



Scientific Drilling

Rocky Mountain Operations

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



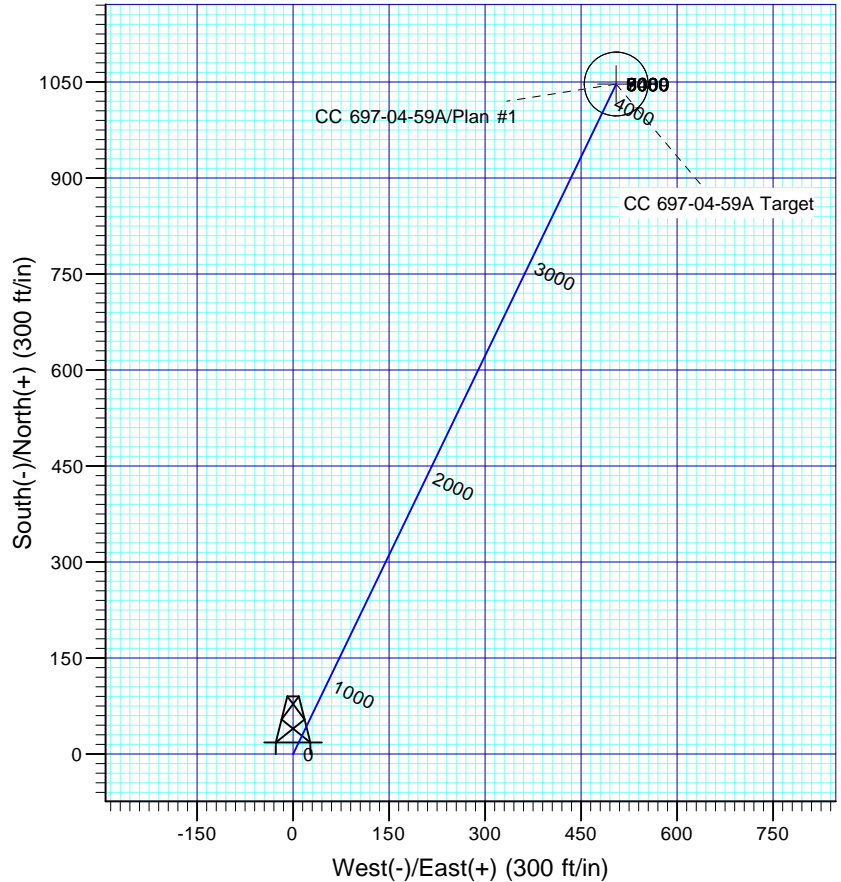
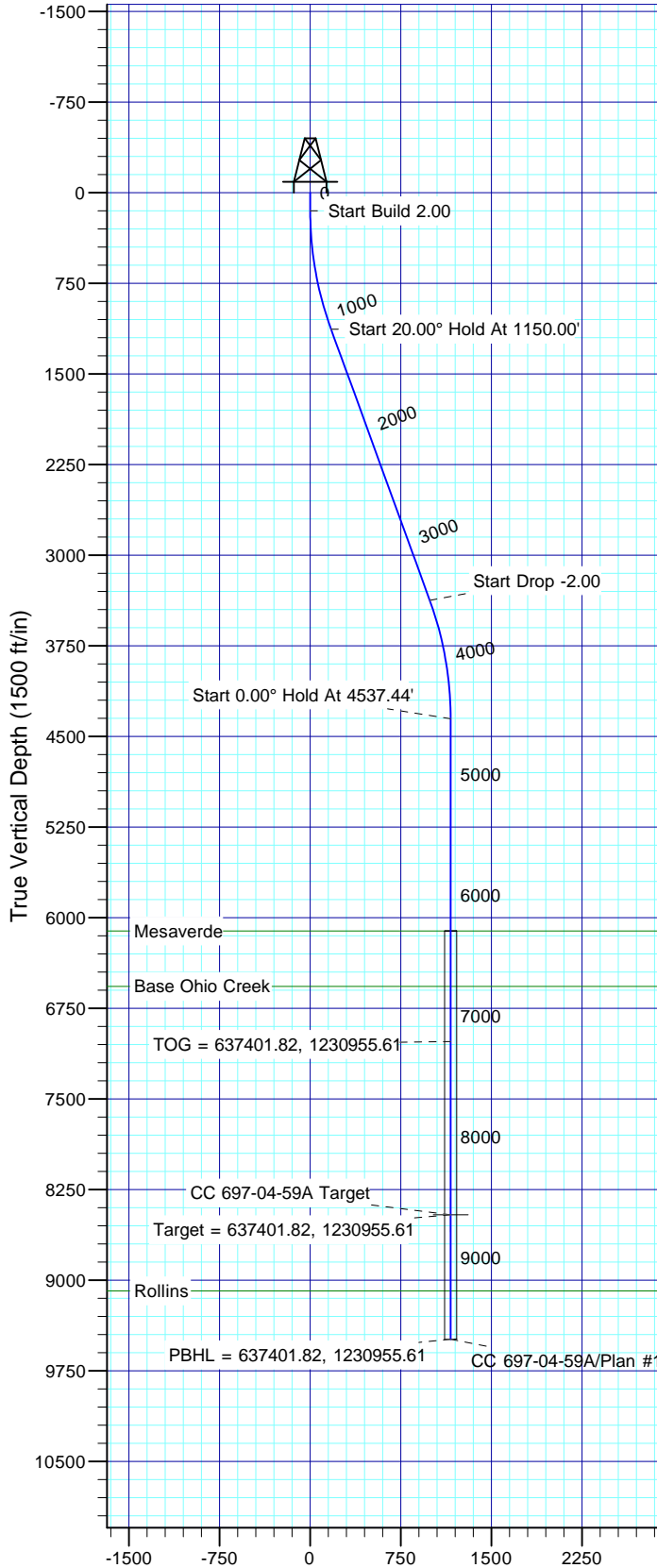
Well Details: CC 697-04-59A

TVD Reference: GL 8629' & RBK 30' @ 8659.00ft (H&P) Ground Level: 8629.00
+N/-S 0.00 +E/-W 0.00 Northing 636370.75 Easting 1230419.57 Latitude 39° 32' 56.102 N Longitude 108° 13' 46.062 W Slot B



Azimuths to True North
Magnetic North: 10.47°

Magnetic Field
Strength: 52282.7snT
Dip Angle: 65.76°
Date: 2011/03/23
Model: IGRF2005-10



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6109.00	6293.35	Mesaverde
6569.00	6753.35	Base Ohio Creek
9089.00	9273.35	Rollins

Plan: Plan #1

15:08, 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	150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	
3	1150.00	20.00	25.75	1129.82	155.61	75.05	2.00	25.75	172.77	
4	3537.44	20.00	25.75	3373.28	891.10	429.77	0.00	0.00	989.32	
5	4537.44	0.00	0.00	4353.09	1046.71	504.82	2.00	180.00	1162.09	
6	8643.35	0.00	0.00	8459.00	1046.71	504.82	0.00	0.00	1162.09	CC 697-04-59A Target
7	9673.35	0.00	0.00	9489.00	1046.71	504.82	0.00	0.00	1162.09	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-04D Pad
CC 697-04-59A - Slot B**

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 697-04-59A - Slot B
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-59A	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 697-04-59A - Slot B					
Well Position	+N/-S	844.06 ft	Northing:	636,370.75 usft	Latitude:	39° 32' 56.102 N
	+E/-W	118.16 ft	Easting:	1,230,419.57 usft	Longitude:	108° 13' 46.062 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	2011/03/23	10.47	65.76	52,283

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	25.75	

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	
1,150.00	20.00	25.75	1,129.82	155.61	75.05	2.00	2.00	0.00	25.75	
3,537.44	20.00	25.75	3,373.28	891.10	429.77	0.00	0.00	0.00	0.00	
4,537.44	0.00	0.00	4,353.09	1,046.71	504.82	2.00	-2.00	0.00	180.00	
8,643.35	0.00	0.00	8,459.00	1,046.71	504.82	0.00	0.00	0.00	0.00	CC 697-04-59A Target
9,673.35	0.00	0.00	9,489.00	1,046.71	504.82	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-59A - Slot B
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-59A	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
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	25.75	200.00	0.39	0.19	0.44	2.00	2.00	0.00
300.00	3.00	25.75	299.93	3.54	1.71	3.93	2.00	2.00	0.00
400.00	5.00	25.75	399.68	9.82	4.74	10.90	2.00	2.00	0.00
500.00	7.00	25.75	499.13	19.23	9.28	21.35	2.00	2.00	0.00
600.00	9.00	25.75	598.15	31.77	15.32	35.27	2.00	2.00	0.00
700.00	11.00	25.75	696.63	47.41	22.86	52.63	2.00	2.00	0.00
800.00	13.00	25.75	794.44	66.13	31.90	73.42	2.00	2.00	0.00
900.00	15.00	25.75	891.46	87.92	42.40	97.62	2.00	2.00	0.00
1,000.00	17.00	25.75	987.58	112.75	54.38	125.18	2.00	2.00	0.00
1,100.00	19.00	25.75	1,082.68	140.58	67.80	156.08	2.00	2.00	0.00
1,150.00	20.00	25.75	1,129.82	155.61	75.05	172.77	2.00	2.00	0.00
Start 20.00° Hold At 1150.00'									
1,200.00	20.00	25.75	1,176.80	171.02	82.48	189.87	0.00	0.00	0.00
1,300.00	20.00	25.75	1,270.77	201.82	97.34	224.07	0.00	0.00	0.00
1,400.00	20.00	25.75	1,364.74	232.63	112.20	258.27	0.00	0.00	0.00
1,500.00	20.00	25.75	1,458.71	263.44	127.05	292.47	0.00	0.00	0.00
1,600.00	20.00	25.75	1,552.68	294.24	141.91	326.68	0.00	0.00	0.00
1,700.00	20.00	25.75	1,646.65	325.05	156.77	360.88	0.00	0.00	0.00
1,800.00	20.00	25.75	1,740.62	355.86	171.63	395.08	0.00	0.00	0.00
1,900.00	20.00	25.75	1,834.59	386.66	186.48	429.28	0.00	0.00	0.00
2,000.00	20.00	25.75	1,928.55	417.47	201.34	463.49	0.00	0.00	0.00
2,100.00	20.00	25.75	2,022.52	448.27	216.20	497.69	0.00	0.00	0.00
2,200.00	20.00	25.75	2,116.49	479.08	231.06	531.89	0.00	0.00	0.00
2,300.00	20.00	25.75	2,210.46	509.89	245.91	566.09	0.00	0.00	0.00
2,400.00	20.00	25.75	2,304.43	540.69	260.77	600.29	0.00	0.00	0.00
2,500.00	20.00	25.75	2,398.40	571.50	275.63	634.50	0.00	0.00	0.00
2,600.00	20.00	25.75	2,492.37	602.31	290.49	668.70	0.00	0.00	0.00
2,700.00	20.00	25.75	2,586.34	633.11	305.35	702.90	0.00	0.00	0.00
2,800.00	20.00	25.75	2,680.31	663.92	320.20	737.10	0.00	0.00	0.00
2,900.00	20.00	25.75	2,774.28	694.73	335.06	771.30	0.00	0.00	0.00
3,000.00	20.00	25.75	2,868.25	725.53	349.92	805.51	0.00	0.00	0.00
3,100.00	20.00	25.75	2,962.22	756.34	364.78	839.71	0.00	0.00	0.00
3,200.00	20.00	25.75	3,056.19	787.14	379.63	873.91	0.00	0.00	0.00
3,300.00	20.00	25.75	3,150.15	817.95	394.49	908.11	0.00	0.00	0.00
3,400.00	20.00	25.75	3,244.12	848.76	409.35	942.31	0.00	0.00	0.00
3,500.00	20.00	25.75	3,338.09	879.56	424.21	976.52	0.00	0.00	0.00
3,537.44	20.00	25.75	3,373.28	891.10	429.77	989.32	0.00	0.00	0.00
Start Drop -2.00									
3,600.00	18.75	25.75	3,432.29	909.79	438.78	1,010.07	2.00	-2.00	0.00
3,700.00	16.75	25.75	3,527.53	937.25	452.03	1,040.56	2.00	-2.00	0.00
3,800.00	14.75	25.75	3,623.77	961.69	463.82	1,067.70	2.00	-2.00	0.00
3,900.00	12.75	25.75	3,720.90	983.10	474.14	1,091.46	2.00	-2.00	0.00
4,000.00	10.75	25.75	3,818.80	1,001.44	482.99	1,111.82	2.00	-2.00	0.00
4,100.00	8.75	25.75	3,917.35	1,016.69	490.34	1,128.76	2.00	-2.00	0.00
4,200.00	6.75	25.75	4,016.43	1,028.83	496.20	1,142.24	2.00	-2.00	0.00
4,300.00	4.75	25.75	4,115.92	1,037.85	500.55	1,152.25	2.00	-2.00	0.00
4,400.00	2.75	25.75	4,215.70	1,043.74	503.39	1,158.79	2.00	-2.00	0.00
4,500.00	0.75	25.75	4,315.65	1,046.49	504.71	1,161.84	2.00	-2.00	0.00
4,537.44	0.00	0.00	4,353.09	1,046.71	504.82	1,162.09	2.00	-2.00	0.00
Start 0.00° Hold At 4537.44'									

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-59A - Slot B
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-59A	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)
4,600.00	0.00	0.00	4,415.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
4,700.00	0.00	0.00	4,515.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
4,800.00	0.00	0.00	4,615.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
4,900.00	0.00	0.00	4,715.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,000.00	0.00	0.00	4,815.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,100.00	0.00	0.00	4,915.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,200.00	0.00	0.00	5,015.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,300.00	0.00	0.00	5,115.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,400.00	0.00	0.00	5,215.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,500.00	0.00	0.00	5,315.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,600.00	0.00	0.00	5,415.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,700.00	0.00	0.00	5,515.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,800.00	0.00	0.00	5,615.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
5,900.00	0.00	0.00	5,715.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,000.00	0.00	0.00	5,815.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,100.00	0.00	0.00	5,915.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,200.00	0.00	0.00	6,015.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,293.35	0.00	0.00	6,109.00	1,046.71	504.82	1,162.09	0.00	0.00	0.00
Mesaverde									
6,300.00	0.00	0.00	6,115.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,400.00	0.00	0.00	6,215.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,500.00	0.00	0.00	6,315.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,600.00	0.00	0.00	6,415.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,700.00	0.00	0.00	6,515.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,753.35	0.00	0.00	6,569.00	1,046.71	504.82	1,162.09	0.00	0.00	0.00
Base Ohio Creek									
6,800.00	0.00	0.00	6,615.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
6,900.00	0.00	0.00	6,715.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,000.00	0.00	0.00	6,815.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,100.00	0.00	0.00	6,915.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,200.00	0.00	0.00	7,015.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,208.35	0.00	0.00	7,024.00	1,046.71	504.82	1,162.09	0.00	0.00	0.00
TOG = 637401.82, 1230955.61									
7,300.00	0.00	0.00	7,115.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,400.00	0.00	0.00	7,215.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,500.00	0.00	0.00	7,315.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,600.00	0.00	0.00	7,415.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,700.00	0.00	0.00	7,515.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,800.00	0.00	0.00	7,615.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
7,900.00	0.00	0.00	7,715.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,000.00	0.00	0.00	7,815.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,100.00	0.00	0.00	7,915.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,200.00	0.00	0.00	8,015.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,300.00	0.00	0.00	8,115.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,400.00	0.00	0.00	8,215.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,500.00	0.00	0.00	8,315.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,600.00	0.00	0.00	8,415.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,643.35	0.00	0.00	8,459.00	1,046.71	504.82	1,162.09	0.00	0.00	0.00
Target = 637401.82, 1230955.61									
8,700.00	0.00	0.00	8,515.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,800.00	0.00	0.00	8,615.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
8,900.00	0.00	0.00	8,715.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
9,000.00	0.00	0.00	8,815.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00

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Planning Report

Database:	EDM-RexH-Local	Local Co-ordinate Reference:	Well CC 697-04-59A - Slot B
Company:	OXY USA RMAT	TVD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8629' & RBK 30' @ 8659.00ft (H&P)
Site:	Cascade Creek 697-04D Pad	North Reference:	True
Well:	CC 697-04-59A	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)
9,100.00	0.00	0.00	8,915.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
9,200.00	0.00	0.00	9,015.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
9,273.35	0.00	0.00	9,089.00	1,046.71	504.82	1,162.09	0.00	0.00	0.00
Rollins									
9,300.00	0.00	0.00	9,115.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
9,400.00	0.00	0.00	9,215.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
9,500.00	0.00	0.00	9,315.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
9,600.00	0.00	0.00	9,415.65	1,046.71	504.82	1,162.09	0.00	0.00	0.00
9,673.35	0.00	0.00	9,489.00	1,046.71	504.82	1,162.09	0.00	0.00	0.00
PBHL = 637401.82, 1230955.61									

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 697-04-59A Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,459.00	1,046.71	504.82	637,401.83	1,230,955.60	39° 33' 6.447 N	108° 13' 39.617 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,293.35	6,109.00	Mesaverde		0.00	
6,753.35	6,569.00	Base Ohio Creek		0.00	
9,273.35	9,089.00	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
1,150.00	1,129.82	155.61	75.05	Start 20.00° Hold At 1150.00'
3,537.44	3,373.28	891.10	429.77	Start Drop -2.00
4,537.44	4,353.09	1,046.71	504.82	Start 0.00° Hold At 4537.44'
7,208.35	7,024.00	1,046.71	504.82	TOG = 637401.82, 1230955.61
8,643.35	8,459.00	1,046.71	504.82	Target = 637401.82, 1230955.61
9,673.35	9,489.00	1,046.71	504.82	PBHL = 637401.82, 1230955.61