



**Scientific Drilling**  
Rocky Mountain Operations

Company: OXY USA RMAT  
Project: Garfield County, CO NAD27  
Site: Shell 797-03A Pad



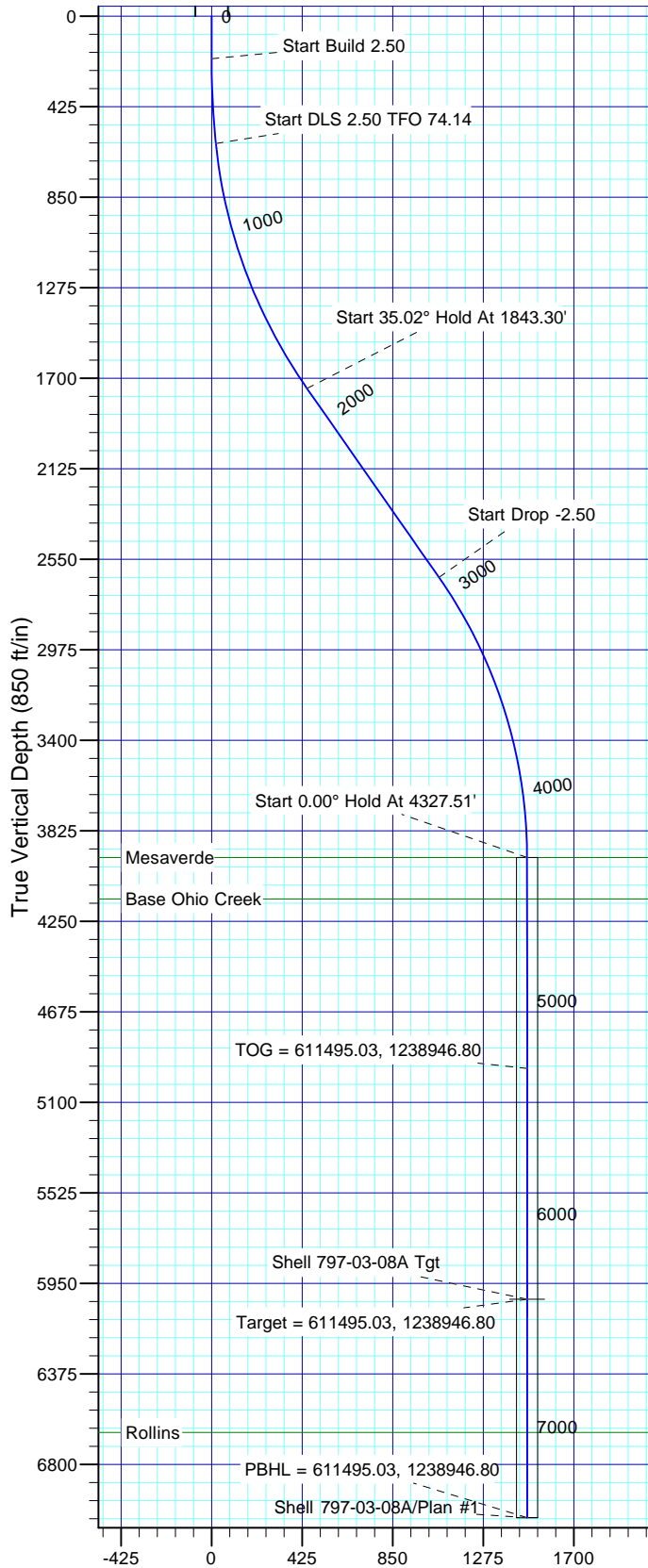
Well Details: Shell 797-03-08A

TVD Reference: GL 6485' & RKB 30' @ 6515.00ft (H&P) Ground Level: 6485.00  
+N/-S 0.00 +E/-W 0.00 Northing 610910.28 Easting 1237586.35 Latitude 39° 28' 46.687 N Longitude 108° 12' 4.946 W Slot J

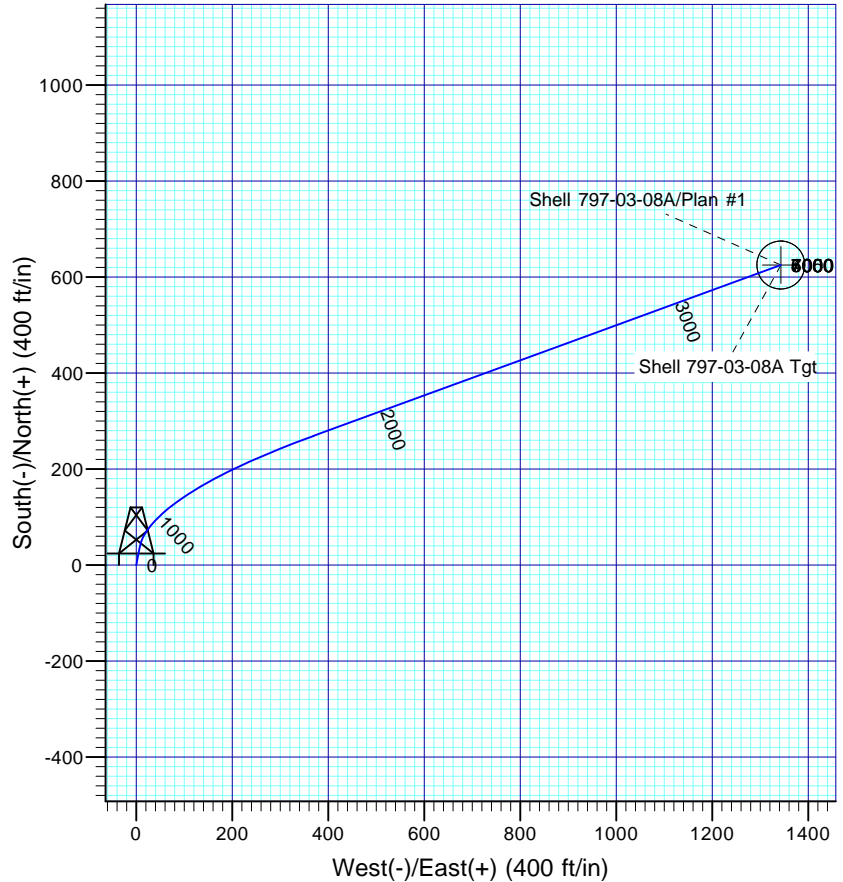


Azimuths to True North  
Magnetic North: 10.42°

Magnetic Field  
Strength: 52191.8snT  
Dip Angle: 65.68°  
Date: 08/19/2011  
Model: IGRF2010



Vertical Section at 65.04° (850 ft/in)



#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3950.00	4327.51	Mesaverde
4145.00	4522.51	Base Ohio Creek
6650.00	7027.51	Rollins

Plan: Plan #1

**13:06, September 09 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	600.00	10.00	10.00	597.97	34.29	6.05	2.50	10.00	19.95	
4	1843.12	35.02	69.91	1747.44	268.86	368.72	2.50	74.14	447.74	Shell 797-03-08A Tgt
5	1843.30	35.02	69.91	1747.59	268.90	368.82	2.00	0.00	447.84	
6	2926.56	35.02	69.91	2634.69	482.41	952.70	0.00	0.00	1067.29	
7	4327.51	0.00	0.00	3950.00	624.94	1342.47	2.50	180.00	480.81	Shell 797-03-08A Tgt
8	6401.26	0.00	0.00	6023.75	624.94	1342.47	0.00	0.00	480.81	
9	7427.51	0.00	0.00	7050.00	624.94	1342.47	0.00	0.00	480.81	

# **OXY USA RMAT**

**Garfield County, CO NAD27**

**Shell 797-03A Pad**

**Shell 797-03-08A - Slot J**

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**09 September, 2011**

# Scientific Drilling International

## Planning Report

<b>Database:</b>	Rockies Compass Server	<b>Local Co-ordinate Reference:</b>	Well Shell 797-03-08A - Slot J
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 6485' & RKB 30' @ 6515.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 6485' & RKB 30' @ 6515.00ft (H&P)
<b>Site:</b>	Shell 797-03A Pad	<b>North Reference:</b>	True
<b>Well:</b>	Shell 797-03-08A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

<b>Project</b>	Garfield County, CO NAD27		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Colorado Central 502		

Site		Shell 797-03A Pad			
Site Position:		Northing:	610,902.00 usft	Latitude:	39° 28' 46.610 N
From:	Lat/Long	Easting:	1,237,601.62 usft	Longitude:	108° 12' 4.748 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.70 °

Well	Shell 797-03-08A - Slot J					
Well Position	+N/-S	7.83 ft	Northing:	610,910.28 usft	Latitude:	39° 28' 46.687 N
	+E/-W	-15.52 ft	Easting:	1,237,586.35 usft	Longitude:	108° 12' 4.946 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	6,485.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	08/19/11	10.42	65.68	52,192

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	65.04

<b>Plan Sections</b>										
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	
600.00	10.00	10.00	597.97	34.29	6.05	2.50	2.50	0.00	10.00	
1,843.12	35.02	69.91	1,747.44	268.86	368.72	2.50	2.01	4.82	74.14	Shell 797-03-08A Tgt
1,843.30	35.02	69.91	1,747.59	268.90	368.82	2.00	2.00	0.00	0.00	
2,926.56	35.02	69.91	2,634.69	482.41	952.70	0.00	0.00	0.00	0.00	
4,327.51	0.00	0.00	3,950.00	624.94	1,342.47	2.50	-2.50	0.00	180.00	
6,401.26	0.00	0.00	6,023.75	624.94	1,342.47	0.00	0.00	0.00	0.00	Shell 797-03-08A Tgt
7,427.51	0.00	0.00	7,050.00	624.94	1,342.47	0.00	0.00	0.00	0.00	

# Scientific Drilling International

## Planning Report

<b>Database:</b>	Rockies Compass Server	<b>Local Co-ordinate Reference:</b>	Well Shell 797-03-08A - Slot J
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 6485' & RKB 30' @ 6515.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 6485' & RKB 30' @ 6515.00ft (H&P)
<b>Site:</b>	Shell 797-03A Pad	<b>North Reference:</b>	True
<b>Well:</b>	Shell 797-03-08A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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 2.50									
300.00	2.50	10.00	299.97	2.15	0.38	1.25	2.50	2.50	0.00
400.00	5.00	10.00	399.75	8.59	1.51	5.00	2.50	2.50	0.00
500.00	7.50	10.00	499.14	19.31	3.40	11.24	2.50	2.50	0.00
600.00	10.00	10.00	597.97	34.29	6.05	19.95	2.50	2.50	0.00
Start DLS 2.50 TFO 74.14									
700.00	10.95	22.76	696.32	51.60	11.23	31.96	2.50	0.95	12.76
800.00	12.33	33.11	794.27	69.30	20.74	48.05	2.50	1.38	10.35
900.00	14.03	41.20	891.64	87.37	34.56	68.20	2.50	1.69	8.09
1,000.00	15.93	47.49	988.25	105.76	52.66	92.37	2.50	1.90	6.29
1,100.00	17.98	52.43	1,083.90	124.44	75.01	120.52	2.50	2.05	4.94
1,200.00	20.12	56.36	1,178.42	143.39	101.56	152.58	2.50	2.15	3.94
1,300.00	22.34	59.56	1,271.63	162.55	132.27	188.51	2.50	2.22	3.19
1,400.00	24.61	62.19	1,363.36	181.89	167.07	228.23	2.50	2.27	2.64
1,500.00	26.91	64.41	1,453.41	201.38	205.91	271.66	2.50	2.31	2.22
1,600.00	29.25	66.30	1,541.64	220.98	248.70	318.73	2.50	2.34	1.89
1,700.00	31.61	67.93	1,627.85	240.65	295.37	369.34	2.50	2.36	1.63
1,800.00	33.99	69.35	1,711.90	260.36	345.82	423.39	2.50	2.38	1.42
1,843.12	35.02	69.91	1,747.44	268.86	368.72	447.74	2.50	2.39	1.30
1,843.30	35.02	69.91	1,747.59	268.90	368.82	447.84	2.00	2.00	0.00
Start 35.02° Hold At 1843.30'									
1,900.00	35.02	69.91	1,794.02	280.07	399.38	480.27	0.00	0.00	0.00
2,000.00	35.02	69.91	1,875.91	299.78	453.28	537.45	0.00	0.00	0.00
2,100.00	35.02	69.91	1,957.80	319.49	507.18	594.63	0.00	0.00	0.00
2,200.00	35.02	69.91	2,039.69	339.20	561.08	651.82	0.00	0.00	0.00
2,300.00	35.02	69.91	2,121.58	358.91	614.98	709.00	0.00	0.00	0.00
2,400.00	35.02	69.91	2,203.48	378.62	668.88	766.19	0.00	0.00	0.00
2,500.00	35.02	69.91	2,285.37	398.33	722.78	823.37	0.00	0.00	0.00
2,600.00	35.02	69.91	2,367.26	418.04	776.68	880.55	0.00	0.00	0.00
2,700.00	35.02	69.91	2,449.15	437.75	830.58	937.74	0.00	0.00	0.00
2,800.00	35.02	69.91	2,531.04	457.47	884.48	994.92	0.00	0.00	0.00
2,900.00	35.02	69.91	2,612.93	477.18	938.38	1,052.10	0.00	0.00	0.00
2,926.56	35.02	69.91	2,634.69	482.41	952.70	1,067.29	0.00	0.00	0.00
Start Drop -2.50									
3,000.00	33.19	69.91	2,695.49	496.55	991.37	1,108.32	2.50	-2.50	0.00
3,100.00	30.69	69.91	2,780.35	514.72	1,041.05	1,161.02	2.50	-2.50	0.00
3,200.00	28.19	69.91	2,867.43	531.60	1,087.21	1,209.99	2.50	-2.50	0.00
3,300.00	25.69	69.91	2,956.57	547.15	1,129.75	1,255.12	2.50	-2.50	0.00
3,400.00	23.19	69.91	3,047.61	561.36	1,168.60	1,296.34	2.50	-2.50	0.00
3,500.00	20.69	69.91	3,140.36	574.19	1,203.68	1,333.56	2.50	-2.50	0.00
3,600.00	18.19	69.91	3,234.65	585.62	1,234.94	1,366.72	2.50	-2.50	0.00
3,700.00	15.69	69.91	3,330.30	595.62	1,262.29	1,395.74	2.50	-2.50	0.00
3,800.00	13.19	69.91	3,427.14	604.18	1,285.71	1,420.58	2.50	-2.50	0.00
3,900.00	10.69	69.91	3,524.97	611.29	1,305.13	1,441.19	2.50	-2.50	0.00
4,000.00	8.19	69.91	3,623.61	616.92	1,320.53	1,457.53	2.50	-2.50	0.00
4,100.00	5.69	69.91	3,722.87	621.07	1,331.88	1,469.56	2.50	-2.50	0.00
4,200.00	3.19	69.91	3,822.56	623.72	1,339.14	1,477.27	2.50	-2.50	0.00
4,300.00	0.69	69.91	3,922.49	624.89	1,342.32	1,480.64	2.50	-2.50	0.00
4,327.51	0.00	0.00	3,950.00	624.94	1,342.47	1,480.81	2.50	-2.50	-254.17
Start 0.00° Hold At 4327.51' - Mesaverde									

# Scientific Drilling International

## Planning Report

<b>Database:</b>	Rockies Compass Server	<b>Local Co-ordinate Reference:</b>	Well Shell 797-03-08A - Slot J
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 6485' & RKB 30' @ 6515.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 6485' & RKB 30' @ 6515.00ft (H&P)
<b>Site:</b>	Shell 797-03A Pad	<b>North Reference:</b>	True
<b>Well:</b>	Shell 797-03-08A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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)
4,400.00	0.00	0.00	4,022.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
4,500.00	0.00	0.00	4,122.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
4,522.51	0.00	0.00	4,145.00	624.94	1,342.47	1,480.81	0.00	0.00	0.00
Base Ohio Creek									
4,600.00	0.00	0.00	4,222.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
4,700.00	0.00	0.00	4,322.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
4,800.00	0.00	0.00	4,422.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
4,900.00	0.00	0.00	4,522.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,000.00	0.00	0.00	4,622.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,100.00	0.00	0.00	4,722.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,200.00	0.00	0.00	4,822.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,300.00	0.00	0.00	4,922.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,317.51	0.00	0.00	4,940.00	624.94	1,342.47	1,480.81	0.00	0.00	0.00
TOG = 611495.03, 1238946.80									
5,400.00	0.00	0.00	5,022.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,500.00	0.00	0.00	5,122.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,600.00	0.00	0.00	5,222.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,700.00	0.00	0.00	5,322.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,800.00	0.00	0.00	5,422.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
5,900.00	0.00	0.00	5,522.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,000.00	0.00	0.00	5,622.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,100.00	0.00	0.00	5,722.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,200.00	0.00	0.00	5,822.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,300.00	0.00	0.00	5,922.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,400.00	0.00	0.00	6,022.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,401.26	0.00	0.00	6,023.75	624.94	1,342.47	1,480.81	0.00	0.00	0.00
Target = 611495.03, 1238946.80									
6,500.00	0.00	0.00	6,122.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,600.00	0.00	0.00	6,222.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,700.00	0.00	0.00	6,322.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,800.00	0.00	0.00	6,422.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
6,900.00	0.00	0.00	6,522.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
7,000.00	0.00	0.00	6,622.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
7,027.51	0.00	0.00	6,650.00	624.94	1,342.47	1,480.81	0.00	0.00	0.00
Rollins									
7,100.00	0.00	0.00	6,722.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
7,200.00	0.00	0.00	6,822.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
7,300.00	0.00	0.00	6,922.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
7,400.00	0.00	0.00	7,022.49	624.94	1,342.47	1,480.81	0.00	0.00	0.00
7,427.51	0.00	0.00	7,050.00	624.94	1,342.47	1,480.81	0.00	0.00	0.00
PBHL = 611495.03, 1238946.80									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Shell 797-03-08A Tgt	0.00	0.00	6,023.75	624.94	1,342.47	611,495.03	1,238,946.80	39° 28' 52.864 N	108° 11' 47.824 W
- hit/miss target									
- Shape									
- plan hits target center									
- Circle (radius 50.00)									

# Scientific Drilling International

## Planning Report

<b>Database:</b>	Rockies Compass Server	<b>Local Co-ordinate Reference:</b>	Well Shell 797-03-08A - Slot J
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GL 6485' & RKB 30' @ 6515.00ft (H&P)
<b>Project:</b>	Garfield County, CO NAD27	<b>MD Reference:</b>	GL 6485' & RKB 30' @ 6515.00ft (H&P)
<b>Site:</b>	Shell 797-03A Pad	<b>North Reference:</b>	True
<b>Well:</b>	Shell 797-03-08A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,327.51	3,950.00	Mesaverde		0.00	
4,522.51	4,145.00	Base Ohio Creek		0.00	
7,027.51	6,650.00	Rollins		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.00	200.00	0.00	0.00	Start Build 2.50	
600.00	597.97	34.29	6.05	Start DLS 2.50 TFO 74.14	
1,843.30	1,747.59	268.90	368.82	Start 35.02° Hold At 1843.30'	
2,926.56	2,634.69	482.41	952.70	Start Drop -2.50	
4,327.51	3,950.00	624.94	1,342.47	Start 0.00° Hold At 4327.51'	
5,317.51	4,940.00	624.94	1,342.47	TOG = 611495.03, 1238946.80	
6,401.26	6,023.75	624.94	1,342.47	Target = 611495.03, 1238946.80	
7,427.51	7,050.00	624.94	1,342.47	PBHL = 611495.03, 1238946.80	