



Scientific Drilling
Rocky Mountain Operations

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



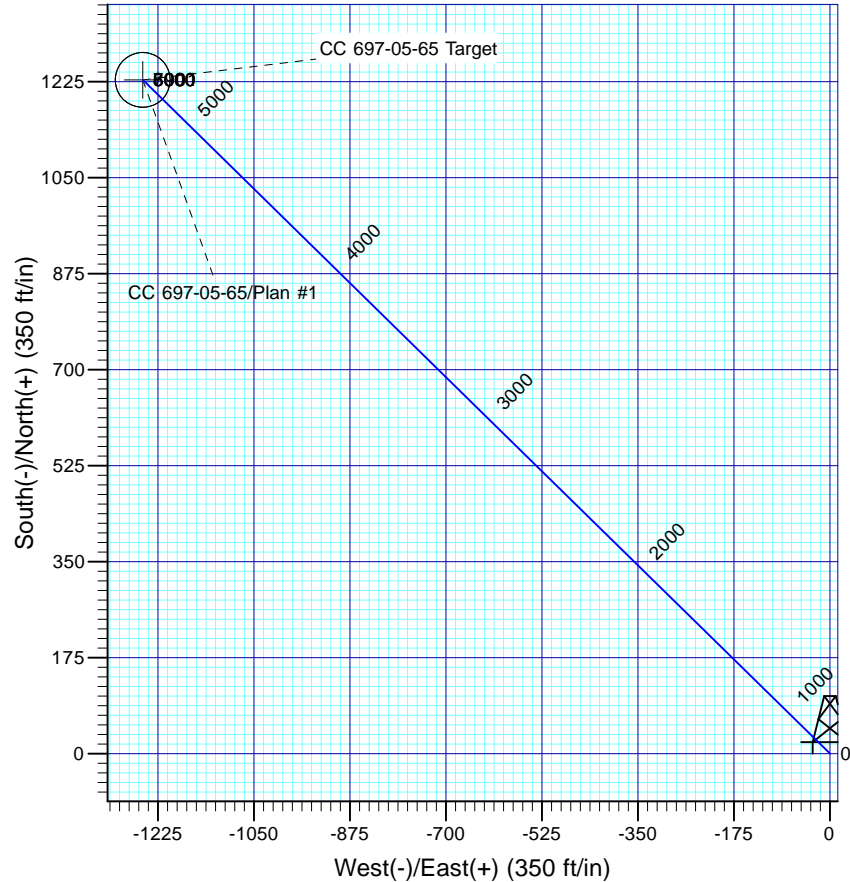
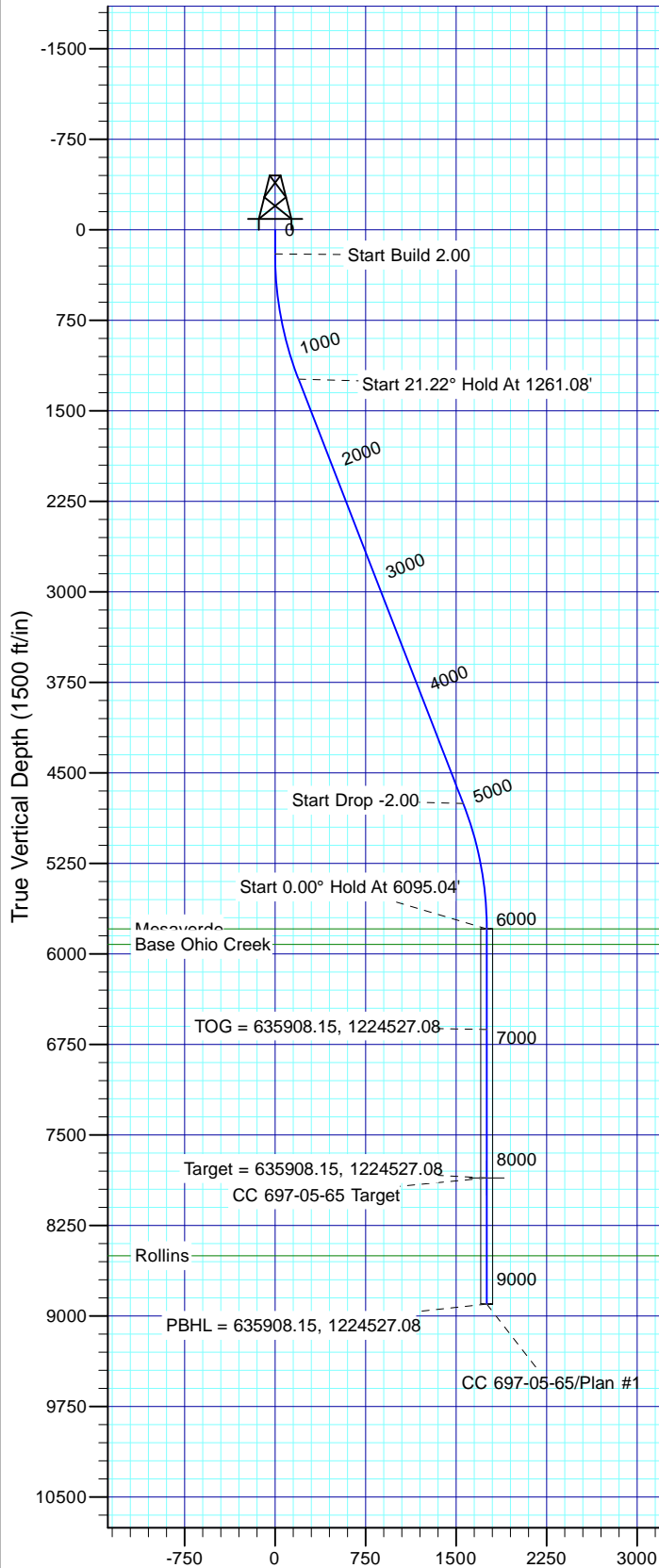
Well Details: CC 697-05-65

TVD Reference: GL 8401' & RKB 30' @ 8431.00ft (H&P Rig) Ground Level: 8401.00
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.00 0.00 634642.89 1225742.16 39° 32' 37.639 N 108° 14' 45.080 W D



Azimuths to True North
Magnetic North: 10.48°

Magnetic Field
Strength: 52229.6snT
Dip Angle: 65.73°
Date: 5/24/2011
Model: IGRF2010



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5791.00	6095.04	Mesaverde
5921.00	6225.04	Base Ohio Creek
8501.00	8805.04	Rollins

Plan: Plan #1

15:50, May 25 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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1261.08	21.22	314.43	1236.99	135.99	-136.74	2.00	314.43	194.27	
4	5033.96	21.22	314.43	4754.01	1091.98	-1114.03	0.00	0.001559.96		
5	6095.04	0.00	0.00	5791.00	1227.97	-1252.77	2.00	180.001754.23		
6	8160.04	0.00	0.00	7856.00	1227.97	-1252.77	0.00	0.001754.23		
7	9205.04	0.00	0.00	8901.00	1227.97	-1252.77	0.00	0.001754.23		

CC 697-05-65 Target

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-08A Pad
CC 697-05-65 - Slot D**

OH

Plan: Plan #1

Standard Planning Report

25 May, 2011





Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-05-65 - Slot D
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 697-05-65	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 697-05-65 - Slot D			
Well Position	+N/-S	-1,121.94 ft	Northing:	634,642.89 usft
	+E/-W	27.75 ft	Easting:	1,225,742.16 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Latitude: 39° 32' 37.639 N
				Longitude: 108° 14' 45.080 W
				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	52,230

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	314.43

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	
1,261.08	21.22	314.43	1,236.99	135.99	-138.74	2.00	2.00	0.00	314.43	
5,033.96	21.22	314.43	4,754.01	1,091.98	-1,114.03	0.00	0.00	0.00	0.00	
6,095.04	0.00	0.00	5,791.00	1,227.97	-1,252.77	2.00	-2.00	0.00	180.00	
8,160.04	0.00	0.00	7,856.00	1,227.97	-1,252.77	0.00	0.00	0.00	0.00	CC 697-05-65 Target
9,205.04	0.00	0.00	8,901.00	1,227.97	-1,252.77	0.00	0.00	0.00	0.00	



Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well CC 697-05-65 - Slot D
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 697-05-65	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	314.43	299.98	1.22	-1.25	1.75	2.00	2.00	0.00
400.00	4.00	314.43	399.84	4.88	-4.98	6.98	2.00	2.00	0.00
500.00	6.00	314.43	499.45	10.99	-11.21	15.69	2.00	2.00	0.00
600.00	8.00	314.43	598.70	19.52	-19.91	27.88	2.00	2.00	0.00
700.00	10.00	314.43	697.47	30.47	-31.08	43.52	2.00	2.00	0.00
800.00	12.00	314.43	795.62	43.82	-44.71	62.60	2.00	2.00	0.00
900.00	14.00	314.43	893.06	59.57	-60.77	85.10	2.00	2.00	0.00
1,000.00	16.00	314.43	989.64	77.68	-79.25	110.98	2.00	2.00	0.00
1,100.00	18.00	314.43	1,085.27	98.15	-100.13	140.21	2.00	2.00	0.00
1,200.00	20.00	314.43	1,179.82	120.94	-123.38	172.77	2.00	2.00	0.00
1,261.08	21.22	314.43	1,236.99	135.99	-138.74	194.27	2.00	2.00	0.00
Start 21.22° Hold At 1261.08'									
1,300.00	21.22	314.43	1,273.27	145.85	-148.80	208.36	0.00	0.00	0.00
1,400.00	21.22	314.43	1,366.48	171.19	-174.65	244.55	0.00	0.00	0.00
1,500.00	21.22	314.43	1,459.70	196.53	-200.50	280.75	0.00	0.00	0.00
1,600.00	21.22	314.43	1,552.92	221.87	-226.35	316.95	0.00	0.00	0.00
1,700.00	21.22	314.43	1,646.14	247.20	-252.20	353.15	0.00	0.00	0.00
1,800.00	21.22	314.43	1,739.36	272.54	-278.05	389.35	0.00	0.00	0.00
1,900.00	21.22	314.43	1,832.58	297.88	-303.90	425.54	0.00	0.00	0.00
2,000.00	21.22	314.43	1,925.80	323.22	-329.75	461.74	0.00	0.00	0.00
2,100.00	21.22	314.43	2,019.02	348.56	-355.60	497.94	0.00	0.00	0.00
2,200.00	21.22	314.43	2,112.23	373.90	-381.45	534.14	0.00	0.00	0.00
2,300.00	21.22	314.43	2,205.45	399.24	-407.30	570.33	0.00	0.00	0.00
2,400.00	21.22	314.43	2,298.67	424.57	-433.15	606.53	0.00	0.00	0.00
2,500.00	21.22	314.43	2,391.89	449.91	-459.00	642.73	0.00	0.00	0.00
2,600.00	21.22	314.43	2,485.11	475.25	-484.85	678.93	0.00	0.00	0.00
2,700.00	21.22	314.43	2,578.33	500.59	-510.70	715.12	0.00	0.00	0.00
2,800.00	21.22	314.43	2,671.55	525.93	-536.55	751.32	0.00	0.00	0.00
2,900.00	21.22	314.43	2,764.77	551.27	-562.40	787.52	0.00	0.00	0.00
3,000.00	21.22	314.43	2,857.98	576.60	-588.25	823.72	0.00	0.00	0.00
3,100.00	21.22	314.43	2,951.20	601.94	-614.10	859.92	0.00	0.00	0.00
3,200.00	21.22	314.43	3,044.42	627.28	-639.95	896.11	0.00	0.00	0.00
3,300.00	21.22	314.43	3,137.64	652.62	-665.80	932.31	0.00	0.00	0.00
3,400.00	21.22	314.43	3,230.86	677.96	-691.65	968.51	0.00	0.00	0.00
3,500.00	21.22	314.43	3,324.08	703.30	-717.50	1,004.71	0.00	0.00	0.00
3,600.00	21.22	314.43	3,417.30	728.64	-743.35	1,040.90	0.00	0.00	0.00
3,700.00	21.22	314.43	3,510.51	753.97	-769.20	1,077.10	0.00	0.00	0.00
3,800.00	21.22	314.43	3,603.73	779.31	-795.05	1,113.30	0.00	0.00	0.00
3,900.00	21.22	314.43	3,696.95	804.65	-820.90	1,149.50	0.00	0.00	0.00
4,000.00	21.22	314.43	3,790.17	829.99	-846.75	1,185.69	0.00	0.00	0.00
4,100.00	21.22	314.43	3,883.39	855.33	-872.60	1,221.89	0.00	0.00	0.00
4,200.00	21.22	314.43	3,976.61	880.67	-898.45	1,258.09	0.00	0.00	0.00
4,300.00	21.22	314.43	4,069.83	906.00	-924.30	1,294.29	0.00	0.00	0.00
4,400.00	21.22	314.43	4,163.05	931.34	-950.15	1,330.49	0.00	0.00	0.00
4,500.00	21.22	314.43	4,256.26	956.68	-976.00	1,366.68	0.00	0.00	0.00
4,600.00	21.22	314.43	4,349.48	982.02	-1,001.85	1,402.88	0.00	0.00	0.00
4,700.00	21.22	314.43	4,442.70	1,007.36	-1,027.70	1,439.08	0.00	0.00	0.00
4,800.00	21.22	314.43	4,535.92	1,032.70	-1,053.55	1,475.28	0.00	0.00	0.00
4,900.00	21.22	314.43	4,629.14	1,058.04	-1,079.40	1,511.47	0.00	0.00	0.00
5,000.00	21.22	314.43	4,722.36	1,083.37	-1,105.25	1,547.67	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 697-05-65	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)
5,033.96	21.22	314.43	4,754.01	1,091.98	-1,114.03	1,559.96	0.00	0.00	0.00
Start Drop -2.00									
5,100.00	19.90	314.43	4,815.85	1,108.21	-1,130.60	1,583.16	2.00	-2.00	0.00
5,200.00	17.90	314.43	4,910.45	1,130.89	-1,153.73	1,615.55	2.00	-2.00	0.00
5,300.00	15.90	314.43	5,006.13	1,151.24	-1,174.49	1,644.62	2.00	-2.00	0.00
5,400.00	13.90	314.43	5,102.76	1,169.24	-1,192.85	1,670.33	2.00	-2.00	0.00
5,500.00	11.90	314.43	5,200.23	1,184.86	-1,208.79	1,692.66	2.00	-2.00	0.00
5,600.00	9.90	314.43	5,298.42	1,198.10	-1,222.30	1,711.57	2.00	-2.00	0.00
5,700.00	7.90	314.43	5,397.21	1,208.93	-1,233.35	1,727.04	2.00	-2.00	0.00
5,800.00	5.90	314.43	5,496.48	1,217.34	-1,241.93	1,739.05	2.00	-2.00	0.00
5,900.00	3.90	314.43	5,596.11	1,223.32	-1,248.03	1,747.60	2.00	-2.00	0.00
6,000.00	1.90	314.43	5,695.98	1,226.86	-1,251.64	1,752.66	2.00	-2.00	0.00
6,095.04	0.00	0.00	5,791.00	1,227.97	-1,252.77	1,754.23	2.00	-2.00	0.00
Start 0.00° Hold At 6095.04' - Mesaverde									
6,100.00	0.00	0.00	5,795.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
6,200.00	0.00	0.00	5,895.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
6,225.04	0.00	0.00	5,921.00	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
Base Ohio Creek									
6,300.00	0.00	0.00	5,995.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
6,400.00	0.00	0.00	6,095.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
6,500.00	0.00	0.00	6,195.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
6,600.00	0.00	0.00	6,295.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
6,700.00	0.00	0.00	6,395.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
6,800.00	0.00	0.00	6,495.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
6,900.00	0.00	0.00	6,595.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
6,930.04	0.00	0.00	6,626.00	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
TOG = 635908.15, 1224527.08									
7,000.00	0.00	0.00	6,695.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
7,100.00	0.00	0.00	6,795.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
7,200.00	0.00	0.00	6,895.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
7,300.00	0.00	0.00	6,995.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
7,400.00	0.00	0.00	7,095.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
7,500.00	0.00	0.00	7,195.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
7,600.00	0.00	0.00	7,295.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
7,700.00	0.00	0.00	7,395.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
7,800.00	0.00	0.00	7,495.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
7,900.00	0.00	0.00	7,595.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,000.00	0.00	0.00	7,695.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,100.00	0.00	0.00	7,795.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,160.04	0.00	0.00	7,856.00	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
Target = 635908.15, 1224527.08									
8,200.00	0.00	0.00	7,895.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,300.00	0.00	0.00	7,995.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,400.00	0.00	0.00	8,095.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,500.00	0.00	0.00	8,195.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,600.00	0.00	0.00	8,295.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,700.00	0.00	0.00	8,395.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,800.00	0.00	0.00	8,495.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
8,805.04	0.00	0.00	8,501.00	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
Rollins									
8,900.00	0.00	0.00	8,595.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
9,000.00	0.00	0.00	8,695.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
9,100.00	0.00	0.00	8,795.96	1,227.97	-1,252.77	1,754.23	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 697-05-65	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	8,895.96	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
9,205.04	0.00	0.00	8,901.00	1,227.97	-1,252.77	1,754.23	0.00	0.00	0.00
PBHL = 635908.15, 1224527.08									

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 697-05-65 Target - plan hits target center - Circle (radius 50.00)	0.00	0.00	7,856.00	1,227.97	-1,252.77	635,908.16	1,224,527.08	39° 32' 49.776 N	108° 15' 1.073 W

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,095.04	5,791.00	Mesaverde		0.00	
6,225.04	5,921.00	Base Ohio Creek		0.00	
8,805.04	8,501.00	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
1,261.08	1,236.99	135.99	-138.74	Start 21.22° Hold At 1261.08'
5,033.96	4,754.01	1,091.98	-1,114.03	Start Drop -2.00
6,095.04	5,791.00	1,227.97	-1,252.77	Start 0.00° Hold At 6095.04'
6,930.04	6,626.00	1,227.97	-1,252.77	TOG = 635908.15, 1224527.08
8,160.04	7,856.00	1,227.97	-1,252.77	Target = 635908.15, 1224527.08
9,205.04	8,901.00	1,227.97	-1,252.77	PBHL = 635908.15, 1224527.08