



## **Carrizo Oil & Gas**

**Weld County, Colorado (NAD83)**

**Speaker**

**1-27-31-8-61**

**Wellbore #1**

**Design #4**

## **Anticollision Report**

**30 June, 2011**

<b>Company:</b>	Carrizo Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well 1-27-31-8-61
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Reference Site:</b>	Speaker	<b>MD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	1-27-31-8-61	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Southern Region
<b>Reference Design:</b>	Design #4	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Design #4		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD + Stations Interval 100.00usft	<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 10,000.00 usft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	Date 6/30/2011				
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.00	5,700.00	Design #2 (Pilot)	MWD	MWD - Standard	
5,700.00	10,661.24	Design #4 (Wellbore #1)	MWD	MWD - Standard	

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (usft)</b>	<b>Offset Measured Depth (usft)</b>	<b>Distance Between Centres (usft)</b>	<b>Distance Between Ellipses (usft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Speaker						
2-27-31-8-61 - Pilot - Design #2	200.00	200.20	15.00	14.36	23.400	CC
2-27-31-8-61 - Pilot - Design #2	225.50	225.75	15.00	14.25	19.911	ES
2-27-31-8-61 - Pilot - Design #2	400.00	399.79	20.39	18.85	13.233	SF
2-27-31-8-61 - Wellbore #1 - Design #5	10,661.24	10,639.08	1,199.99	1,022.20	6.749	CC, ES, SF

<b>Offset Design</b>												
Speaker - 2-27-31-8-61 - Pilot - Design #2												
Survey Program: 0-MWD												
<b>Reference</b>		<b>Offset</b>		<b>Semi Major Axis</b>			<b>Distance</b>					
<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Reference (usft)</b>	<b>Offset (usft)</b>	<b>Azimuth from North (°)</b>	<b>Offset Wellbore Centre +N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Between Centres (usft)</b>	<b>Between Ellipses (usft)</b>	<b>Minimum Separation (usft)</b>	<b>Separation Factor</b>
0.00	0.00	0.20	0.20	0.00	0.00	179.92	-15.00	0.02	15.00			
100.00	100.00	100.20	100.20	0.10	0.10	179.92	-15.00	0.02	15.00	14.81	0.19	78.329
200.00	200.00	200.20	200.20	0.32	0.32	179.92	-15.00	0.02	15.00	14.36	0.64	23.400 CC
225.50	225.50	225.75	225.75	0.38	0.38	-179.05	-14.95	-0.12	15.00	14.25	0.75	19.911 ES
300.00	299.97	300.26	300.23	0.54	0.54	-164.80	-14.25	-2.04	15.57	14.48	1.08	14.361
320.00	319.95	320.18	320.12	0.60	0.60	-158.64	-13.92	-2.94	16.14	14.97	1.18	13.733
400.00	399.84	399.79	399.63	0.77	0.77	-137.74	-12.50	-6.86	20.39	18.85	1.54	13.233 SF
500.00	499.70	499.31	499.01	1.00	1.00	-122.83	-10.72	-11.75	27.98	25.99	1.99	14.067
600.00	599.56	598.83	598.39	1.24	1.24	-114.59	-8.94	-16.65	36.64	34.20	2.43	15.047
700.00	699.42	698.35	697.78	1.48	1.48	-109.56	-7.16	-21.54	45.76	42.88	2.88	15.879
800.00	799.29	797.87	797.16	1.72	1.72	-106.21	-5.38	-26.44	55.11	51.78	3.33	16.550
900.00	899.15	897.39	896.54	1.96	1.97	-103.85	-3.60	-31.33	64.60	60.82	3.78	17.091
1,000.00	999.01	996.90	995.92	2.21	2.21	-102.09	-1.82	-36.23	74.17	69.94	4.23	17.531
1,100.00	1,098.88	1,096.42	1,095.30	2.45	2.45	-100.73	-0.04	-41.12	83.79	79.11	4.68	17.895
1,200.00	1,198.74	1,195.94	1,194.69	2.69	2.70	-99.66	1.74	-46.02	93.45	88.32	5.13	18.200
1,300.00	1,298.60	1,295.46	1,294.07	2.93	2.94	-98.78	3.52	-50.91	103.14	97.55	5.59	18.459
1,400.00	1,398.47	1,394.98	1,393.45	3.18	3.18	-98.06	5.30	-55.81	112.85	106.81	6.04	18.681
1,500.00	1,498.33	1,494.50	1,492.83	3.42	3.43	-97.45	7.07	-60.70	122.57	116.08	6.49	18.873
1,600.00	1,598.05	1,589.08	1,587.18	3.68	3.67	-96.87	9.36	-66.98	136.04	129.10	6.94	19.614
1,700.00	1,697.34	1,681.49	1,679.00	3.97	3.94	-96.20	12.87	-76.63	157.27	149.89	7.38	21.312
1,719.84	1,716.98	1,700.00	1,697.34	4.03	3.99	-96.06	13.72	-78.98	162.39	154.92	7.47	21.746
1,800.00	1,796.26	1,775.31	1,771.84	4.28	4.23	-95.48	17.49	-89.36	184.21	176.36	7.85	23.467

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

<b>Company:</b>	Carrizo Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well 1-27-31-8-61
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Reference Site:</b>	Speaker	<b>MD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	1-27-31-8-61	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Southern Region
<b>Reference Design:</b>	Design #4	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
1,900.00	1,895.16	1,871.47	1,866.94	4.61	4.55	-94.87	22.35	-102.71	211.57	203.25	8.32	25.418		
2,000.00	1,994.06	1,967.63	1,962.05	4.93	4.86	-94.40	27.20	-116.06	238.95	230.15	8.80	27.153		
2,100.00	2,092.97	2,063.79	2,057.16	5.27	5.18	-94.03	32.05	-129.41	266.34	257.06	9.28	28.701		
2,200.00	2,191.87	2,159.96	2,152.27	5.60	5.51	-93.72	36.91	-142.76	293.74	283.97	9.76	30.090		
2,300.00	2,290.77	2,256.12	2,247.37	5.94	5.84	-93.47	41.76	-156.11	321.14	310.89	10.25	31.343		
2,400.00	2,389.68	2,352.28	2,342.48	6.28	6.16	-93.26	46.62	-169.47	348.55	337.82	10.73	32.478		
2,500.00	2,488.58	2,448.44	2,437.59	6.62	6.50	-93.08	51.47	-182.82	375.96	364.74	11.22	33.509		
2,600.00	2,587.48	2,544.61	2,532.70	6.96	6.83	-92.92	56.32	-196.17	403.38	391.67	11.71	34.451		
2,700.00	2,686.38	2,640.77	2,627.80	7.30	7.16	-92.79	61.18	-209.52	430.80	418.60	12.20	35.314		
2,800.00	2,785.29	2,736.93	2,722.91	7.65	7.50	-92.67	66.03	-222.87	458.22	445.53	12.69	36.107		
2,900.00	2,884.19	2,833.09	2,818.02	8.00	7.83	-92.56	70.89	-236.22	485.64	472.46	13.18	36.839		
3,000.00	2,983.09	2,929.26	2,913.12	8.34	8.17	-92.47	75.74	-249.57	513.07	499.39	13.68	37.515		
3,100.00	3,081.99	3,025.42	3,008.23	8.69	8.51	-92.38	80.59	-262.92	540.50	526.32	14.17	38.142		
3,200.00	3,180.90	3,121.58	3,103.34	9.04	8.85	-92.30	85.45	-276.28	567.92	553.26	14.67	38.725		
3,300.00	3,279.80	3,217.74	3,198.45	9.39	9.19	-92.23	90.30	-289.63	595.35	580.19	15.16	39.268		
3,400.00	3,378.70	3,313.91	3,293.55	9.74	9.53	-92.17	95.15	-302.98	622.78	607.12	15.66	39.775		
3,500.00	3,477.60	3,410.07	3,388.66	10.09	9.87	-92.11	100.01	-316.33	650.21	634.05	16.15	40.250		
3,600.00	3,576.51	3,506.23	3,483.77	10.44	10.21	-92.06	104.86	-329.68	677.64	660.99	16.65	40.695		
3,700.00	3,675.41	3,602.39	3,578.87	10.79	10.55	-92.01	109.72	-343.03	705.07	687.92	17.15	41.114		
3,800.00	3,774.31	3,698.55	3,673.98	11.15	10.89	-91.96	114.57	-356.38	732.50	714.85	17.65	41.507		
3,900.00	3,873.21	3,794.72	3,769.09	11.50	11.23	-91.92	119.42	-369.73	759.93	741.79	18.15	41.878		
4,000.00	3,972.12	3,890.88	3,864.20	11.85	11.58	-91.88	124.28	-383.09	787.36	768.72	18.65	42.229		
4,100.00	4,071.02	3,987.04	3,959.30	12.20	11.92	-91.84	129.13	-396.44	814.80	795.65	19.14	42.560		
4,200.00	4,169.92	4,083.20	4,054.41	12.56	12.26	-91.81	133.98	-409.79	842.23	822.59	19.64	42.874		
4,300.00	4,268.83	4,179.37	4,149.52	12.91	12.61	-91.77	138.84	-423.14	869.66	849.52	20.14	43.171		
4,400.00	4,367.73	4,275.53	4,244.63	13.26	12.95	-91.74	143.69	-436.49	897.10	876.45	20.64	43.454		
4,500.00	4,466.63	4,371.69	4,339.73	13.62	13.29	-91.72	148.55	-449.84	924.53	903.38	21.15	43.722		
4,600.00	4,565.53	4,467.85	4,434.84	13.97	13.64	-91.69	153.40	-463.19	951.96	930.32	21.65	43.978		
4,700.00	4,664.44	4,564.02	4,529.95	14.32	13.98	-91.66	158.25	-476.55	979.40	957.25	22.15	44.221		
4,800.00	4,763.34	4,660.18	4,625.05	14.68	14.32	-91.64	163.11	-489.90	1,006.83	984.18	22.65	44.453		
4,900.00	4,862.24	4,756.34	4,720.16	15.03	14.67	-91.62	167.96	-503.25	1,034.26	1,011.11	23.15	44.675		
5,000.00	4,961.14	4,852.50	4,815.27	15.39	15.01	-91.59	172.82	-516.60	1,061.70	1,038.05	23.65	44.887		
5,100.00	5,060.05	4,948.67	4,910.38	15.74	15.36	-91.57	177.67	-529.95	1,089.13	1,064.98	24.15	45.090		
5,200.00	5,158.95	5,044.83	5,005.48	16.10	15.70	-91.55	182.52	-543.30	1,116.57	1,091.91	24.66	45.284		
5,258.45	5,216.76	5,101.04	5,061.07	16.30	15.90	-91.54	185.36	-551.11	1,132.60	1,107.65	24.95	45.393		
5,300.00	5,257.89	5,141.07	5,100.67	16.43	16.05	-91.53	187.38	-556.66	1,143.73	1,118.54	25.19	45.410		
5,400.00	5,357.21	5,238.00	5,196.53	16.67	16.39	-91.46	192.27	-570.12	1,168.26	1,142.55	25.71	45.441		
5,500.00	5,456.88	5,394.55	5,351.90	16.88	16.80	-91.25	198.80	-588.09	1,187.28	1,161.00	26.28	45.184		
5,600.00	5,556.76	5,557.13	5,514.09	17.06	17.10	-91.14	202.51	-598.28	1,197.87	1,171.09	26.78	44.738		
5,683.25	5,640.00	5,683.27	5,640.20	17.18	17.29	-91.12	203.23	-600.26	1,200.21	1,173.07	27.14	44.222		
5,700.00	5,656.75	5,700.02	5,656.95	17.20	17.31	-91.12	203.23	-600.26	1,200.21	1,173.01	27.20	44.124		
5,766.29	5,723.04	5,766.31	5,723.24	17.30	17.41	-91.12	203.23	-600.26	1,200.21	1,172.76	27.45	43.724		
5,800.00	5,756.73	5,800.00	5,756.93	17.35	17.46	-91.07	203.23	-600.26	1,200.19	1,172.62	27.57	43.534		
5,850.00	5,806.45	5,849.72	5,806.65	17.40	17.54	-90.83	203.23	-600.26	1,200.11	1,172.39	27.72	43.287		
5,900.00	5,855.54	5,898.81	5,855.74	17.43	17.62	-90.38	203.23	-600.26	1,200.02	1,172.17	27.86	43.075		
5,925.51	5,880.22	5,923.49	5,880.42	17.44	17.66	-90.07	203.23	-600.26	1,200.01	1,172.09	27.92	42.982		
5,950.00	5,903.62	5,946.89	5,903.82	17.46	17.69	-89.73	203.23	-600.26	1,200.03	1,172.05	27.97	42.897		
6,000.00	5,950.33	5,993.59	5,950.53	17.47	17.77	-88.88	203.23	-600.26	1,200.27	1,172.20	28.07	42.756		
6,050.00	5,995.30	6,038.57	5,995.50	17.47	17.84	-87.84	203.23	-600.26	1,200.92	1,172.76	28.16	42.652		
6,100.00	6,038.20	6,081.47	6,038.40	17.47	17.91	-86.61	203.23	-600.26	1,202.19	1,173.97	28.23	42.588		
6,150.00	6,078.71	6,121.97	6,078.91	17.47	17.97	-85.22	203.23	-600.26	1,204.32	1,176.02	28.29	42.563		
6,200.00	6,116.50	6,159.77	6,116.70	17.47	18.03	-83.68	203.23	-600.26	1,207.52	1,179.16	28.36	42.573		

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

<b>Company:</b>	Carrizo Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well 1-27-31-8-61
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Reference Site:</b>	Speaker	<b>MD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	1-27-31-8-61	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Southern Region
<b>Reference Design:</b>	Design #4	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,250.00	6,151.31	6,194.57	6,151.51	17.48	18.09	-81.99	203.23	-600.26	1,212.04	1,183.59	28.44	42.610		
6,300.00	6,182.85	6,226.12	6,183.05	17.51	18.14	-80.19	203.23	-600.26	1,218.09	1,189.54	28.55	42.658		
6,350.00	6,210.89	6,254.16	6,211.09	17.55	18.18	-78.28	203.23	-600.26	1,225.88	1,197.17	28.71	42.700		
6,400.00	6,235.23	6,278.49	6,235.43	17.62	18.22	-76.30	203.23	-600.26	1,235.54	1,206.61	28.92	42.717		
6,450.00	6,255.66	6,298.92	6,255.86	17.73	18.26	-74.26	203.23	-600.26	1,247.19	1,217.98	29.21	42.697		
6,500.00	6,272.04	6,315.30	6,272.24	17.87	18.28	-72.20	203.23	-600.26	1,260.87	1,231.30	29.57	42.641		
6,550.00	6,284.24	6,327.51	6,284.44	18.07	18.30	-70.13	203.23	-600.26	1,276.58	1,246.59	29.99	42.563		
6,600.00	6,292.17	6,335.44	6,292.37	18.33	18.32	-68.07	203.23	-600.26	1,294.25	1,263.79	30.45	42.497		
6,650.00	6,295.77	6,339.03	6,295.97	18.64	18.32	-66.05	203.23	-600.26	1,313.74	1,282.82	30.92	42.491		
6,666.29	6,296.00	6,339.27	6,296.20	18.75	18.32	-65.41	203.23	-600.26	1,320.45	1,289.39	31.06	42.511		
6,700.00	6,296.00	6,339.27	6,296.20	19.00	18.32	-64.09	203.23	-600.26	1,334.87	1,303.48	31.39	42.532		
6,800.00	6,296.00	6,339.27	6,296.20	19.89	18.32	-60.36	203.23	-600.26	1,381.60	1,349.14	32.46	42.562		
6,900.00	6,296.00	6,339.27	6,296.20	20.95	18.32	-56.89	203.23	-600.26	1,433.79	1,400.11	33.68	42.567		
7,000.00	6,296.00	6,339.27	6,296.20	22.15	18.32	-53.67	203.23	-600.26	1,490.87	1,455.84	35.03	42.565		
7,100.00	6,296.00	6,339.27	6,296.20	23.46	18.32	-50.70	203.23	-600.26	1,552.30	1,515.83	36.47	42.567		
7,200.00	6,296.00	6,339.27	6,296.20	24.87	18.32	-47.96	203.23	-600.26	1,617.58	1,579.59	37.99	42.582		
7,300.00	6,296.00	6,339.27	6,296.20	26.36	18.32	-45.44	203.23	-600.26	1,686.27	1,646.69	39.57	42.611		
7,400.00	6,296.00	6,339.27	6,296.20	27.90	18.32	-43.12	203.23	-600.26	1,757.96	1,716.75	41.21	42.656		
7,500.00	6,296.00	6,339.27	6,296.20	29.50	18.32	-40.98	203.23	-600.26	1,832.31	1,789.42	42.90	42.715		
7,600.00	6,296.00	6,339.27	6,296.20	31.15	18.32	-39.02	203.23	-600.26	1,909.01	1,864.39	44.62	42.788		
7,700.00	6,296.00	6,339.27	6,296.20	32.83	18.32	-37.21	203.23	-600.26	1,987.78	1,941.41	46.37	42.871		
7,800.00	6,296.00	6,339.27	6,296.20	34.54	18.32	-35.53	203.23	-600.26	2,068.38	2,020.24	48.14	42.964		
7,900.00	6,296.00	6,339.27	6,296.20	36.28	18.32	-33.99	203.23	-600.26	2,150.61	2,100.67	49.94	43.064		
8,000.00	6,296.00	6,339.27	6,296.20	38.05	18.32	-32.56	203.23	-600.26	2,234.29	2,182.54	51.76	43.169		
8,100.00	6,296.00	6,339.27	6,296.20	39.83	18.32	-31.23	203.23	-600.26	2,319.27	2,265.68	53.59	43.278		
8,200.00	6,296.00	6,339.27	6,296.20	41.63	18.32	-30.00	203.23	-600.26	2,405.40	2,349.96	55.44	43.390		
8,300.00	6,296.00	6,339.27	6,296.20	43.45	18.32	-28.85	203.23	-600.26	2,492.56	2,435.27	57.30	43.504		
8,400.00	6,296.00	6,339.27	6,296.20	45.28	18.32	-27.78	203.23	-600.26	2,580.66	2,521.50	59.16	43.618		
8,500.00	6,296.00	6,339.27	6,296.20	47.13	18.32	-26.78	203.23	-600.26	2,669.60	2,608.55	61.04	43.733		
8,600.00	6,296.00	6,339.27	6,296.20	48.98	18.32	-25.85	203.23	-600.26	2,759.29	2,696.36	62.93	43.847		
8,700.00	6,296.00	6,339.27	6,296.20	50.84	18.32	-24.98	203.23	-600.26	2,849.67	2,784.85	64.82	43.960		
8,800.00	6,296.00	6,339.27	6,296.20	52.71	18.32	-24.15	203.23	-600.26	2,940.67	2,873.95	66.72	44.072		
8,900.00	6,296.00	6,339.27	6,296.20	54.59	18.32	-23.38	203.23	-600.26	3,032.24	2,963.61	68.63	44.182		
9,000.00	6,296.00	6,339.27	6,296.20	56.48	18.32	-22.66	203.23	-600.26	3,124.33	3,053.79	70.54	44.290		
9,100.00	6,296.00	6,339.27	6,296.20	58.37	18.32	-21.97	203.23	-600.26	3,216.89	3,144.43	72.46	44.397		
9,200.00	6,296.00	6,339.27	6,296.20	60.27	18.32	-21.33	203.23	-600.26	3,309.88	3,235.50	74.38	44.501		
9,300.00	6,296.00	6,339.27	6,296.20	62.17	18.32	-20.72	203.23	-600.26	3,403.27	3,326.97	76.30	44.602		
9,400.00	6,296.00	6,339.27	6,296.20	64.08	18.32	-20.14	203.23	-600.26	3,497.03	3,418.80	78.23	44.702		
9,500.00	6,296.00	6,339.27	6,296.20	65.99	18.32	-19.59	203.23	-600.26	3,591.12	3,510.96	80.16	44.799		
9,600.00	6,296.00	6,339.27	6,296.20	67.91	18.32	-19.07	203.23	-600.26	3,685.52	3,603.43	82.09	44.894		
9,700.00	6,296.00	6,339.27	6,296.20	69.83	18.32	-18.58	203.23	-600.26	3,780.21	3,696.18	84.03	44.986		
9,800.00	6,296.00	6,339.27	6,296.20	71.75	18.32	-18.11	203.23	-600.26	3,875.17	3,789.20	85.97	45.076		
9,900.00	6,296.00	6,339.27	6,296.20	73.68	18.32	-17.66	203.23	-600.26	3,970.37	3,882.46	87.91	45.164		
10,000.00	6,296.00	6,339.27	6,296.20	75.61	18.32	-17.24	203.23	-600.26	4,065.81	3,975.96	89.85	45.249		
10,100.00	6,296.00	6,339.27	6,296.20	77.54	18.32	-16.83	203.23	-600.26	4,161.46	4,069.66	91.80	45.332		
10,200.00	6,296.00	6,339.27	6,296.20	79.47	18.32	-16.44	203.23	-600.26	4,257.31	4,163.56	93.75	45.413		
10,300.00	6,296.00	6,339.27	6,296.20	81.41	18.32	-16.07	203.23	-600.26	4,353.35	4,257.65	95.69	45.492		
10,400.00	6,296.00	6,339.27	6,296.20	83.35	18.32	-15.72	203.23	-600.26	4,449.56	4,351.91	97.64	45.569		
10,500.00	6,296.00	6,339.27	6,296.20	85.29	18.32	-15.38	203.23	-600.26	4,545.93	4,446.34	99.60	45.644		
10,600.00	6,296.00	6,339.27	6,296.20	87.23	18.32	-15.05	203.23	-600.26	4,642.46	4,540.91	101.55	45.717		
10,661.24	6,296.00	6,339.27	6,296.20	88.42	18.32	-14.86	203.23	-600.26	4,701.64	4,598.90	102.74	45.761		

<b>Company:</b>	Carrizo Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well 1-27-31-8-61
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Reference Site:</b>	Speaker	<b>MD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	1-27-31-8-61	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Southern Region
<b>Reference Design:</b>	Design #4	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 5700-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	5,700.00	5,656.93	0.00	0.00	-71.30	203.23	-600.26	5,692.12					
100.00	100.00	5,700.00	5,656.93	0.10	0.00	-71.30	203.23	-600.26	5,592.75	5,592.66	0.10	N/A		
200.00	200.00	5,700.00	5,656.93	0.32	0.00	-71.30	203.23	-600.26	5,493.41	5,493.09	0.32	N/A		
300.00	299.97	5,700.00	5,656.93	0.54	0.00	-71.42	203.23	-600.26	5,394.32	5,393.78	0.54	9,972.836		
320.00	319.95	5,700.00	5,656.93	0.60	0.00	-71.48	203.23	-600.26	5,374.57	5,373.99	0.58	9,198.400		
400.00	399.84	5,700.00	5,656.93	0.77	0.00	-71.71	203.23	-600.26	5,295.64	5,294.88	0.76	6,979.829		
500.00	499.70	5,700.00	5,656.93	1.00	0.00	-72.01	203.23	-600.26	5,197.03	5,196.05	0.98	5,293.854		
600.00	599.56	5,700.00	5,656.93	1.24	0.00	-72.30	203.23	-600.26	5,098.47	5,097.26	1.21	4,222.726		
700.00	699.42	5,700.00	5,656.93	1.48	0.00	-72.58	203.23	-600.26	4,999.96	4,998.53	1.43	3,485.561		
800.00	799.29	5,700.00	5,656.93	1.72	0.00	-72.86	203.23	-600.26	4,901.52	4,899.86	1.66	2,948.454		
900.00	899.15	5,700.00	5,656.93	1.96	0.00	-73.14	203.23	-600.26	4,803.14	4,801.25	1.89	2,540.188		
1,000.00	999.01	5,700.00	5,656.93	2.21	0.00	-73.42	203.23	-600.26	4,704.83	4,702.71	2.12	2,219.596		
1,100.00	1,098.88	5,700.00	5,656.93	2.45	0.00	-73.69	203.23	-600.26	4,606.59	4,604.24	2.35	1,961.295		
1,200.00	1,198.74	5,700.00	5,656.93	2.69	0.00	-73.96	203.23	-600.26	4,508.43	4,505.85	2.58	1,748.803		
1,300.00	1,298.60	5,700.00	5,656.93	2.93	0.00	-74.22	203.23	-600.26	4,410.35	4,407.54	2.81	1,570.969		
1,400.00	1,398.47	5,700.00	5,656.93	3.18	0.00	-74.48	203.23	-600.26	4,312.36	4,309.32	3.04	1,419.979		
1,500.00	1,498.33	5,700.00	5,656.93	3.42	0.00	-74.74	203.23	-600.26	4,214.47	4,211.20	3.27	1,290.203		
1,600.00	1,598.05	5,700.00	5,656.93	3.68	0.00	-75.10	203.23	-600.26	4,117.11	4,113.62	3.49	1,180.650		
1,700.00	1,697.34	5,700.00	5,656.93	3.97	0.00	-75.66	203.23	-600.26	4,020.92	4,017.20	3.71	1,083.332		
1,719.84	1,716.98	5,700.00	5,656.93	4.03	0.00	-75.80	203.23	-600.26	4,001.99	3,998.24	3.76	1,065.429		
1,800.00	1,796.26	5,700.00	5,656.93	4.28	0.00	-76.34	203.23	-600.26	3,925.73	3,921.77	3.95	993.275		
1,900.00	1,895.16	5,700.00	5,656.93	4.61	0.00	-77.00	203.23	-600.26	3,830.81	3,826.61	4.20	912.411		
2,000.00	1,994.06	5,700.00	5,656.93	4.93	0.00	-77.64	203.23	-600.26	3,736.16	3,731.71	4.45	840.276		
2,100.00	2,092.97	5,700.00	5,656.93	5.27	0.00	-78.25	203.23	-600.26	3,641.79	3,637.09	4.70	775.602		
2,200.00	2,191.87	5,700.00	5,656.93	5.60	0.00	-78.85	203.23	-600.26	3,547.73	3,542.78	4.95	717.347		
2,300.00	2,290.77	5,700.00	5,656.93	5.94	0.00	-79.43	203.23	-600.26	3,454.00	3,448.81	5.20	664.646		
2,400.00	2,389.68	5,700.00	5,656.93	6.28	0.00	-79.98	203.23	-600.26	3,360.64	3,355.19	5.45	616.777		
2,500.00	2,488.58	5,700.00	5,656.93	6.62	0.00	-80.52	203.23	-600.26	3,267.67	3,261.97	5.70	573.138		
2,600.00	2,587.48	5,700.00	5,656.93	6.96	0.00	-81.05	203.23	-600.26	3,175.13	3,169.17	5.95	533.220		
2,700.00	2,686.38	5,700.00	5,656.93	7.30	0.00	-81.56	203.23	-600.26	3,083.05	3,076.84	6.21	496.590		
2,800.00	2,785.29	5,700.00	5,656.93	7.65	0.00	-82.05	203.23	-600.26	2,991.48	2,985.02	6.46	462.882		
2,900.00	2,884.19	5,700.00	5,656.93	8.00	0.00	-82.52	203.23	-600.26	2,900.47	2,893.75	6.72	431.782		
3,000.00	2,983.09	5,700.00	5,656.93	8.34	0.00	-82.99	203.23	-600.26	2,810.07	2,803.10	6.97	403.020		
3,100.00	3,081.99	5,700.00	5,656.93	8.69	0.00	-83.43	203.23	-600.26	2,720.34	2,713.11	7.23	376.364		
3,200.00	3,180.90	5,700.00	5,656.93	9.04	0.00	-83.87	203.23	-600.26	2,631.35	2,623.87	7.48	351.613		
3,300.00	3,279.80	5,700.00	5,656.93	9.39	0.00	-84.29	203.23	-600.26	2,543.18	2,535.44	7.74	328.591		
3,400.00	3,378.70	5,700.00	5,656.93	9.74	0.00	-84.70	203.23	-600.26	2,455.92	2,447.92	8.00	307.147		
3,500.00	3,477.60	5,700.00	5,656.93	10.09	0.00	-85.10	203.23	-600.26	2,369.66	2,361.41	8.25	287.150		
3,600.00	3,576.51	5,700.00	5,656.93	10.44	0.00	-85.49	203.23	-600.26	2,284.53	2,276.02	8.51	268.483		
3,700.00	3,675.41	5,700.00	5,656.93	10.79	0.00	-85.86	203.23	-600.26	2,200.64	2,191.88	8.77	251.046		
3,800.00	3,774.31	5,700.00	5,656.93	11.15	0.00	-86.23	203.23	-600.26	2,118.16	2,109.13	9.02	234.754		
3,900.00	3,873.21	5,700.00	5,656.93	11.50	0.00	-86.59	203.23	-600.26	2,037.24	2,027.96	9.28	219.529		
4,000.00	3,972.12	5,700.00	5,656.93	11.85	0.00	-86.93	203.23	-600.26	1,958.09	1,948.55	9.54	205.307		
4,100.00	4,071.02	5,700.00	5,656.93	12.20	0.00	-87.27	203.23	-600.26	1,880.92	1,871.13	9.79	192.032		
4,200.00	4,169.92	5,700.00	5,656.93	12.56	0.00	-87.60	203.23	-600.26	1,806.00	1,795.95	10.05	179.659		
4,300.00	4,268.83	5,700.00	5,656.93	12.91	0.00	-87.92	203.23	-600.26	1,733.61	1,723.30	10.31	168.147		
4,400.00	4,367.73	5,700.00	5,656.93	13.26	0.00	-88.23	203.23	-600.26	1,664.08	1,653.51	10.57	157.466		
4,500.00	4,466.63	5,700.00	5,656.93	13.62	0.00	-88.53	203.23	-600.26	1,597.79	1,586.96	10.83	147.591		
4,600.00	4,565.53	5,700.00	5,656.93	13.97	0.00	-88.83	203.23	-600.26	1,535.15	1,524.07	11.08	138.505		
4,700.00	4,664.44	5,700.00	5,656.93	14.32	0.00	-89.12	203.23	-600.26	1,476.64	1,465.30	11.34	130.194		
4,800.00	4,763.34	5,700.00	5,656.93	14.68	0.00	-89.40	203.23	-600.26	1,422.75	1,411.15	11.60	122.652		
4,900.00	4,862.24	5,700.00	5,656.93	15.03	0.00	-89.67	203.23	-600.26	1,374.04	1,362.18	11.86	115.873		

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

<b>Company:</b>	Carrizo Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well 1-27-31-8-61
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Reference Site:</b>	Speaker	<b>MD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	1-27-31-8-61	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Southern Region
<b>Reference Design:</b>	Design #4	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 5700-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,961.14	5,700.00	5,656.93	15.39	0.00	-89.94	203.23	-600.26	1,331.07	1,318.95	12.12	109.857		
5,100.00	5,060.05	5,700.00	5,656.93	15.74	0.00	-90.20	203.23	-600.26	1,294.41	1,282.04	12.37	104.601		
5,200.00	5,158.95	5,700.00	5,656.93	16.10	0.00	-90.46	203.23	-600.26	1,264.62	1,251.99	12.63	100.104		
5,258.45	5,216.76	5,700.00	5,656.93	16.30	0.00	-90.60	203.23	-600.26	1,250.59	1,237.80	12.78	97.823		
5,300.00	5,257.89	5,700.00	5,656.93	16.43	0.00	-90.70	203.23	-600.26	1,241.91	1,229.02	12.89	96.377		
5,400.00	5,357.21	5,700.00	5,656.93	16.67	0.00	-90.89	203.23	-600.26	1,224.24	1,211.15	13.09	93.528		
5,500.00	5,456.88	5,700.00	5,656.93	16.88	0.00	-91.03	203.23	-600.26	1,211.29	1,198.02	13.27	91.288		
5,600.00	5,556.76	5,700.00	5,656.93	17.06	0.00	-91.10	203.23	-600.26	1,203.23	1,189.81	13.42	89.637		
5,683.25	5,640.00	5,700.00	5,656.93	17.18	0.00	-91.12	203.23	-600.26	1,200.32	1,186.78	13.54	88.640		
5,700.00	5,656.75	5,700.02	5,656.95	17.20	0.00	-91.12	203.23	-600.26	1,200.21	1,186.64	13.57	88.434		
5,744.13	5,700.88	5,744.14	5,701.08	17.27	0.05	-91.12	203.23	-600.26	1,200.21	1,186.50	13.70	87.581		
5,766.29	5,723.04	5,766.11	5,723.04	17.30	0.07	-91.12	203.23	-600.26	1,200.21	1,186.44	13.77	87.161		
5,800.00	5,756.73	5,798.77	5,755.68	17.35	0.17	-91.12	202.30	-600.26	1,200.21	1,186.32	13.89	86.416		
5,850.00	5,806.45	5,846.93	5,803.59	17.40	0.37	-91.10	197.54	-600.25	1,200.20	1,186.13	14.07	85.282		
5,900.00	5,855.54	5,895.11	5,850.95	17.43	0.60	-91.07	188.77	-600.24	1,200.20	1,185.90	14.30	83.942		
5,950.00	5,903.62	5,943.32	5,897.44	17.46	0.84	-91.02	176.04	-600.23	1,200.19	1,185.61	14.58	82.343		
6,000.00	5,950.33	5,991.58	5,942.74	17.47	1.07	-90.97	159.44	-600.21	1,200.18	1,185.27	14.91	80.476		
6,050.00	5,995.30	6,039.89	5,986.52	17.47	1.41	-90.90	139.05	-600.18	1,200.17	1,184.85	15.32	78.352		
6,100.00	6,038.20	6,088.27	6,028.50	17.47	1.87	-90.82	115.02	-600.15	1,200.15	1,184.36	15.79	75.995		
6,150.00	6,078.71	6,136.73	6,068.35	17.47	2.40	-90.74	87.48	-600.12	1,200.13	1,183.79	16.34	73.432		
6,200.00	6,116.50	6,185.28	6,105.81	17.47	2.99	-90.65	56.61	-600.08	1,200.12	1,183.14	16.98	70.696		
6,250.00	6,151.31	6,233.94	6,140.59	17.48	3.65	-90.56	22.61	-600.04	1,200.10	1,182.41	17.69	67.826		
6,300.00	6,182.85	6,282.70	6,172.43	17.51	4.36	-90.47	-14.30	-599.99	1,200.08	1,181.58	18.50	64.864		
6,350.00	6,210.89	6,331.59	6,201.09	17.55	5.13	-90.39	-53.89	-599.94	1,200.07	1,180.66	19.40	61.853		
6,400.00	6,235.23	6,380.61	6,226.33	17.62	5.95	-90.31	-95.89	-599.89	1,200.05	1,179.66	20.40	58.838		
6,450.00	6,255.66	6,429.76	6,247.94	17.73	6.81	-90.24	-140.03	-599.83	1,200.04	1,178.55	21.48	55.861		
6,500.00	6,272.04	6,479.06	6,265.74	17.87	7.70	-90.18	-185.99	-599.78	1,200.03	1,177.37	22.66	52.961		
6,550.00	6,284.24	6,528.51	6,279.56	18.07	8.63	-90.13	-233.45	-599.72	1,200.02	1,176.10	23.92	50.172		
6,600.00	6,292.17	6,578.13	6,289.26	18.33	9.58	-90.09	-282.09	-599.66	1,200.01	1,174.76	25.25	47.521		
6,650.00	6,295.77	6,627.90	6,294.73	18.64	10.54	-90.08	-331.55	-599.59	1,200.01	1,173.36	26.65	45.028		
6,666.29	6,296.00	6,644.15	6,295.58	18.75	10.86	-90.07	-347.77	-599.57	1,200.01	1,172.89	27.12	44.252		
6,700.00	6,296.00	6,677.84	6,296.00	19.00	11.52	-90.07	-381.46	-599.53	1,200.01	1,171.90	28.10	42.703		
6,800.00	6,296.00	6,777.84	6,296.00	19.89	13.48	-90.07	-481.46	-599.41	1,200.01	1,168.87	31.14	38.539		
6,900.00	6,296.00	6,877.84	6,296.00	20.95	15.45	-90.07	-581.46	-599.28	1,200.00	1,165.68	34.33	34.960		
7,000.00	6,296.00	6,977.84	6,296.00	22.15	17.42	-90.07	-681.46	-599.16	1,200.00	1,162.37	37.64	31.883		
7,100.00	6,296.00	7,077.84	6,296.00	23.46	19.39	-90.07	-781.46	-599.03	1,200.00	1,158.95	41.05	29.233		
7,200.00	6,296.00	7,177.84	6,296.00	24.87	21.36	-90.07	-881.46	-598.91	1,200.00	1,155.46	44.54	26.940		
7,300.00	6,296.00	7,277.84	6,296.00	26.36	23.33	-90.07	-981.46	-598.79	1,200.00	1,151.90	48.10	24.946		
7,400.00	6,296.00	7,377.84	6,296.00	27.90	25.31	-90.07	-1,081.46	-598.66	1,200.00	1,148.29	51.72	23.203		
7,500.00	6,296.00	7,477.84	6,296.00	29.50	27.29	-90.07	-1,181.46	-598.54	1,200.00	1,144.63	55.38	21.670		
7,600.00	6,296.00	7,577.84	6,296.00	31.15	29.26	-90.07	-1,281.46	-598.41	1,200.00	1,140.93	59.07	20.314		
7,700.00	6,296.00	7,677.84	6,296.00	32.83	31.24	-90.07	-1,381.46	-598.29	1,200.00	1,137.20	62.80	19.108		
7,800.00	6,296.00	7,777.84	6,296.00	34.54	33.22	-90.07	-1,481.46	-598.16	1,200.00	1,133.45	66.56	18.030		
7,900.00	6,296.00	7,877.84	6,296.00	36.28	35.20	-90.07	-1,581.46	-598.04	1,200.00	1,129.67	70.33	17.062		
8,000.00	6,296.00	7,977.84	6,296.00	38.05	37.17	-90.07	-1,681.46	-597.91	1,200.00	1,125.88	74.13	16.189		
8,100.00	6,296.00	8,077.84	6,296.00	39.83	39.15	-90.07	-1,781.46	-597.79	1,200.00	1,122.06	77.94	15.397		
8,200.00	6,296.00	8,177.84	6,296.00	41.63	41.13	-90.07	-1,881.46	-597.67	1,200.00	1,118.24	81.76	14.677		
8,300.00	6,296.00	8,277.84	6,296.00	43.45	43.11	-90.07	-1,981.46	-597.54	1,200.00	1,114.40	85.60	14.019		
8,400.00	6,296.00	8,377.84	6,296.00	45.28	45.09	-90.07	-2,081.46	-597.42	1,200.00	1,110.55	89.45	13.415		
8,500.00	6,296.00	8,477.84	6,296.00	47.13	47.07	-90.07	-2,181.46	-597.29	1,200.00	1,106.69	93.31	12.861		
8,600.00	6,296.00	8,577.84	6,296.00	48.98	49.05	-90.07	-2,281.46	-597.17	1,200.00	1,102.83	97.17	12.349		
8,700.00	6,296.00	8,677.84	6,296.00	50.84	51.03	-90.07	-2,381.46	-597.04	1,200.00	1,098.95	101.05	11.876		

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

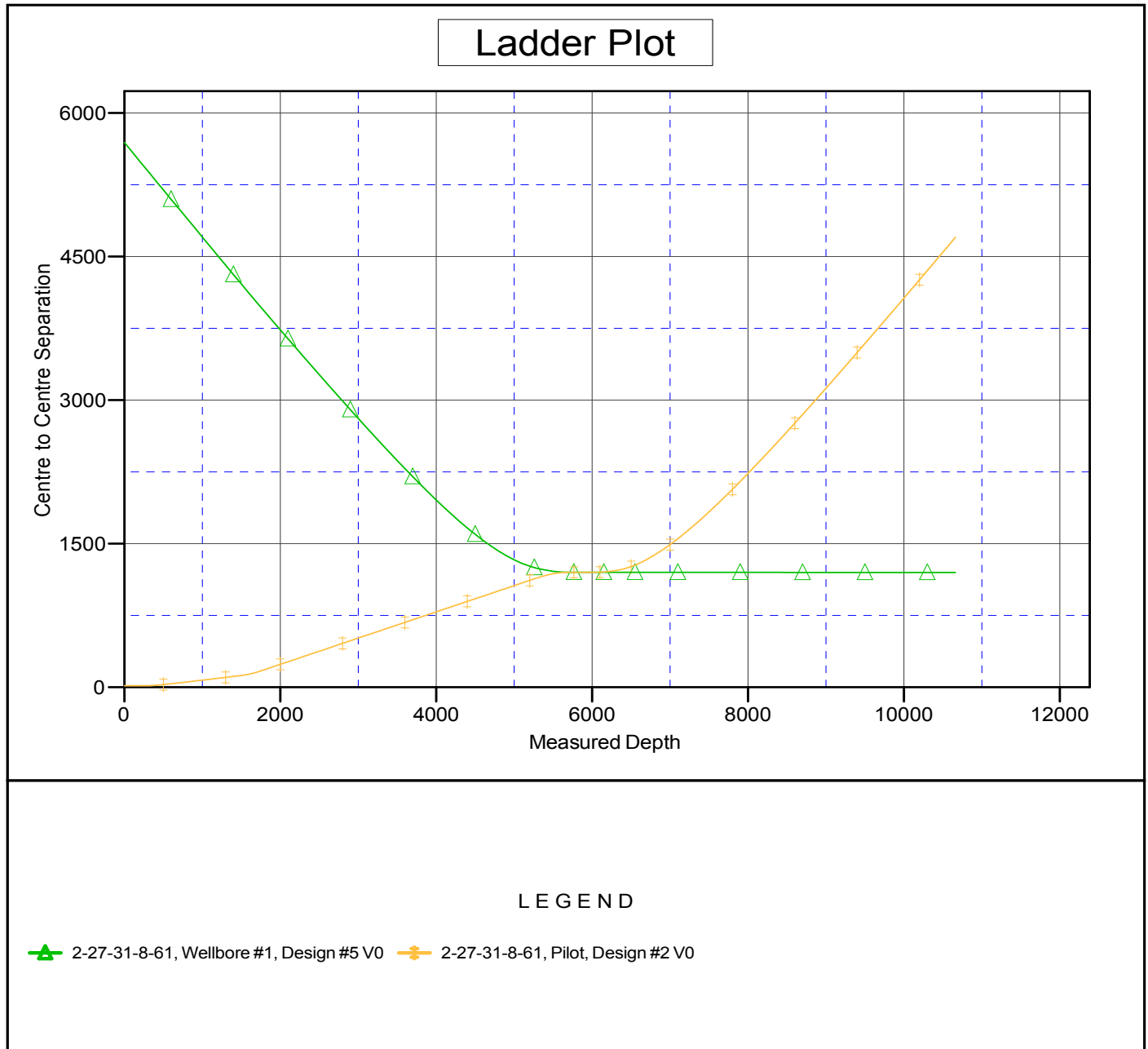
<b>Company:</b>	Carrizo Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well 1-27-31-8-61
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Reference Site:</b>	Speaker	<b>MD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	1-27-31-8-61	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Southern Region
<b>Reference Design:</b>	Design #4	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Speaker - 2-27-31-8-61 - Wellbore #1 - Design #5											Offset Site Error:		0.00 usft
Survey Program:		5700-MWD											Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
8,800.00	6,296.00	8,777.84	6,296.00	52.71	53.01	-90.07	-2,481.46	-596.92	1,200.00	1,095.07	104.93	11.437			
8,900.00	6,296.00	8,877.84	6,296.00	54.59	54.99	-90.07	-2,581.46	-596.79	1,200.00	1,091.19	108.81	11.028			
9,000.00	6,296.00	8,977.84	6,296.00	56.48	56.97	-90.07	-2,681.46	-596.67	1,200.00	1,087.30	112.70	10.647			
9,100.00	6,296.00	9,077.84	6,296.00	58.37	58.94	-90.07	-2,781.46	-596.55	1,200.00	1,083.40	116.60	10.292			
9,200.00	6,296.00	9,177.84	6,296.00	60.27	60.92	-90.07	-2,881.46	-596.42	1,200.00	1,079.50	120.50	9.959			
9,300.00	6,296.00	9,277.84	6,296.00	62.17	62.90	-90.07	-2,981.46	-596.30	1,200.00	1,075.59	124.40	9.646			
9,400.00	6,296.00	9,377.84	6,296.00	64.08	64.88	-90.07	-3,081.46	-596.17	1,200.00	1,071.69	128.31	9.352			
9,500.00	6,296.00	9,477.84	6,296.00	65.99	66.86	-90.07	-3,181.46	-596.05	1,200.00	1,067.78	132.22	9.076			
9,600.00	6,296.00	9,577.84	6,296.00	67.91	68.84	-90.07	-3,281.46	-595.92	1,200.00	1,063.86	136.13	8.815			
9,700.00	6,296.00	9,677.84	6,296.00	69.83	70.82	-90.07	-3,381.46	-595.80	1,200.00	1,059.95	140.05	8.568			
9,800.00	6,296.00	9,777.84	6,296.00	71.75	72.80	-90.07	-3,481.46	-595.67	1,200.00	1,056.03	143.97	8.335			
9,900.00	6,296.00	9,877.84	6,296.00	73.68	74.78	-90.07	-3,581.46	-595.55	1,200.00	1,052.11	147.89	8.114			
10,000.00	6,296.00	9,977.84	6,296.00	75.61	76.76	-90.07	-3,681.46	-595.43	1,200.00	1,048.18	151.81	7.904			
10,100.00	6,296.00	10,077.84	6,296.00	77.54	78.74	-90.07	-3,781.46	-595.30	1,200.00	1,044.26	155.74	7.705			
10,200.00	6,296.00	10,177.84	6,296.00	79.47	80.72	-90.07	-3,881.46	-595.18	1,199.99	1,040.33	159.67	7.516			
10,300.00	6,296.00	10,277.84	6,296.00	81.41	82.70	-90.07	-3,981.46	-595.05	1,199.99	1,036.40	163.59	7.335			
10,400.00	6,296.00	10,377.84	6,296.00	83.35	84.68	-90.07	-4,081.46	-594.93	1,199.99	1,032.47	167.52	7.163			
10,500.00	6,296.00	10,477.84	6,296.00	85.29	86.67	-90.07	-4,181.46	-594.80	1,199.99	1,028.54	171.46	6.999			
10,600.00	6,296.00	10,577.84	6,296.00	87.23	88.65	-90.07	-4,281.46	-594.68	1,199.99	1,024.60	175.39	6.842			
10,661.24	6,296.00	10,639.08	6,296.00	88.42	89.86	-90.07	-4,342.69	-594.60	1,199.99	1,022.20	177.80	6.749	CC, ES, SF		

<b>Company:</b>	Carrizo Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well 1-27-31-8-61
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Reference Site:</b>	Speaker	<b>MD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	1-27-31-8-61	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Southern Region
<b>Reference Design:</b>	Design #4	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 5006.80usft (Xtreme 19)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 1-27-31-8-61  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.85°



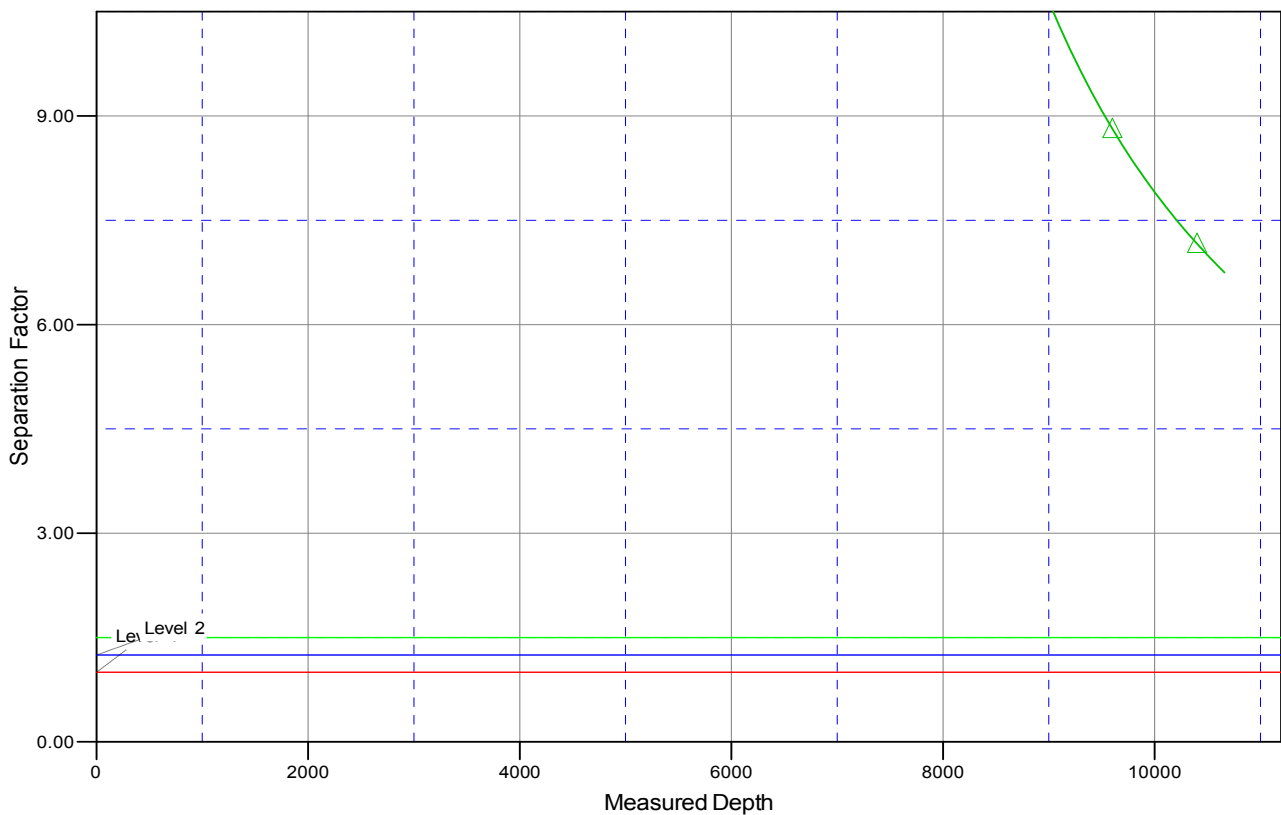


<b>Company:</b>	Carrizo Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well 1-27-31-8-61
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Reference Site:</b>	Speaker	<b>MD Reference:</b>	WELL @ 5006.80usft (Xtreme 19)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	1-27-31-8-61	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Southern Region
<b>Reference Design:</b>	Design #4	<b>Offset TVD Reference:</b>	Offset Datum



Reference Depths are relative to WELL @ 5006.80usft (Xtreme 19)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 1-27-31-8-61  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.85°

## Separation Factor Plot



### LEGEND

 2-27-31-8-61, Wellbore #1, Design #5 V0
  2-27-31-8-61, Pilot, Design #2 V0