

# **OXY USA RMAT**

**Garfield County, CO**

**Shell 797-09A Pad**

**Shell 797-09-29A**

**OH**

**Plan #2**

## **Anticollision Report**

**09 November, 2007**

# Scientific Drilling

## Anticollision Report

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well Shell 797-09-29A
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Reference Site:</b>	Shell 797-09A Pad	<b>MD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shell 797-09-29A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 2003.16 Multi User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.00ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.00ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	2007-11-09		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	6,901.28	Plan #2 (OH)	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Shell 797-09A Pad						
Shell 797-09-12 - OH - Plan #7	208.38	208.40	14.90	14.23	22.278	CC, ES
Shell 797-09-12 - OH - Plan #7	500.00	499.36	23.03	21.13	12.072	SF
Shell 797-09-29B - OH - Plan #2	235.48	235.48	7.55	6.75	9.513	CC, ES
Shell 797-09-29B - OH - Plan #2	300.00	299.73	8.38	7.31	7.821	SF
Shell 797-09-37A - OH - Plan #2	134.18	134.18	22.32	21.98	66.043	CC, ES
Shell 797-09-37A - OH - Plan #2	6,901.28	7,211.53	655.67	614.76	16.028	SF

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<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Reference Site:</b>	Shell 797-09A Pad	<b>MD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shell 797-09-29A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 2003.16 Multi User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Shell 797-09A Pad - Shell 797-09-12 - OH - Plan #7												Offset Site Error: 0.00 ft			
Survey Program: 0-MWD														Offset Well Error: 0.00 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0.00	0.00	0.00	0.00	0.00	0.00	-155.23	-13.58	-6.27	14.96						
100.00	100.00	100.00	100.00	0.09	0.09	-155.23	-13.58	-6.27	14.96	14.77	0.18	81.163			
200.00	200.00	200.02	200.01	0.32	0.32	-150.95	-13.02	-7.24	14.90	14.27	0.63	23.627			
208.38	208.38	208.40	208.38	0.34	0.34	-150.00	-12.90	-7.45	14.90	14.23	0.67	22.278	CC, ES		
300.00	300.00	299.85	299.73	0.54	0.55	-133.97	-10.76	-11.15	15.50	14.42	1.09	14.284			
400.00	399.98	399.61	399.31	0.76	0.77	84.52	-8.23	-16.51	18.32	16.81	1.51	12.109			
500.00	499.57	499.36	499.00	0.97	0.97	109.51	-8.50	-20.02	23.03	21.13	1.91	12.072	SF		
600.00	598.02	598.92	598.49	1.24	1.17	132.67	-11.63	-21.60	33.10	30.72	2.39	13.871			
700.00	694.58	698.16	697.54	1.67	1.38	148.42	-17.61	-21.25	49.91	47.03	2.89	17.286			
800.00	788.52	796.92	795.89	2.27	1.61	158.26	-26.38	-19.00	73.12	69.75	3.37	21.678			
900.00	879.12	895.08	893.27	3.03	1.85	164.61	-37.88	-14.88	102.24	98.39	3.85	26.573			
1,000.00	965.70	992.41	989.39	3.97	2.13	168.94	-52.00	-8.94	136.95	132.63	4.32	31.722			
1,100.00	1,047.59	1,082.95	1,078.55	5.06	2.42	171.79	-66.36	-2.59	178.56	173.75	4.81	37.138			
1,200.00	1,124.84	1,169.97	1,164.26	6.30	2.72	173.86	-80.16	3.52	227.31	221.96	5.35	42.486			
1,300.00	1,201.35	1,256.43	1,249.40	7.57	3.03	175.34	-93.88	9.58	277.24	271.29	5.95	46.563			
1,400.00	1,277.86	1,342.88	1,334.55	8.85	3.34	176.38	-107.59	15.65	327.27	320.70	6.58	49.748			
1,500.00	1,354.37	1,429.34	1,419.69	10.14	3.66	177.14	-121.30	21.71	377.36	370.14	7.22	52.260			
1,600.00	1,430.88	1,515.79	1,504.84	11.43	3.99	177.72	-135.02	27.78	427.49	419.63	7.86	54.369			
1,700.00	1,507.39	1,602.25	1,589.98	12.72	4.32	178.18	-148.73	33.84	477.65	469.13	8.52	56.056			
1,800.00	1,583.90	1,688.71	1,675.13	14.02	4.65	178.56	-162.45	39.91	527.82	518.64	9.18	57.470			
1,900.00	1,660.41	1,775.16	1,760.27	15.31	4.98	178.86	-176.16	45.98	578.01	568.16	9.85	58.656			
2,000.00	1,736.92	1,861.62	1,845.42	16.61	5.32	179.12	-189.87	52.04	628.21	617.68	10.53	59.669			
2,100.00	1,813.43	1,948.07	1,930.56	17.91	5.66	179.34	-203.59	58.11	678.42	667.21	11.21	60.542			
2,200.00	1,889.94	2,034.53	2,015.71	19.21	5.99	179.53	-217.30	64.17	728.63	716.75	11.89	61.300			
2,300.00	1,966.45	2,120.98	2,100.85	20.52	6.33	179.70	-231.01	70.24	778.85	766.28	12.57	61.964			
2,400.00	2,042.96	2,207.44	2,186.00	21.82	6.67	179.85	-244.73	76.31	829.07	815.82	13.25	62.550			
2,500.00	2,119.47	2,293.89	2,271.14	23.12	7.01	179.98	-258.44	82.37	879.30	865.36	13.94	63.069			
2,600.00	2,195.98	2,380.35	2,356.29	24.42	7.36	-179.91	-272.15	88.44	929.53	914.90	14.63	63.533			
2,700.00	2,272.49	2,466.80	2,441.43	25.72	7.70	-179.81	-285.87	94.50	979.76	964.44	15.32	63.949			

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<b>Reference Site:</b>	Shell 797-09A Pad	<b>MD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shell 797-09-29A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 2003.16 Multi User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Shell 797-09A Pad - Shell 797-09-29B - OH - Plan #2													Offset Site Error:	0.00 ft
Survey Program: O-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-155.23	-6.85	-3.16	7.55					
100.00	100.00	100.00	100.00	0.09	0.09	-155.23	-6.85	-3.16	7.55	7.36	0.18	40.948		
178.87	178.87	178.87	178.87	0.27	0.27	-155.23	-6.85	-3.16	7.55	7.01	0.54	14.006		
200.00	200.00	200.00	200.00	0.32	0.32	-155.23	-6.85	-3.16	7.55	6.91	0.63	11.907		
235.48	235.48	235.48	235.48	0.40	0.40	-155.23	-6.85	-3.16	7.55	6.75	0.79	9.513 CC, ES		
300.00	300.00	299.73	299.71	0.54	0.53	-160.22	-7.88	-2.83	8.38	7.31	1.07	7.821 SF		
400.00	399.98	398.56	398.15	0.76	0.76	19.86	-16.02	-0.24	15.10	13.60	1.50	10.083		
500.00	499.57	496.62	494.72	0.97	1.05	12.78	-32.04	4.86	23.29	21.37	1.93	12.092		
600.00	598.02	593.99	588.84	1.24	1.49	9.49	-55.68	12.39	31.46	29.07	2.39	13.169		
700.00	694.58	690.70	679.92	1.67	2.08	7.62	-86.61	22.24	39.43	36.54	2.89	13.648		
800.00	788.52	786.80	767.38	2.27	2.83	6.44	-124.48	34.30	47.12	43.68	3.44	13.703		
900.00	879.12	882.31	850.71	3.03	3.71	5.64	-168.90	48.45	54.47	50.42	4.05	13.465		
1,000.00	965.70	977.28	929.43	3.97	4.74	5.07	-219.48	64.56	61.40	56.69	4.71	13.029		
1,100.00	1,047.59	1,071.76	1,003.11	5.06	5.90	4.65	-275.78	82.49	67.89	62.49	5.40	12.562		
1,200.00	1,124.84	1,165.72	1,071.32	6.30	7.16	4.29	-337.32	102.10	74.89	68.63	6.26	11.961		
1,300.00	1,201.35	1,265.23	1,140.74	7.57	8.58	3.86	-405.25	123.73	84.77	77.54	7.23	11.718		
1,400.00	1,277.86	1,364.74	1,210.16	8.85	10.01	3.52	-473.18	145.37	94.65	86.43	8.22	11.508		
1,500.00	1,354.37	1,464.25	1,279.58	10.14	11.45	3.24	-541.11	167.01	104.54	95.31	9.23	11.327		
1,600.00	1,430.88	1,563.76	1,349.01	11.43	12.90	3.01	-609.04	188.64	114.42	104.18	10.24	11.171		
1,700.00	1,507.39	1,663.27	1,418.43	12.72	14.34	2.81	-676.98	210.28	124.31	113.05	11.26	11.037		
1,800.00	1,583.90	1,762.78	1,487.85	14.02	15.79	2.65	-744.91	231.92	134.20	121.91	12.29	10.920		
1,900.00	1,660.41	1,862.28	1,557.27	15.31	17.24	2.51	-812.84	253.55	144.09	130.77	13.32	10.817		
2,000.00	1,736.92	1,961.79	1,626.69	16.61	18.69	2.38	-880.77	275.19	153.98	139.63	14.35	10.727		
2,100.00	1,813.43	2,061.30	1,696.11	17.91	20.14	2.27	-948.70	296.83	163.87	148.48	15.39	10.647		
2,200.00	1,889.94	2,160.81	1,765.53	19.21	21.59	2.18	-1,016.64	318.47	173.77	157.34	16.43	10.576		
2,300.00	1,966.45	2,260.32	1,834.95	20.52	23.04	2.09	-1,084.57	340.10	183.66	166.19	17.47	10.512		
2,400.00	2,042.96	2,359.83	1,904.37	21.82	24.49	2.01	-1,152.50	361.74	193.55	175.04	18.51	10.455		
2,500.00	2,119.47	2,459.34	1,973.79	23.12	25.95	1.94	-1,220.43	383.38	203.45	183.89	19.56	10.403		
2,600.00	2,195.98	2,558.85	2,043.21	24.42	27.40	1.88	-1,288.36	405.01	213.34	192.74	20.60	10.355		
2,700.00	2,272.49	2,658.36	2,112.63	25.72	28.85	1.82	-1,356.29	426.65	223.23	201.59	21.65	10.312		
2,800.00	2,349.00	2,757.87	2,182.05	27.03	30.31	1.77	-1,424.23	448.29	233.13	210.43	22.69	10.273		
2,900.00	2,425.51	2,857.38	2,251.47	28.33	31.76	1.72	-1,492.16	469.93	243.02	219.28	23.74	10.236		
3,000.00	2,504.05	2,962.36	2,325.02	29.31	33.23	1.67	-1,563.54	492.66	255.76	230.99	24.77	10.326		
3,100.00	2,586.22	3,080.39	2,412.18	30.22	34.57	1.60	-1,639.34	516.80	269.08	243.38	25.70	10.469		
3,200.00	2,671.71	3,199.70	2,505.88	31.06	35.78	1.55	-1,709.67	539.21	281.26	254.79	26.48	10.624		
3,300.00	2,760.21	3,320.21	2,605.72	31.82	36.87	1.51	-1,773.92	559.67	292.24	265.17	27.08	10.793		
3,400.00	2,851.39	3,441.80	2,711.22	32.49	37.86	1.48	-1,831.48	578.00	301.94	274.44	27.50	10.979		
3,500.00	2,944.89	3,564.38	2,821.80	33.07	38.73	1.45	-1,881.79	594.03	310.30	282.55	27.75	11.184		
3,600.00	3,040.39	3,687.79	2,936.82	33.56	39.47	1.43	-1,924.34	607.58	317.25	289.45	27.81	11.410		
3,700.00	3,137.52	3,811.90	3,055.55	33.96	40.07	1.41	-1,958.69	618.52	322.76	295.08	27.67	11.663		
3,800.00	3,235.91	3,936.55	3,177.20	34.27	40.51	1.40	-1,984.46	626.73	326.77	299.42	27.35	11.948		
3,900.00	3,334.93	4,049.98	3,289.32	34.53	40.83	1.40	-2,000.80	631.93	327.82	300.19	27.63	11.863		
4,000.00	3,433.96	4,149.98	3,388.34	34.83	41.10	1.40	-2,014.06	636.16	327.82	299.81	28.01	11.703		
4,100.00	3,532.98	4,249.98	3,487.37	35.12	41.39	1.40	-2,027.32	640.38	327.82	299.43	28.39	11.546		
4,200.00	3,632.01	4,349.98	3,586.40	35.42	41.68	1.41	-2,040.58	644.61	327.82	299.04	28.78	11.392		
4,300.00	3,731.04	4,449.98	3,685.42	35.71	41.97	1.41	-2,053.84	648.83	327.82	298.66	29.17	11.240		
4,400.00	3,830.06	4,549.98	3,784.45	36.01	42.26	1.41	-2,067.10	653.05	327.82	298.27	29.56	11.091		
4,500.00	3,929.09	4,649.98	3,883.48	36.31	42.55	1.42	-2,080.37	657.28	327.82	297.87	29.95	10.945		
4,600.00	4,028.12	4,749.98	3,982.51	36.61	42.84	1.42	-2,093.63	661.50	327.82	297.48	30.35	10.802		
4,700.00	4,127.14	4,849.98	4,081.53	36.91	43.13	1.42	-2,106.89	665.72	327.82	297.08	30.75	10.662		
4,800.00	4,226.17	4,949.98	4,180.56	37.21	43.42	1.43	-2,120.15	669.95	327.83	296.68	31.15	10.524		
4,900.00	4,325.20	5,049.98	4,279.59	37.51	43.72	1.43	-2,133.41	674.17	327.83	296.27	31.55	10.389		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Scientific Drilling

## Anticollision Report

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well Shell 797-09-29A
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Reference Site:</b>	Shell 797-09A Pad	<b>MD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shell 797-09-29A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 2003.16 Multi User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Shell 797-09A Pad - Shell 797-09-29B - OH - Plan #2													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.00	4,424.22	5,149.98	4,378.61	37.82	44.01	1.43	-2,146.67	678.40	327.83	295.86	31.96	10.257		
5,100.00	4,523.25	5,249.98	4,477.64	38.12	44.31	1.44	-2,159.93	682.62	327.83	295.46	32.37	10.127		
5,200.00	4,622.28	5,349.98	4,576.67	38.43	44.60	1.44	-2,173.19	686.84	327.83	295.04	32.78	10.000		
5,300.00	4,721.30	5,449.98	4,675.69	38.73	44.90	1.44	-2,186.45	691.07	327.83	294.63	33.20	9.875		
5,400.00	4,820.33	5,549.98	4,774.72	39.04	45.20	1.45	-2,199.71	695.29	327.83	294.21	33.61	9.753		
5,500.00	4,919.36	5,649.98	4,873.75	39.34	45.49	1.45	-2,212.97	699.51	327.83	293.80	34.03	9.633		
5,600.00	5,018.39	5,749.98	4,972.77	39.65	45.79	1.45	-2,226.23	703.74	327.83	293.38	34.45	9.516		
5,700.00	5,117.41	5,849.98	5,071.80	39.96	46.09	1.46	-2,239.50	707.96	327.83	292.96	34.87	9.401		
5,800.00	5,216.44	5,949.98	5,170.83	40.27	46.39	1.46	-2,252.76	712.19	327.83	292.53	35.30	9.288		
5,900.00	5,315.47	6,049.98	5,269.85	40.58	46.70	1.46	-2,266.02	716.41	327.83	292.11	35.72	9.177		
6,000.00	5,414.49	6,149.98	5,368.88	40.89	47.00	1.47	-2,279.28	720.63	327.83	291.68	36.15	9.069		
6,100.00	5,513.52	6,249.98	5,467.91	41.20	47.30	1.47	-2,292.54	724.86	327.83	291.25	36.58	8.963		
6,200.00	5,612.55	6,349.98	5,566.93	41.51	47.60	1.47	-2,305.80	729.08	327.83	290.82	37.01	8.858		
6,300.00	5,711.57	6,449.98	5,665.96	41.82	47.91	1.48	-2,319.06	733.30	327.83	290.39	37.44	8.756		
6,400.00	5,810.60	6,549.98	5,764.99	42.13	48.21	1.48	-2,332.32	737.53	327.83	289.96	37.87	8.656		
6,500.00	5,909.63	6,649.98	5,864.01	42.45	48.52	1.48	-2,345.58	741.75	327.83	289.53	38.31	8.558		
6,600.00	6,008.65	6,749.98	5,963.04	42.76	48.82	1.49	-2,358.84	745.98	327.83	289.09	38.74	8.462		
6,700.00	6,107.68	6,849.98	6,062.07	43.08	49.13	1.49	-2,372.10	750.20	327.83	288.65	39.18	8.367		
6,800.00	6,206.71	6,949.98	6,161.09	43.39	49.44	1.49	-2,385.37	754.42	327.83	288.22	39.62	8.275		
6,900.00	6,305.73	7,049.98	6,260.12	43.71	49.74	1.50	-2,398.63	758.65	327.84	287.78	40.06	8.184		
6,901.28	6,307.00	7,051.26	6,261.39	43.71	49.75	1.50	-2,398.80	758.70	327.84	287.77	40.06	8.183		

# Scientific Drilling

## Anticollision Report

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well Shell 797-09-29A
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Reference Site:</b>	Shell 797-09A Pad	<b>MD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shell 797-09-29A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 2003.16 Multi User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Shell 797-09A Pad - Shell 797-09-37A - OH - Plan #2													Offset Site Error: 0.00 ft			
Survey Program: 0-MWD															Offset Well Error: 0.00 ft	
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
0.00	0.00	0.00	0.00	0.00	0.00	-155.73	-20.35	-9.18	22.32							
100.00	100.00	100.00	100.00	0.09	0.09	-155.73	-20.35	-9.18	22.32	22.14	0.18	121.100				
134.18	134.18	134.18	134.18	0.17	0.17	-155.73	-20.35	-9.18	22.32	21.98	0.34	66.043 CC, ES				
200.00	200.00	199.26	199.24	0.32	0.31	-157.48	-21.35	-8.85	23.13	22.51	0.62	37.131				
300.00	300.00	297.05	296.64	0.54	0.56	-167.86	-29.32	-6.31	30.18	29.09	1.09	27.758				
400.00	399.98	392.94	391.13	0.76	0.86	19.82	-44.79	-1.37	44.67	43.09	1.58	28.301				
500.00	499.57	487.41	482.56	0.97	1.32	14.51	-67.33	5.83	60.50	58.47	2.03	29.841				
600.00	598.02	580.70	570.63	1.24	1.90	11.50	-96.55	15.16	76.11	73.59	2.52	30.242				
700.00	694.58	672.88	654.93	1.67	2.62	9.58	-132.03	26.49	91.24	88.19	3.05	29.930				
800.00	788.52	764.05	735.09	2.27	3.46	8.26	-173.36	39.68	105.73	102.10	3.63	29.126				
900.00	879.12	854.30	810.79	3.03	4.42	7.32	-220.12	54.62	119.46	115.19	4.27	27.992				
1,000.00	965.70	943.70	881.74	3.97	5.48	6.61	-271.89	71.15	132.34	127.38	4.96	26.667				
1,100.00	1,047.59	1,032.33	947.69	5.06	6.65	6.07	-328.26	89.15	144.29	138.63	5.67	25.470				
1,200.00	1,124.84	1,120.16	1,008.35	6.30	7.91	5.64	-388.75	108.46	156.25	149.73	6.52	23.967				
1,300.00	1,201.35	1,213.62	1,068.45	7.57	9.35	5.13	-456.92	130.23	173.31	165.81	7.50	23.101				
1,400.00	1,277.86	1,312.02	1,131.26	8.85	10.89	4.66	-529.08	153.27	191.05	182.53	8.51	22.442				
1,500.00	1,354.37	1,410.43	1,194.08	10.14	12.43	4.28	-601.24	176.32	208.79	199.25	9.54	21.894				
1,600.00	1,430.88	1,508.83	1,256.89	11.43	13.97	3.96	-673.40	199.36	226.54	215.97	10.57	21.435				
1,700.00	1,507.39	1,607.24	1,319.71	12.72	15.52	3.68	-745.56	222.40	244.30	232.69	11.61	21.045				
1,800.00	1,583.90	1,705.64	1,382.52	14.02	17.06	3.44	-817.72	245.44	262.06	249.41	12.65	20.711				
1,900.00	1,660.41	1,804.05	1,445.34	15.31	18.61	3.23	-889.87	268.48	279.83	266.12	13.70	20.422				
2,000.00	1,736.92	1,902.45	1,508.15	16.61	20.17	3.05	-962.03	291.52	297.60	282.84	14.75	20.170				
2,100.00	1,813.43	2,000.86	1,570.96	17.91	21.72	2.89	-1,034.19	314.57	315.37	299.56	15.81	19.948				
2,200.00	1,889.94	2,099.26	1,633.78	19.21	23.27	2.74	-1,106.35	337.61	333.14	316.27	16.87	19.751				
2,300.00	1,966.45	2,197.66	1,696.59	20.52	24.82	2.61	-1,178.51	360.65	350.92	332.99	17.93	19.575				
2,400.00	2,042.96	2,296.07	1,759.41	21.82	26.38	2.49	-1,250.67	383.69	368.69	349.71	18.99	19.418				
2,500.00	2,119.47	2,394.47	1,822.22	23.12	27.93	2.39	-1,322.83	406.73	386.47	366.42	20.05	19.276				
2,600.00	2,195.98	2,492.88	1,885.04	24.42	29.49	2.29	-1,394.98	429.77	404.25	383.14	21.11	19.147				
2,700.00	2,272.49	2,591.28	1,947.85	25.72	31.04	2.20	-1,467.14	452.82	422.03	399.85	22.18	19.029				
2,800.00	2,349.00	2,689.69	2,010.67	27.03	32.60	2.12	-1,539.30	475.86	439.81	416.57	23.24	18.922				
2,900.00	2,425.51	2,788.09	2,073.48	28.33	34.15	2.04	-1,611.46	498.90	457.60	433.29	24.31	18.824				
3,000.00	2,504.05	2,885.85	2,135.89	29.31	35.70	1.98	-1,683.15	521.79	478.55	453.27	25.27	18.936				
3,100.00	2,586.22	2,982.16	2,197.36	30.22	37.22	1.92	-1,753.76	544.34	505.42	479.33	26.09	19.372				
3,200.00	2,671.71	3,116.59	2,286.60	31.06	38.92	1.81	-1,849.49	574.91	535.06	508.12	26.94	19.860				
3,300.00	2,760.21	3,261.32	2,391.50	31.82	40.57	1.71	-1,944.41	605.22	562.29	534.64	27.65	20.332				
3,400.00	2,851.39	3,410.71	2,508.57	32.49	42.12	1.64	-2,032.74	633.42	586.75	558.55	28.19	20.810				
3,500.00	2,944.89	3,564.54	2,637.43	33.07	43.52	1.57	-2,112.69	658.95	608.13	579.59	28.54	21.307				
3,600.00	3,040.39	3,722.43	2,777.27	33.56	44.74	1.52	-2,182.39	681.21	626.17	597.49	28.69	21.829				
3,700.00	3,137.52	3,883.84	2,926.83	33.96	45.74	1.48	-2,240.04	699.62	640.62	612.01	28.61	22.389				
3,800.00	3,235.91	4,048.09	3,084.39	34.27	46.50	1.46	-2,284.02	713.66	651.25	622.94	28.31	23.004				
3,900.00	3,334.93	4,210.25	3,243.71	34.53	47.02	1.44	-2,312.49	722.75	655.66	626.98	28.69	22.855				
4,000.00	3,433.96	4,310.25	3,342.73	34.83	47.28	1.44	-2,325.75	726.99	655.66	626.61	29.06	22.566				
4,100.00	3,532.98	4,410.25	3,441.76	35.12	47.56	1.44	-2,339.01	731.22	655.66	626.23	29.43	22.280				
4,200.00	3,632.01	4,510.25	3,540.79	35.42	47.84	1.44	-2,352.27	735.45	655.66	625.86	29.81	21.998				
4,300.00	3,731.04	4,610.25	3,639.81	35.71	48.12	1.45	-2,365.52	739.69	655.66	625.48	30.19	21.721				
4,400.00	3,830.06	4,710.25	3,738.84	36.01	48.40	1.45	-2,378.78	743.92	655.66	625.10	30.57	21.449				
4,500.00	3,929.09	4,810.25	3,837.87	36.31	48.68	1.45	-2,392.04	748.15	655.66	624.71	30.96	21.181				
4,600.00	4,028.12	4,910.25	3,936.89	36.61	48.97	1.45	-2,405.30	752.39	655.66	624.32	31.34	20.918				
4,700.00	4,127.14	5,010.25	4,035.92	36.91	49.25	1.45	-2,418.55	756.62	655.66	623.93	31.74	20.660				
4,800.00	4,226.17	5,110.25	4,134.95	37.21	49.54	1.45	-2,431.81	760.85	655.67	623.53	32.13	20.406				
4,900.00	4,325.20	5,210.25	4,233.97	37.51	49.83	1.45	-2,445.07	765.09	655.67	623.14	32.53	20.157				
5,000.00	4,424.22	5,310.25	4,333.00	37.82	50.11	1.45	-2,458.33	769.32	655.67	622.74	32.93	19.912				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Scientific Drilling

## Anticollision Report

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well Shell 797-09-29A
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Reference Site:</b>	Shell 797-09A Pad	<b>MD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shell 797-09-29A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 2003.16 Multi User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Shell 797-09A Pad - Shell 797-09-37A - OH - Plan #2		Offset Site Error:		0.00 ft
Survey Program: 0-MWD													Offset Well Error:		0.00 ft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
5,100.00	4,523.25	5,410.25	4,432.03	38.12	50.40	1.45	-2,471.59	773.55	655.67	622.34	33.33	19.672					
5,200.00	4,622.28	5,510.25	4,531.05	38.43	50.69	1.45	-2,484.84	777.79	655.67	621.93	33.73	19.436					
5,300.00	4,721.30	5,610.25	4,630.08	38.73	50.98	1.45	-2,498.10	782.02	655.67	621.52	34.14	19.204					
5,400.00	4,820.33	5,710.25	4,729.11	39.04	51.27	1.45	-2,511.36	786.25	655.67	621.12	34.55	18.977					
5,500.00	4,919.36	5,810.25	4,828.14	39.34	51.56	1.46	-2,524.62	790.49	655.67	620.70	34.96	18.754					
5,600.00	5,018.39	5,910.25	4,927.16	39.65	51.85	1.46	-2,537.87	794.72	655.67	620.29	35.37	18.535					
5,700.00	5,117.41	6,010.25	5,026.19	39.96	52.14	1.46	-2,551.13	798.96	655.67	619.88	35.79	18.320					
5,800.00	5,216.44	6,110.25	5,125.22	40.27	52.44	1.46	-2,564.39	803.19	655.67	619.46	36.21	18.109					
5,900.00	5,315.47	6,210.25	5,224.24	40.58	52.73	1.46	-2,577.65	807.42	655.67	619.04	36.63	17.902					
6,000.00	5,414.49	6,310.25	5,323.27	40.89	53.03	1.46	-2,590.91	811.66	655.67	618.62	37.05	17.699					
6,100.00	5,513.52	6,410.25	5,422.30	41.20	53.32	1.46	-2,604.16	815.89	655.67	618.20	37.47	17.499					
6,200.00	5,612.55	6,510.25	5,521.32	41.51	53.62	1.46	-2,617.42	820.12	655.67	617.78	37.89	17.303					
6,300.00	5,711.57	6,610.25	5,620.35	41.82	53.91	1.46	-2,630.68	824.36	655.67	617.35	38.32	17.111					
6,400.00	5,810.60	6,710.25	5,719.38	42.13	54.21	1.46	-2,643.94	828.59	655.67	616.92	38.75	16.923					
6,500.00	5,909.63	6,810.25	5,818.40	42.45	54.51	1.46	-2,657.19	832.82	655.67	616.50	39.17	16.737					
6,600.00	6,008.65	6,910.25	5,917.43	42.76	54.81	1.46	-2,670.45	837.06	655.67	616.07	39.60	16.556					
6,700.00	6,107.68	7,010.25	6,016.46	43.08	55.10	1.46	-2,683.71	841.29	655.67	615.63	40.04	16.377					
6,800.00	6,206.71	7,110.25	6,115.48	43.39	55.40	1.47	-2,696.97	845.52	655.67	615.20	40.47	16.202					
6,900.00	6,305.73	7,210.25	6,214.51	43.71	55.70	1.47	-2,710.23	849.76	655.67	614.77	40.90	16.030					
6,901.28	6,307.00	7,211.53	6,215.78	43.71	55.71	1.47	-2,710.40	849.81	655.67	614.76	40.91	16.028 SF					

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Scientific Drilling

## Anticollision Report

<b>Company:</b>	OXY USA RMAT	<b>Local Co-ordinate Reference:</b>	Well Shell 797-09-29A
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Reference Site:</b>	Shell 797-09A Pad	<b>MD Reference:</b>	GL 5915' & RKB 18' @ 5933.00ft (Trinidad 217)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Shell 797-09-29A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 2003.16 Multi User Db
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to GL 5915' & RKB 18' @ 5933.00ft (Trin)  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W °

Coordinates are relative to: Shell 797-09-29A  
Coordinate System is US State Plane 1927 (Exact solution), Colorado Central 502  
Grid Convergence at Surface is: -1.72°

