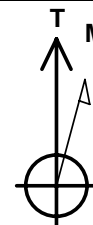




Project: GRAND VALLEY  
Site: SHELL 797-09A PAD  
Well: SHELL 797-09-29B  
Wellbore: ORIG HOLE  
Design: Plan #3

# OXY USA RMAT



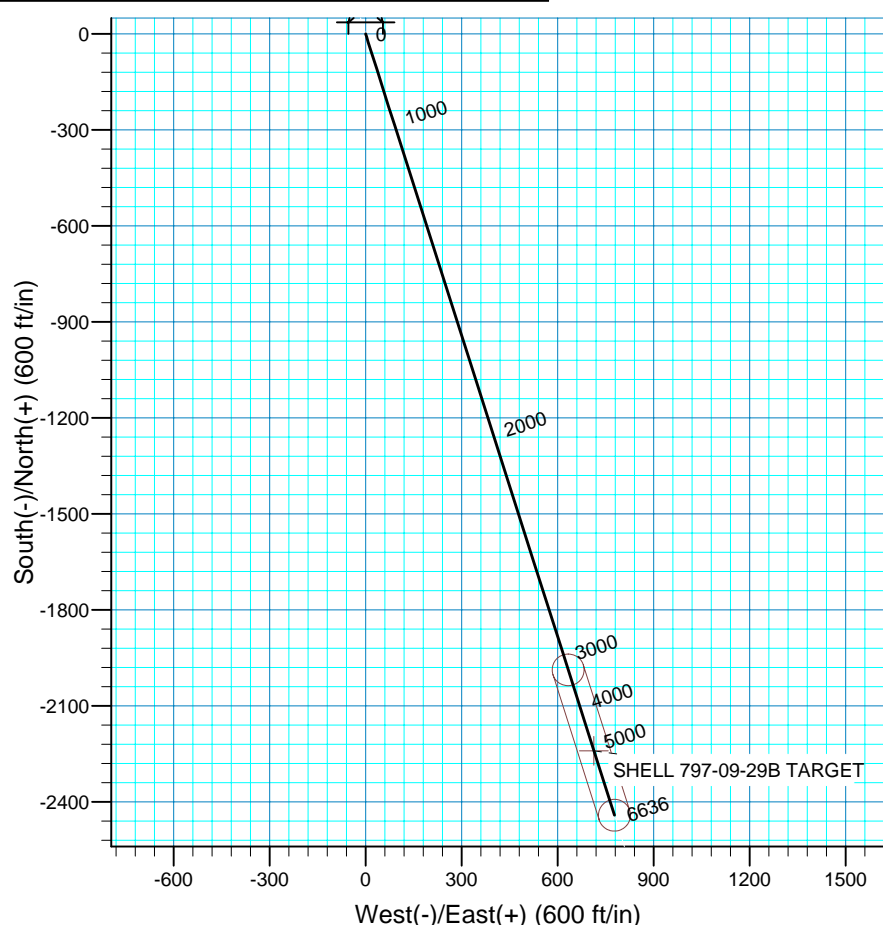
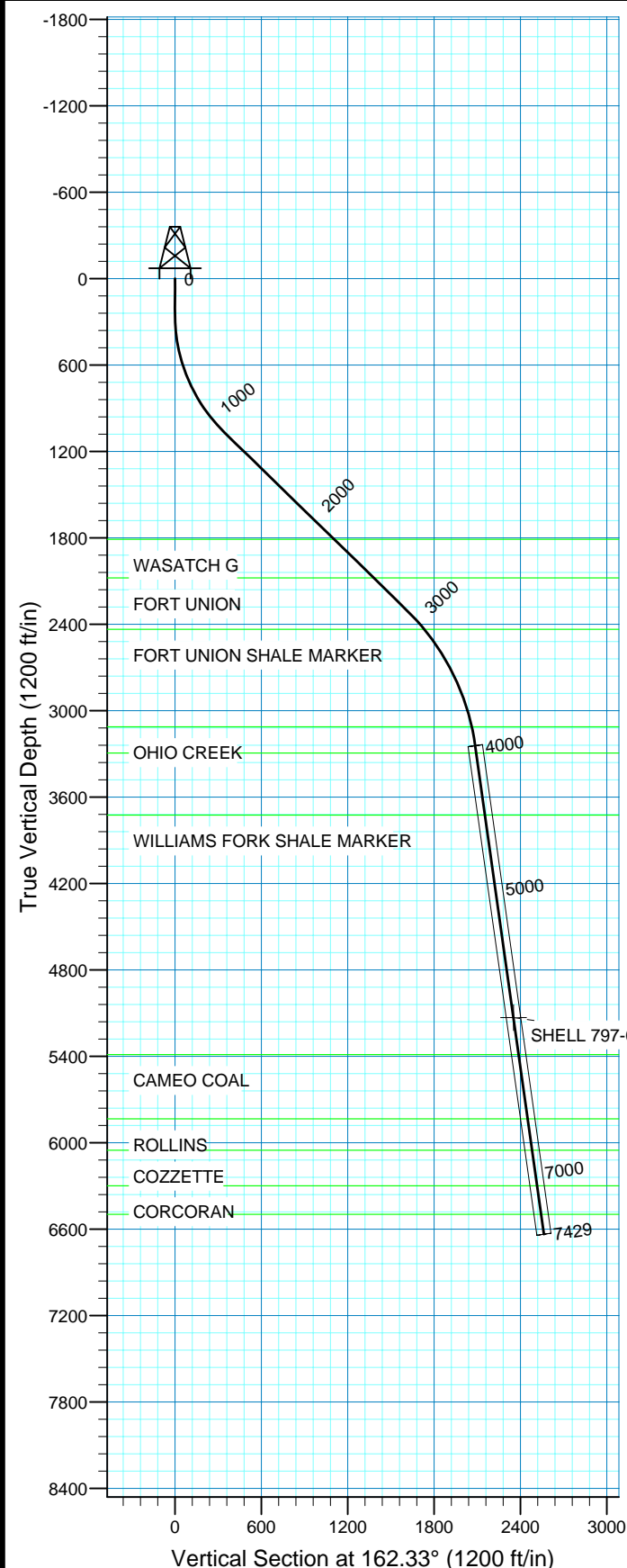
Azimuths to True North  
Magnetic North: 10.78°

Magnetic Field  
Strength: 52499.9nT  
Dip Angle: 65.75°  
Date: 9/29/2008  
Model: IGRF200510

WELL DETAILS: SHELL 797-09-29B

ORIGINAL KB @ 5933.0ft 5915.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 606382.91 1230750.59 27° 59.92' 108° 13' 30.388 W



## FORMATION TOP DETAILS

VDPath	MDPath	Formation
2435.0	3110.0	WASATCH G
3112.1	3870.0	FORT UNION
3294.4	4055.0	FORT UNION SHALE MARK
3725.2	4490.0	OHIO CREEK
5388.8	6170.0	WILLIAMS FORK SHALE MA
5834.4	6620.0	CAMEO COAL
6052.3	6840.0	ROLLINS
6299.9	7090.0	COZZETTE
6497.9	7290.0	CORCORAN

Plan: Plan #3 (SHELL 797-09-29B/ORIG HOLE)

Created By: Ron Bevans Date: 2008-06-10

## PROJECT DETAILS: GRAND VALLEY

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  
Local North: True

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.0	
3	1165.3	45.76	162.33	1071.1	-330.1	105.2	5.00	162.33	346.5	
4	2924.8	45.76	162.33	2298.6	-1531.2	487.8	0.00	0.00	1607.0	
5	4003.8	8.00	162.33	3243.7	-1987.7	633.2	3.50	180.00	2086.1	
6	7429.0	8.00	162.30	6635.6	-2441.8	778.0	0.00	-90.01	2562.8	

# **OXY USA RMAT**

**GRAND VALLEY**

**SHELL 797-09A PAD**

**SHELL 797-09-29B**

**ORIG HOLE**

**Plan: Plan #3**

## **Standard Planning Report**

**29 September, 2008**

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well SHELL 797-09-29B
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	ORIGINAL KB @ 5933.0ft
<b>Project:</b>	GRAND VALLEY	<b>MD Reference:</b>	ORIGINAL KB @ 5933.0ft
<b>Site:</b>	SHELL 797-09A PAD	<b>North Reference:</b>	True
<b>Well:</b>	SHELL 797-09-29B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Plan #3		

<b>Project</b>	GRAND VALLEY, NORTH AMERICA		
<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 797-09A PAD			
Site Position:		Northing:	606,371.93 <sub>surv</sub>	Latitude:	39.467
From:	Map	Easting:	1,230,763.82 <sub>surv</sub>	Longitude:	-108.225
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	-1.72 °

Well	SHELL 797-09-29B, 1303010000					
Well Position	+N/-S	0.0 ft	Northing:	606,381.70 surv	Latitude:	39.467
	+E/-W	0.0 ft	Easting:	1,230,748.05 surv	Longitude:	-108.225
Position Uncertainty		0.0 ft	Wellhead Elevation:	18.0 ft	Ground Level:	5,915.0 ft

<b>Wellbore</b>	ORIG HOLE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	9/29/2008	10.78	65.75	52,500

<b>Design</b>	Plan #3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	162.33

<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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,165.3	45.76	162.33	1,071.1	-330.1	105.2	5.00	5.00	0.00	162.33	
2,924.8	45.76	162.33	2,298.6	-1,531.2	487.8	0.00	0.00	0.00	0.00	
4,003.8	8.00	162.33	3,243.7	-1,987.7	633.2	3.50	-3.50	0.00	180.00	
7,429.0	8.00	162.30	6,635.6	-2,441.8	778.0	0.00	0.00	0.00	-90.01	

# OXY

## Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well SHELL 797-09-29B
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	ORIGINAL KB @ 5933.0ft
<b>Project:</b>	GRAND VALLEY	<b>MD Reference:</b>	ORIGINAL KB @ 5933.0ft
<b>Site:</b>	SHELL 797-09A PAD	<b>North Reference:</b>	True
<b>Well:</b>	SHELL 797-09-29B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Plan #3		

### 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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	2.50	162.33	300.0	-1.0	0.3	1.1	5.00	5.00	0.00
400.0	7.50	162.33	399.6	-9.3	3.0	9.8	5.00	5.00	0.00
500.0	12.50	162.33	498.0	-25.9	8.2	27.2	5.00	5.00	0.00
600.0	17.50	162.33	594.6	-50.5	16.1	53.0	5.00	5.00	0.00
700.0	22.50	162.33	688.5	-83.1	26.5	87.2	5.00	5.00	0.00
800.0	27.50	162.33	779.1	-123.4	39.3	129.5	5.00	5.00	0.00
900.0	32.50	162.33	865.7	-171.0	54.5	179.4	5.00	5.00	0.00
1,000.0	37.50	162.33	947.6	-225.6	71.9	236.8	5.00	5.00	0.00
1,100.0	42.50	162.33	1,024.2	-286.8	91.4	301.0	5.00	5.00	0.00
1,165.3	45.76	162.33	1,071.1	-330.1	105.2	346.5	5.00	5.00	0.00
1,200.0	45.76	162.33	1,095.3	-353.8	112.7	371.3	0.00	0.00	0.00
1,300.0	45.76	162.33	1,165.0	-422.1	134.5	443.0	0.00	0.00	0.00
1,400.0	45.76	162.33	1,234.8	-490.4	156.2	514.6	0.00	0.00	0.00
1,500.0	45.76	162.33	1,304.6	-558.6	178.0	586.3	0.00	0.00	0.00
1,600.0	45.76	162.33	1,374.3	-626.9	199.7	657.9	0.00	0.00	0.00
1,700.0	45.76	162.33	1,444.1	-695.1	221.4	729.6	0.00	0.00	0.00
1,800.0	45.76	162.33	1,513.9	-763.4	243.2	801.2	0.00	0.00	0.00
1,900.0	45.76	162.33	1,583.6	-831.7	264.9	872.8	0.00	0.00	0.00
2,000.0	45.76	162.33	1,653.4	-899.9	286.7	944.5	0.00	0.00	0.00
2,100.0	45.76	162.33	1,723.2	-968.2	308.4	1,016.1	0.00	0.00	0.00
2,200.0	45.76	162.33	1,792.9	-1,036.5	330.2	1,087.8	0.00	0.00	0.00
2,225.0	45.76	162.33	1,810.4	-1,053.5	335.6	1,105.7	0.00	0.00	0.00
<b>WASATCH G</b>									
2,300.0	45.76	162.33	1,862.7	-1,104.7	351.9	1,159.4	0.00	0.00	0.00
2,400.0	45.76	162.33	1,932.5	-1,173.0	373.7	1,231.1	0.00	0.00	0.00
2,500.0	45.76	162.33	2,002.2	-1,241.2	395.4	1,302.7	0.00	0.00	0.00
2,600.0	45.76	162.33	2,072.0	-1,309.5	417.2	1,374.3	0.00	0.00	0.00
2,610.0	45.76	162.33	2,079.0	-1,316.3	419.3	1,381.5	0.00	0.00	0.00
<b>FORT UNION</b>									
2,700.0	45.76	162.33	2,141.8	-1,377.8	438.9	1,446.0	0.00	0.00	0.00
2,800.0	45.76	162.33	2,211.5	-1,446.0	460.7	1,517.6	0.00	0.00	0.00
2,900.0	45.76	162.33	2,281.3	-1,514.3	482.4	1,589.3	0.00	0.00	0.00
2,924.8	45.76	162.33	2,298.6	-1,531.2	487.8	1,607.0	0.00	0.00	0.00
3,000.0	43.13	162.33	2,352.3	-1,581.4	503.8	1,659.7	3.50	-3.50	0.00
3,100.0	39.63	162.33	2,427.3	-1,644.4	523.8	1,725.8	3.50	-3.50	0.00
3,110.0	39.28	162.33	2,435.0	-1,650.4	525.8	1,732.1	3.50	-3.50	0.00
<b>FORT UNION SHALE MARKER</b>									
3,200.0	36.13	162.33	2,506.2	-1,702.9	542.5	1,787.2	3.50	-3.50	0.00
3,300.0	32.63	162.33	2,588.7	-1,756.6	559.6	1,843.6	3.50	-3.50	0.00
3,400.0	29.13	162.33	2,674.5	-1,805.5	575.2	1,894.9	3.50	-3.50	0.00
3,500.0	25.63	162.33	2,763.3	-1,849.4	589.1	1,940.9	3.50	-3.50	0.00
3,600.0	22.13	162.33	2,854.8	-1,887.9	601.4	1,981.4	3.50	-3.50	0.00
3,700.0	18.63	162.33	2,948.5	-1,921.1	612.0	2,016.2	3.50	-3.50	0.00
3,800.0	15.13	162.33	3,044.2	-1,948.8	620.8	2,045.3	3.50	-3.50	0.00
3,870.0	12.68	162.33	3,112.1	-1,964.8	625.9	2,062.1	3.50	-3.50	0.00
<b>OHIO CREEK</b>									
3,900.0	11.63	162.33	3,141.4	-1,970.8	627.8	2,068.4	3.50	-3.50	0.00
4,000.0	8.13	162.33	3,239.9	-1,987.2	633.0	2,085.6	3.50	-3.50	0.00
4,003.8	8.00	162.33	3,243.7	-1,987.7	633.2	2,086.1	3.50	-3.50	0.00

**OXY**  
Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well SHELL 797-09-29B
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	ORIGINAL KB @ 5933.0ft
<b>Project:</b>	GRAND VALLEY	<b>MD Reference:</b>	ORIGINAL KB @ 5933.0ft
<b>Site:</b>	SHELL 797-09A PAD	<b>North Reference:</b>	True
<b>Well:</b>	SHELL 797-09-29B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Plan #3		

**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)
4,055.0	8.00	162.33	3,294.4	-1,994.5	635.4	2,093.2	0.00	0.00	0.00
<b>WILLIAMS FORK</b>									
4,100.0	8.00	162.33	3,339.0	-2,000.4	637.3	2,099.5	0.00	0.00	0.00
4,200.0	8.00	162.33	3,438.0	-2,013.7	641.5	2,113.4	0.00	0.00	0.00
4,300.0	8.00	162.33	3,537.0	-2,027.0	645.7	2,127.3	0.00	0.00	0.00
4,400.0	8.00	162.33	3,636.0	-2,040.2	649.9	2,141.2	0.00	0.00	0.00
4,490.0	8.00	162.33	3,725.2	-2,052.1	653.7	2,153.8	0.00	0.00	0.00
<b>WILLIAMS FORK SHALE MARKER</b>									
4,500.0	8.00	162.33	3,735.1	-2,053.5	654.2	2,155.2	0.00	0.00	-0.01
4,600.0	8.00	162.32	3,834.1	-2,066.7	658.4	2,169.1	0.00	0.00	0.00
4,700.0	8.00	162.32	3,933.1	-2,080.0	662.6	2,183.0	0.00	0.00	0.00
4,800.0	8.00	162.32	4,032.1	-2,093.3	666.8	2,196.9	0.00	0.00	0.00
4,900.0	8.00	162.32	4,131.2	-2,106.5	671.1	2,210.8	0.00	0.00	0.00
5,000.0	8.00	162.32	4,230.2	-2,119.8	675.3	2,224.7	0.00	0.00	0.00
5,100.0	8.00	162.32	4,329.2	-2,133.0	679.5	2,238.7	0.00	0.00	0.00
5,200.0	8.00	162.32	4,428.2	-2,146.3	683.7	2,252.6	0.00	0.00	0.00
5,300.0	8.00	162.32	4,527.3	-2,159.6	688.0	2,266.5	0.00	0.00	0.00
5,400.0	8.00	162.32	4,626.3	-2,172.8	692.2	2,280.4	0.00	0.00	0.00
5,500.0	8.00	162.32	4,725.3	-2,186.1	696.4	2,294.3	0.00	0.00	0.00
5,600.0	8.00	162.32	4,824.4	-2,199.3	700.7	2,308.2	0.00	0.00	0.00
5,700.0	8.00	162.32	4,923.4	-2,212.6	704.9	2,322.2	0.00	0.00	0.00
5,800.0	8.00	162.31	5,022.4	-2,225.9	709.1	2,336.1	0.00	0.00	0.00
5,900.0	8.00	162.31	5,121.4	-2,239.1	713.3	2,350.0	0.00	0.00	0.00
6,000.0	8.00	162.31	5,220.5	-2,252.4	717.6	2,363.9	0.00	0.00	0.00
6,100.0	8.00	162.31	5,319.5	-2,265.6	721.8	2,377.8	0.00	0.00	0.00
6,170.0	8.00	162.31	5,388.8	-2,274.9	724.8	2,387.6	0.00	0.00	0.00
<b>CAMEO COAL</b>									
6,200.0	8.00	162.31	5,418.5	-2,278.9	726.0	2,391.7	0.00	0.00	0.00
6,300.0	8.00	162.31	5,517.5	-2,292.2	730.3	2,405.7	0.00	0.00	0.00
6,400.0	8.00	162.31	5,616.6	-2,305.4	734.5	2,419.6	0.00	0.00	0.00
6,500.0	8.00	162.31	5,715.6	-2,318.7	738.7	2,433.5	0.00	0.00	0.00
6,600.0	8.00	162.31	5,814.6	-2,331.9	742.9	2,447.4	0.00	0.00	0.00
6,620.0	8.00	162.31	5,834.4	-2,334.6	743.8	2,450.2	0.00	0.00	0.00
<b>ROLLINS</b>									
6,700.0	8.00	162.31	5,913.7	-2,345.2	747.2	2,461.3	0.00	0.00	0.00
6,800.0	8.00	162.31	6,012.7	-2,358.4	751.4	2,475.3	0.00	0.00	0.00
6,840.0	8.00	162.31	6,052.3	-2,363.7	753.1	2,480.8	0.00	0.00	0.00
<b>COZZETTE</b>									
6,900.0	8.00	162.30	6,111.7	-2,371.7	755.6	2,489.2	0.00	0.00	0.00
7,000.0	8.00	162.30	6,210.7	-2,385.0	759.9	2,503.1	0.00	0.00	0.00
7,090.0	8.00	162.30	6,299.9	-2,396.9	763.7	2,515.6	0.00	0.00	0.00
<b>CORCORAN</b>									
7,100.0	8.00	162.30	6,309.8	-2,398.2	764.1	2,517.0	0.00	0.00	-0.01
7,200.0	8.00	162.30	6,408.8	-2,411.5	768.3	2,530.9	0.00	0.00	0.00
7,290.0	8.00	162.30	6,497.9	-2,423.4	772.1	2,543.4	0.00	0.00	0.00
<b>MANCOS</b>									
7,300.0	8.00	162.30	6,507.8	-2,424.7	772.6	2,544.8	0.00	0.00	-0.01
7,400.0	8.00	162.30	6,606.8	-2,438.0	776.8	2,558.8	0.00	0.00	0.00
7,429.0	8.00	162.30	6,635.6	-2,441.8	778.0	2,562.8	0.00	0.00	0.00

**OXY**  
Planning Report

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well SHELL 797-09-29B
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	ORIGINAL KB @ 5933.0ft
<b>Project:</b>	GRAND VALLEY	<b>MD Reference:</b>	ORIGINAL KB @ 5933.0ft
<b>Site:</b>	SHELL 797-09A PAD	<b>North Reference:</b>	True
<b>Well:</b>	SHELL 797-09-29B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIG HOLE		
<b>Design:</b>	Plan #3		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(surv ft)	(surv ft)		
- Shape									
SHELL 797-09-29B TAR	352.00	162.33	5,132.0	-2,240.7	713.7	604,120.60	1,231,394.21	39.460	-108.223
- plan hits target									
- Circle (radius 50.0)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
2,225.0	1,810.4	WASATCH G		0.00		
2,610.0	2,079.0	FORT UNION		0.00		
3,110.0	2,435.0	FORT UNION SHALE MARKER		0.00		
3,870.0	3,112.1	OHIO CREEK		0.00		
4,055.0	3,294.4	WILLIAMS FORK		0.00		
4,490.0	3,725.2	WILLIAMS FORK SHALE MARKER		0.00		
6,170.0	5,388.8	CAMEO COAL		0.00		
6,620.0	5,834.4	ROLLINS		0.00		
6,840.0	6,052.3	COZZETTE		0.00		
7,090.0	6,299.9	CORCORAN		0.00		
7,290.0	6,497.9	MANCOS		0.00		