44.96	-431.43	433.76	0.00	0.00	0.00
9,000.00	0.00	0.00	8,982.24	-44.96	-431.43	433.76	0.00	0.00	0.00
9,100.00	0.00	0.00	9,082.24	-44.96	-431.43	433.76	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 697-05-36B - Slot G
<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 697-05-36B	<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)
9,116.76	0.00	0.00	9,099.00	-44.96	-431.43	433.76	0.00	0.00	0.00
PBHL = 638485.32, 1226584.75									

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 697-05-36B Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,045.00	-44.96	-431.43	638,485.33	1,226,584.75	39° 33' 15.851 N	108° 14' 35.810 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,943.76	5,926.00	Mesaverde		0.00	
6,099.76	6,082.00	Williams Fork		0.00	
8,716.76	8,699.00	Rollins		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
400.00	400.00	0.00	0.00	Start Build 1.00
879.98	879.42	-2.08	-19.98	Start 4.80° Hold At 879.98'
5,703.77	5,686.29	-43.92	-421.43	Start Drop -2.00
5,943.76	5,926.00	-44.96	-431.43	Start 0.00° Hold At 5943.76'
6,696.76	6,679.00	-44.96	-431.43	TOG = 638485.32, 1226584.75
8,062.76	8,045.00	-44.96	-431.43	Target = 638485.32, 1226584.75
9,116.76	9,099.00	-44.96	-431.43	PBHL = 638485.32, 1226584.75