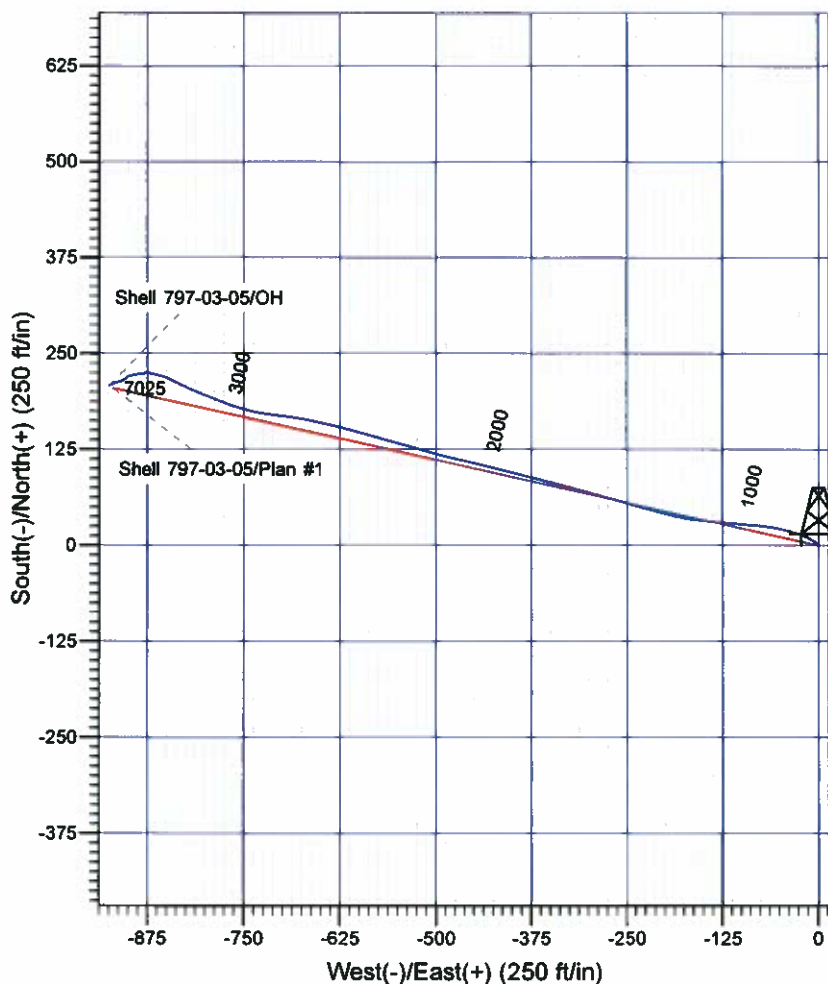
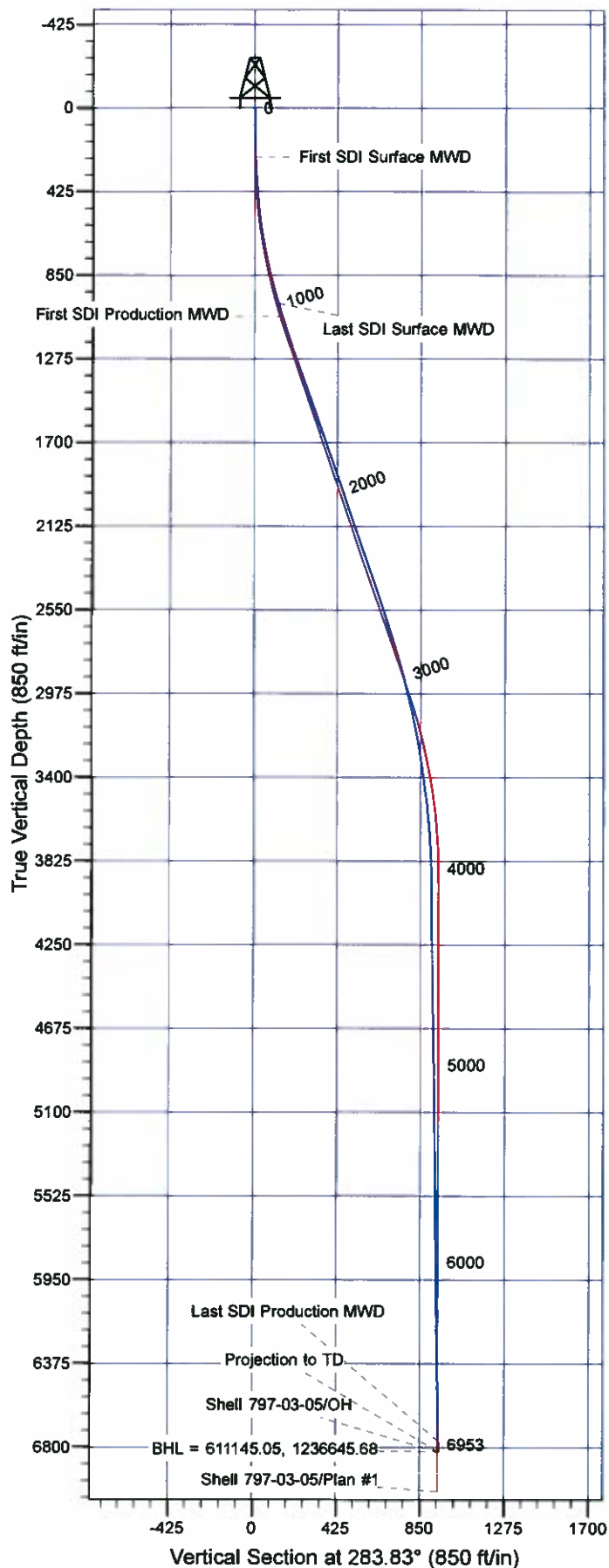




Scientific Drilling

Company: CAT USA RMAI
 Project: Garfield County, CO NAD27
 Site: Shell 797-03A Pad
 Well: Shell 797-03-05
 Wellbore: OH
 Design: OH



Well Details: Shell 797-03-05

+N/-S	+E/-W	Northings	Easting	Latitude	Longitude	Slot
0.00	0.00	610909.75	1237563.84	39° 28' 46.675 N	108° 12' 5.233 W	G

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Shell 797-03-05 - Slot G, True North
 Vertical (TVD) Reference: GL 6485' & RKB 30' @ 6515.00ft (H&P)
 Section (VS) Reference: Slot - G(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

10:24, June 08 2012
 Created By: Janie Collins

OXY USA RMAT

Garfield County, CO NAD27

Shell 797-03A Pad

Shell 797-03-05 - Slot G

OH

Design: OH

Standard Survey Report

08 June, 2012

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Shell 797-03-05 - Slot G
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 797-03-05	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
From:	Lat/Long	Easting:	1,237,601.62 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 28' 46.610 N
		Longitude:	108° 12' 4.748 W
		Grid Convergence:	-1.70 °

Well	Shell 797-03-05 - Slot G		
Well Position	+N/-S	0.00 ft	Northing: 610,909.75 usft
	+E/-W	0.00 ft	Easting: 1,237,563.84 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	39° 28' 46.675 N
		Longitude:	108° 12' 5.233 W
		Ground Level:	6,485.00 ft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	01/18/12	10.37
			Dip Angle
			(°)
			65.67
			Field Strength
			(nT)
			52,150

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			283.83

Survey Program	Date 06/08/12		
From	To	Survey (Wellbore)	Tool Name
(ft)	(ft)		
249.00	1,005.00	Survey #1 - Surface MWD (OH)	MWD-SDI
1,075.00	6,953.00	Survey #2 - Production MWD (OH)	MWD-SDI
			Description
			MWD - Standard ISCWSA
			MWD - Standard ISCWSA

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(ft)	(ft)	Section	Rate	Rate	Rate
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	(°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
249.00	2.52	312.35	248.92	3.69	-4.05	4.81	1.01	1.01	0.00
First SDI Surface MWD									
339.00	3.45	304.72	338.80	6.56	-7.73	9.08	1.12	1.03	-8.48
430.00	4.57	297.03	429.57	9.77	-13.21	15.17	1.36	1.23	-8.45
521.00	5.89	290.87	520.19	13.08	-20.81	23.33	1.57	1.45	-6.77
613.00	8.88	286.04	611.42	16.73	-32.04	35.11	3.32	3.25	-5.25
703.00	10.64	285.16	700.11	20.82	-46.74	50.36	1.96	1.96	-0.98
795.00	12.84	276.90	790.19	24.27	-65.09	69.01	3.00	2.39	-8.98
890.00	14.68	274.53	882.46	26.49	-87.57	91.37	2.03	1.94	-2.49

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Shell 797-03-05 - Slot G
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 797-03-05	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)
985.00	16.88	275.58	973.88	28.78	-113.30	116.90	2.34	2.32	1.11
1,005.00	17.41	275.40	992.99	29.34	-119.17	122.73	2.66	2.65	-0.90
Last SDI Surface MWD									
1,075.00	17.52	273.92	1,059.76	31.05	-140.11	143.47	0.65	0.16	-2.11
First SDI Production MWD									
1,170.00	18.11	278.66	1,150.21	34.25	-168.97	172.26	1.65	0.62	4.99
1,264.00	19.87	285.52	1,239.10	40.73	-198.81	202.79	3.02	1.87	7.30
1,359.00	20.14	284.55	1,328.37	49.15	-230.20	235.28	0.45	0.28	-1.02
1,454.00	19.96	286.48	1,417.61	57.86	-261.58	267.83	0.72	-0.19	2.03
1,549.00	19.52	285.25	1,507.03	66.64	-292.44	299.89	0.64	-0.46	-1.29
1,643.00	18.55	285.08	1,595.89	74.66	-322.03	330.54	1.03	-1.03	-0.18
1,738.00	20.14	283.93	1,685.52	82.53	-352.50	362.01	1.72	1.67	-1.21
1,833.00	18.91	284.46	1,775.06	90.31	-383.28	393.76	1.31	-1.29	0.56
1,928.00	19.43	284.11	1,864.79	98.01	-413.51	424.95	0.56	0.55	-0.37
2,022.00	18.99	283.32	1,953.56	105.34	-443.56	455.88	0.54	-0.47	-0.84
2,117.00	18.73	282.70	2,043.46	112.26	-473.48	486.58	0.35	-0.27	-0.65
2,212.00	19.79	285.69	2,133.14	119.96	-503.84	517.91	1.52	1.12	3.15
2,307.00	19.17	285.60	2,222.70	128.50	-534.35	549.57	0.65	-0.65	-0.09
2,401.00	18.82	286.22	2,311.58	136.89	-563.77	580.15	0.43	-0.37	0.66
2,496.00	18.64	285.25	2,401.55	145.16	-593.13	610.64	0.38	-0.19	-1.02
2,591.00	18.47	284.46	2,491.61	152.91	-622.35	640.86	0.32	-0.18	-0.83
2,685.00	18.20	282.44	2,580.84	159.79	-651.11	670.43	0.73	-0.29	-2.15
2,780.00	17.15	279.45	2,671.36	165.29	-679.41	699.22	1.46	-1.11	-3.15
2,875.00	16.71	276.02	2,762.24	169.02	-706.81	726.72	1.15	-0.46	-3.61
2,969.00	15.21	281.56	2,852.62	172.91	-732.33	752.43	2.27	-1.60	5.89
3,064.00	13.81	287.01	2,944.59	178.72	-755.39	776.21	2.06	-1.47	5.74
3,159.00	13.28	291.32	3,036.95	186.01	-776.39	798.35	1.20	-0.56	4.54
3,253.00	12.66	291.58	3,128.56	193.72	-796.03	819.26	0.66	-0.66	0.28
3,348.00	9.32	292.72	3,221.80	200.52	-812.81	837.18	3.52	-3.52	1.20
3,443.00	8.62	295.10	3,315.64	206.52	-826.35	851.76	0.83	-0.74	2.51
3,538.00	9.06	298.96	3,409.51	213.16	-839.35	865.97	0.78	0.46	4.06
3,632.00	7.65	290.00	3,502.51	218.88	-851.70	879.33	2.04	-1.50	-9.53
3,727.00	4.40	279.45	3,596.98	221.64	-861.24	889.26	3.60	-3.42	-11.11
3,822.00	4.92	284.20	3,691.67	223.24	-868.79	896.96	0.68	0.55	5.00
3,916.00	2.73	285.87	3,785.45	224.84	-874.85	903.23	2.33	-2.33	1.78
4,011.00	0.62	237.70	3,880.41	225.19	-877.46	906.85	2.49	-2.22	-50.71
4,106.00	0.79	204.74	3,975.40	224.32	-878.17	906.33	0.45	0.18	-34.69
4,200.00	0.79	267.23	4,069.39	223.70	-879.09	907.07	0.87	0.00	66.48
4,295.00	1.23	246.05	4,164.38	223.25	-880.67	908.51	0.60	0.46	-22.29
4,390.00	0.62	252.47	4,259.37	222.68	-882.09	909.75	0.65	-0.64	6.76
4,485.00	0.79	304.94	4,354.36	222.90	-883.12	910.80	0.68	0.18	55.23
4,579.00	0.97	285.87	4,448.35	223.49	-884.42	912.20	0.36	0.19	-20.29
4,674.00	1.14	262.31	4,543.33	223.58	-886.13	913.88	0.49	0.18	-24.80

Scientific Drilling International

Survey Report

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well Shell 797-03-05 - Slot G
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 797-03-05	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)
4,769.00	1.14	253.35	4,638.31	223.19	-887.97	915.58	0.19	0.00	-9.43
4,863.00	1.23	240.95	4,732.29	222.43	-889.75	917.12	0.29	0.10	-13.19
4,958.00	0.79	263.28	4,827.28	221.86	-891.29	918.48	0.61	-0.46	23.51
5,053.00	1.06	265.65	4,922.27	221.71	-892.82	919.93	0.29	0.28	2.49
5,147.00	1.14	263.19	5,016.25	221.54	-894.61	921.63	0.10	0.09	-2.62
5,242.00	1.14	254.49	5,111.23	221.17	-896.46	923.34	0.18	0.00	-9.16
5,337.00	1.14	258.71	5,206.21	220.74	-898.30	925.02	0.09	0.00	4.44
5,432.00	0.97	242.10	5,301.20	220.17	-899.94	926.48	0.37	-0.18	-17.48
5,526.00	0.53	254.49	5,395.19	219.69	-901.06	927.45	0.50	-0.47	13.18
5,621.00	0.53	198.24	5,490.18	219.15	-901.62	927.87	0.53	0.00	-59.21
5,715.00	0.88	224.17	5,584.18	218.22	-902.26	928.26	0.49	0.37	27.59
5,810.00	1.32	236.47	5,679.16	217.09	-903.68	929.37	0.52	0.46	12.95
5,905.00	0.97	248.78	5,774.14	216.20	-905.34	930.77	0.45	-0.37	12.96
5,999.00	0.79	219.25	5,868.13	215.41	-906.49	931.70	0.51	-0.19	-31.41
6,094.00	1.06	234.98	5,963.12	214.40	-907.63	932.56	0.39	0.28	16.56
6,112.13	1.04	242.28	5,981.25	214.22	-907.91	932.79	0.75	-0.12	40.25
Shell 797-03-05 Tgt									
6,189.00	1.14	272.33	6,058.10	213.93	-909.29	934.07	0.75	0.13	39.09
6,283.00	1.23	238.85	6,152.08	213.45	-911.09	935.70	0.73	0.10	-35.62
6,378.00	0.79	247.55	6,247.07	212.67	-912.56	936.94	0.49	-0.46	9.16
6,473.00	0.88	260.91	6,342.06	212.30	-913.89	938.14	0.23	0.09	14.06
6,567.00	1.49	247.02	6,436.04	211.71	-915.73	939.79	0.71	0.65	-14.78
6,662.00	1.58	243.15	6,531.00	210.64	-918.03	941.77	0.14	0.09	-4.07
6,757.00	1.41	248.95	6,625.97	209.63	-920.29	943.72	0.24	-0.18	6.11
6,851.00	1.32	257.74	6,719.94	208.98	-922.43	945.64	0.24	-0.10	9.35
6,899.00	1.49	241.66	6,767.93	208.57	-923.52	946.60	0.89	0.35	-33.50
Last SDI Production MWD									
6,953.00	1.49	241.66	6,821.91	207.90	-924.76	947.64	0.00	0.00	0.00
Projection to TD - BHL = 611145.05, 1236645.68									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
249.00	248.92	3.69	-4.05	First SDI Surface MWD
1,005.00	992.99	29.34	-119.17	Last SDI Surface MWD
1,075.00	1,059.76	31.05	-140.11	First SDI Production MWD
6,899.00	6,767.93	208.57	-923.52	Last SDI Production MWD
6,953.00	6,821.91	207.90	-924.76	Projection to TD
6,953.00	6,821.91	207.90	-924.76	BHL = 611145.05, 1236645.68

Checked By: _____ Approved By: _____ Date: _____