



**Scientific Drilling**  
Rocky Mountain Operations

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



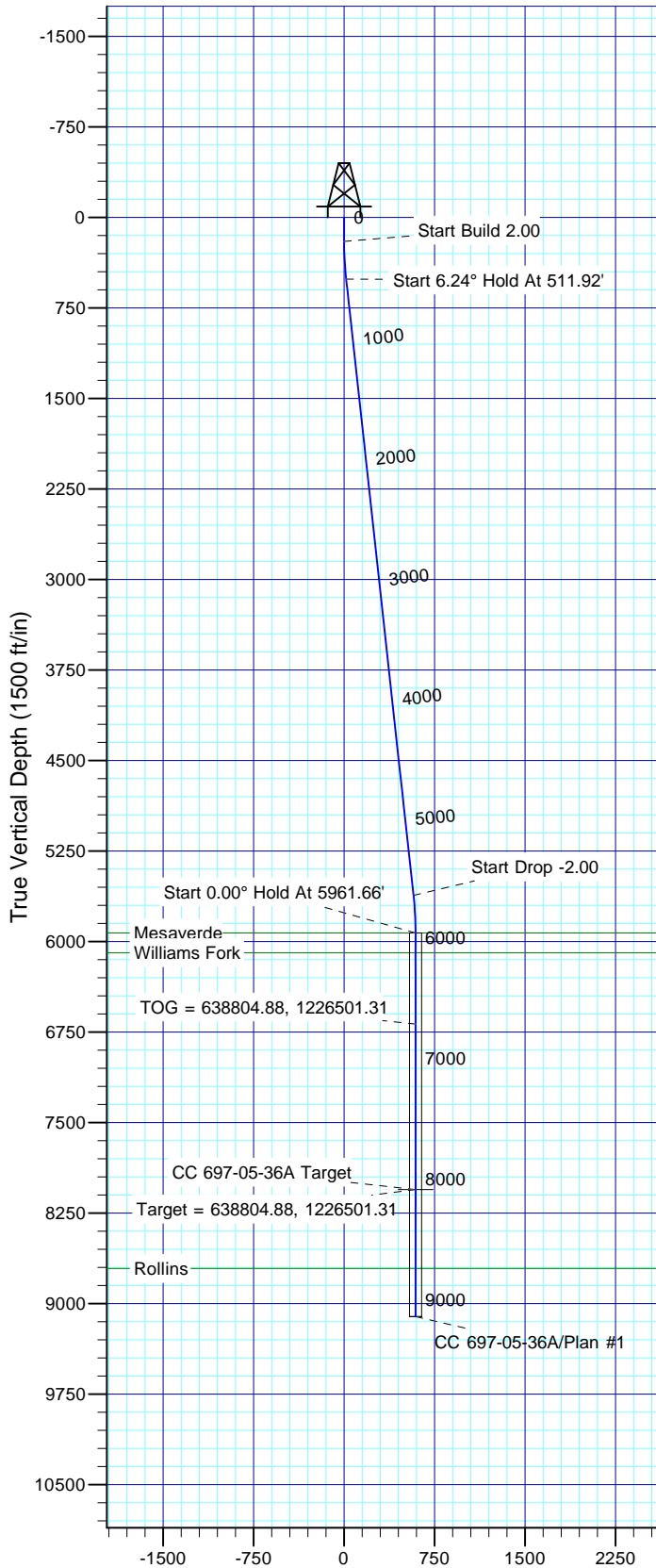
Well Details: CC 697-05-36A

TVD Reference: GL 8429' & RKB 30' @ 8459.00ft (H&P) Ground Level: 8429.00  
+N/-S 0.00 +E/-W 0.00 Northing 638523.00 Easting 1227022.16 Latitude 39° 33' 16.354 N Longitude 108° 14' 30.243 W Slot I

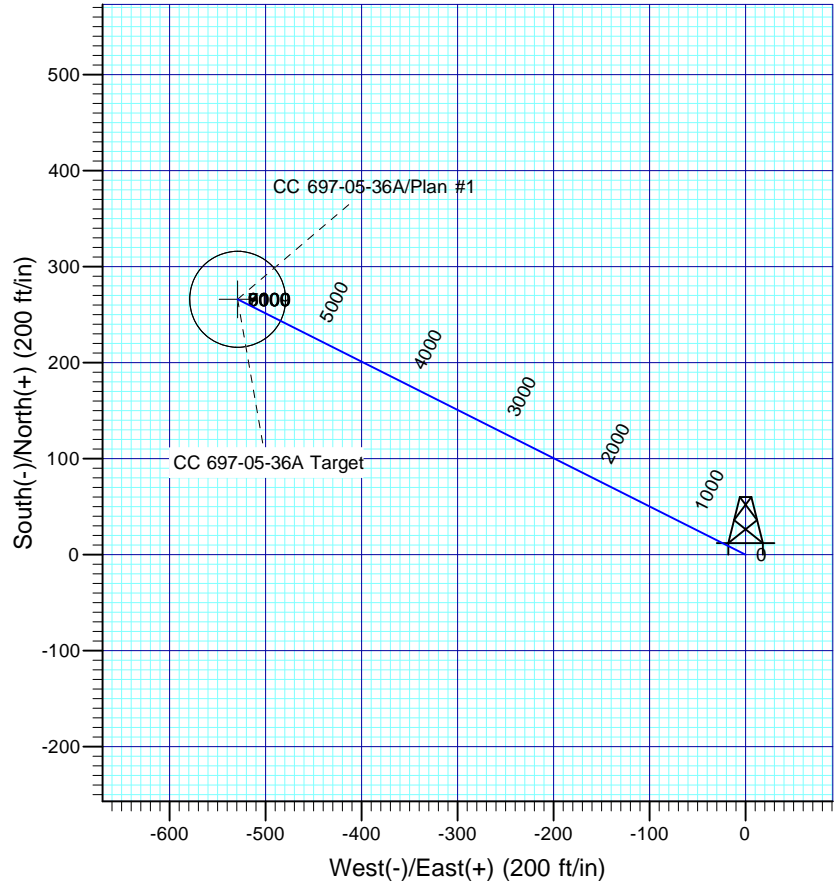


Azimuths to True North  
Magnetic North: 10.51°

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



Vertical Section at 296.69° (1500 ft/in)



#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5930.00	5961.66	Mesaverde
6094.00	6125.66	Williams Fork
8709.00	8740.66	Rollins

Plan: Plan #1

14:25, 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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	511.92	6.24	296.69	511.30	7.62	-15.16	2.00	296.69	16.96	
4	5649.74	6.24	296.69	5618.70	258.41	-513.96	0.00	0.00	575.27	
5	5961.66	0.00	0.00	5930.00	266.03	-529.12	2.00	180.00	592.23	
6	8086.66	0.00	0.00	8055.00	266.03	-529.12	0.00	0.00	592.23	CC 697-05-36A Target
7	9140.66	0.00	0.00	9109.00	266.03	-529.12	0.00	0.00	592.23	

# **OXY USA RMAT**

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

**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 697-05-36A - Slot I
<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 697-05-36A	<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 °

Well	CC 697-05-36A - Slot I					
Well Position	+N/-S	1,085.44 ft	Northing:	638,523.01 usft	Latitude:	39° 33' 16.354 N
	+E/-W	839.69 ft	Easting:	1,227,022.16 usft	Longitude:	108° 14' 30.243 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	296.69

<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	
511.92	6.24	296.69	511.30	7.62	-15.16	2.00	2.00	0.00	296.69	
5,649.74	6.24	296.69	5,618.70	258.41	-513.96	0.00	0.00	0.00	0.00	
5,961.66	0.00	0.00	5,930.00	266.03	-529.12	2.00	-2.00	0.00	180.00	
8,086.66	0.00	0.00	8,055.00	266.03	-529.12	0.00	0.00	0.00	0.00	CC 697-05-36A Target
9,140.66	0.00	0.00	9,109.00	266.03	-529.12	0.00	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 697-05-36A - Slot I
<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 697-05-36A	<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
Start Build 2.00									
300.00	2.00	296.69	299.98	0.78	-1.56	1.75	2.00	2.00	0.00
400.00	4.00	296.69	399.84	3.13	-6.23	6.98	2.00	2.00	0.00
500.00	6.00	296.69	499.45	7.05	-14.02	15.69	2.00	2.00	0.00
511.92	6.24	296.69	511.30	7.62	-15.16	16.96	2.00	2.00	0.00
Start 6.24° Hold At 511.92'									
600.00	6.24	296.69	598.86	11.92	-23.71	26.54	0.00	0.00	0.00
700.00	6.24	296.69	698.27	16.80	-33.42	37.40	0.00	0.00	0.00
800.00	6.24	296.69	797.68	21.68	-43.12	48.27	0.00	0.00	0.00
900.00	6.24	296.69	897.09	26.56	-52.83	59.14	0.00	0.00	0.00
1,000.00	6.24	296.69	996.49	31.45	-62.54	70.00	0.00	0.00	0.00
1,100.00	6.24	296.69	1,095.90	36.33	-72.25	80.87	0.00	0.00	0.00
1,200.00	6.24	296.69	1,195.31	41.21	-81.96	91.73	0.00	0.00	0.00
1,300.00	6.24	296.69	1,294.72	46.09	-91.67	102.60	0.00	0.00	0.00
1,400.00	6.24	296.69	1,394.13	50.97	-101.38	113.47	0.00	0.00	0.00
1,500.00	6.24	296.69	1,493.53	55.85	-111.08	124.33	0.00	0.00	0.00
1,600.00	6.24	296.69	1,592.94	60.73	-120.79	135.20	0.00	0.00	0.00
1,700.00	6.24	296.69	1,692.35	65.61	-130.50	146.07	0.00	0.00	0.00
1,800.00	6.24	296.69	1,791.76	70.50	-140.21	156.93	0.00	0.00	0.00
1,900.00	6.24	296.69	1,891.16	75.38	-149.92	167.80	0.00	0.00	0.00
2,000.00	6.24	296.69	1,990.57	80.26	-159.63	178.67	0.00	0.00	0.00
2,100.00	6.24	296.69	2,089.98	85.14	-169.33	189.53	0.00	0.00	0.00
2,200.00	6.24	296.69	2,189.39	90.02	-179.04	200.40	0.00	0.00	0.00
2,300.00	6.24	296.69	2,288.80	94.90	-188.75	211.27	0.00	0.00	0.00
2,400.00	6.24	296.69	2,388.20	99.78	-198.46	222.13	0.00	0.00	0.00
2,500.00	6.24	296.69	2,487.61	104.66	-208.17	233.00	0.00	0.00	0.00
2,600.00	6.24	296.69	2,587.02	109.55	-217.88	243.87	0.00	0.00	0.00
2,700.00	6.24	296.69	2,686.43	114.43	-227.59	254.73	0.00	0.00	0.00
2,800.00	6.24	296.69	2,785.84	119.31	-237.29	265.60	0.00	0.00	0.00
2,900.00	6.24	296.69	2,885.24	124.19	-247.00	276.47	0.00	0.00	0.00
3,000.00	6.24	296.69	2,984.65	129.07	-256.71	287.33	0.00	0.00	0.00
3,100.00	6.24	296.69	3,084.06	133.95	-266.42	298.20	0.00	0.00	0.00
3,200.00	6.24	296.69	3,183.47	138.83	-276.13	309.07	0.00	0.00	0.00
3,300.00	6.24	296.69	3,282.87	143.71	-285.84	319.93	0.00	0.00	0.00
3,400.00	6.24	296.69	3,382.28	148.60	-295.55	330.80	0.00	0.00	0.00
3,500.00	6.24	296.69	3,481.69	153.48	-305.25	341.67	0.00	0.00	0.00
3,600.00	6.24	296.69	3,581.10	158.36	-314.96	352.53	0.00	0.00	0.00
3,700.00	6.24	296.69	3,680.51	163.24	-324.67	363.40	0.00	0.00	0.00
3,800.00	6.24	296.69	3,779.91	168.12	-334.38	374.26	0.00	0.00	0.00
3,900.00	6.24	296.69	3,879.32	173.00	-344.09	385.13	0.00	0.00	0.00
4,000.00	6.24	296.69	3,978.73	177.88	-353.80	396.00	0.00	0.00	0.00
4,100.00	6.24	296.69	4,078.14	182.77	-363.50	406.86	0.00	0.00	0.00
4,200.00	6.24	296.69	4,177.54	187.65	-373.21	417.73	0.00	0.00	0.00
4,300.00	6.24	296.69	4,276.95	192.53	-382.92	428.60	0.00	0.00	0.00
4,400.00	6.24	296.69	4,376.36	197.41	-392.63	439.46	0.00	0.00	0.00
4,500.00	6.24	296.69	4,475.77	202.29	-402.34	450.33	0.00	0.00	0.00
4,600.00	6.24	296.69	4,575.18	207.17	-412.05	461.20	0.00	0.00	0.00
4,700.00	6.24	296.69	4,674.58	212.05	-421.76	472.06	0.00	0.00	0.00
4,800.00	6.24	296.69	4,773.99	216.93	-431.46	482.93	0.00	0.00	0.00
4,900.00	6.24	296.69	4,873.40	221.82	-441.17	493.80	0.00	0.00	0.00
5,000.00	6.24	296.69	4,972.81	226.70	-450.88	504.66	0.00	0.00	0.00

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## 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 697-05-36A	<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	6.24	296.69	5,072.22	231.58	-460.59	515.53	0.00	0.00	0.00
5,200.00	6.24	296.69	5,171.62	236.46	-470.30	526.40	0.00	0.00	0.00
5,300.00	6.24	296.69	5,271.03	241.34	-480.01	537.26	0.00	0.00	0.00
5,400.00	6.24	296.69	5,370.44	246.22	-489.71	548.13	0.00	0.00	0.00
5,500.00	6.24	296.69	5,469.85	251.10	-499.42	559.00	0.00	0.00	0.00
5,600.00	6.24	296.69	5,569.25	255.98	-509.13	569.86	0.00	0.00	0.00
5,649.74	6.24	296.69	5,618.70	258.41	-513.96	575.27	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,700.00	5.23	296.69	5,668.71	260.67	-518.45	580.29	2.00	-2.00	0.00
5,800.00	3.23	296.69	5,768.43	263.98	-525.04	587.67	2.00	-2.00	0.00
5,900.00	1.23	296.69	5,868.35	265.73	-528.52	591.57	2.00	-2.00	0.00
5,961.66	0.00	0.00	5,930.00	266.03	-529.12	592.23	2.00	-2.00	0.00
<b>Start 0.00° Hold At 5961.66' - Mesaverde</b>									
6,000.00	0.00	0.00	5,968.34	266.03	-529.12	592.23	0.00	0.00	0.00
6,100.00	0.00	0.00	6,068.34	266.03	-529.12	592.23	0.00	0.00	0.00
6,125.66	0.00	0.00	6,094.00	266.03	-529.12	592.23	0.00	0.00	0.00
<b>Williams Fork</b>									
6,200.00	0.00	0.00	6,168.34	266.03	-529.12	592.23	0.00	0.00	0.00
6,300.00	0.00	0.00	6,268.34	266.03	-529.12	592.23	0.00	0.00	0.00
6,400.00	0.00	0.00	6,368.34	266.03	-529.12	592.23	0.00	0.00	0.00
6,500.00	0.00	0.00	6,468.34	266.03	-529.12	592.23	0.00	0.00	0.00
6,600.00	0.00	0.00	6,568.34	266.03	-529.12	592.23	0.00	0.00	0.00
6,700.00	0.00	0.00	6,668.34	266.03	-529.12	592.23	0.00	0.00	0.00
6,715.66	0.00	0.00	6,684.00	266.03	-529.12	592.23	0.00	0.00	0.00
<b>TOG = 638804.88, 1226501.31</b>									
6,800.00	0.00	0.00	6,768.34	266.03	-529.12	592.23	0.00	0.00	0.00
6,900.00	0.00	0.00	6,868.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,000.00	0.00	0.00	6,968.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,100.00	0.00	0.00	7,068.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,200.00	0.00	0.00	7,168.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,300.00	0.00	0.00	7,268.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,400.00	0.00	0.00	7,368.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,500.00	0.00	0.00	7,468.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,600.00	0.00	0.00	7,568.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,700.00	0.00	0.00	7,668.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,800.00	0.00	0.00	7,768.34	266.03	-529.12	592.23	0.00	0.00	0.00
7,900.00	0.00	0.00	7,868.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,000.00	0.00	0.00	7,968.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,086.66	0.00	0.00	8,055.00	266.03	-529.12	592.23	0.00	0.00	0.00
<b>Target = 638804.88, 1226501.31</b>									
8,100.00	0.00	0.00	8,068.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,200.00	0.00	0.00	8,168.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,300.00	0.00	0.00	8,268.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,400.00	0.00	0.00	8,368.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,500.00	0.00	0.00	8,468.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,600.00	0.00	0.00	8,568.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,700.00	0.00	0.00	8,668.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,740.66	0.00	0.00	8,709.00	266.03	-529.12	592.23	0.00	0.00	0.00
<b>Rollins</b>									
8,800.00	0.00	0.00	8,768.34	266.03	-529.12	592.23	0.00	0.00	0.00
8,900.00	0.00	0.00	8,868.34	266.03	-529.12	592.23	0.00	0.00	0.00
9,000.00	0.00	0.00	8,968.34	266.03	-529.12	592.23	0.00	0.00	0.00
9,100.00	0.00	0.00	9,068.34	266.03	-529.12	592.23	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 697-05-36A - Slot I
<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 697-05-36A	<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)
9,140.66	0.00	0.00	9,109.00	266.03	-529.12	592.23	0.00	0.00	0.00
PBHL = 638804.88, 1226501.31									

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 697-05-36A Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,055.00	266.03	-529.12	638,804.88	1,226,501.31	39° 33' 18.983 N	108° 14' 36.998 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,961.66	5,930.00	Mesaverde		0.00	
6,125.66	6,094.00	Williams Fork		0.00	
8,740.66	8,709.00	Rollins		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
200.00	200.00	0.00	0.00	Start Build 2.00	
511.92	511.30	7.62	-15.16	Start 6.24° Hold At 511.92'	
5,649.74	5,618.70	258.41	-513.96	Start Drop -2.00	
5,961.66	5,930.00	266.03	-529.12	Start 0.00° Hold At 5961.66'	
6,715.66	6,684.00	266.03	-529.12	TOG = 638804.88, 1226501.31	
8,086.66	8,055.00	266.03	-529.12	Target = 638804.88, 1226501.31	
9,140.66	9,109.00	266.03	-529.12	PBHL = 638804.88, 1226501.31	