



Scientific Drilling

Rocky Mountain Operations

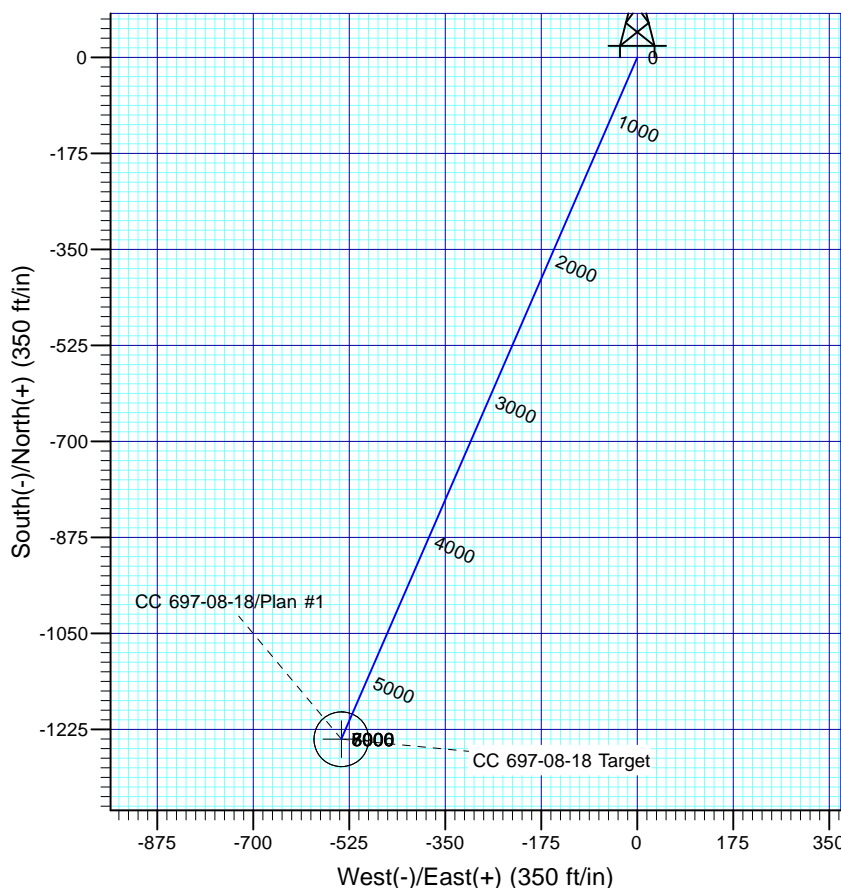
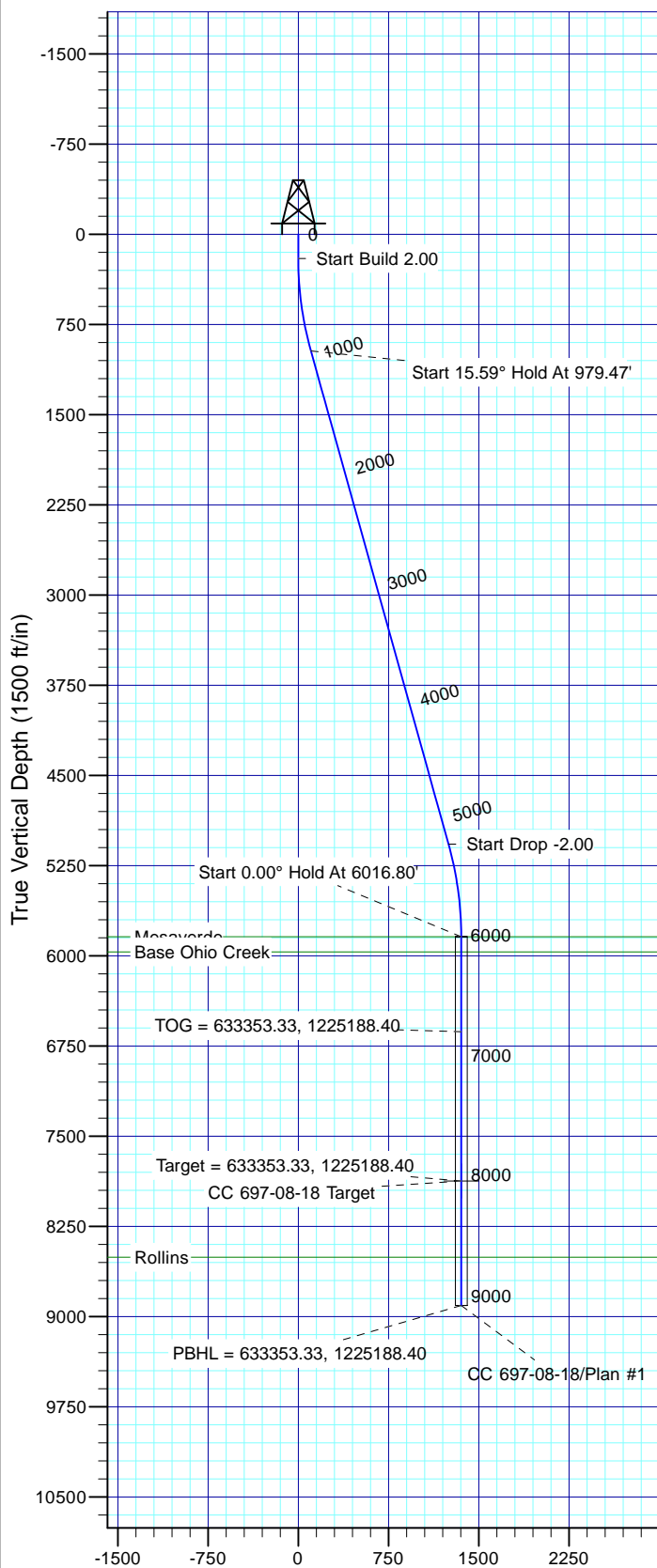
Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-08A Pad



Well Details: CC 697-08-18

TVD Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig) Ground Level: 8401.00
+N/-S 0.00 +E/-W 0.00 Northing 634579.46 Easting 1225765.24 Latitude 39° 32' 37.020 N Longitude 108° 14' 44.761 W Slot V

T M Azimuths to True North
Magnetic North: 10.48°
Magnetic Field
Strength: 52229.5nT
Dip Angle: 65.73°
Date: 5/24/2011
Model: IGRF2010



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5841.00	6016.80	Mesaverde
5966.00	6141.80	Base Ohio Creek
8506.00	8681.80	Rollins

Plan: Plan #1

8:47, May 26 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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	979.47	15.59	203.46	969.88	-96.67	-41.96	2.00	203.46	105.39	
4	5237.33	15.59	203.46	5071.12	-1146.32	-497.56	0.00	0.00	1249.65	
5	6016.80	0.00	0.00	5841.00	-1243.00	-539.52	2.00	180.00	1355.04	
6	8046.80	0.00	0.00	7871.00	-1243.00	-539.52	0.00	0.00	1355.04	CC 697-08-18 Target
7	9081.80	0.00	0.00	8906.00	-1243.00	-539.52	0.00	0.00	1355.04	

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-08-18 - Slot V**

OH

Plan: Plan #1

Standard Planning Report

26 May, 2011





Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-08-18 - Slot V
Company:	OXY USA RMAT	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	North Reference:	True
Well:	CC 697-08-18	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 697-08A Pad, Sec 8 T6S R97W			
Site Position:		Northing:	635,765.16 usft	Latitude: 39° 32' 48.728 N
From:	Lat/Long	Easting:	1,225,748.33 usft	Longitude: 108° 14' 45.434 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: -1.73 °

Well	CC 697-08-18 - Slot V			
Well Position	+N/-S	-1,184.65 ft	Northing:	634,579.46 usft
	+E/-W	52.73 ft	Easting:	1,225,765.24 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:		Ground Level: 8,401.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/24/2011	10.48	65.73	52,229

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	203.46

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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
979.47	15.59	203.46	969.88	-96.67	-41.96	2.00	2.00	0.00	203.46	
5,237.33	15.59	203.46	5,071.12	-1,146.32	-497.56	0.00	0.00	0.00	0.00	
6,016.80	0.00	0.00	5,841.00	-1,243.00	-539.52	2.00	-2.00	0.00	180.00	
8,046.80	0.00	0.00	7,871.00	-1,243.00	-539.52	0.00	0.00	0.00	0.00	CC 697-08-18 Target
9,081.80	0.00	0.00	8,906.00	-1,243.00	-539.52	0.00	0.00	0.00	0.00	



Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-08-18 - Slot V
Company:	OXY USA RMAT	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	North Reference:	True
Well:	CC 697-08-18	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
Start Build 2.00									
300.00	2.00	203.46	299.98	-1.60	-0.69	1.75	2.00	2.00	0.00
400.00	4.00	203.46	399.84	-6.40	-2.78	6.98	2.00	2.00	0.00
500.00	6.00	203.46	499.45	-14.40	-6.25	15.69	2.00	2.00	0.00
600.00	8.00	203.46	598.70	-25.57	-11.10	27.88	2.00	2.00	0.00
700.00	10.00	203.46	697.47	-39.92	-17.33	43.52	2.00	2.00	0.00
800.00	12.00	203.46	795.62	-57.43	-24.93	62.60	2.00	2.00	0.00
900.00	14.00	203.46	893.06	-78.06	-33.88	85.10	2.00	2.00	0.00
979.47	15.59	203.46	969.88	-96.67	-41.96	105.39	2.00	2.00	0.00
Start 15.59° Hold At 979.47'									
1,000.00	15.59	203.46	989.66	-101.74	-44.16	110.91	0.00	0.00	0.00
1,100.00	15.59	203.46	1,085.98	-126.39	-54.86	137.78	0.00	0.00	0.00
1,200.00	15.59	203.46	1,182.31	-151.04	-65.56	164.65	0.00	0.00	0.00
1,300.00	15.59	203.46	1,278.63	-175.69	-76.26	191.53	0.00	0.00	0.00
1,400.00	15.59	203.46	1,374.95	-200.34	-86.96	218.40	0.00	0.00	0.00
1,500.00	15.59	203.46	1,471.27	-225.00	-97.66	245.28	0.00	0.00	0.00
1,600.00	15.59	203.46	1,567.59	-249.65	-108.36	272.15	0.00	0.00	0.00
1,700.00	15.59	203.46	1,663.91	-274.30	-119.06	299.02	0.00	0.00	0.00
1,800.00	15.59	203.46	1,760.23	-298.95	-129.76	325.90	0.00	0.00	0.00
1,900.00	15.59	203.46	1,856.55	-323.60	-140.46	352.77	0.00	0.00	0.00
2,000.00	15.59	203.46	1,952.88	-348.26	-151.16	379.65	0.00	0.00	0.00
2,100.00	15.59	203.46	2,049.20	-372.91	-161.86	406.52	0.00	0.00	0.00
2,200.00	15.59	203.46	2,145.52	-397.56	-172.56	433.39	0.00	0.00	0.00
2,300.00	15.59	203.46	2,241.84	-422.21	-183.26	460.27	0.00	0.00	0.00
2,400.00	15.59	203.46	2,338.16	-446.86	-193.96	487.14	0.00	0.00	0.00
2,500.00	15.59	203.46	2,434.48	-471.52	-204.66	514.02	0.00	0.00	0.00
2,600.00	15.59	203.46	2,530.80	-496.17	-215.36	540.89	0.00	0.00	0.00
2,700.00	15.59	203.46	2,627.12	-520.82	-226.06	567.76	0.00	0.00	0.00
2,800.00	15.59	203.46	2,723.45	-545.47	-236.76	594.64	0.00	0.00	0.00
2,900.00	15.59	203.46	2,819.77	-570.12	-247.46	621.51	0.00	0.00	0.00
3,000.00	15.59	203.46	2,916.09	-594.78	-258.16	648.39	0.00	0.00	0.00
3,100.00	15.59	203.46	3,012.41	-619.43	-268.86	675.26	0.00	0.00	0.00
3,200.00	15.59	203.46	3,108.73	-644.08	-279.56	702.13	0.00	0.00	0.00
3,300.00	15.59	203.46	3,205.05	-668.73	-290.26	729.01	0.00	0.00	0.00
3,400.00	15.59	203.46	3,301.37	-693.38	-300.96	755.88	0.00	0.00	0.00
3,500.00	15.59	203.46	3,397.69	-718.04	-311.66	782.76	0.00	0.00	0.00
3,600.00	15.59	203.46	3,494.02	-742.69	-322.36	809.63	0.00	0.00	0.00
3,700.00	15.59	203.46	3,590.34	-767.34	-333.06	836.50	0.00	0.00	0.00
3,800.00	15.59	203.46	3,686.66	-791.99	-343.76	863.38	0.00	0.00	0.00
3,900.00	15.59	203.46	3,782.98	-816.64	-354.46	890.25	0.00	0.00	0.00
4,000.00	15.59	203.46	3,879.30	-841.30	-365.16	917.13	0.00	0.00	0.00
4,100.00	15.59	203.46	3,975.62	-865.95	-375.86	944.00	0.00	0.00	0.00
4,200.00	15.59	203.46	4,071.94	-890.60	-386.56	970.88	0.00	0.00	0.00
4,300.00	15.59	203.46	4,168.26	-915.25	-397.26	997.75	0.00	0.00	0.00
4,400.00	15.59	203.46	4,264.59	-939.90	-407.96	1,024.62	0.00	0.00	0.00
4,500.00	15.59	203.46	4,360.91	-964.56	-418.66	1,051.50	0.00	0.00	0.00
4,600.00	15.59	203.46	4,457.23	-989.21	-429.36	1,078.37	0.00	0.00	0.00
4,700.00	15.59	203.46	4,553.55	-1,013.86	-440.06	1,105.25	0.00	0.00	0.00
4,800.00	15.59	203.46	4,649.87	-1,038.51	-450.76	1,132.12	0.00	0.00	0.00
4,900.00	15.59	203.46	4,746.19	-1,063.16	-461.46	1,158.99	0.00	0.00	0.00
5,000.00	15.59	203.46	4,842.51	-1,087.82	-472.16	1,185.87	0.00	0.00	0.00



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Company:	OXY USA RMAT	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	North Reference:	True
Well:	CC 697-08-18	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	15.59	203.46	4,938.83	-1,112.47	-482.86	1,212.74	0.00	0.00	0.00
5,200.00	15.59	203.46	5,035.16	-1,137.12	-493.56	1,239.62	0.00	0.00	0.00
5,237.33	15.59	203.46	5,071.12	-1,146.32	-497.56	1,249.65	0.00	0.00	0.00
Start Drop -2.00									
5,300.00	14.34	203.46	5,131.66	-1,161.16	-504.00	1,265.83	2.00	-2.00	0.00
5,400.00	12.34	203.46	5,228.96	-1,182.32	-513.18	1,288.89	2.00	-2.00	0.00
5,500.00	10.34	203.46	5,327.00	-1,200.35	-521.01	1,308.55	2.00	-2.00	0.00
5,600.00	8.34	203.46	5,425.67	-1,215.23	-527.47	1,324.77	2.00	-2.00	0.00
5,700.00	6.34	203.46	5,524.85	-1,226.94	-532.55	1,337.54	2.00	-2.00	0.00
5,800.00	4.34	203.46	5,624.41	-1,235.48	-536.26	1,346.84	2.00	-2.00	0.00
5,900.00	2.34	203.46	5,724.23	-1,240.81	-538.57	1,352.66	2.00	-2.00	0.00
6,000.00	0.34	203.46	5,824.20	-1,242.95	-539.50	1,354.99	2.00	-2.00	0.00
6,016.80	0.00	0.00	5,841.00	-1,243.00	-539.52	1,355.04	2.00	-2.00	931.82
Start 0.00° Hold At 6016.80' - Mesaverde									
6,100.00	0.00	0.00	5,924.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
6,141.80	0.00	0.00	5,966.00	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
Base Ohio Creek									
6,200.00	0.00	0.00	6,024.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
6,300.00	0.00	0.00	6,124.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
6,400.00	0.00	0.00	6,224.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
6,500.00	0.00	0.00	6,324.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
6,600.00	0.00	0.00	6,424.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
6,700.00	0.00	0.00	6,524.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
6,800.00	0.00	0.00	6,624.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
6,806.80	0.00	0.00	6,631.00	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
TOG = 633353.33, 1225188.40									
6,900.00	0.00	0.00	6,724.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,000.00	0.00	0.00	6,824.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,100.00	0.00	0.00	6,924.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,200.00	0.00	0.00	7,024.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,300.00	0.00	0.00	7,124.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,400.00	0.00	0.00	7,224.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,500.00	0.00	0.00	7,324.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,600.00	0.00	0.00	7,424.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,700.00	0.00	0.00	7,524.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,800.00	0.00	0.00	7,624.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
7,900.00	0.00	0.00	7,724.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,000.00	0.00	0.00	7,824.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,046.80	0.00	0.00	7,871.00	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
Target = 633353.33, 1225188.40									
8,100.00	0.00	0.00	7,924.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,200.00	0.00	0.00	8,024.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,300.00	0.00	0.00	8,124.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,400.00	0.00	0.00	8,224.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,500.00	0.00	0.00	8,324.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,600.00	0.00	0.00	8,424.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,681.80	0.00	0.00	8,506.00	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
Rollins									
8,700.00	0.00	0.00	8,524.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,800.00	0.00	0.00	8,624.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
8,900.00	0.00	0.00	8,724.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
9,000.00	0.00	0.00	8,824.20	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00
9,081.80	0.00	0.00	8,906.00	-1,243.00	-539.52	1,355.04	0.00	0.00	0.00



Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-08-18 - Slot V
Company:	OXY USA RMAT	TVD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Project:	Garfield County, CO NAD27	MD Reference:	GL 8401' & RKB 30' @ 8431.00ft (H&P Rig)
Site:	Cascade Creek 697-08A Pad	North Reference:	True
Well:	CC 697-08-18	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)
PBHL = 633353.33, 1225188.40									

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 697-08-18 Target	0.00	0.00	7,871.00	-1,243.00	-539.52	633,353.34	1,225,188.40	39° 32' 24.734 N	108° 14' 51.648 W
- plan hits target center									
- Circle (radius 50.00)									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,016.80	5,841.00	Mesaverde		0.00	
6,141.80	5,966.00	Base Ohio Creek		0.00	
8,681.80	8,506.00	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
979.47	969.88	-96.67	-41.96	Start 15.59° Hold At 979.47"
5,237.33	5,071.12	-1,146.32	-497.56	Start Drop -2.00
6,016.80	5,841.00	-1,243.00	-539.52	Start 0.00° Hold At 6016.80'
6,806.80	6,631.00	-1,243.00	-539.52	TOG = 633353.33, 1225188.40
8,046.80	7,871.00	-1,243.00	-539.52	Target = 633353.33, 1225188.40
9,081.80	8,906.00	-1,243.00	-539.52	PBHL = 633353.33, 1225188.40