



**Scientific Drilling**  
Rocky Mountain Operations

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



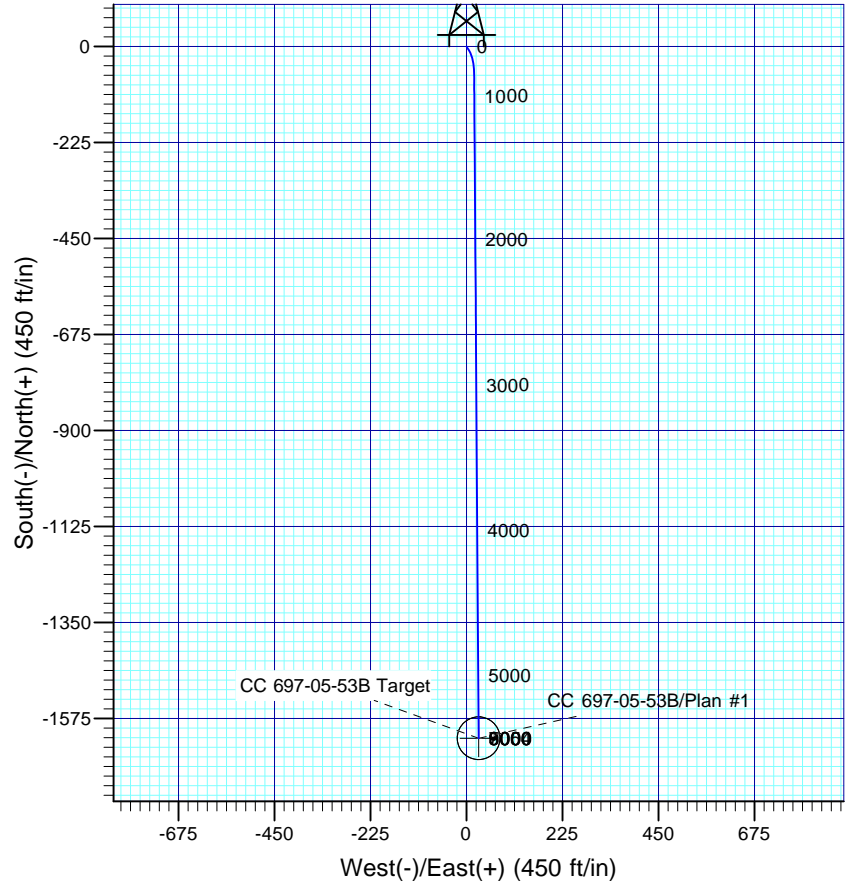
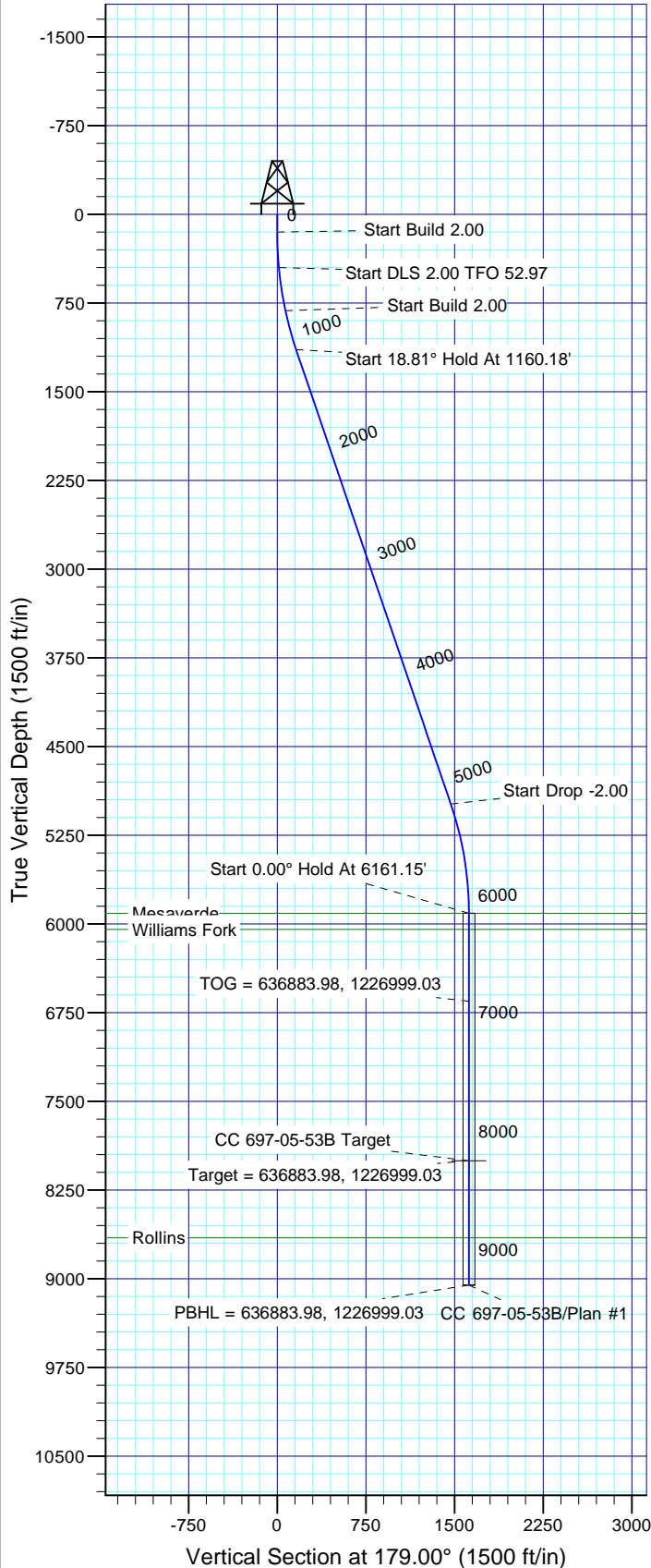
Well Details: CC 697-05-53B

TVD Reference: GL 8429' & RKB 30' @ 8459.00ft (H&P) Ground Level: 8429.00  
+N/-S 0.00 +E/-W 0.00 Northing 638505.40 Easting 1227019.80 Latitude 39° 33' 16.179 N Longitude 108° 14' 30.266 W Slot F



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
5910.00	6161.15	Mesaverde
6047.00	6298.15	Williams Fork
8654.00	8905.15	Rollins

Plan: Plan #1

14:53, 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	V Sect	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	450.00	6.00	150.00	449.45	-13.59	7.85	2.00	150.00	13.73	
4	819.75	12.00	179.62	814.65	-68.84	17.78	2.00	52.97	69.14	CC 697-05-53B Target
5	1160.18	18.81	179.62	1142.66	-159.21	18.38	2.00	0.00	159.51	
6	5220.72	18.81	179.62	4986.37	-1468.33	27.14	0.00	0.00	1468.58	
7	6161.15	0.00	0.00	5910.00	-1621.31	28.17	2.00	180.00	1621.55	
8	8253.15	0.00	0.00	8002.00	-1621.31	28.17	0.00	0.00	1621.55	CC 697-05-53B Target
9	9305.15	0.00	0.00	9054.00	-1621.31	28.17	0.00	0.00	1621.55	

# **OXY USA RMAT**

**Garfield County, CO NAD27  
Cascade Creek 697-05C Pad  
CC 697-05-53B - Slot F**

**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 697-05-53B - Slot F
<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 697-05-53B	<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 697-05C Pad, Sec. 5 T6S R97W			
Site Position:		Northing:	637,463.43 usft	Latitude:	39° 33' 5.626 N
From:	Map	Easting:	1,226,150.07 usft	Longitude:	108° 14' 40.963 W
Position Uncertainty:	0.00 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.73 °

Well	CC 697-05-53B - Slot F					
Well Position	+N/-S	1,067.77 ft	Northing:	638,505.40 usft	Latitude:	39° 33' 16.179 N
	+E/-W	837.86 ft	Easting:	1,227,019.80 usft	Longitude:	108° 14' 30.266 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	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	179.00

<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	
450.00	6.00	150.00	449.45	-13.59	7.85	2.00	2.00	0.00	150.00	
819.75	12.00	179.62	814.65	-68.84	17.78	2.00	1.62	8.01	52.97	CC 697-05-53B Target
1,160.18	18.81	179.62	1,142.66	-159.21	18.38	2.00	2.00	0.00	0.00	
5,220.72	18.81	179.62	4,986.37	-1,468.33	27.14	0.00	0.00	0.00	0.00	
6,161.15	0.00	0.00	5,910.00	-1,621.31	28.17	2.00	-2.00	0.00	180.00	
8,253.15	0.00	0.00	8,002.00	-1,621.31	28.17	0.00	0.00	0.00	0.00	CC 697-05-53B Target
9,305.15	0.00	0.00	9,054.00	-1,621.31	28.17	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 697-05-53B - Slot F
<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 697-05-53B	<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	150.00	200.00	-0.38	0.22	0.38	2.00	2.00	0.00
300.00	3.00	150.00	299.93	-3.40	1.96	3.43	2.00	2.00	0.00
400.00	5.00	150.00	399.68	-9.44	5.45	9.53	2.00	2.00	0.00
450.00	6.00	150.00	449.45	-13.59	7.85	13.73	2.00	2.00	0.00
Start DLS 2.00 TFO 52.97									
500.00	6.65	156.91	499.15	-18.52	10.29	18.69	2.00	1.30	13.82
600.00	8.16	167.11	598.31	-30.77	14.14	31.01	2.00	1.51	10.20
700.00	9.85	173.99	697.08	-46.20	16.62	46.48	2.00	1.69	6.88
800.00	11.64	178.83	795.33	-64.80	17.73	65.09	2.00	1.79	4.84
819.75	12.00	179.62	814.65	-68.84	17.78	69.14	2.00	1.83	3.98
Start Build 2.00									
900.00	13.61	179.62	892.91	-86.62	17.90	86.92	2.00	2.00	0.00
1,000.00	15.61	179.62	989.67	-111.84	18.07	112.13	2.00	2.00	0.00
1,100.00	17.61	179.62	1,085.50	-140.41	18.26	140.71	2.00	2.00	0.00
1,160.18	18.81	179.62	1,142.66	-159.21	18.38	159.51	2.00	2.00	0.00
Start 18.81° Hold At 1160.18'									
1,200.00	18.81	179.62	1,180.36	-172.05	18.47	172.35	0.00	0.00	0.00
1,300.00	18.81	179.62	1,275.02	-204.29	18.69	204.59	0.00	0.00	0.00
1,400.00	18.81	179.62	1,369.68	-236.53	18.90	236.82	0.00	0.00	0.00
1,500.00	18.81	179.62	1,464.34	-268.77	19.12	269.06	0.00	0.00	0.00
1,600.00	18.81	179.62	1,559.00	-301.01	19.33	301.30	0.00	0.00	0.00
1,700.00	18.81	179.62	1,653.66	-333.25	19.55	333.54	0.00	0.00	0.00
1,800.00	18.81	179.62	1,748.32	-365.49	19.76	365.78	0.00	0.00	0.00
1,900.00	18.81	179.62	1,842.98	-397.73	19.98	398.02	0.00	0.00	0.00
2,000.00	18.81	179.62	1,937.64	-429.97	20.20	430.26	0.00	0.00	0.00
2,100.00	18.81	179.62	2,032.30	-462.21	20.41	462.50	0.00	0.00	0.00
2,200.00	18.81	179.62	2,126.96	-494.45	20.63	494.74	0.00	0.00	0.00
2,300.00	18.81	179.62	2,221.62	-526.69	20.84	526.97	0.00	0.00	0.00
2,400.00	18.81	179.62	2,316.28	-558.93	21.06	559.21	0.00	0.00	0.00
2,500.00	18.81	179.62	2,410.94	-591.17	21.27	591.45	0.00	0.00	0.00
2,600.00	18.81	179.62	2,505.60	-623.41	21.49	623.69	0.00	0.00	0.00
2,700.00	18.81	179.62	2,600.26	-655.65	21.71	655.93	0.00	0.00	0.00
2,800.00	18.81	179.62	2,694.92	-687.89	21.92	688.17	0.00	0.00	0.00
2,900.00	18.81	179.62	2,789.58	-720.13	22.14	720.41	0.00	0.00	0.00
3,000.00	18.81	179.62	2,884.24	-752.37	22.35	752.65	0.00	0.00	0.00
3,100.00	18.81	179.62	2,978.90	-784.61	22.57	784.89	0.00	0.00	0.00
3,200.00	18.81	179.62	3,073.56	-816.85	22.78	817.13	0.00	0.00	0.00
3,300.00	18.81	179.62	3,168.22	-849.09	23.00	849.36	0.00	0.00	0.00
3,400.00	18.81	179.62	3,262.88	-881.33	23.22	881.60	0.00	0.00	0.00
3,500.00	18.81	179.62	3,357.54	-913.57	23.43	913.84	0.00	0.00	0.00
3,600.00	18.81	179.62	3,452.20	-945.81	23.65	946.08	0.00	0.00	0.00
3,700.00	18.81	179.62	3,546.86	-978.05	23.86	978.32	0.00	0.00	0.00
3,800.00	18.81	179.62	3,641.52	-1,010.29	24.08	1,010.56	0.00	0.00	0.00
3,900.00	18.81	179.62	3,736.18	-1,042.53	24.29	1,042.80	0.00	0.00	0.00
4,000.00	18.81	179.62	3,830.84	-1,074.77	24.51	1,075.04	0.00	0.00	0.00
4,100.00	18.81	179.62	3,925.50	-1,107.01	24.73	1,107.28	0.00	0.00	0.00
4,200.00	18.81	179.62	4,020.16	-1,139.25	24.94	1,139.51	0.00	0.00	0.00
4,300.00	18.81	179.62	4,114.82	-1,171.49	25.16	1,171.75	0.00	0.00	0.00
4,400.00	18.81	179.62	4,209.48	-1,203.73	25.37	1,203.99	0.00	0.00	0.00
4,500.00	18.81	179.62	4,304.14	-1,235.97	25.59	1,236.23	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 697-05-53B - Slot F
<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 697-05-53B	<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	18.81	179.62	4,398.80	-1,268.21	25.80	1,268.47	0.00	0.00	0.00
4,700.00	18.81	179.62	4,493.46	-1,300.45	26.02	1,300.71	0.00	0.00	0.00
4,800.00	18.81	179.62	4,588.12	-1,332.69	26.24	1,332.95	0.00	0.00	0.00
4,900.00	18.81	179.62	4,682.78	-1,364.93	26.45	1,365.19	0.00	0.00	0.00
5,000.00	18.81	179.62	4,777.44	-1,397.17	26.67	1,397.43	0.00	0.00	0.00
5,100.00	18.81	179.62	4,872.10	-1,429.41	26.88	1,429.67	0.00	0.00	0.00
5,200.00	18.81	179.62	4,966.76	-1,461.65	27.10	1,461.90	0.00	0.00	0.00
5,220.72	18.81	179.62	4,986.37	-1,468.33	27.14	1,468.58	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,300.00	17.22	179.62	5,061.76	-1,492.85	27.31	1,493.10	2.00	-2.00	0.00
5,400.00	15.22	179.62	5,157.78	-1,520.79	27.49	1,521.04	2.00	-2.00	0.00
5,500.00	13.22	179.62	5,254.71	-1,545.36	27.66	1,545.60	2.00	-2.00	0.00
5,600.00	11.22	179.62	5,352.44	-1,566.53	27.80	1,566.77	2.00	-2.00	0.00
5,700.00	9.22	179.62	5,450.84	-1,584.27	27.92	1,584.52	2.00	-2.00	0.00
5,800.00	7.22	179.62	5,549.81	-1,598.57	28.02	1,598.82	2.00	-2.00	0.00
5,900.00	5.22	179.62	5,649.22	-1,609.41	28.09	1,609.66	2.00	-2.00	0.00
6,000.00	3.22	179.62	5,748.94	-1,616.78	28.14	1,617.02	2.00	-2.00	0.00
6,100.00	1.22	179.62	5,848.86	-1,620.65	28.16	1,620.90	2.00	-2.00	0.00
6,161.15	0.00	0.00	5,910.00	-1,621.31	28.17	1,621.55	2.00	-2.00	-293.75
<b>Start 0.00° Hold At 6161.15' - Mesaverde</b>									
6,200.00	0.00	0.00	5,948.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
6,298.15	0.00	0.00	6,047.00	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
<b>Williams Fork</b>									
6,300.00	0.00	0.00	6,048.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
6,400.00	0.00	0.00	6,148.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
6,500.00	0.00	0.00	6,248.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
6,600.00	0.00	0.00	6,348.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
6,700.00	0.00	0.00	6,448.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
6,800.00	0.00	0.00	6,548.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
6,900.00	0.00	0.00	6,648.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
6,905.15	0.00	0.00	6,654.00	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
<b>TOG = 636883.98, 1226999.03</b>									
7,000.00	0.00	0.00	6,748.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
7,100.00	0.00	0.00	6,848.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
7,200.00	0.00	0.00	6,948.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
7,300.00	0.00	0.00	7,048.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
7,400.00	0.00	0.00	7,148.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
7,500.00	0.00	0.00	7,248.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
7,600.00	0.00	0.00	7,348.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
7,700.00	0.00	0.00	7,448.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
7,800.00	0.00	0.00	7,548.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
7,900.00	0.00	0.00	7,648.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,000.00	0.00	0.00	7,748.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,100.00	0.00	0.00	7,848.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,200.00	0.00	0.00	7,948.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,253.15	0.00	0.00	8,002.00	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
<b>Target = 636883.98, 1226999.03</b>									
8,300.00	0.00	0.00	8,048.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,400.00	0.00	0.00	8,148.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,500.00	0.00	0.00	8,248.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,600.00	0.00	0.00	8,348.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,700.00	0.00	0.00	8,448.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,800.00	0.00	0.00	8,548.85	-1,621.31	28.17	1,621.55	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 697-05-53B - Slot F
<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 697-05-53B	<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)
8,900.00	0.00	0.00	8,648.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
8,905.15	0.00	0.00	8,654.00	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
<b>Rollins</b>									
9,000.00	0.00	0.00	8,748.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
9,100.00	0.00	0.00	8,848.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
9,200.00	0.00	0.00	8,948.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
9,300.00	0.00	0.00	9,048.85	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
9,305.15	0.00	0.00	9,054.00	-1,621.31	28.17	1,621.55	0.00	0.00	0.00
<b>PBHL = 636883.98, 1226999.03</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 697-05-53B Target	0.00	0.00	8,002.00	-1,621.31	28.17	636,883.99	1,226,999.03	39° 33' 0.155 N	108° 14' 29.907 W
- plan hits target center									
- Circle (radius 50.00)									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,161.15	5,910.00	Mesaverde		0.00	
6,298.15	6,047.00	Williams Fork		0.00	
8,905.15	8,654.00	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
450.00	449.45	-13.59	7.85	Start DLS 2.00 TFO 52.97
819.75	814.65	-68.84	17.78	Start Build 2.00
1,160.18	1,142.66	-159.21	18.38	Start 18.81° Hold At 1160.18'
5,220.72	4,986.37	-1,468.33	27.14	Start Drop -2.00
6,161.15	5,910.00	-1,621.31	28.17	Start 0.00° Hold At 6161.15'
6,905.15	6,654.00	-1,621.31	28.17	TOG = 636883.98, 1226999.03
8,253.15	8,002.00	-1,621.31	28.17	Target = 636883.98, 1226999.03
9,305.15	9,054.00	-1,621.31	28.17	PBHL = 636883.98, 1226999.03