



Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-06A Pad



Well Details: CC 697-06-03A

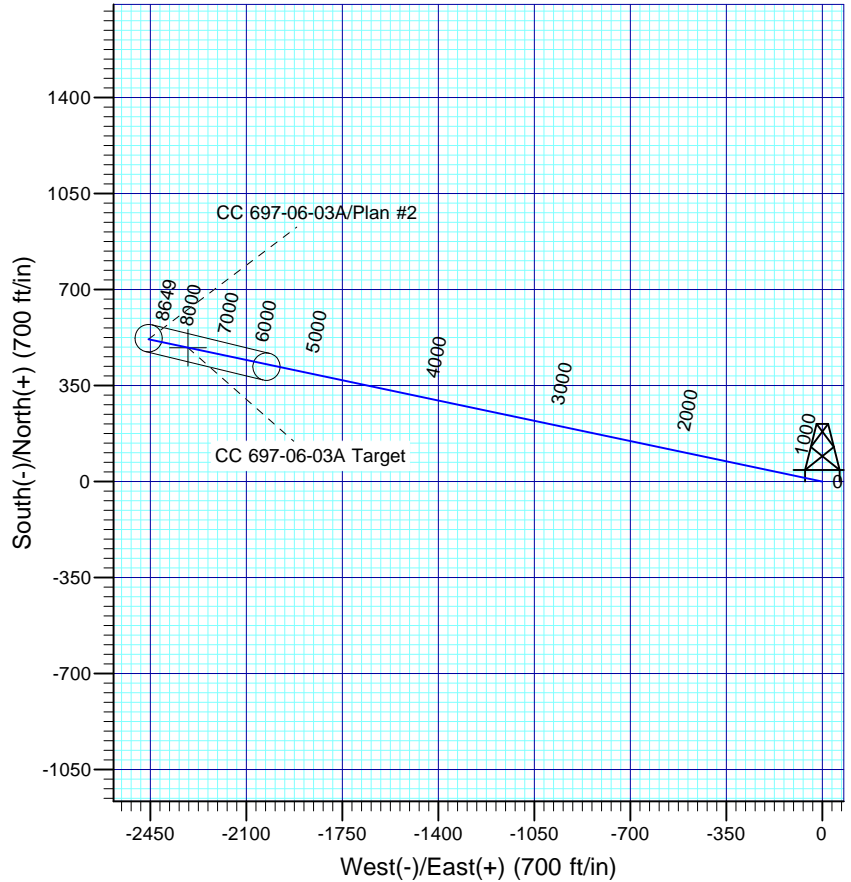
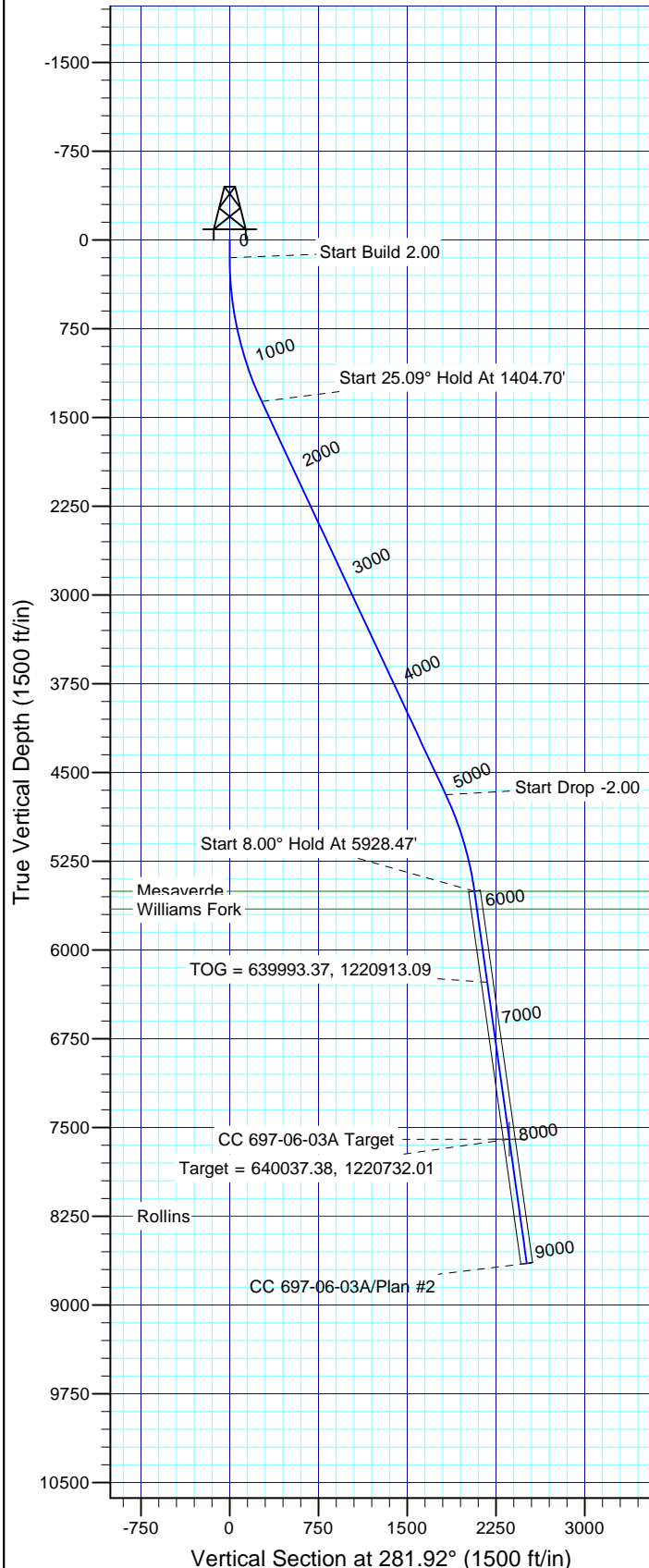
TVD Reference: GL 8184' & RKB 30' @ 8214.00ft (H&P) Ground Level: 8184.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	639479.18	1223028.70	39° 33' 24.606 N	108° 15' 21.575 W	F



Azimuths to True North
Magnetic North: 10.51°

Magnetic Field
Strength: 52311.9snT
Dip Angle: 65.77°
Date: 2010/12/20
Model: IGRF2005-10



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5504.00	5928.47	Mesaverde
5654.00	6079.95	Williams Fork
8249.00	8700.45	Rollins

Plan: Plan #2

16:02, February 03 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	Vsect	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	1404.70	25.09	281.92	1364.97	55.86	-264.57	2.00	281.92	270.40	
4	5073.77	25.09	281.92	4687.73	377.32	-1787.07	0.00	0.00	1826.47	
5	5928.47	8.00	281.92	5504.00	427.43	-2024.36	2.00	180.00	2068.99	
6	8045.07	8.00	281.92	7600.00	488.28	-2312.57	0.00	0.00	2363.56	CC 697-06-03A Target
7	9104.38	8.00	281.92	8649.00	518.74	-2456.82	0.00	0.00	2510.99	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-06A Pad
CC 697-06-03A - Slot F**

OH

Plan: Plan #2

Standard Planning Report

03 February, 2011

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-03A - Slot F
Company:	OXY USA RMAT	TVD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Site:	Cascade Creek 697-06A Pad	North Reference:	True
Well:	CC 697-06-03A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 697-06A Pad, Sec 6 T6S R97W			
Site Position:		Northing:	639,442.25 usft	Latitude:	39° 33' 24.203 N
From:	Map	Easting:	1,222,903.93 usft	Longitude:	108° 15' 23.153 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.74 °

Well	CC 697-06-03A - Slot F					
Well Position	+N/-S	40.70 ft	Northing:	639,479.18 usft	Latitude:	39° 33' 24.606 N
	+E/-W	123.59 ft	Easting:	1,223,028.70 usft	Longitude:	108° 15' 21.575 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	8,184.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	2010/12/20	10.51	65.77	52,312

Design	Plan #2			
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	281.92

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	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,404.70	25.09	281.92	1,364.97	55.86	-264.57	2.00	2.00	0.00	281.92	
5,073.77	25.09	281.92	4,687.73	377.32	-1,787.07	0.00	0.00	0.00	0.00	
5,928.47	8.00	281.92	5,504.00	427.43	-2,024.36	2.00	-2.00	0.00	180.00	
8,045.07	8.00	281.92	7,600.00	488.28	-2,312.57	0.00	0.00	0.00	0.00	CC 697-06-03A Target
9,104.38	8.00	281.92	8,649.00	518.74	-2,456.82	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-03A - Slot F
Company:	OXY USA RMAT	TVD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Site:	Cascade Creek 697-06A Pad	North Reference:	True
Well:	CC 697-06-03A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	281.92	200.00	0.09	-0.43	0.44	2.00	2.00	0.00
300.00	3.00	281.92	299.93	0.81	-3.84	3.93	2.00	2.00	0.00
400.00	5.00	281.92	399.68	2.25	-10.67	10.90	2.00	2.00	0.00
500.00	7.00	281.92	499.13	4.41	-20.89	21.35	2.00	2.00	0.00
600.00	9.00	281.92	598.15	7.29	-34.51	35.27	2.00	2.00	0.00
700.00	11.00	281.92	696.63	10.87	-51.50	52.63	2.00	2.00	0.00
800.00	13.00	281.92	794.44	15.17	-71.84	73.42	2.00	2.00	0.00
900.00	15.00	281.92	891.46	20.17	-95.51	97.62	2.00	2.00	0.00
1,000.00	17.00	281.92	987.58	25.86	-122.48	125.18	2.00	2.00	0.00
1,100.00	19.00	281.92	1,082.68	32.24	-152.71	156.08	2.00	2.00	0.00
1,200.00	21.00	281.92	1,176.65	39.31	-186.17	190.28	2.00	2.00	0.00
1,300.00	23.00	281.92	1,269.36	47.05	-222.82	227.74	2.00	2.00	0.00
1,400.00	25.00	281.92	1,360.71	55.45	-262.62	268.41	2.00	2.00	0.00
1,404.70	25.09	281.92	1,364.97	55.86	-264.57	270.40	2.00	2.00	0.00
Start 25.09° Hold At 1404.70'									
1,500.00	25.09	281.92	1,451.28	64.21	-304.11	310.82	0.00	0.00	0.00
1,600.00	25.09	281.92	1,541.84	72.97	-345.61	353.23	0.00	0.00	0.00
1,700.00	25.09	281.92	1,632.40	81.73	-387.10	395.64	0.00	0.00	0.00
1,800.00	25.09	281.92	1,722.96	90.49	-428.60	438.05	0.00	0.00	0.00
1,900.00	25.09	281.92	1,813.52	99.26	-470.09	480.46	0.00	0.00	0.00
2,000.00	25.09	281.92	1,904.08	108.02	-511.59	522.87	0.00	0.00	0.00
2,100.00	25.09	281.92	1,994.64	116.78	-553.08	565.28	0.00	0.00	0.00
2,200.00	25.09	281.92	2,085.20	125.54	-594.58	607.69	0.00	0.00	0.00
2,300.00	25.09	281.92	2,175.77	134.30	-636.08	650.10	0.00	0.00	0.00
2,400.00	25.09	281.92	2,266.33	143.06	-677.57	692.51	0.00	0.00	0.00
2,500.00	25.09	281.92	2,356.89	151.82	-719.07	734.92	0.00	0.00	0.00
2,600.00	25.09	281.92	2,447.45	160.59	-760.56	777.33	0.00	0.00	0.00
2,700.00	25.09	281.92	2,538.01	169.35	-802.06	819.74	0.00	0.00	0.00
2,800.00	25.09	281.92	2,628.57	178.11	-843.55	862.15	0.00	0.00	0.00
2,900.00	25.09	281.92	2,719.13	186.87	-885.05	904.56	0.00	0.00	0.00
3,000.00	25.09	281.92	2,809.69	195.63	-926.54	946.97	0.00	0.00	0.00
3,100.00	25.09	281.92	2,900.26	204.39	-968.04	989.38	0.00	0.00	0.00
3,200.00	25.09	281.92	2,990.82	213.15	-1,009.54	1,031.79	0.00	0.00	0.00
3,300.00	25.09	281.92	3,081.38	221.92	-1,051.03	1,074.20	0.00	0.00	0.00
3,400.00	25.09	281.92	3,171.94	230.68	-1,092.53	1,116.61	0.00	0.00	0.00
3,500.00	25.09	281.92	3,262.50	239.44	-1,134.02	1,159.02	0.00	0.00	0.00
3,600.00	25.09	281.92	3,353.06	248.20	-1,175.52	1,201.44	0.00	0.00	0.00
3,700.00	25.09	281.92	3,443.62	256.96	-1,217.01	1,243.85	0.00	0.00	0.00
3,800.00	25.09	281.92	3,534.19	265.72	-1,258.51	1,286.26	0.00	0.00	0.00
3,900.00	25.09	281.92	3,624.75	274.48	-1,300.00	1,328.67	0.00	0.00	0.00
4,000.00	25.09	281.92	3,715.31	283.25	-1,341.50	1,371.08	0.00	0.00	0.00
4,100.00	25.09	281.92	3,805.87	292.01	-1,383.00	1,413.49	0.00	0.00	0.00
4,200.00	25.09	281.92	3,896.43	300.77	-1,424.49	1,455.90	0.00	0.00	0.00
4,300.00	25.09	281.92	3,986.99	309.53	-1,465.99	1,498.31	0.00	0.00	0.00
4,400.00	25.09	281.92	4,077.55	318.29	-1,507.48	1,540.72	0.00	0.00	0.00
4,500.00	25.09	281.92	4,168.11	327.05	-1,548.98	1,583.13	0.00	0.00	0.00
4,600.00	25.09	281.92	4,258.68	335.81	-1,590.47	1,625.54	0.00	0.00	0.00
4,700.00	25.09	281.92	4,349.24	344.58	-1,631.97	1,667.95	0.00	0.00	0.00
4,800.00	25.09	281.92	4,439.80	353.34	-1,673.47	1,710.36	0.00	0.00	0.00
4,900.00	25.09	281.92	4,530.36	362.10	-1,714.96	1,752.77	0.00	0.00	0.00

Scientific Drilling International

Planning Report

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Company:	OXY USA RMAT	TVD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Site:	Cascade Creek 697-06A Pad	North Reference:	True
Well:	CC 697-06-03A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	25.09	281.92	4,620.92	370.86	-1,756.46	1,795.18	0.00	0.00	0.00
5,073.77	25.09	281.92	4,687.73	377.32	-1,787.07	1,826.47	0.00	0.00	0.00
Start Drop -2.00									
5,100.00	24.57	281.92	4,711.53	379.60	-1,797.85	1,837.48	2.00	-2.00	0.00
5,200.00	22.57	281.92	4,803.19	387.86	-1,836.97	1,877.47	2.00	-2.00	0.00
5,300.00	20.57	281.92	4,896.18	395.45	-1,872.93	1,914.23	2.00	-2.00	0.00
5,400.00	18.57	281.92	4,990.40	402.37	-1,905.71	1,947.72	2.00	-2.00	0.00
5,500.00	16.57	281.92	5,085.73	408.61	-1,935.24	1,977.91	2.00	-2.00	0.00
5,600.00	14.57	281.92	5,182.05	414.15	-1,961.50	2,004.75	2.00	-2.00	0.00
5,700.00	12.57	281.92	5,279.26	419.00	-1,984.45	2,028.21	2.00	-2.00	0.00
5,800.00	10.57	281.92	5,377.22	423.14	-2,004.08	2,048.26	2.00	-2.00	0.00
5,900.00	8.57	281.92	5,475.82	426.58	-2,020.34	2,064.88	2.00	-2.00	0.00
5,928.47	8.00	281.92	5,504.00	427.43	-2,024.36	2,068.99	2.00	-2.00	0.00
Start 8.00° Hold At 5928.47' - Mesaverde									
6,000.00	8.00	281.92	5,574.83	429.48	-2,034.10	2,078.94	0.00	0.00	0.00
6,079.95	8.00	281.92	5,654.00	431.78	-2,044.98	2,090.07	0.00	0.00	0.00
Williams Fork									
6,100.00	8.00	281.92	5,673.86	432.36	-2,047.71	2,092.86	0.00	0.00	0.00
6,200.00	8.00	281.92	5,772.88	435.23	-2,061.33	2,106.78	0.00	0.00	0.00
6,300.00	8.00	281.92	5,871.91	438.11	-2,074.95	2,120.69	0.00	0.00	0.00
6,400.00	8.00	281.92	5,970.94	440.98	-2,088.56	2,134.61	0.00	0.00	0.00
6,500.00	8.00	281.92	6,069.96	443.86	-2,102.18	2,148.53	0.00	0.00	0.00
6,600.00	8.00	281.92	6,168.99	446.73	-2,115.80	2,162.45	0.00	0.00	0.00
6,700.00	8.00	281.92	6,268.02	449.61	-2,129.41	2,176.36	0.00	0.00	0.00
6,706.04	8.00	281.92	6,274.00	449.78	-2,130.24	2,177.20	0.00	0.00	0.00
TOG = 639993.37, 1220913.09									
6,800.00	8.00	281.92	6,367.05	452.48	-2,143.03	2,190.28	0.00	0.00	0.00
6,900.00	8.00	281.92	6,466.07	455.36	-2,156.65	2,204.20	0.00	0.00	0.00
7,000.00	8.00	281.92	6,565.10	458.23	-2,170.27	2,218.11	0.00	0.00	0.00
7,100.00	8.00	281.92	6,664.13	461.11	-2,183.88	2,232.03	0.00	0.00	0.00
7,200.00	8.00	281.92	6,763.15	463.98	-2,197.50	2,245.95	0.00	0.00	0.00
7,300.00	8.00	281.92	6,862.18	466.86	-2,211.12	2,259.87	0.00	0.00	0.00
7,400.00	8.00	281.92	6,961.21	469.73	-2,224.73	2,273.78	0.00	0.00	0.00
7,500.00	8.00	281.92	7,060.23	472.61	-2,238.35	2,287.70	0.00	0.00	0.00
7,600.00	8.00	281.92	7,159.26	475.48	-2,251.97	2,301.62	0.00	0.00	0.00
7,700.00	8.00	281.92	7,258.29	478.36	-2,265.59	2,315.54	0.00	0.00	0.00
7,800.00	8.00	281.92	7,357.31	481.23	-2,279.20	2,329.45	0.00	0.00	0.00
7,900.00	8.00	281.92	7,456.34	484.11	-2,292.82	2,343.37	0.00	0.00	0.00
8,000.00	8.00	281.92	7,555.37	486.98	-2,306.44	2,357.29	0.00	0.00	0.00
8,045.07	8.00	281.92	7,600.00	488.28	-2,312.57	2,363.56	0.00	0.00	0.00
Target = 640037.38, 1220732.01									
8,100.00	8.00	281.92	7,654.39	489.86	-2,320.05	2,371.21	0.00	0.00	0.00
8,200.00	8.00	281.92	7,753.42	492.73	-2,333.67	2,385.12	0.00	0.00	0.00
8,300.00	8.00	281.92	7,852.45	495.61	-2,347.29	2,399.04	0.00	0.00	0.00
8,400.00	8.00	281.92	7,951.47	498.48	-2,360.91	2,412.96	0.00	0.00	0.00
8,500.00	8.00	281.92	8,050.50	501.36	-2,374.52	2,426.87	0.00	0.00	0.00
8,600.00	8.00	281.92	8,149.53	504.24	-2,388.14	2,440.79	0.00	0.00	0.00
8,700.00	8.00	281.92	8,248.55	507.11	-2,401.76	2,454.71	0.00	0.00	0.00
8,700.45	8.00	281.92	8,249.00	507.12	-2,401.82	2,454.77	0.00	0.00	0.00
Rollins									
8,800.00	8.00	281.92	8,347.58	509.99	-2,415.37	2,468.63	0.00	0.00	0.00
8,900.00	8.00	281.92	8,446.61	512.86	-2,428.99	2,482.54	0.00	0.00	0.00
9,000.00	8.00	281.92	8,545.64	515.74	-2,442.61	2,496.46	0.00	0.00	0.00

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Planning Report

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Company:	OXY USA RMAT	TVD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8184' & RKB 30' @ 8214.00ft (H&P)
Site:	Cascade Creek 697-06A Pad	North Reference:	True
Well:	CC 697-06-03A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	8.00	281.92	8,644.66	518.61	-2,456.23	2,510.38	0.00	0.00	0.00
9,104.38	8.00	281.92	8,649.00	518.74	-2,456.82	2,510.99	0.00	0.00	0.00
PBHL = 640072.20, 1220588.75									

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 697-06-03A Target - plan hits target center - Circle (radius 50.00)	-8.00	283.59	7,600.00	488.28	-2,312.57	640,037.38	1,220,732.00	39° 33' 29.431 N	108° 15' 51.101 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,928.47	5,504.00	Mesaverde		0.00	
6,079.95	5,654.00	Williams Fork		0.00	
8,700.45	8,249.00	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
1,404.70	1,364.97	55.86	-264.57	Start 25.09° Hold At 1404.70'
5,073.77	4,687.73	377.32	-1,787.07	Start Drop -2.00
5,928.47	5,504.00	427.43	-2,024.36	Start 8.00° Hold At 5928.47'
6,706.04	6,274.00	449.78	-2,130.24	TOG = 639993.37, 1220913.09
8,045.07	7,600.00	488.28	-2,312.57	Target = 640037.38, 1220732.01
9,104.38	8,649.00	518.74	-2,456.82	PBHL = 640072.20, 1220588.75