



Scientific Drilling

Rocky Mountain Operations

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



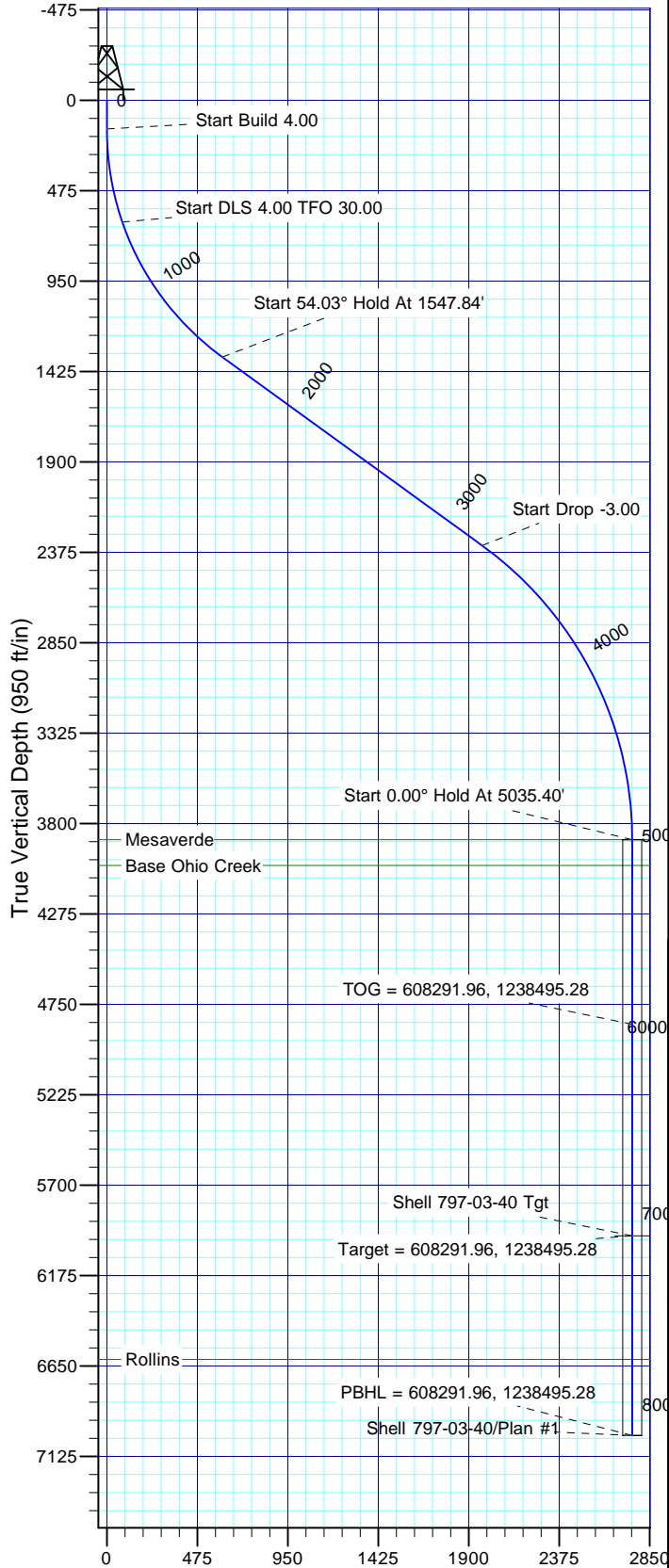
Well Details: Shell 797-03-40

TVD Reference: GL 6485' & RKB 30' @ 6515.00ft (H&P) Ground Level: 6485.00
+N/-S 0.00 +E/-W 0.00 Northing 610901.98 Easting 1237601.63 Latitude 39° 28' 46.610 N Longitude 108° 12' 4.748 W Slot A

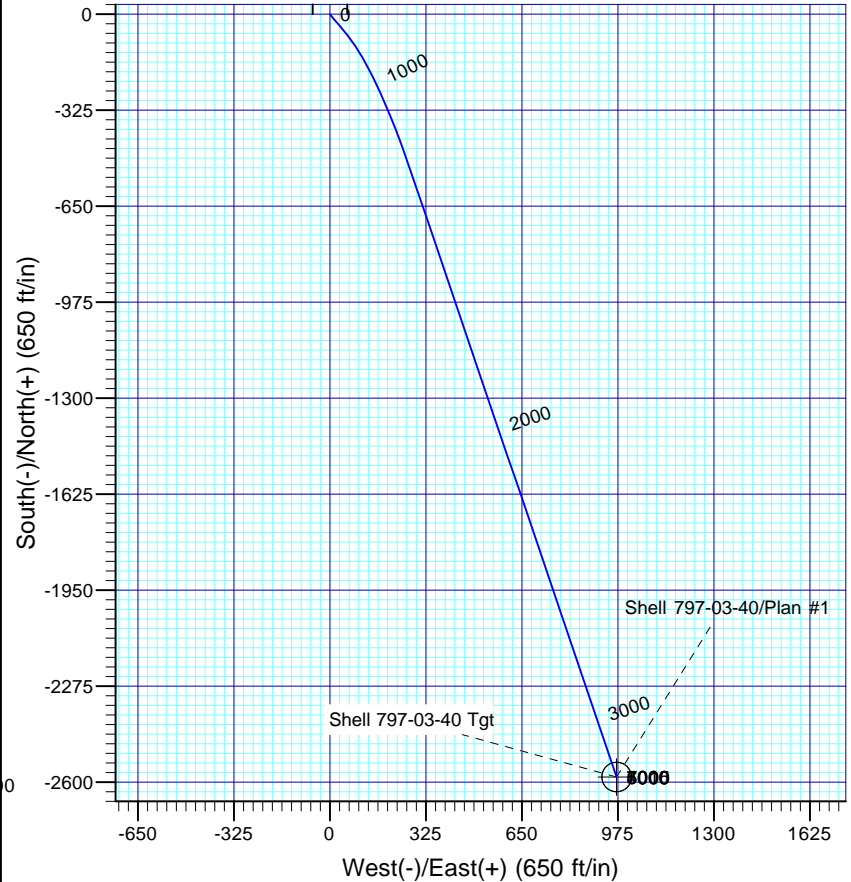


Azimuths to True North
Magnetic North: 10.42°

Magnetic Field
Strength: 52192.1snT
Dip Angle: 65.68°
Date: 08/18/2011
Model: IGRF2010



Vertical Section at 159.40° (950 ft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3885.00	5035.40	Mesaverde
4020.00	5170.40	Base Ohio Creek
6615.00	7765.40	Rollins

Plan: Plan #1

14:07, 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	150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	
3	650.00	20.00	140.00	639.91	-66.17	55.53	4.00	140.00	81.48	
4	1547.65	54.03	161.24	1348.66	-543.42	278.35	4.00	30.00	606.61	Shell 797-03-40 Tgt
5	1547.84	54.03	161.24	1348.78	-543.57	278.41	4.00	0.00	606.77	
6	3234.28	54.03	161.24	2339.23	-1835.99	717.37	0.00	0.00	1971.00	
7	5035.40	0.00	0.00	3885.00	-2582.31	970.86	3.00	180.00	2758.78	
8	7116.65	0.00	0.00	5966.25	-2582.31	970.86	0.00	0.00	2758.78	Shell 797-03-40 Tgt
9	8165.40	0.00	0.00	7015.00	-2582.31	970.86	0.00	0.00	2758.78	

OXY USA RMAT

Garfield County, CO NAD27

Shell 797-03A Pad

Shell 797-03-40 - Slot A

OH

Plan: Plan #1

Standard Planning Report

09 September, 2011

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 797-03-40 - Slot A
Company:	OXY USA RMAT	TVD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Site:	Shell 797-03A Pad	North Reference:	True
Well:	Shell 797-03-40	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		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 797-03-40 - Slot A				
Well Position	+N/-S	-0.01 ft	Northing:	610,901.99 usft	Latitude:	39° 28' 46.610 N
	+E/-W	0.00 ft	Easting:	1,237,601.62 usft	Longitude:	108° 12' 4.748 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	6,485.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	08/18/11	10.42	65.68	52,192

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	159.40

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	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
650.00	20.00	140.00	639.91	-66.17	55.53	4.00	4.00	0.00	140.00	
1,547.65	54.03	161.24	1,348.66	-543.42	278.35	4.00	3.79	2.37	30.00	Shell 797-03-40 Tgt
1,547.84	54.03	161.24	1,348.78	-543.57	278.41	4.00	4.00	0.00	0.00	
3,234.28	54.03	161.24	2,339.23	-1,835.99	717.37	0.00	0.00	0.00	0.00	
5,035.41	0.00	0.00	3,885.00	-2,582.31	970.86	3.00	-3.00	0.00	180.00	
7,116.66	0.00	0.00	5,966.25	-2,582.31	970.86	0.00	0.00	0.00	0.00	Shell 797-03-40 Tgt
8,165.41	0.00	0.00	7,015.00	-2,582.31	970.86	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 797-03-40 - Slot A
Company:	OXY USA RMAT	TVD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Site:	Shell 797-03A Pad	North Reference:	True
Well:	Shell 797-03-40	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
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 4.00									
200.00	2.00	140.00	199.99	-0.67	0.56	0.82	4.00	4.00	0.00
300.00	6.00	140.00	299.73	-6.01	5.04	7.40	4.00	4.00	0.00
400.00	10.00	140.00	398.73	-16.67	13.99	20.53	4.00	4.00	0.00
500.00	14.00	140.00	496.53	-32.59	27.35	40.13	4.00	4.00	0.00
600.00	18.00	140.00	592.63	-53.70	45.06	66.13	4.00	4.00	0.00
650.00	20.00	140.00	639.91	-66.17	55.53	81.48	4.00	4.00	0.00
Start DLS 4.00 TFO 30.00									
700.00	21.75	142.70	686.62	-80.10	66.64	98.42	4.00	3.51	5.40
800.00	25.37	147.01	778.28	-112.82	89.54	137.11	4.00	3.61	4.31
900.00	29.08	150.29	867.19	-151.90	113.26	182.04	4.00	3.71	3.28
1,000.00	32.85	152.88	952.93	-197.16	137.67	233.00	4.00	3.77	2.59
1,100.00	36.66	154.99	1,035.08	-248.38	162.66	289.74	4.00	3.82	2.11
1,200.00	40.51	156.76	1,113.24	-305.30	188.11	351.97	4.00	3.85	1.76
1,300.00	44.38	158.26	1,187.02	-367.65	213.89	419.41	4.00	3.87	1.50
1,400.00	48.26	159.57	1,256.07	-435.13	239.88	491.71	4.00	3.89	1.31
1,500.00	52.16	160.73	1,320.05	-507.40	265.94	568.53	4.00	3.90	1.16
1,547.65	54.03	161.24	1,348.66	-543.42	278.35	606.61	4.00	3.91	1.07
1,547.84	54.03	161.24	1,348.78	-543.57	278.41	606.77	0.00	0.00	0.00
Start 54.03° Hold At 1547.84'									
1,600.00	54.03	161.24	1,379.41	-583.54	291.98	648.96	0.02	0.02	0.00
1,700.00	54.03	161.24	1,438.14	-660.18	318.01	729.86	0.00	0.00	0.00
1,800.00	54.03	161.24	1,496.87	-736.81	344.04	810.75	0.00	0.00	0.00
1,900.00	54.03	161.24	1,555.60	-813.45	370.07	891.65	0.00	0.00	0.00
2,000.00	54.03	161.24	1,614.33	-890.09	396.10	972.54	0.00	0.00	0.00
2,100.00	54.03	161.24	1,673.06	-966.72	422.13	1,053.44	0.00	0.00	0.00
2,200.00	54.03	161.24	1,731.79	-1,043.36	448.16	1,134.33	0.00	0.00	0.00
2,300.00	54.03	161.24	1,790.52	-1,120.00	474.19	1,215.23	0.00	0.00	0.00
2,400.00	54.03	161.24	1,849.25	-1,196.63	500.22	1,296.12	0.00	0.00	0.00
2,500.00	54.03	161.24	1,907.98	-1,273.27	526.25	1,377.01	0.00	0.00	0.00
2,600.00	54.03	161.24	1,966.71	-1,349.91	552.27	1,457.91	0.00	0.00	0.00
2,700.00	54.03	161.24	2,025.44	-1,426.54	578.30	1,538.80	0.00	0.00	0.00
2,800.00	54.03	161.24	2,084.17	-1,503.18	604.33	1,619.70	0.00	0.00	0.00
2,900.00	54.03	161.24	2,142.91	-1,579.82	630.36	1,700.59	0.00	0.00	0.00
3,000.00	54.03	161.24	2,201.64	-1,656.45	656.39	1,781.49	0.00	0.00	0.00
3,100.00	54.03	161.24	2,260.37	-1,733.09	682.42	1,862.38	0.00	0.00	0.00
3,200.00	54.03	161.24	2,319.10	-1,809.73	708.45	1,943.28	0.00	0.00	0.00
3,234.28	54.03	161.24	2,339.23	-1,835.99	717.37	1,971.00	0.00	0.00	0.00
Start Drop -3.00									
3,300.00	52.06	161.24	2,378.74	-1,885.72	734.26	2,023.50	3.00	-3.00	0.00
3,400.00	49.06	161.24	2,442.25	-1,958.84	759.10	2,100.68	3.00	-3.00	0.00
3,500.00	46.06	161.24	2,509.72	-2,028.72	782.83	2,174.43	3.00	-3.00	0.00
3,600.00	43.06	161.24	2,580.96	-2,095.15	805.39	2,244.56	3.00	-3.00	0.00
3,700.00	40.06	161.24	2,655.78	-2,157.96	826.73	2,310.86	3.00	-3.00	0.00
3,800.00	37.06	161.24	2,733.96	-2,216.98	846.77	2,373.16	3.00	-3.00	0.00
3,900.00	34.06	161.24	2,815.30	-2,272.04	865.47	2,431.28	3.00	-3.00	0.00
4,000.00	31.06	161.24	2,899.57	-2,323.00	882.78	2,485.06	3.00	-3.00	0.00
4,100.00	28.06	161.24	2,986.55	-2,369.71	898.65	2,534.37	3.00	-3.00	0.00
4,200.00	25.06	161.24	3,075.98	-2,412.04	913.03	2,579.06	3.00	-3.00	0.00
4,300.00	22.06	161.24	3,167.63	-2,449.89	925.88	2,619.01	3.00	-3.00	0.00
4,400.00	19.06	161.24	3,261.25	-2,483.14	937.17	2,654.11	3.00	-3.00	0.00

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 797-03-40 - Slot A
Company:	OXY USA RMAT	TVD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Site:	Shell 797-03A Pad	North Reference:	True
Well:	Shell 797-03-40	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)
4,500.00	16.06	161.24	3,356.58	-2,511.71	946.88	2,684.26	3.00	-3.00	0.00
4,600.00	13.06	161.24	3,453.36	-2,535.52	954.96	2,709.39	3.00	-3.00	0.00
4,700.00	10.06	161.24	3,551.32	-2,554.49	961.41	2,729.42	3.00	-3.00	0.00
4,800.00	7.06	161.24	3,650.19	-2,568.59	966.20	2,744.30	3.00	-3.00	0.00
4,900.00	4.06	161.24	3,749.71	-2,577.76	969.31	2,753.99	3.00	-3.00	0.00
5,000.00	1.06	161.24	3,849.60	-2,582.00	970.75	2,758.45	3.00	-3.00	0.00
5,035.41	0.00	0.00	3,885.00	-2,582.31	970.86	2,758.78	3.00	-3.00	0.00
Start 0.00° Hold At 5035.40' - Mesaverde									
5,100.00	0.00	0.00	3,949.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
5,170.41	0.00	0.00	4,020.00	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
Base Ohio Creek									
5,200.00	0.00	0.00	4,049.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
5,300.00	0.00	0.00	4,149.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
5,400.00	0.00	0.00	4,249.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
5,500.00	0.00	0.00	4,349.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
5,600.00	0.00	0.00	4,449.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
5,700.00	0.00	0.00	4,549.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
5,800.00	0.00	0.00	4,649.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
5,900.00	0.00	0.00	4,749.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,000.00	0.00	0.00	4,849.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,005.41	0.00	0.00	4,855.00	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
TOG = 608291.96, 1238495.28									
6,100.00	0.00	0.00	4,949.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,200.00	0.00	0.00	5,049.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,300.00	0.00	0.00	5,149.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,400.00	0.00	0.00	5,249.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,500.00	0.00	0.00	5,349.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,600.00	0.00	0.00	5,449.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,700.00	0.00	0.00	5,549.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,800.00	0.00	0.00	5,649.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
6,900.00	0.00	0.00	5,749.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,000.00	0.00	0.00	5,849.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,100.00	0.00	0.00	5,949.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,116.66	0.00	0.00	5,966.25	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
Target = 608291.96, 1238495.28									
7,200.00	0.00	0.00	6,049.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,300.00	0.00	0.00	6,149.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,400.00	0.00	0.00	6,249.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,500.00	0.00	0.00	6,349.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,600.00	0.00	0.00	6,449.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,700.00	0.00	0.00	6,549.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,765.41	0.00	0.00	6,615.00	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
Rollins									
7,800.00	0.00	0.00	6,649.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
7,900.00	0.00	0.00	6,749.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
8,000.00	0.00	0.00	6,849.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
8,100.00	0.00	0.00	6,949.60	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
8,165.41	0.00	0.00	7,015.00	-2,582.31	970.86	2,758.78	0.00	0.00	0.00
PBHL = 608291.96, 1238495.28									

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Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 797-03-40 - Slot A
Company:	OXY USA RMAT	TVD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Site:	Shell 797-03A Pad	North Reference:	True
Well:	Shell 797-03-40	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
Shell 797-03-40 Tgt	0.00	0.00	5,966.25	-2,582.31	970.86	608,291.96	1,238,495.27	39° 28' 21.086 N	108° 11' 52.368 W
- plan hits target center									
- Circle (radius 50.00)									

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
5,035.41	3,885.00	Mesaverde		0.00	
5,170.41	4,020.00	Base Ohio Creek		0.00	
7,765.41	6,615.00	Rollins		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
150.00	150.00	0.00	0.00	Start Build 4.00
650.00	639.91	-66.17	55.53	Start DLS 4.00 TFO 30.00
1,547.84	1,348.78	-543.57	278.41	Start 54.03° Hold At 1547.84'
3,234.28	2,339.23	-1,835.99	717.37	Start Drop -3.00
5,035.41	3,885.00	-2,582.31	970.86	Start 0.00° Hold At 5035.40'
6,005.41	4,855.00	-2,582.31	970.86	TOG = 608291.96, 1238495.28
7,116.66	5,966.25	-2,582.31	970.86	Target = 608291.96, 1238495.28
8,165.41	7,015.00	-2,582.31	970.86	PBHL = 608291.96, 1238495.28