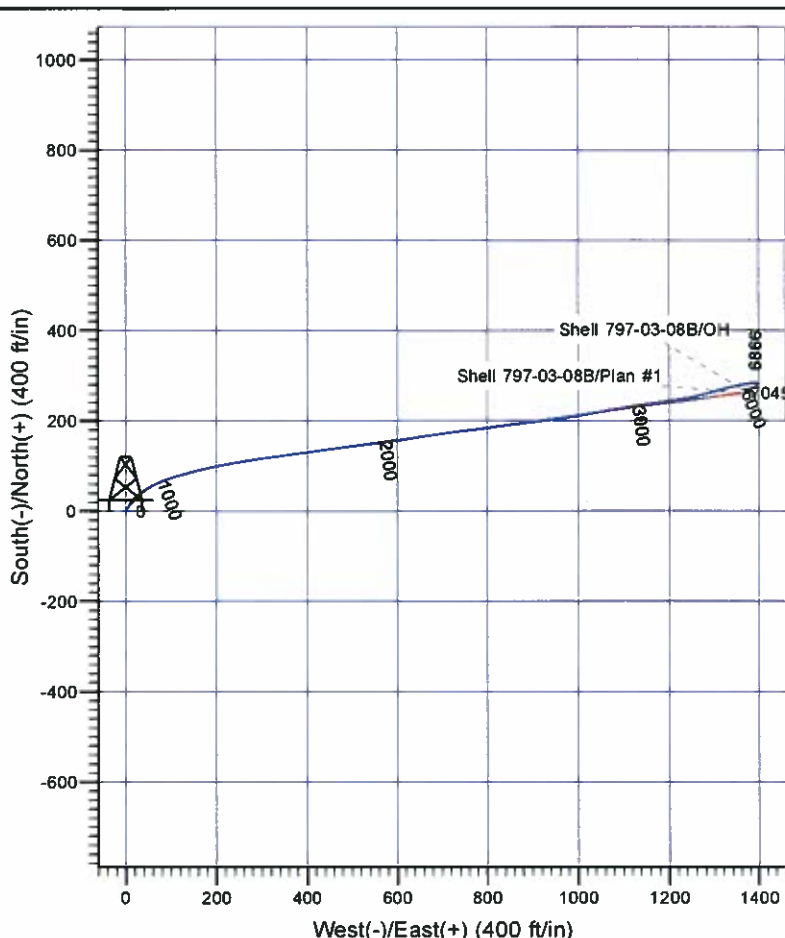
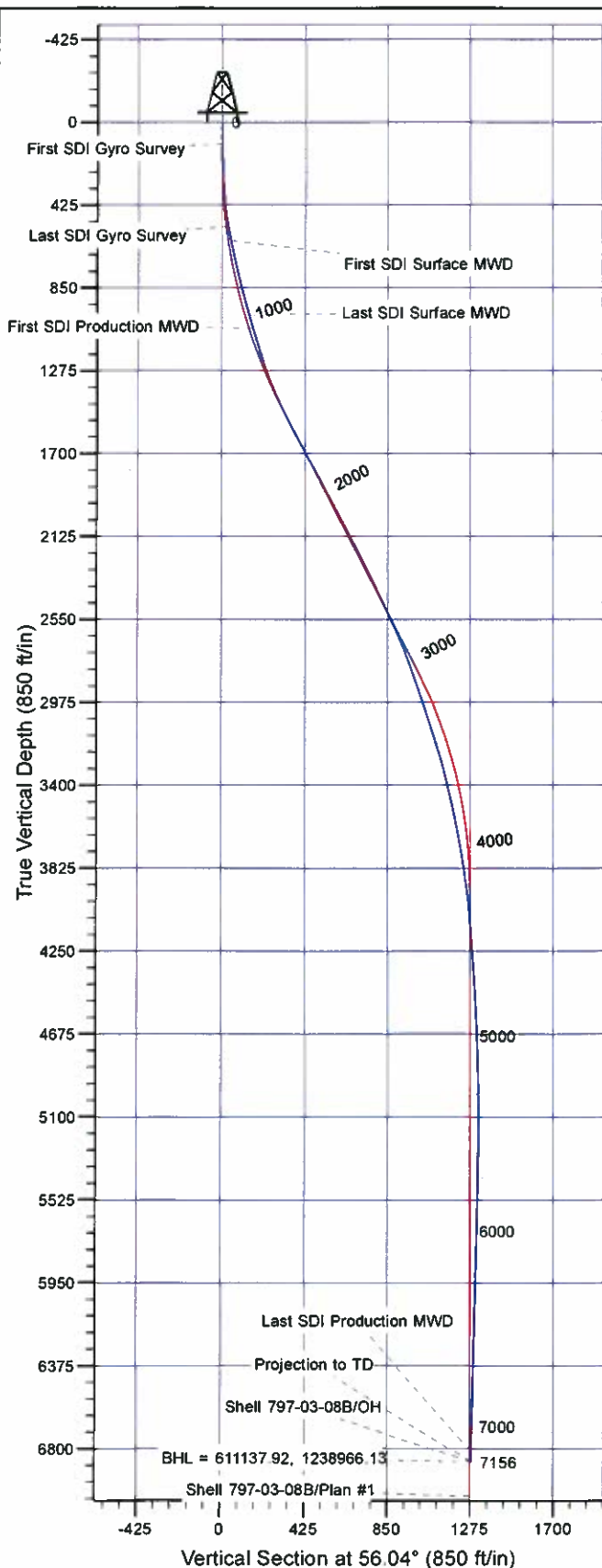




Scientific Drilling

Company: OXY USA R/MAT
 Project: Garfield County, CO NAD27
 Site: Shell 797-03A Pad
 Well: Shell 797-03-08B
 Wellbore: OH
 Design: OH



Well Details: Shell 797-03-08B

TVD Reference: GL 6485' & RKB 30' @ 6515.00ft (H&P)		Easting		Latitude		Longitude		Slot
+N/-S	+E/-W	610910.61	1237593.69	39° 28' 46.693 N	108° 12' 4.853 W			K

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Shell 797-03-08B - Slot K, True North
 Vertical (TVD) Reference: GL 6485' & RKB 30' @ 6515.00ft (H&P)
 Section (VS) Reference: Slot - K(0.00N, 0.00E)
 Measured Depth Reference: GL 6485' & RKB 30' @ 6515.00ft (H&P)
 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

15:08, July 02 2012
 Created By: Janie Collins

OXY USA RMAT

Garfield County, CO NAD27

Shell 797-03A Pad

Shell 797-03-08B - Slot K

OH

Design: OH

Standard Survey Report

02 July, 2012

Scientific Drilling International

Survey Report

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

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 797-03-08B - Slot K					
Well Position	+N/-S	0.00 ft	Northing:	610,910.62 usft	Latitude:	39° 28' 46.693 N
	+E/-W	0.00 ft	Easting:	1,237,593.68 usft	Longitude:	108° 12' 4.853 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,485.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/08/19	10.42	65.68	52,192

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	56.04	

Survey Program	Date	2012/07/02			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
114.00	536.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
611.00	1,003.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
1,076.00	7,156.00	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
114.00	0.18	270.79	114.00	0.00	-0.18	-0.15	0.16	0.16	0.00
First SDI Gyro Survey									
172.00	1.94	22.15	171.99	0.91	0.10	0.59	3.47	3.03	192.00
264.00	3.17	34.63	263.90	4.45	2.13	4.25	1.46	1.34	13.57
354.00	4.22	37.00	353.71	9.14	5.54	9.70	1.18	1.17	2.63
445.00	7.48	40.43	444.22	16.33	11.40	18.57	3.60	3.58	3.77
536.00	10.82	44.30	534.05	26.95	21.21	32.65	3.73	3.67	4.25

Scientific Drilling International

Survey Report

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

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)
Last SDI Gyro Survey									
611.00	11.52	44.69	607.63	37.31	31.39	46.88	0.94	0.93	0.52
First SDI Surface MWD									
701.00	13.01	59.28	695.60	48.88	46.42	65.81	3.81	1.66	16.21
793.00	13.37	62.45	785.17	59.09	64.76	86.72	0.88	0.39	3.45
888.00	14.86	68.33	877.30	68.67	85.82	109.54	2.17	1.57	6.19
983.00	16.71	75.19	968.73	76.66	110.35	134.35	2.76	1.95	7.22
1,003.00	17.06	75.80	987.86	78.12	115.97	139.83	1.96	1.75	3.05
Last SDI Surface MWD									
1,076.00	17.39	74.40	1,057.59	83.68	136.86	160.26	0.73	0.45	-1.92
First SDI Production MWD									
1,170.00	17.85	75.35	1,147.18	91.10	164.33	187.19	0.58	0.49	1.01
1,265.00	20.05	78.34	1,237.03	98.07	194.37	216.00	2.53	2.32	3.15
1,360.00	22.69	80.10	1,325.49	104.51	228.37	247.80	2.86	2.78	1.85
1,455.00	25.68	79.83	1,412.14	111.30	266.69	283.37	3.15	3.15	-0.28
1,550.00	29.02	81.85	1,496.51	118.20	309.78	322.96	3.65	3.52	2.13
1,644.00	29.11	82.82	1,578.67	124.29	355.03	363.90	0.51	0.10	1.03
1,739.00	30.86	82.03	1,660.96	130.56	402.09	406.43	1.89	1.84	-0.83
1,834.00	30.95	83.08	1,742.47	136.88	450.47	450.09	0.58	0.09	1.11
1,929.00	32.01	81.85	1,823.49	143.40	499.65	494.52	1.30	1.12	-1.29
2,023.00	31.66	82.64	1,903.35	150.09	548.78	539.00	0.58	-0.37	0.84
2,118.00	30.51	82.91	1,984.70	156.26	597.44	582.81	1.22	-1.21	0.28
2,213.00	29.81	80.10	2,066.85	163.30	644.63	625.88	1.66	-0.74	-2.96
2,307.00	30.25	82.20	2,148.23	170.53	691.11	668.47	1.21	0.47	2.23
2,402.00	29.63	83.17	2,230.55	176.57	738.14	710.85	0.83	-0.65	1.02
2,497.00	28.05	83.44	2,313.77	181.91	783.65	751.58	1.67	-1.66	0.28
2,591.00	29.02	81.77	2,396.35	187.70	828.17	791.74	1.34	1.03	-1.78
2,686.00	27.96	83.17	2,479.84	193.65	873.09	832.32	1.32	-1.12	1.47
2,781.00	27.00	83.26	2,564.12	198.83	916.62	871.32	1.01	-1.01	0.09
2,876.00	25.68	81.50	2,649.26	204.40	958.39	909.08	1.61	-1.39	-1.85
2,970.00	23.13	81.33	2,734.85	210.20	996.80	944.17	2.71	-2.71	-0.18
3,065.00	21.72	80.36	2,822.67	215.95	1,032.57	977.06	1.53	-1.48	-1.02
3,160.00	19.70	78.07	2,911.53	222.21	1,065.57	1,007.92	2.29	-2.13	-2.41
3,254.00	20.31	80.01	2,999.86	228.31	1,097.14	1,037.52	0.96	0.65	2.06
3,349.00	20.14	82.03	3,089.00	233.44	1,129.58	1,067.28	0.76	-0.18	2.13
3,444.00	19.70	82.03	3,178.31	237.93	1,161.63	1,096.38	0.46	-0.46	0.00
3,538.00	17.41	79.92	3,267.42	242.59	1,191.17	1,123.48	2.54	-2.44	-2.24
3,633.00	14.86	81.24	3,358.67	246.93	1,217.21	1,147.50	2.71	-2.68	1.39
3,728.00	14.51	82.38	3,450.57	250.36	1,241.04	1,169.19	0.48	-0.37	1.20
3,822.00	13.28	75.00	3,541.83	254.72	1,263.15	1,189.95	2.29	-1.31	-7.85
3,917.00	10.73	72.89	3,634.74	260.15	1,282.14	1,208.74	2.72	-2.68	-2.22
4,012.00	10.38	74.47	3,728.13	265.04	1,298.84	1,225.32	0.48	-0.37	1.66
4,106.00	10.20	74.65	3,820.62	269.51	1,315.03	1,241.24	0.19	-0.19	0.19
4,201.00	7.74	77.11	3,914.45	273.16	1,329.38	1,255.19	2.62	-2.59	2.59

Scientific Drilling International

Survey Report

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

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)
4,296.00	5.54	79.39	4,008.81	275.44	1,340.12	1,265.37	2.33	-2.32	2.40
4,391.00	5.10	79.57	4,103.40	277.04	1,348.78	1,273.45	0.46	-0.46	0.19
4,485.00	4.92	79.48	4,197.04	278.54	1,356.85	1,280.98	0.19	-0.19	-0.10
4,580.00	4.31	77.90	4,291.73	280.03	1,364.35	1,288.03	0.66	-0.64	-1.66
4,675.00	4.04	79.39	4,386.48	281.39	1,371.13	1,294.41	0.31	-0.28	1.57
4,770.00	3.78	78.16	4,481.26	282.65	1,377.48	1,300.39	0.29	-0.27	-1.29
4,864.00	3.61	82.47	4,575.06	283.68	1,383.45	1,305.91	0.35	-0.18	4.59
4,959.00	1.67	90.11	4,669.96	284.07	1,387.80	1,309.73	2.07	-2.04	8.04
5,054.00	1.76	88.36	4,764.92	284.10	1,390.64	1,312.11	0.11	0.09	-1.84
5,148.00	1.85	77.02	4,858.87	284.49	1,393.56	1,314.75	0.39	0.10	-12.06
5,243.00	1.85	82.73	4,953.82	285.02	1,396.58	1,317.55	0.19	0.00	6.01
5,338.00	0.88	151.64	5,048.80	284.58	1,398.45	1,318.85	1.83	-1.02	72.54
5,432.00	1.23	165.44	5,142.78	282.97	1,399.04	1,318.44	0.46	0.37	14.68
5,527.00	0.88	205.08	5,237.77	281.32	1,398.99	1,317.48	0.83	-0.37	41.73
5,622.00	0.70	239.35	5,332.76	280.36	1,398.18	1,316.27	0.52	-0.19	36.07
5,716.00	0.70	222.30	5,426.75	279.64	1,397.30	1,315.14	0.22	0.00	-18.14
5,811.00	1.41	222.92	5,521.73	278.36	1,396.11	1,313.44	0.75	0.75	0.65
5,906.00	1.14	222.92	5,616.71	276.81	1,394.67	1,311.38	0.28	-0.28	0.00
6,000.00	1.41	248.23	5,710.69	275.70	1,392.96	1,309.34	0.66	0.29	26.93
6,095.00	1.58	242.17	5,805.66	274.65	1,390.72	1,306.90	0.24	0.18	-6.38
6,189.00	1.49	260.62	5,899.62	273.85	1,388.37	1,304.50	0.53	-0.10	19.63
6,284.00	1.58	248.58	5,994.59	273.17	1,385.93	1,302.10	0.35	0.09	-12.67
6,306.45	1.60	246.72	6,017.03	272.93	1,385.35	1,301.49	0.24	0.08	-8.29
Shell 797-03-08B Tgt									
6,379.00	1.67	241.02	6,089.55	272.02	1,383.50	1,299.44	0.24	0.10	-7.86
6,473.00	1.93	248.32	6,183.50	270.77	1,380.83	1,296.53	0.37	0.28	7.77
6,568.00	1.23	243.66	6,278.47	269.73	1,378.43	1,293.95	0.75	-0.74	-4.91
6,663.00	1.32	259.92	6,373.44	269.08	1,376.44	1,291.94	0.39	0.09	17.12
6,757.00	1.14	265.10	6,467.42	268.81	1,374.44	1,290.13	0.22	-0.19	5.51
6,852.00	1.49	270.11	6,562.40	268.74	1,372.26	1,288.29	0.39	0.37	5.27
6,947.00	1.85	257.28	6,657.36	268.40	1,369.53	1,285.83	0.54	0.38	-13.51
7,042.00	1.23	267.57	6,752.32	268.02	1,367.02	1,283.53	0.71	-0.65	10.83
7,102.00	0.88	270.64	6,812.31	268.00	1,365.92	1,282.61	0.59	-0.58	5.12
Last SDI Production MWD									
7,156.00	0.88	270.64	6,866.31	268.01	1,365.09	1,281.92	0.00	0.00	0.00
Projection to TD - BHL = 611137.92, 1238966.13									

Scientific Drilling International

Survey Report

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

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
114.00	114.00	0.00	-0.18	First SDI Gyro Survey
536.00	534.05	26.95	21.21	Last SDI Gyro Survey
611.00	607.63	37.31	31.39	First SDI Surface MWD
1,003.00	987.86	78.12	115.97	Last SDI Surface MWD
1,076.00	1,057.59	83.68	136.86	First SDI Production MWD
7,102.00	6,812.31	268.00	1,365.92	Last SDI Production MWD
7,156.00	6,866.31	268.01	1,365.09	Projection to TD
7,156.00	6,866.31	268.01	1,365.09	BHL = 611137.92, 1238966.13

Checked By: _____ Approved By: _____ Date: _____