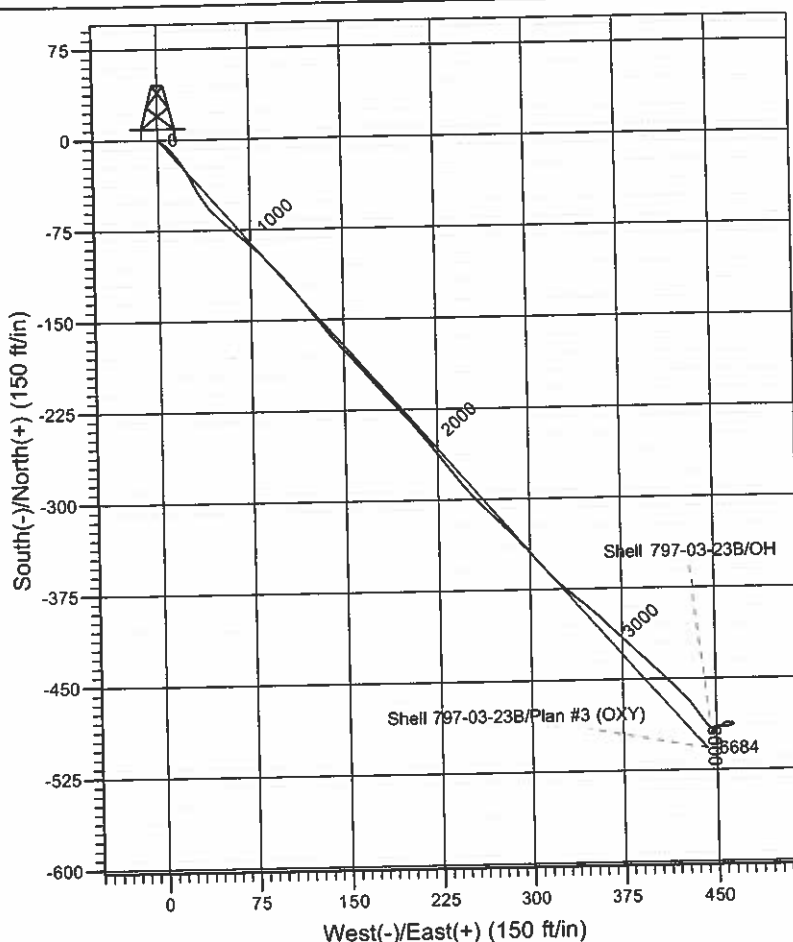
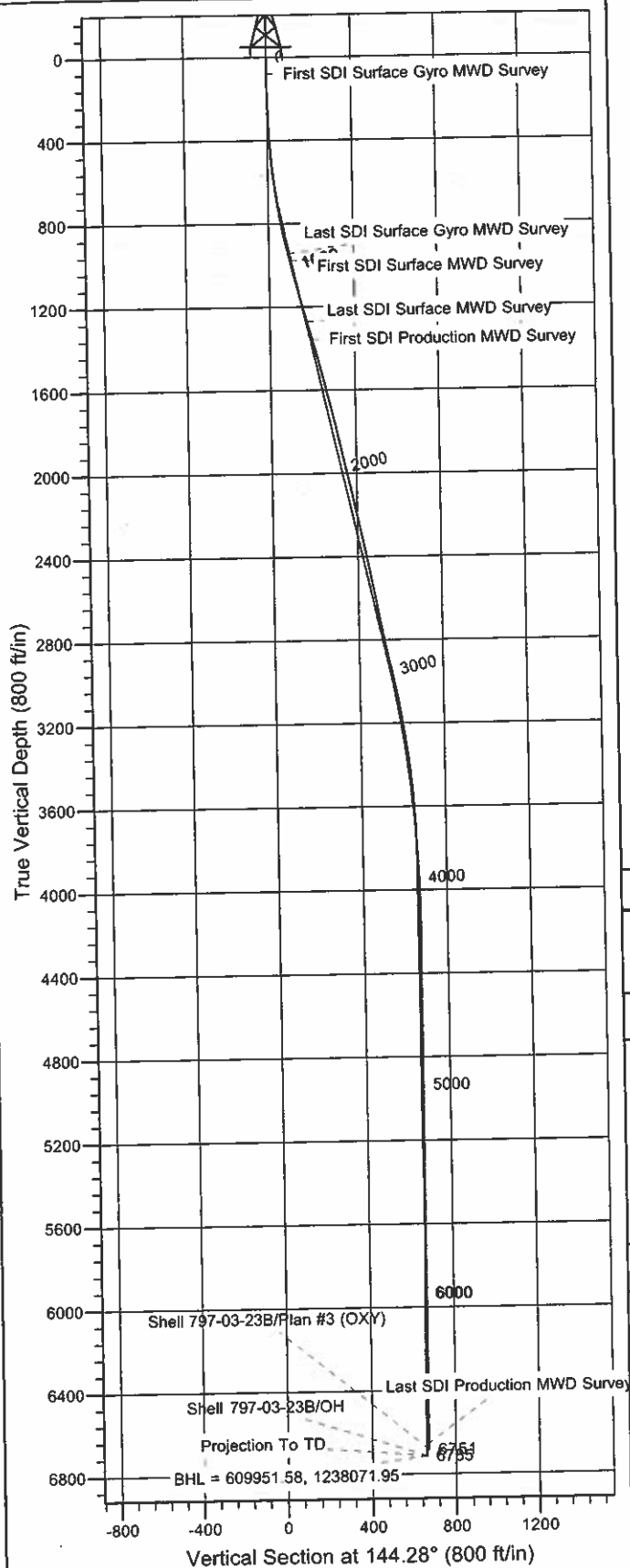




Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Shell 797-03B Pad
Well: Shell 797-03-23B
Wellbore: OH
Design: OH



Well Details: Shell 797-03-23B

+N/-S	+E/-W	TVD Reference: GL 6325' & RKB 22' @ 6347.00ft (M37)	North	East	Latitude	Longitude	Slot
0.00	0.00		610458.92	1237640.79	39° 28' 42.244 N	108° 12' 4.081 W	T

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Shell 797-03-23B - Slot T, True North
Vertical (TVD) Reference: GL 6325' & RKB 22' @ 6347.00ft (M37)
Section (VS) Reference: Slot - T(0.00N, 0.00E)
Measured Depth Reference: GL 6325' & RKB 22' @ 6347.00ft (M37)
Calculation Method: Minimum Curvature

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

Plan: OH

14:10, November 18 2010
Created By: Rex Hall

OXY USA RMAT

Garfield County, CO NAD27

Shell 797-03B Pad

Shell 797-03-23B - Slot T

OH

Design: OH

Standard Survey Report

18 November, 2010

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Shell 797-03-23B - Slot T
Project:	Garfield County, CO NAD27	TVD Reference:	GL 6325' & RKB 22' @ 6347.00ft (M37)
Site:	Shell 797-03B Pad	MD Reference:	GL 6325' & RKB 22' @ 6347.00ft (M37)
Well:	Shell 797-03-23B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

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 797-03B Pad, Sec 3 T7S R97W			
Site Position:		Northing:	610,470.20 usft	Latitude: 39° 28' 42.340 N
From:	Lat/Long	Easting:	1,237,588.64 usft	Longitude: 108° 12' 4.750 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: -1.70 °

Well	Shell 797-03-23B - Slot T,			
Well Position	+N/-S	0.00 ft	Northing: 610,458.92 usft	Latitude: 39° 28' 42.244 N
	+E/-W	0.00 ft	Easting: 1,237,640.79 usft	Longitude: 108° 12' 4.081 W
Position Uncertainty		0.00 ft	Wellhead Elevation: ft	Ground Level: 6,325.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	11/9/2010	10.49	65.71	52,302

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00		144.28

Survey Program	Date	11/18/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
81.00	953.00	Survey #1 - Surface Gyro MWD (OH)	Standard Keeper 103	Standard Wireline Keeper ver 1.0.3	
985.00	1,290.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
1,378.00	6,785.00	Survey #3 - Production MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	

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	
81.00	0.35	37.79	81.00	0.20	0.15	-0.07	0.43	0.43	0.00	
First SDI Surface Gyro MWD Survey										
143.00	0.97	145.71	143.00	-0.09	0.56	0.40	1.82	1.00	174.06	
205.00	1.32	151.61	204.98	-1.15	1.20	1.63	0.59	0.56	9.52	
267.00	2.55	124.72	266.95	-2.56	2.67	3.64	2.41	1.98	-43.37	
330.00	3.43	120.50	329.86	-4.32	5.45	6.69	1.44	1.40	-6.70	
392.00	3.61	139.13	391.75	-6.74	8.32	10.33	1.86	0.29	30.05	
455.00	3.91	138.16	454.61	-9.84	11.05	14.44	0.49	0.48	-1.54	

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Shell 797-03-23B - Slot T
Project:	Garfield County, CO NAD27	TVD Reference:	GL 6325' & RKB 22' @ 6347.00ft (M37)
Site:	Shell 797-03B Pad	MD Reference:	GL 6325' & RKB 22' @ 6347.00ft (M37)
Well:	Shell 797-03-23B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

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)	
517.00	4.84	136.41	516.43	-13.31	14.27	19.13	1.52	1.50	-2.82	
610.00	6.60	150.12	608.97	-20.78	19.64	28.34	2.38	1.89	14.74	
704.00	9.38	151.87	702.05	-32.22	25.94	41.31	2.97	2.96	1.86	
798.00	11.09	150.03	794.55	-46.81	34.07	57.90	1.85	1.82	-1.96	
829.00	11.09	144.93	824.97	-51.84	37.27	63.84	3.16	0.00	-16.45	
860.00	11.52	140.36	855.37	-56.66	40.96	69.91	3.20	1.39	-14.74	
891.00	12.14	135.62	885.71	-61.37	45.21	76.22	3.72	2.00	-15.29	
953.00	14.08	131.57	946.09	-71.04	55.42	90.03	3.46	3.13	-6.53	
Last SDI Surface Gyro MWD Survey										
985.00	14.25	131.66	977.12	-76.24	61.27	97.67	0.54	0.53	0.28	
First SDI Surface MWD Survey										
1,047.00	14.08	129.02	1,037.24	-86.06	72.83	112.39	1.08	-0.27	-4.26	
1,144.00	14.69	139.22	1,131.21	-102.80	90.03	136.03	2.68	0.63	10.52	
1,175.00	14.87	134.91	1,161.18	-108.59	95.42	143.87	3.59	0.58	-13.90	
1,270.00	15.66	143.09	1,252.84	-127.45	111.75	168.72	2.41	0.83	8.61	
1,290.00	15.92	142.56	1,272.09	-131.78	115.04	174.16	1.49	1.30	-2.65	
Last SDI Surface MWD Survey										
1,378.00	15.81	142.77	1,356.74	-150.91	129.63	198.20	0.14	-0.13	0.24	
First SDI Production MWD Survey										
1,473.00	14.95	138.90	1,448.34	-170.45	145.52	223.34	1.41	-0.91	-4.07	
1,568.00	14.51	137.58	1,540.21	-188.47	161.60	247.36	0.58	-0.46	-1.39	
1,664.00	13.89	140.04	1,633.28	-206.18	177.12	270.80	0.90	-0.65	2.56	
1,759.00	13.28	136.53	1,725.62	-222.84	191.95	292.98	1.08	-0.64	-3.69	
1,854.00	12.57	140.22	1,818.22	-238.70	206.07	314.10	1.15	-0.75	3.88	
1,949.00	12.75	140.39	1,910.91	-254.72	219.37	334.88	0.19	0.19	0.18	
2,045.00	12.66	142.85	2,004.56	-271.27	232.47	355.96	0.57	-0.09	2.56	
2,140.00	12.31	141.18	2,097.31	-287.46	245.11	376.48	0.53	-0.37	-1.76	
2,236.00	12.40	134.24	2,191.09	-302.62	258.91	396.85	1.55	0.09	-7.23	
2,331.00	12.13	134.06	2,283.93	-316.68	273.39	416.72	0.29	-0.28	-0.19	
2,426.00	11.34	136.00	2,376.94	-330.34	287.05	435.78	0.93	-0.83	2.04	
2,522.00	12.05	138.11	2,470.95	-344.59	300.30	455.08	0.86	0.74	2.20	
2,616.00	10.99	137.67	2,563.05	-358.52	312.88	473.74	1.13	-1.13	-0.47	
2,711.00	11.52	132.57	2,656.23	-371.63	325.97	492.02	1.19	0.56	-5.37	
2,807.00	11.34	128.26	2,750.32	-383.96	340.44	510.48	0.91	-0.19	-4.49	
2,903.00	12.93	133.27	2,844.18	-397.17	355.67	530.10	1.99	1.66	5.22	
2,998.00	12.31	134.68	2,936.88	-411.57	370.61	550.52	0.73	-0.65	1.48	
3,094.00	12.13	131.78	3,030.71	-425.49	385.41	570.45	0.67	-0.19	-3.02	
3,190.00	10.02	135.38	3,124.92	-438.16	398.80	588.56	2.31	-2.20	3.75	
3,285.00	9.50	134.77	3,218.54	-449.56	410.17	604.45	0.56	-0.55	-0.64	
3,381.00	8.71	133.71	3,313.33	-460.16	421.05	619.41	0.84	-0.82	-1.10	
3,477.00	6.42	143.47	3,408.49	-469.50	429.50	631.93	2.73	-2.39	10.17	
3,573.00	4.84	144.70	3,504.03	-477.12	435.03	641.34	1.65	-1.65	1.28	
3,669.00	4.40	148.48	3,599.72	-483.56	439.30	649.07	0.56	-0.46	3.94	
3,764.00	2.73	134.86	3,694.53	-488.27	442.81	654.93	1.96	-1.76	-14.34	

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Shell 797-03-23B - Slot T
Project:	Garfield County, CO NAD27	TVD Reference:	GL 6325' & RKB 22' @ 6347.00ft (M37)
Site:	Shell 797-03B Pad	MD Reference:	GL 6325' & RKB 22' @ 6347.00ft (M37)
Well:	Shell 797-03-23B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

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)
3,860.00	1.49	122.81	3,790.46	-490.56	445.48	658.35	1.36	-1.29	-12.55
3,955.00	0.97	64.45	3,885.44	-490.88	447.24	659.64	1.35	-0.55	-61.43
4,049.00	0.35	49.86	3,979.44	-490.35	448.18	659.76	0.68	-0.66	-15.52
4,145.00	0.79	79.48	4,075.43	-490.04	449.05	660.02	0.54	0.46	30.85
4,240.00	0.62	73.68	4,170.43	-489.78	450.19	660.47	0.19	-0.18	-6.11
4,335.00	0.62	91.44	4,265.42	-489.64	451.20	660.95	0.20	0.00	18.69
4,430.00	0.62	80.89	4,360.41	-489.58	452.22	661.49	0.12	0.00	-11.11
4,525.00	0.44	111.12	4,455.41	-489.63	453.07	662.02	0.34	-0.19	31.82
4,621.00	0.44	90.82	4,551.41	-489.76	453.78	662.55	0.16	0.00	-21.15
4,715.00	0.44	38.61	4,645.41	-489.49	454.37	662.67	0.41	0.00	-55.54
4,811.00	0.79	29.30	4,741.40	-488.62	454.92	662.29	0.38	0.36	-9.70
4,906.00	0.62	36.24	4,836.39	-487.64	455.54	661.85	0.20	-0.18	7.31
5,001.00	0.79	53.29	4,931.39	-486.83	456.37	661.68	0.28	0.18	17.95
5,096.00	1.14	88.89	5,026.37	-486.42	457.84	662.21	0.71	0.37	37.47
5,192.00	1.14	104.09	5,122.35	-486.63	459.72	663.48	0.31	0.00	15.83
5,287.00	1.06	90.29	5,217.34	-486.87	461.52	664.72	0.29	-0.08	-14.53
5,382.00	0.62	86.69	5,312.33	-486.84	462.91	665.51	0.47	-0.46	-3.79
5,477.00	0.70	150.15	5,407.32	-487.32	463.71	666.36	0.73	0.08	66.80
5,573.00	0.35	213.87	5,503.32	-488.07	463.84	667.05	0.66	-0.36	66.38
5,668.00	0.44	259.48	5,598.32	-488.38	463.32	667.00	0.33	0.09	48.01
5,763.00	0.35	241.29	5,693.31	-488.58	462.71	666.81	0.16	-0.09	-19.15
5,859.00	0.79	266.43	5,789.31	-488.77	461.79	666.42	0.52	0.46	26.19
5,954.00	1.14	247.09	5,884.30	-489.17	460.27	665.86	0.50	0.37	-20.36
6,049.00	1.93	267.66	5,979.26	-489.61	457.80	664.77	1.00	0.83	21.65
6,144.00	1.06	283.21	6,074.23	-489.47	455.34	663.23	1.00	-0.92	16.37
6,239.00	1.23	266.87	6,169.21	-489.33	453.47	662.02	0.39	0.18	-17.20
6,335.00	1.06	255.18	6,265.19	-489.61	451.58	661.14	0.30	-0.18	-12.18
6,430.00	0.88	230.39	6,360.18	-490.30	450.17	660.88	0.48	-0.19	-26.09
6,525.00	0.88	219.85	6,455.17	-491.32	449.14	661.11	0.17	0.00	-11.09
6,619.00	0.97	217.74	6,549.15	-492.51	448.19	661.52	0.10	0.10	-2.24
6,730.00	0.97	229.60	6,660.14	-493.86	446.90	661.86	0.18	0.00	10.68
Last SDI Production MWD Survey									
6,785.00	0.97	229.60	6,715.13	-494.46	446.19	661.94	0.00	0.00	0.00
Projection To TD - BHL = 609951.58, 1238071.95									

Scientific Drilling International

Survey Report

Company:	OXY USA RMAI	Local Co-ordinate Reference:	Well Shell 797-03-23B - Slot T
Project:	Garfield County, CO NAD27	TVD Reference:	GL 6325' & RKB 22' @ 6347.00ft (M37)
Site:	Shell 797-03B Pad	MD Reference:	GL 6325' & RKB 22' @ 6347.00ft (M37)
Well:	Shell 797-03-23B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
81.00	81.00	0.20	0.15	First SDI Surface Gyro MWD Survey
953.00	946.09	-71.04	55.42	Last SDI Surface Gyro MWD Survey
985.00	977.12	-76.24	61.27	First SDI Surface MWD Survey
1,290.00	1,272.09	-131.78	115.04	Last SDI Surface MWD Survey
1,378.00	1,356.74	-150.91	129.63	First SDI Production MWD Survey
6,730.00	6,660.14	-493.86	446.90	Last SDI Production MWD Survey
6,785.00	6,715.13	-494.46	446.19	Projection To TD
6,785.00	6,715.13	-494.46	446.19	BHL = 609951.58, 1238071.95

Checked By: _____ Approved By: _____ Date: _____