



**Scientific Drilling**  
Rocky Mountain Operations

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



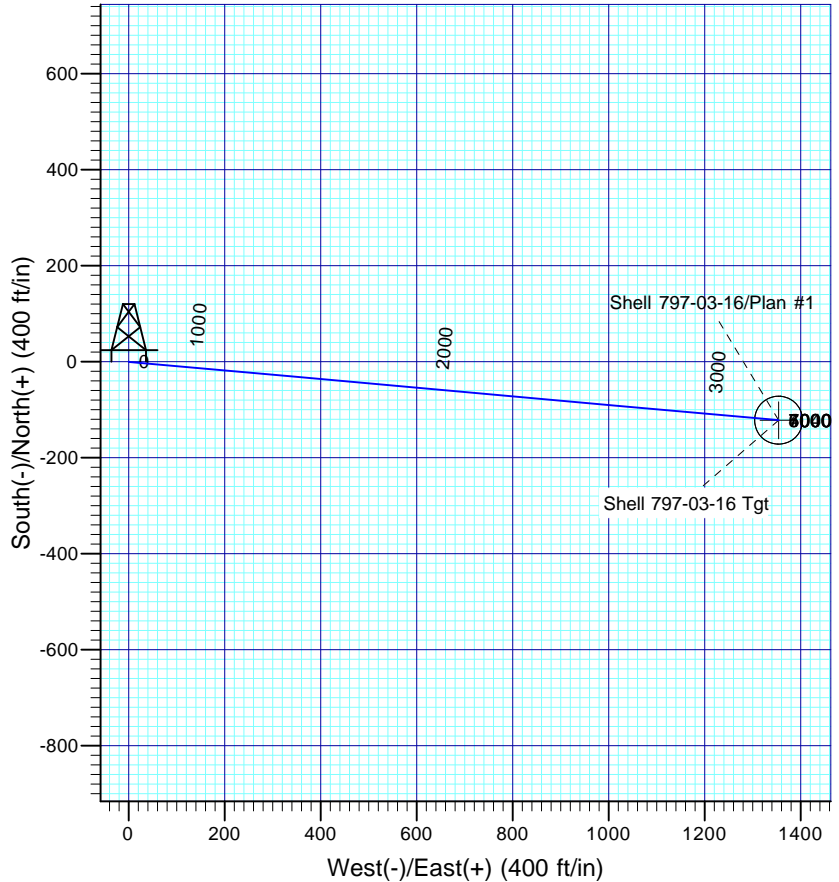
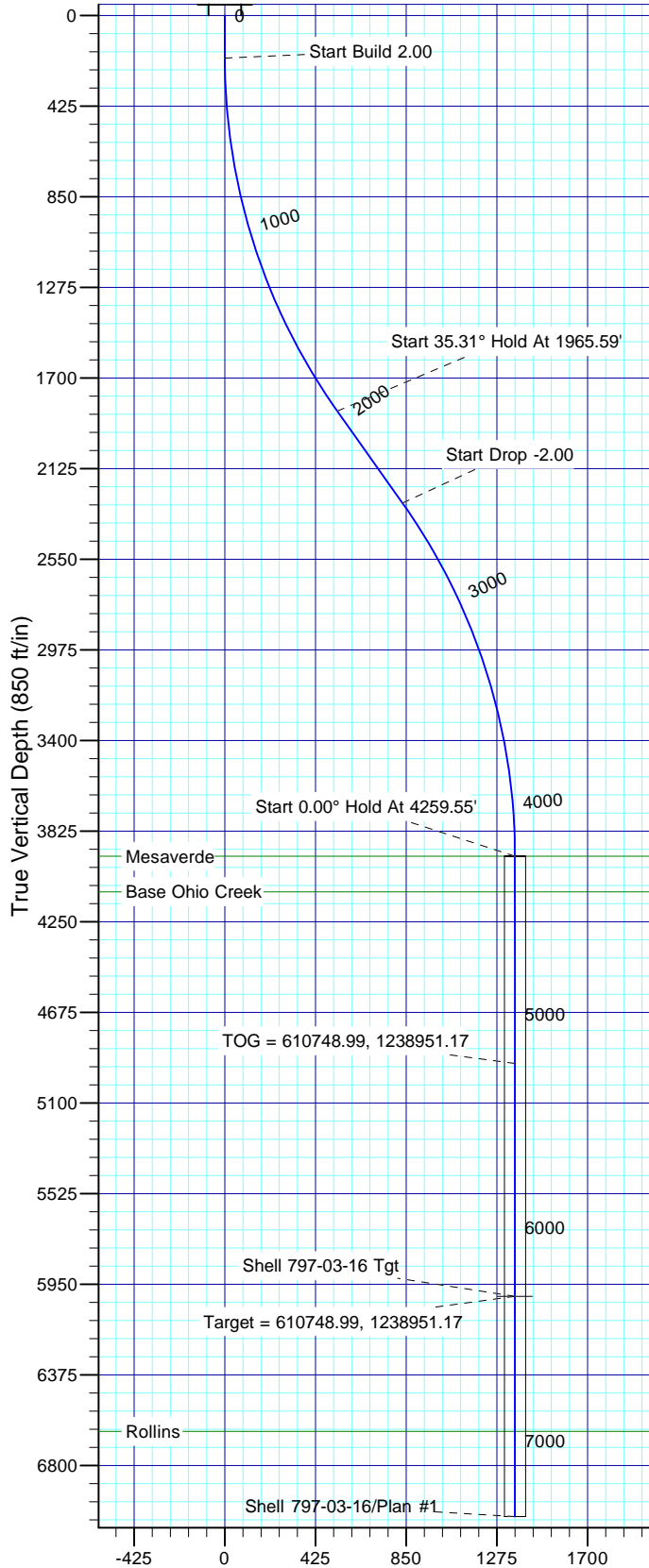
Well Details: Shell 797-03-16

TVD Reference: GL 6485' & RKB 30' @ 6515.00ft (H&P) Ground Level: 6485.00  
+N/-S 0.00 +E/-W 0.00 Northing 610910.87 Easting 1237601.30 Latitude 39° 28' 46.697 N Longitude 108° 12' 4.756 W Slot L



Azimuths to True North  
Magnetic North: 10.42°

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



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3943.00	4259.55	Mesaverde
4110.00	4426.55	Base Ohio Creek
6640.00	6956.55	Rollins

Plan: Plan #1

13:34, 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	1965.59	35.31	95.13	1855.93	-47.17	524.96	2.00	95.13	527.07	
4	2493.95	35.31	95.13	2287.07	-74.51	829.13	0.00	0.00	832.48	
5	4259.55	0.00	0.00	3943.00	-121.68	1354.09	2.00	180.00	1359.55	
6	6324.05	0.00	0.00	6007.50	-121.68	1354.09	0.00	0.00	1359.55	Shell 797-03-16 Tgt
7	7356.55	0.00	0.00	7040.00	-121.68	1354.09	0.00	0.00	1359.55	

# **OXY USA RMAT**

**Garfield County, CO NAD27**

**Shell 797-03A Pad**

**Shell 797-03-16 - Slot L**

**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 797-03-16 - Slot L
<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 797-03-16	<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 797-03-16 - Slot L					
Well Position	+N/-S	8.87 ft	Northing:	610,910.88 usft	Latitude:	39° 28' 46.697 N
	+E/-W	-0.59 ft	Easting:	1,237,601.30 usft	Longitude:	108° 12' 4.756 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	95.13

<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	
1,965.59	35.31	95.13	1,855.93	-47.17	524.96	2.00	2.00	0.00	95.13	
2,493.95	35.31	95.13	2,287.07	-74.51	829.13	0.00	0.00	0.00	0.00	
4,259.55	0.00	0.00	3,943.00	-121.68	1,354.09	2.00	-2.00	0.00	180.00	
6,324.05	0.00	0.00	6,007.50	-121.68	1,354.09	0.00	0.00	0.00	0.00	Shell 797-03-16 Tgt
7,356.55	0.00	0.00	7,040.00	-121.68	1,354.09	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 797-03-16 - Slot L
<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 797-03-16	<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 2.00									
300.00	2.00	95.13	299.98	-0.16	1.74	1.75	2.00	2.00	0.00
400.00	4.00	95.13	399.84	-0.62	6.95	6.98	2.00	2.00	0.00
500.00	6.00	95.13	499.45	-1.40	15.63	15.69	2.00	2.00	0.00
600.00	8.00	95.13	598.70	-2.50	27.77	27.88	2.00	2.00	0.00
700.00	10.00	95.13	697.47	-3.90	43.35	43.52	2.00	2.00	0.00
800.00	12.00	95.13	795.62	-5.60	62.35	62.60	2.00	2.00	0.00
900.00	14.00	95.13	893.06	-7.62	84.75	85.10	2.00	2.00	0.00
1,000.00	16.00	95.13	989.64	-9.93	110.53	110.98	2.00	2.00	0.00
1,100.00	18.00	95.13	1,085.27	-12.55	139.65	140.21	2.00	2.00	0.00
1,200.00	20.00	95.13	1,179.82	-15.46	172.07	172.77	2.00	2.00	0.00
1,300.00	22.00	95.13	1,273.17	-18.67	207.77	208.60	2.00	2.00	0.00
1,400.00	24.00	95.13	1,365.21	-22.17	246.68	247.67	2.00	2.00	0.00
1,500.00	26.00	95.13	1,455.84	-25.95	288.77	289.93	2.00	2.00	0.00
1,600.00	28.00	95.13	1,544.94	-30.01	333.98	335.33	2.00	2.00	0.00
1,700.00	30.00	95.13	1,632.39	-34.35	382.27	383.81	2.00	2.00	0.00
1,800.00	32.00	95.13	1,718.11	-38.96	433.56	435.31	2.00	2.00	0.00
1,900.00	34.00	95.13	1,801.97	-43.83	487.81	489.77	2.00	2.00	0.00
1,965.59	35.31	95.13	1,855.93	-47.17	524.96	527.07	2.00	2.00	0.00
Start 35.31° Hold At 1965.59'									
2,000.00	35.31	95.13	1,884.00	-48.95	544.76	546.96	0.00	0.00	0.00
2,100.00	35.31	95.13	1,965.60	-54.13	602.33	604.76	0.00	0.00	0.00
2,200.00	35.31	95.13	2,047.20	-59.30	659.90	662.56	0.00	0.00	0.00
2,300.00	35.31	95.13	2,128.81	-64.47	717.48	720.37	0.00	0.00	0.00
2,400.00	35.31	95.13	2,210.41	-69.65	775.05	778.17	0.00	0.00	0.00
2,493.95	35.31	95.13	2,287.07	-74.51	829.13	832.48	0.00	0.00	0.00
Start Drop -2.00									
2,500.00	35.19	95.13	2,292.01	-74.82	832.61	835.97	2.00	-2.00	0.00
2,600.00	33.19	95.13	2,374.73	-79.85	888.58	892.16	2.00	-2.00	0.00
2,700.00	31.19	95.13	2,459.35	-84.61	941.64	945.43	2.00	-2.00	0.00
2,800.00	29.19	95.13	2,545.78	-89.12	991.72	995.72	2.00	-2.00	0.00
2,900.00	27.19	95.13	2,633.91	-93.34	1,038.77	1,042.95	2.00	-2.00	0.00
3,000.00	25.19	95.13	2,723.64	-97.29	1,082.73	1,087.09	2.00	-2.00	0.00
3,100.00	23.19	95.13	2,814.86	-100.96	1,123.54	1,128.06	2.00	-2.00	0.00
3,200.00	21.19	95.13	2,907.44	-104.34	1,161.15	1,165.83	2.00	-2.00	0.00
3,300.00	19.19	95.13	3,001.29	-107.43	1,195.53	1,200.35	2.00	-2.00	0.00
3,400.00	17.19	95.13	3,096.29	-110.22	1,226.62	1,231.56	2.00	-2.00	0.00
3,500.00	15.19	95.13	3,192.32	-112.72	1,254.39	1,259.44	2.00	-2.00	0.00
3,600.00	13.19	95.13	3,289.26	-114.91	1,278.81	1,283.96	2.00	-2.00	0.00
3,700.00	11.19	95.13	3,387.00	-116.80	1,299.84	1,305.07	2.00	-2.00	0.00
3,800.00	9.19	95.13	3,485.42	-118.39	1,317.46	1,322.77	2.00	-2.00	0.00
3,900.00	7.19	95.13	3,584.40	-119.66	1,331.65	1,337.01	2.00	-2.00	0.00
4,000.00	5.19	95.13	3,683.81	-120.63	1,342.39	1,347.80	2.00	-2.00	0.00
4,100.00	3.19	95.13	3,783.54	-121.28	1,349.67	1,355.10	2.00	-2.00	0.00
4,200.00	1.19	95.13	3,883.46	-121.62	1,353.47	1,358.93	2.00	-2.00	0.00
4,259.55	0.00	0.00	3,943.00	-121.68	1,354.09	1,359.55	2.00	-2.00	0.00
Start 0.00° Hold At 4259.55' - Mesaverde									
4,300.00	0.00	0.00	3,983.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
4,400.00	0.00	0.00	4,083.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
4,426.55	0.00	0.00	4,110.00	-121.68	1,354.09	1,359.55	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 797-03-16 - Slot L
<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 797-03-16	<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)
<b>Base Ohio Creek</b>									
4,500.00	0.00	0.00	4,183.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
4,600.00	0.00	0.00	4,283.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
4,700.00	0.00	0.00	4,383.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
4,800.00	0.00	0.00	4,483.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
4,900.00	0.00	0.00	4,583.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,000.00	0.00	0.00	4,683.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,100.00	0.00	0.00	4,783.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,200.00	0.00	0.00	4,883.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,231.55	0.00	0.00	4,915.00	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
<b>TOG = 610748.99, 1238951.17</b>									
5,300.00	0.00	0.00	4,983.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,400.00	0.00	0.00	5,083.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,500.00	0.00	0.00	5,183.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,600.00	0.00	0.00	5,283.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,700.00	0.00	0.00	5,383.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,800.00	0.00	0.00	5,483.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
5,900.00	0.00	0.00	5,583.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,000.00	0.00	0.00	5,683.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,100.00	0.00	0.00	5,783.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,200.00	0.00	0.00	5,883.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,300.00	0.00	0.00	5,983.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,324.05	0.00	0.00	6,007.50	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
<b>Target = 610748.99, 1238951.17</b>									
6,400.00	0.00	0.00	6,083.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,500.00	0.00	0.00	6,183.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,600.00	0.00	0.00	6,283.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,700.00	0.00	0.00	6,383.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,800.00	0.00	0.00	6,483.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,900.00	0.00	0.00	6,583.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
6,956.55	0.00	0.00	6,640.00	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
<b>Rollins</b>									
7,000.00	0.00	0.00	6,683.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
7,100.00	0.00	0.00	6,783.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
7,200.00	0.00	0.00	6,883.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
7,300.00	0.00	0.00	6,983.45	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
7,356.55	0.00	0.00	7,040.00	-121.68	1,354.09	1,359.55	0.00	0.00	0.00
<b>PBHL = 610748.99, 1238951.17</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Shell 797-03-16 Tgt	0.00	0.00	6,007.50	-121.68	1,354.09	610,748.99	1,238,951.17	39° 28' 45.494 N	108° 11' 47.486 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 797-03-16 - Slot L
<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 797-03-16	<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 (°)
4,259.55	3,943.00	Mesaverde		0.00	
4,426.55	4,110.00	Base Ohio Creek		0.00	
6,956.55	6,640.00	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 2.00	
1,965.59	1,855.93	-47.17	524.96	Start 35.31° Hold At 1965.59'	
2,493.95	2,287.07	-74.51	829.13	Start Drop -2.00	
4,259.55	3,943.00	-121.68	1,354.09	Start 0.00° Hold At 4259.55'	
5,231.55	4,915.00	-121.68	1,354.09	TOG = 610748.99, 1238951.17	
6,324.05	6,007.50	-121.68	1,354.09	Target = 610748.99, 1238951.17	
7,356.55	7,040.00	-121.68	1,354.09	PBHL = 610748.99, 1238951.17	