



Scientific Drilling
Rocky Mountain Operations

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



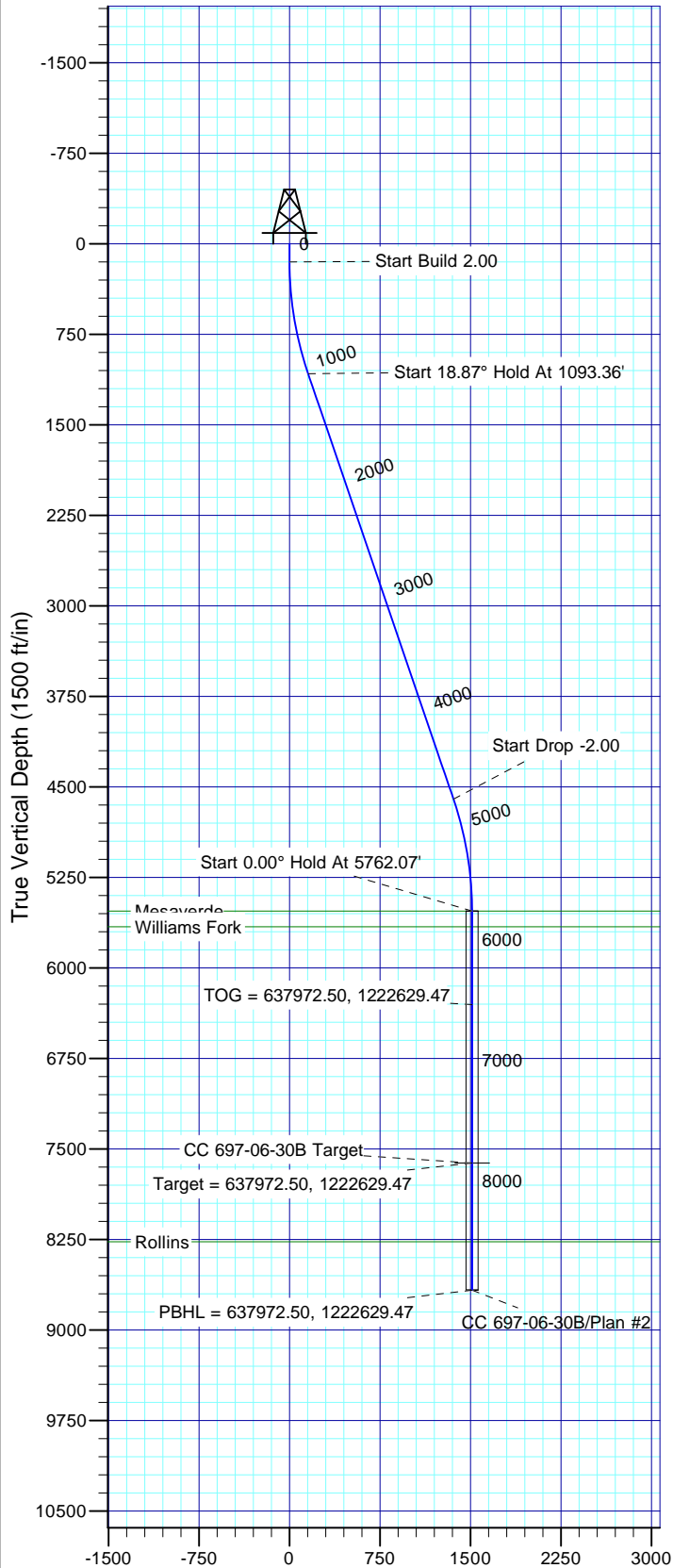
Well Details: CC 697-06-30B

TVD Reference: GL 8184' & RKB 30' @ 8214.00ft (H&P) Ground Level: 8184.00
+N/-S 0.00 +E/-W 0.00 Northing 639424.44 Easting 1223053.27 Latitude 39° 33' 24.072 N Longitude 108° 15' 21.240 W Slot V

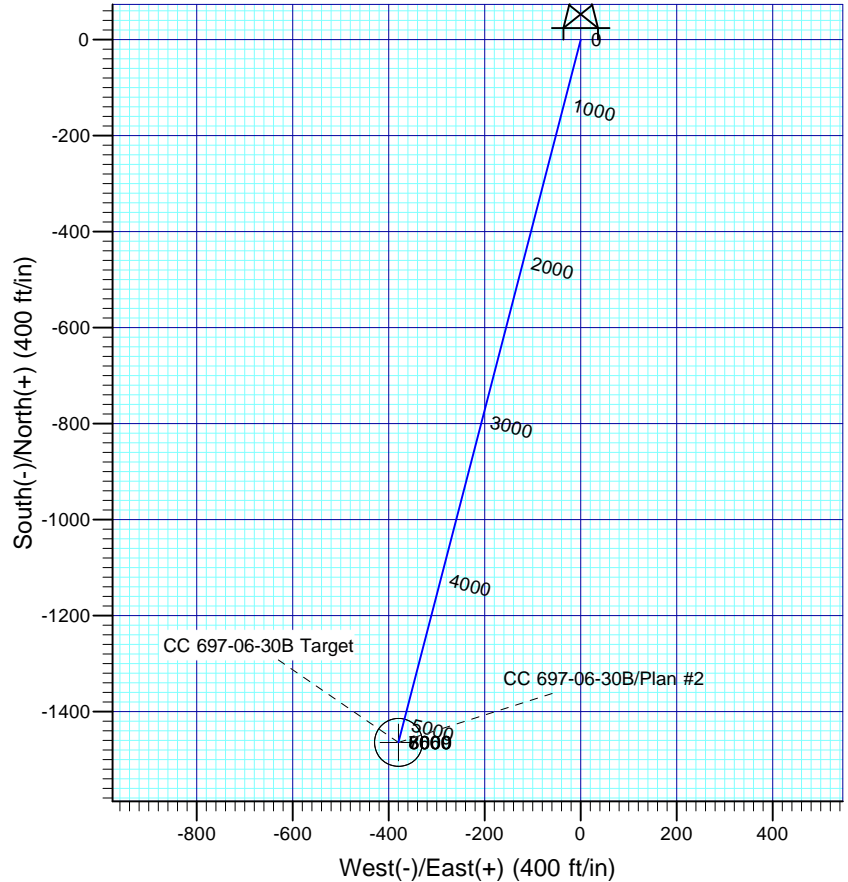


Azimuths to True North
Magnetic North: 10.53°

Magnetic Field
Strength: 52275.0nT
Dip Angle: 65.75°
Date: 2011/01/06
Model: IGRF2010



Vertical Section at 194.53° (1500 ft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5529.00	5763.07	Mesaverde
5659.00	5893.07	Williams Fork
8269.00	8503.07	Rollins

Plan: Plan #2

21:18, 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	VSec	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	1093.36	18.87	194.53	1076.40	-149.00	-38.63	2.00	194.53	153.92	
4	4818.72	18.87	194.53	4601.60	-1315.13	-340.94	0.00	0.00	1358.61	
5	5762.07	0.00	0.00	5528.00	-1464.13	-379.57	2.00	180.00	1512.53	
6	7850.07	0.00	0.00	7616.00	-1464.13	-379.57	0.00	0.00	1512.53	CC 697-06-30B Target
7	8903.07	0.00	0.00	8669.00	-1464.13	-379.57	0.00	0.00	1512.53	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-06A Pad
CC 697-06-30B - Slot V**

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 697-06-30B - Slot V
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 697-06-30B	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
From:	Map	Easting:	1,222,903.93 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 33' 24.203 N
		Longitude:	108° 15' 23.153 W
		Grid Convergence:	-1.74 °

Well	CC 697-06-30B - Slot V		
Well Position	+N/-S	-13.27 ft	Northing:
	+E/-W	149.81 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	
		Latitude:	39° 33' 24.072 N
		Longitude:	108° 15' 21.240 W
		Ground Level:	8,184.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/01/06	10.53	65.75	52,275

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	194.53

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	
1,093.36	18.87	194.53	1,076.40	-149.00	-38.63	2.00	2.00	0.00	194.53	
4,818.72	18.87	194.53	4,601.60	-1,315.13	-340.94	0.00	0.00	0.00	0.00	
5,762.07	0.00	0.00	5,528.00	-1,464.13	-379.57	2.00	-2.00	0.00	180.00	
7,850.07	0.00	0.00	7,616.00	-1,464.13	-379.57	0.00	0.00	0.00	0.00	CC 697-06-30B Target
8,903.07	0.00	0.00	8,669.00	-1,464.13	-379.57	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-30B - Slot V
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 697-06-30B	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	194.53	200.00	-0.42	-0.11	0.44	2.00	2.00	0.00
300.00	3.00	194.53	299.93	-3.80	-0.99	3.93	2.00	2.00	0.00
400.00	5.00	194.53	399.68	-10.55	-2.74	10.90	2.00	2.00	0.00
500.00	7.00	194.53	499.13	-20.67	-5.36	21.35	2.00	2.00	0.00
600.00	9.00	194.53	598.15	-34.14	-8.85	35.27	2.00	2.00	0.00
700.00	11.00	194.53	696.63	-50.95	-13.21	52.63	2.00	2.00	0.00
800.00	13.00	194.53	794.44	-71.07	-18.43	73.42	2.00	2.00	0.00
900.00	15.00	194.53	891.46	-94.49	-24.50	97.62	2.00	2.00	0.00
1,000.00	17.00	194.53	987.58	-121.17	-31.41	125.18	2.00	2.00	0.00
1,093.36	18.87	194.53	1,076.40	-149.00	-38.63	153.92	2.00	2.00	0.00
Start 18.87° Hold At 1093.36'									
1,100.00	18.87	194.53	1,082.69	-151.08	-39.17	156.07	0.00	0.00	0.00
1,200.00	18.87	194.53	1,177.31	-182.38	-47.28	188.41	0.00	0.00	0.00
1,300.00	18.87	194.53	1,271.94	-213.68	-55.40	220.75	0.00	0.00	0.00
1,400.00	18.87	194.53	1,366.57	-244.98	-63.51	253.08	0.00	0.00	0.00
1,500.00	18.87	194.53	1,461.20	-276.29	-71.63	285.42	0.00	0.00	0.00
1,600.00	18.87	194.53	1,555.82	-307.59	-79.74	317.76	0.00	0.00	0.00
1,700.00	18.87	194.53	1,650.45	-338.89	-87.86	350.10	0.00	0.00	0.00
1,800.00	18.87	194.53	1,745.08	-370.20	-95.97	382.43	0.00	0.00	0.00
1,900.00	18.87	194.53	1,839.70	-401.50	-104.09	414.77	0.00	0.00	0.00
2,000.00	18.87	194.53	1,934.33	-432.80	-112.20	447.11	0.00	0.00	0.00
2,100.00	18.87	194.53	2,028.96	-464.10	-120.32	479.44	0.00	0.00	0.00
2,200.00	18.87	194.53	2,123.58	-495.41	-128.43	511.78	0.00	0.00	0.00
2,300.00	18.87	194.53	2,218.21	-526.71	-136.55	544.12	0.00	0.00	0.00
2,400.00	18.87	194.53	2,312.84	-558.01	-144.66	576.46	0.00	0.00	0.00
2,500.00	18.87	194.53	2,407.47	-589.31	-152.78	608.79	0.00	0.00	0.00
2,600.00	18.87	194.53	2,502.09	-620.62	-160.89	641.13	0.00	0.00	0.00
2,700.00	18.87	194.53	2,596.72	-651.92	-169.01	673.47	0.00	0.00	0.00
2,800.00	18.87	194.53	2,691.35	-683.22	-177.12	705.81	0.00	0.00	0.00
2,900.00	18.87	194.53	2,785.97	-714.52	-185.24	738.14	0.00	0.00	0.00
3,000.00	18.87	194.53	2,880.60	-745.83	-193.35	770.48	0.00	0.00	0.00
3,100.00	18.87	194.53	2,975.23	-777.13	-201.47	802.82	0.00	0.00	0.00
3,200.00	18.87	194.53	3,069.86	-808.43	-209.58	835.16	0.00	0.00	0.00
3,300.00	18.87	194.53	3,164.48	-839.74	-217.70	867.49	0.00	0.00	0.00
3,400.00	18.87	194.53	3,259.11	-871.04	-225.81	899.83	0.00	0.00	0.00
3,500.00	18.87	194.53	3,353.74	-902.34	-233.93	932.17	0.00	0.00	0.00
3,600.00	18.87	194.53	3,448.36	-933.64	-242.04	964.51	0.00	0.00	0.00
3,700.00	18.87	194.53	3,542.99	-964.95	-250.16	996.84	0.00	0.00	0.00
3,800.00	18.87	194.53	3,637.62	-996.25	-258.27	1,029.18	0.00	0.00	0.00
3,900.00	18.87	194.53	3,732.25	-1,027.55	-266.39	1,061.52	0.00	0.00	0.00
4,000.00	18.87	194.53	3,826.87	-1,058.85	-274.50	1,093.86	0.00	0.00	0.00
4,100.00	18.87	194.53	3,921.50	-1,090.16	-282.62	1,126.19	0.00	0.00	0.00
4,200.00	18.87	194.53	4,016.13	-1,121.46	-290.73	1,158.53	0.00	0.00	0.00
4,300.00	18.87	194.53	4,110.75	-1,152.76	-298.85	1,190.87	0.00	0.00	0.00
4,400.00	18.87	194.53	4,205.38	-1,184.06	-306.96	1,223.21	0.00	0.00	0.00
4,500.00	18.87	194.53	4,300.01	-1,215.37	-315.08	1,255.54	0.00	0.00	0.00
4,600.00	18.87	194.53	4,394.64	-1,246.67	-323.19	1,287.88	0.00	0.00	0.00
4,700.00	18.87	194.53	4,489.26	-1,277.97	-331.31	1,320.22	0.00	0.00	0.00
4,800.00	18.87	194.53	4,583.89	-1,309.28	-339.42	1,352.56	0.00	0.00	0.00
4,818.72	18.87	194.53	4,601.60	-1,315.13	-340.94	1,358.61	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 697-06-30B	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)
Start Drop -2.00									
4,900.00	17.24	194.53	4,678.88	-1,339.52	-347.26	1,383.80	2.00	-2.00	0.00
5,000.00	15.24	194.53	4,774.88	-1,366.59	-354.28	1,411.77	2.00	-2.00	0.00
5,100.00	13.24	194.53	4,871.81	-1,390.40	-360.45	1,436.37	2.00	-2.00	0.00
5,200.00	11.24	194.53	4,969.53	-1,410.93	-365.77	1,457.57	2.00	-2.00	0.00
5,300.00	9.24	194.53	5,067.93	-1,428.14	-370.23	1,475.35	2.00	-2.00	0.00
5,400.00	7.24	194.53	5,166.89	-1,442.01	-373.83	1,489.68	2.00	-2.00	0.00
5,500.00	5.24	194.53	5,266.29	-1,452.53	-376.56	1,500.55	2.00	-2.00	0.00
5,600.00	3.24	194.53	5,366.01	-1,459.69	-378.42	1,507.95	2.00	-2.00	0.00
5,700.00	1.24	194.53	5,465.93	-1,463.48	-379.40	1,511.86	2.00	-2.00	0.00
5,762.07	0.00	0.00	5,528.00	-1,464.13	-379.57	1,512.53	2.00	-2.00	0.00
Start 0.00° Hold At 5762.07'									
5,763.07	0.00	0.00	5,529.00	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
Mesaverde									
5,800.00	0.00	0.00	5,565.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
5,893.07	0.00	0.00	5,659.00	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
Williams Fork									
5,900.00	0.00	0.00	5,665.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,000.00	0.00	0.00	5,765.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,100.00	0.00	0.00	5,865.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,200.00	0.00	0.00	5,965.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,300.00	0.00	0.00	6,065.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,400.00	0.00	0.00	6,165.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,500.00	0.00	0.00	6,265.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,538.07	0.00	0.00	6,304.00	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
TOG = 637972.50, 1222629.47									
6,600.00	0.00	0.00	6,365.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,700.00	0.00	0.00	6,465.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,800.00	0.00	0.00	6,565.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
6,900.00	0.00	0.00	6,665.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,000.00	0.00	0.00	6,765.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,100.00	0.00	0.00	6,865.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,200.00	0.00	0.00	6,965.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,300.00	0.00	0.00	7,065.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,400.00	0.00	0.00	7,165.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,500.00	0.00	0.00	7,265.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,600.00	0.00	0.00	7,365.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,700.00	0.00	0.00	7,465.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,800.00	0.00	0.00	7,565.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
7,850.07	0.00	0.00	7,616.00	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
Target = 637972.50, 1222629.47									
7,900.00	0.00	0.00	7,665.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,000.00	0.00	0.00	7,765.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,100.00	0.00	0.00	7,865.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,200.00	0.00	0.00	7,965.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,300.00	0.00	0.00	8,065.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,400.00	0.00	0.00	8,165.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,500.00	0.00	0.00	8,265.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,503.07	0.00	0.00	8,269.00	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
Rollins									
8,600.00	0.00	0.00	8,365.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,700.00	0.00	0.00	8,465.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,800.00	0.00	0.00	8,565.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-06-30B - Slot V
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 697-06-30B	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)
8,900.00	0.00	0.00	8,665.93	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
8,903.07	0.00	0.00	8,669.00	-1,464.13	-379.57	1,512.53	0.00	0.00	0.00
PBHL = 637972.50, 1222629.47									

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 697-06-30B Target	0.00	0.00	7,616.00	-1,464.13	-379.57	637,972.50	1,222,629.47	39° 33' 9.601 N	108° 15' 26.086 W
- plan hits target center									
- Circle (radius 50.00)									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,763.07	5,529.00	Mesaverde		0.00		
5,893.07	5,659.00	Williams Fork		0.00		
8,503.07	8,269.00	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
1,093.36	1,076.40	-149.00	-38.63	Start 18.87° Hold At 1093.36'
4,818.72	4,601.60	-1,315.13	-340.94	Start Drop -2.00
5,762.07	5,528.00	-1,464.13	-379.57	Start 0.00° Hold At 5762.07'
6,538.07	6,304.00	-1,464.13	-379.57	TOG = 637972.50, 1222629.47
7,850.07	7,616.00	-1,464.13	-379.57	Target = 637972.50, 1222629.47
8,903.07	8,669.00	-1,464.13	-379.57	PBHL = 637972.50, 1222629.47