



Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-04D Pad



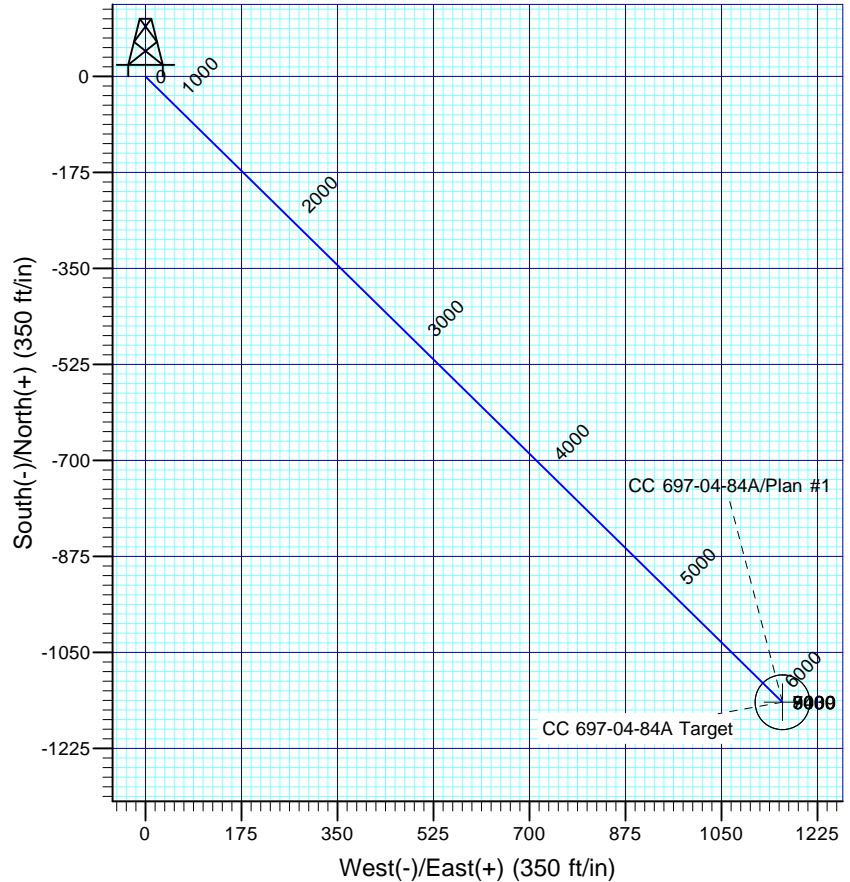
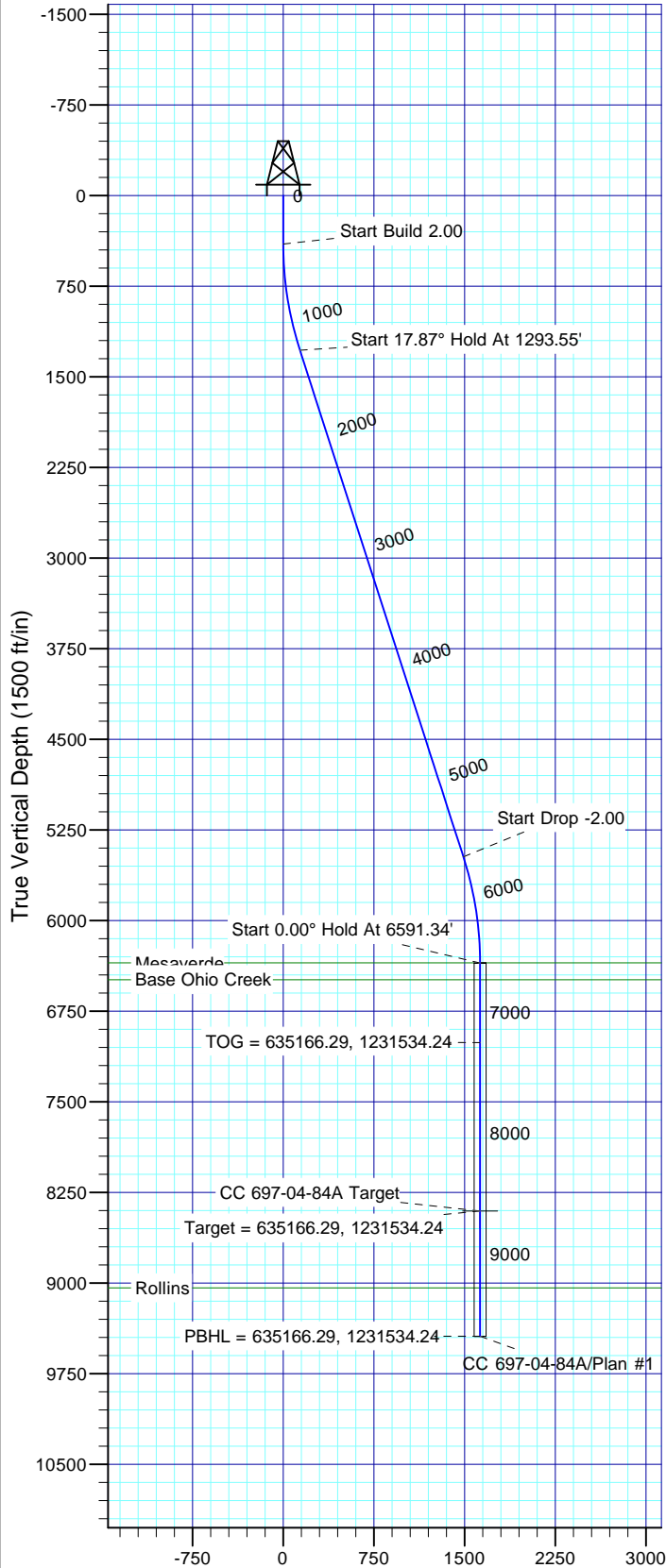
Well Details: CC 697-04-84A

TVD Reference: GL 8629' & RKB 30' @ 8659.00ft (H&P) Ground Level: 8629.00
+N/-S 0.00 +E/-W 0.00 Northing 636341.60 Easting 1230407.72 Latitude 39° 32' 55.811 N Longitude 108° 13' 46.202 W Slot I



Azimuths to True North
Magnetic North: 10.47°

Magnetic Field
Strength: 52282.4snT
Dip Angle: 65.76°
Date: 2011/03/24
Model: IGRF2005-10



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6349.00	6590.34	Mesaverde
6489.00	6730.34	Base Ohio Creek
9039.00	9280.34	Rollins

Plan: Plan #1

15:37, March 29 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	VSec	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	1293.55	17.87	134.49	1279.13	-96.87	98.60	2.00	134.49	138.23	
4	5697.79	17.87	134.49	5470.87	-1044.06	1062.72	0.00	0.00	1489.78	
5	6591.34	0.00	0.00	6350.00	-1140.94	1161.32	2.00	180.00	1628.01	
6	8643.34	0.00	0.00	8402.00	-1140.94	1161.32	0.00	0.00	1628.01	CC 697-04-84A Target
7	9680.34	0.00	0.00	9439.00	-1140.94	1161.32	0.00	0.00	1628.01	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-04D Pad
CC 697-04-84A - Slot I**

OH

Plan: Plan #1

Standard Planning Report

29 March, 2011

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-84A - Slot I
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-84A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Garfield County, CO NAD27		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado Central 502		

Site		Cascade Creek 697-04D Pad			
Site Position:		Northing:	635,530.62 usft	Latitude:	39° 32' 47.760 N
From:	Map	Easting:	1,230,276.10 usft	Longitude:	108° 13' 47.570 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.72 °

Well	CC 697-04-84A - Slot I					
Well Position	+N/-S	814.57 ft	Northing:	636,341.60 usft	Latitude:	39° 32' 55.811 N
	+E/-W	107.19 ft	Easting:	1,230,407.72 usft	Longitude:	108° 13' 46.202 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	8,629.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	2011/03/24	10.47	65.76	52,282

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	134.49

Plan Sections										
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	
1,293.55	17.87	134.49	1,279.13	-96.87	98.60	2.00	2.00	0.00	134.49	
5,697.79	17.87	134.49	5,470.87	-1,044.06	1,062.72	0.00	0.00	0.00	0.00	
6,591.34	0.00	0.00	6,350.00	-1,140.94	1,161.32	2.00	-2.00	0.00	180.00	
8,643.34	0.00	0.00	8,402.00	-1,140.94	1,161.32	0.00	0.00	0.00	0.00	CC 697-04-84A Target
9,680.34	0.00	0.00	9,439.00	-1,140.94	1,161.32	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-84A - Slot I
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-84A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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 2.00									
500.00	2.00	134.49	499.98	-1.22	1.24	1.75	2.00	2.00	0.00
600.00	4.00	134.49	599.84	-4.89	4.98	6.98	2.00	2.00	0.00
700.00	6.00	134.49	699.45	-11.00	11.19	15.69	2.00	2.00	0.00
800.00	8.00	134.49	798.70	-19.54	19.89	27.88	2.00	2.00	0.00
900.00	10.00	134.49	897.47	-30.50	31.05	43.52	2.00	2.00	0.00
1,000.00	12.00	134.49	995.62	-43.87	44.66	62.60	2.00	2.00	0.00
1,100.00	14.00	134.49	1,093.06	-59.64	60.70	85.10	2.00	2.00	0.00
1,200.00	16.00	134.49	1,189.64	-77.77	79.16	110.98	2.00	2.00	0.00
1,293.55	17.87	134.49	1,279.13	-96.87	98.60	138.23	2.00	2.00	0.00
Start 17.87° Hold At 1293.55'									
1,300.00	17.87	134.49	1,285.27	-98.26	100.01	140.21	0.00	0.00	0.00
1,400.00	17.87	134.49	1,380.45	-119.77	121.91	170.89	0.00	0.00	0.00
1,500.00	17.87	134.49	1,475.62	-141.27	143.80	201.58	0.00	0.00	0.00
1,600.00	17.87	134.49	1,570.80	-162.78	165.69	232.27	0.00	0.00	0.00
1,700.00	17.87	134.49	1,665.97	-184.28	187.58	262.96	0.00	0.00	0.00
1,800.00	17.87	134.49	1,761.15	-205.79	209.47	293.64	0.00	0.00	0.00
1,900.00	17.87	134.49	1,856.32	-227.30	231.36	324.33	0.00	0.00	0.00
2,000.00	17.87	134.49	1,951.50	-248.80	253.25	355.02	0.00	0.00	0.00
2,100.00	17.87	134.49	2,046.67	-270.31	275.14	385.71	0.00	0.00	0.00
2,200.00	17.87	134.49	2,141.85	-291.82	297.03	416.39	0.00	0.00	0.00
2,300.00	17.87	134.49	2,237.02	-313.32	318.92	447.08	0.00	0.00	0.00
2,400.00	17.87	134.49	2,332.20	-334.83	340.81	477.77	0.00	0.00	0.00
2,500.00	17.87	134.49	2,427.37	-356.34	362.70	508.46	0.00	0.00	0.00
2,600.00	17.87	134.49	2,522.55	-377.84	384.59	539.14	0.00	0.00	0.00
2,700.00	17.87	134.49	2,617.72	-399.35	406.48	569.83	0.00	0.00	0.00
2,800.00	17.87	134.49	2,712.90	-420.85	428.38	600.52	0.00	0.00	0.00
2,900.00	17.87	134.49	2,808.07	-442.36	450.27	631.21	0.00	0.00	0.00
3,000.00	17.87	134.49	2,903.25	-463.87	472.16	661.89	0.00	0.00	0.00
3,100.00	17.87	134.49	2,998.42	-485.37	494.05	692.58	0.00	0.00	0.00
3,200.00	17.87	134.49	3,093.60	-506.88	515.94	723.27	0.00	0.00	0.00
3,300.00	17.87	134.49	3,188.77	-528.39	537.83	753.96	0.00	0.00	0.00
3,400.00	17.87	134.49	3,283.94	-549.89	559.72	784.64	0.00	0.00	0.00
3,500.00	17.87	134.49	3,379.12	-571.40	581.61	815.33	0.00	0.00	0.00
3,600.00	17.87	134.49	3,474.29	-592.91	603.50	846.02	0.00	0.00	0.00
3,700.00	17.87	134.49	3,569.47	-614.41	625.39	876.71	0.00	0.00	0.00
3,800.00	17.87	134.49	3,664.64	-635.92	647.28	907.40	0.00	0.00	0.00
3,900.00	17.87	134.49	3,759.82	-657.42	669.17	938.08	0.00	0.00	0.00
4,000.00	17.87	134.49	3,854.99	-678.93	691.06	968.77	0.00	0.00	0.00
4,100.00	17.87	134.49	3,950.17	-700.44	712.95	999.46	0.00	0.00	0.00
4,200.00	17.87	134.49	4,045.34	-721.94	734.84	1,030.15	0.00	0.00	0.00
4,300.00	17.87	134.49	4,140.52	-743.45	756.74	1,060.83	0.00	0.00	0.00
4,400.00	17.87	134.49	4,235.69	-764.96	778.63	1,091.52	0.00	0.00	0.00
4,500.00	17.87	134.49	4,330.87	-786.46	800.52	1,122.21	0.00	0.00	0.00
4,600.00	17.87	134.49	4,426.04	-807.97	822.41	1,152.90	0.00	0.00	0.00
4,700.00	17.87	134.49	4,521.22	-829.48	844.30	1,183.58	0.00	0.00	0.00
4,800.00	17.87	134.49	4,616.39	-850.98	866.19	1,214.27	0.00	0.00	0.00
4,900.00	17.87	134.49	4,711.57	-872.49	888.08	1,244.96	0.00	0.00	0.00
5,000.00	17.87	134.49	4,806.74	-893.99	909.97	1,275.65	0.00	0.00	0.00

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Planning Report

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Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-84A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	17.87	134.49	4,901.92	-915.50	931.86	1,306.33	0.00	0.00	0.00
5,200.00	17.87	134.49	4,997.09	-937.01	953.75	1,337.02	0.00	0.00	0.00
5,300.00	17.87	134.49	5,092.27	-958.51	975.64	1,367.71	0.00	0.00	0.00
5,400.00	17.87	134.49	5,187.44	-980.02	997.53	1,398.40	0.00	0.00	0.00
5,500.00	17.87	134.49	5,282.62	-1,001.53	1,019.42	1,429.08	0.00	0.00	0.00
5,600.00	17.87	134.49	5,377.79	-1,023.03	1,041.31	1,459.77	0.00	0.00	0.00
5,697.79	17.87	134.49	5,470.87	-1,044.06	1,062.72	1,489.78	0.00	0.00	0.00
Start Drop -2.00									
5,700.00	17.83	134.49	5,472.97	-1,044.54	1,063.20	1,490.46	2.00	-2.00	0.00
5,800.00	15.83	134.49	5,568.68	-1,064.82	1,083.85	1,519.40	2.00	-2.00	0.00
5,900.00	13.83	134.49	5,665.35	-1,082.76	1,102.11	1,544.99	2.00	-2.00	0.00
6,000.00	11.83	134.49	5,762.85	-1,098.32	1,117.94	1,567.19	2.00	-2.00	0.00
6,100.00	9.83	134.49	5,861.06	-1,111.48	1,131.34	1,585.98	2.00	-2.00	0.00
6,200.00	7.83	134.49	5,959.87	-1,122.23	1,142.29	1,601.32	2.00	-2.00	0.00
6,300.00	5.83	134.49	6,059.16	-1,130.56	1,150.77	1,613.21	2.00	-2.00	0.00
6,400.00	3.83	134.49	6,158.80	-1,136.46	1,156.77	1,621.62	2.00	-2.00	0.00
6,500.00	1.83	134.49	6,258.67	-1,139.92	1,160.29	1,626.55	2.00	-2.00	0.00
6,590.34	0.02	134.49	6,349.00	-1,140.94	1,161.32	1,628.01	2.00	-2.00	0.00
Mesaverde									
6,591.34	0.00	0.00	6,350.00	-1,140.94	1,161.32	1,628.01	2.00	-2.00	0.00
Start 0.00° Hold At 6591.34'									
6,600.00	0.00	0.00	6,358.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
6,700.00	0.00	0.00	6,458.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
6,730.34	0.00	0.00	6,489.00	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
Base Ohio Creek									
6,800.00	0.00	0.00	6,558.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
6,900.00	0.00	0.00	6,658.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,000.00	0.00	0.00	6,758.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,100.00	0.00	0.00	6,858.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,200.00	0.00	0.00	6,958.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,250.34	0.00	0.00	7,009.00	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
TOG = 635166.29, 1231534.24									
7,300.00	0.00	0.00	7,058.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,400.00	0.00	0.00	7,158.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,500.00	0.00	0.00	7,258.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,600.00	0.00	0.00	7,358.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,700.00	0.00	0.00	7,458.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,800.00	0.00	0.00	7,558.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
7,900.00	0.00	0.00	7,658.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,000.00	0.00	0.00	7,758.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,100.00	0.00	0.00	7,858.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,200.00	0.00	0.00	7,958.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,300.00	0.00	0.00	8,058.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,400.00	0.00	0.00	8,158.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,500.00	0.00	0.00	8,258.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,600.00	0.00	0.00	8,358.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,643.34	0.00	0.00	8,402.00	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
Target = 635166.29, 1231534.24									
8,700.00	0.00	0.00	8,458.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,800.00	0.00	0.00	8,558.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
8,900.00	0.00	0.00	8,658.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
9,000.00	0.00	0.00	8,758.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
9,100.00	0.00	0.00	8,858.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-84A - Slot I
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RKB 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-84A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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)
9,200.00	0.00	0.00	8,958.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
9,280.34	0.00	0.00	9,039.00	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
Rollins									
9,300.00	0.00	0.00	9,058.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
9,400.00	0.00	0.00	9,158.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
9,500.00	0.00	0.00	9,258.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
9,600.00	0.00	0.00	9,358.66	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
9,680.34	0.00	0.00	9,439.00	-1,140.94	1,161.32	1,628.01	0.00	0.00	0.00
PBHL = 635166.29, 1231534.24									

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 697-04-84A Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,402.00	-1,140.94	1,161.32	635,166.30	1,231,534.24	39° 32' 44.534 N	108° 13' 31.377 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,590.34	6,349.00	Mesaverde		0.00	
6,730.34	6,489.00	Base Ohio Creek		0.00	
9,280.34	9,039.00	Rollins		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
400.00	400.00	0.00	0.00	Start Build 2.00	
1,293.55	1,279.13	-96.87	98.60	Start 17.87° Hold At 1293.55'	
5,697.79	5,470.87	-1,044.06	1,062.72	Start Drop -2.00	
6,591.34	6,350.00	-1,140.94	1,161.32	Start 0.00° Hold At 6591.34'	
7,250.34	7,009.00	-1,140.94	1,161.32	TOG = 635166.29, 1231534.24	
8,643.34	8,402.00	-1,140.94	1,161.32	Target = 635166.29, 1231534.24	
9,680.34	9,439.00	-1,140.94	1,161.32	PBHL = 635166.29, 1231534.24	