

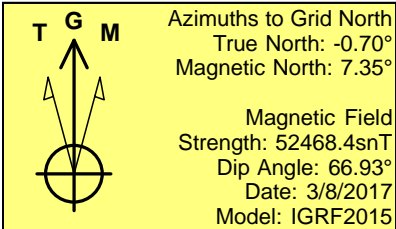
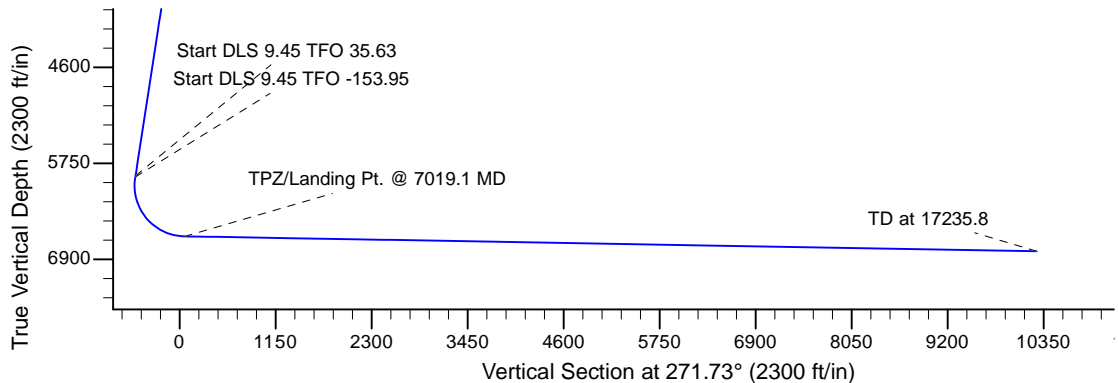
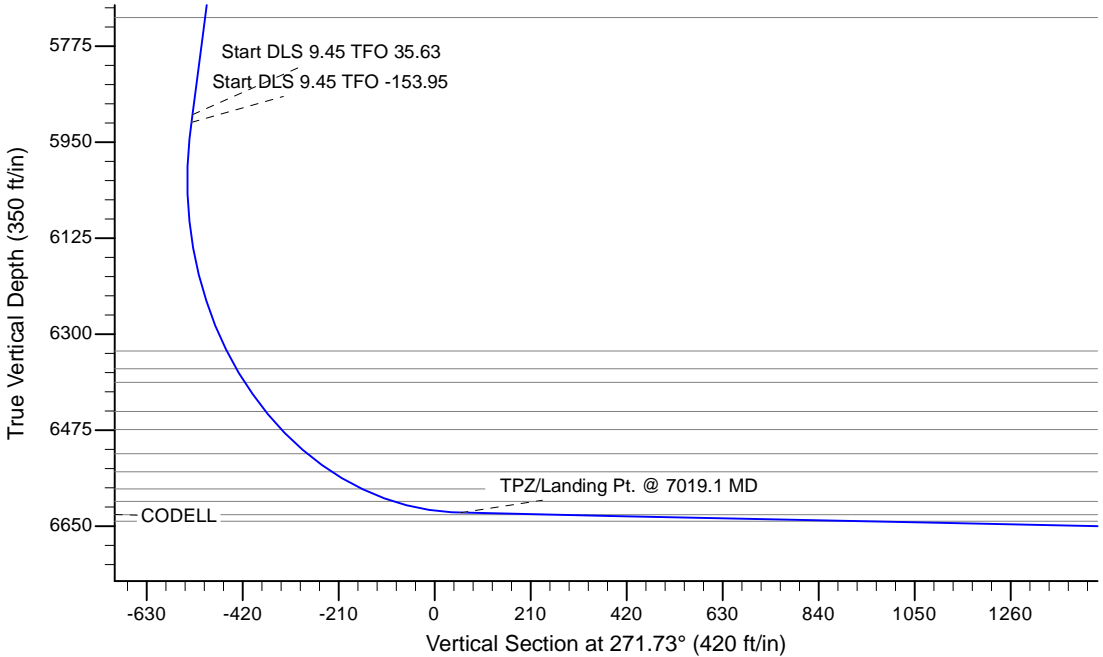
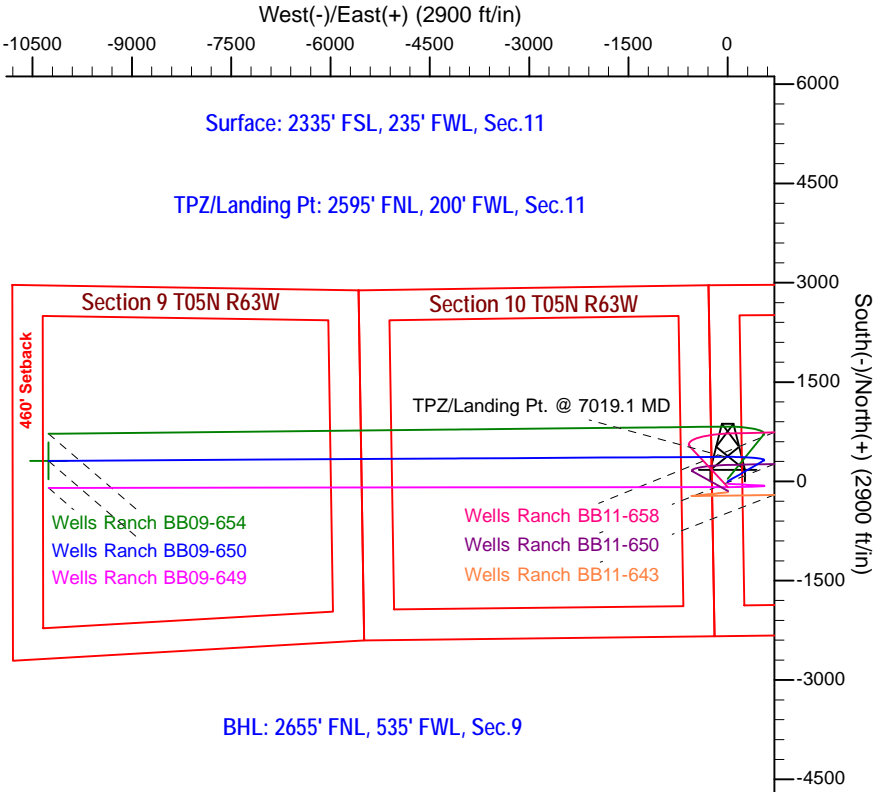
Project: Wells Ranch
Site: BB Section 11-T5N-R63W Weld County, CO
Well: Wells Ranch BB09-650
Wellbore: Original Drilling
Design: APD - Rev 0

Northern Region - DJ Basin

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2200.0	0.00	0.00	2200.0	0.0	0.0	0.00	0.00	0.0	
3	2712.5	10.25	60.00	2709.8	22.9	39.6	2.00	60.00	-38.9	
4	5954.5	10.25	60.00	5900.0	311.3	539.2	0.00	0.00	-529.6	
5	5968.7	11.37	63.97	5914.0	312.6	541.5	9.45	35.63	-531.9	
6	7019.1	89.00	269.66	6625.5	370.0	-45.0	9.45	-153.95	56.1	
7	17235.8	89.00	269.67	6804.2	309.9	-10260.0	0.00	129.00	10264.7	Wells Ranch BB09-650 BHL 2655'FNL, 535'FWL



WELL DETAILS: Wells Ranch BB09-650				
0.0	Northings	Eastings	Ground Elevation: 4668.0	Longitude
13950.63	5665364	3302775.2266337	40.4130300	-104.4126400
Latitude				
Plan: APD - Rev 0 (Wells Ranch BB09-650/Original Drilling)				
Created By: Shailey Jewell		Date: 9:22, March 09 2017		
Checked: _____		Date: _____		
Reviewed: _____		Date: _____		
Approved: _____		Date: _____		

Northern Region - DJ Basin

Wells Ranch

BB Section 11

Wells Ranch BB09-650

Original Drilling

APD - Rev 0

Anticollision Summary Report

09 March, 2017

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB09-650
Project:	Wells Ranch	TVD Reference:	WELL @ 4698.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4698.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-650	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference	APD - Rev 0		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,880.8 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.79 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	3/9/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,235.8	APD - Rev 0 (Original Drilling)	OWSG_Rev2_MWD+IFR1+M	OWSG MWD + IFR1 + Multi-Station Correction

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 09						
70 Ranch 11-09 - Original Drilling - Original Drilling - As D						Out of range
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	15,813.1	6,842.3	693.7	508.4	3.744	CC, ES, SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	14,612.7	6,791.9	1,741.5	1,581.3	10.867	CC, ES
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	14,800.0	6,788.8	1,751.6	1,588.8	10.762	SF
70 Ranch 41-09 - Original Drilling - Original Drilling - As D						Out of range
70 Ranch 44-09 - Original Drilling - Original Drilling - As D						Out of range
70 Ranch USX BB09-05 - Original Drilling - Original Drilling - As D	17,100.0	6,848.5	606.9	405.0	3.006	CC, ES, SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilling - As D	14,477.3	6,784.6	619.8	462.9	3.950	CC, ES
70 Ranch USX BB09-07 - Original Drilling - Original Drilling - As D	14,500.0	6,784.9	620.2	463.0	3.944	SF
70 Ranch USX BB09-08 - Original Drilling - Original Drilling - As D	13,175.0	6,752.2	504.6	369.4	3.733	CC, ES
70 Ranch USX BB09-08 - Original Drilling - Original Drilling - As D	13,200.0	6,752.6	505.2	369.7	3.728	SF
70 Ranch USX BB09-09 - Original Drilling - Original Drilling - As D	13,150.5	6,746.3	762.1	627.3	5.656	CC, ES
70 Ranch USX BB09-09 - Original Drilling - Original Drilling - As D	13,200.0	6,747.2	763.7	628.5	5.647	SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilling - As D	14,472.8	6,780.9	660.4	503.4	4.205	CC, ES
70 Ranch USX BB09-10 - Original Drilling - Original Drilling - As D	14,500.0	6,781.1	661.0	503.6	4.202	SF
70 Ranch USX BB09-11 - Original Drilling - Original Drilling - As D	15,773.2	6,836.8	771.1	592.0	4.307	CC, ES
70 Ranch USX BB09-11 - Original Drilling - Original Drilling - As D	15,800.0	6,836.8	771.5	592.2	4.302	SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilling - As D						Out of range
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling - As D	13,077.4	6,665.6	1,200.5	1,063.7	8.772	CC
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling - As D	13,100.0	6,671.5	1,200.7	1,063.3	8.741	ES
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling - As D	17,235.8	10,717.0	1,668.6	1,278.7	4.280	SF
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling - As D	14,483.1	9,694.8	224.7	90.7	1.676	CC
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling - As D	14,600.0	9,612.4	239.2	82.6	1.528	ES
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling - As D	14,700.0	9,533.1	269.8	86.5	1.472	Level 3, SF
National Hog Farm 13-09 - Original Drilling - Original Drilling - As D	17,151.3	6,866.5	706.1	503.5	3.485	CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Drilling - As D						Out of range
National Hog Farm 21-09 - Original Drilling - Original Drilling - As D						Out of range
National Hog Farm 24-09 - Original Drilling - Original Drilling - As D						Out of range

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB09-650
Project:	Wells Ranch	TVD Reference:	WELL @ 4698.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4698.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-650	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 10						
Wells Ranch 10A - Original Drilling - Original Drilling - As	11,231.8	6,661.8	1,250.1	1,147.3	12.156	CC, ES
Wells Ranch 10A - Original Drilling - Original Drilling - As	11,400.0	6,663.2	1,261.4	1,156.3	12.005	SF
Wells Ranch 10B - Original Drilling - Original Drilling - As	11,032.8	6,684.8	1,548.7	1,447.5	15.301	CC, ES
Wells Ranch 10B - Original Drilling - Original Drilling - As	11,200.0	6,687.7	1,557.7	1,454.4	15.074	SF
Wells Ranch 10C - Original Drilling - Original Drilling - As	8,437.0	6,649.7	1,399.9	1,337.1	22.316	CC, ES
Wells Ranch 10C - Original Drilling - Original Drilling - As	8,700.0	6,654.1	1,424.3	1,358.6	21.659	SF
Wells Ranch 10F - Original Drilling - Original Drilling - As	12,351.2	6,674.0	1,176.4	1,055.0	9.691	CC, ES
Wells Ranch 10F - Original Drilling - Original Drilling - As	12,500.0	6,675.3	1,185.8	1,062.5	9.617	SF
Wells Ranch 10H - Original Drilling - Original Drilling - As	12,313.1	6,698.2	1,447.4	1,326.7	11.991	CC, ES
Wells Ranch 10H - Original Drilling - Original Drilling - As	12,500.0	6,697.9	1,459.4	1,336.6	11.887	SF
Wells Ranch 10J - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10K - Original Drilling - Original Drilling - As	10,959.7	6,684.0	243.8	145.0	2.467	CC, ES, SF
Wells Ranch 11-10 - Original Drilling - Original Drilling - A	11,855.0	6,710.3	1,878.4	1,765.2	16.585	CC
Wells Ranch 11-10 - Original Drilling - Original Drilling - A	11,900.0	6,710.3	1,879.0	1,765.0	16.481	ES, SF
Wells Ranch 12-10 - Original Drilling - Original Drilling - A	11,780.5	6,710.7	347.3	235.1	3.096	CC, ES
Wells Ranch 12-10 - Original Drilling - Original Drilling - A	11,800.0	6,711.3	347.9	235.4	3.094	SF
Wells Ranch 13-10 - Original Drilling - Original Drilling - A	11,930.9	6,702.7	926.2	811.3	8.055	CC, ES
Wells Ranch 13-10 - Original Drilling - Original Drilling - A	12,000.0	6,705.9	928.8	813.0	8.022	SF
Wells Ranch 14-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 21-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 22-10 - Original Drilling - Original Drilling - A	10,483.1	6,671.8	639.3	547.9	6.999	CC
Wells Ranch 22-10 - Original Drilling - Original Drilling - A	10,500.0	6,672.1	639.5	547.9	6.981	ES, SF
Wells Ranch 23-10 - Original Drilling - Original Drilling - A	10,592.0	6,679.3	865.4	772.3	9.294	CC
Wells Ranch 23-10 - Original Drilling - Original Drilling - A	10,600.0	6,679.4	865.4	772.2	9.283	ES
Wells Ranch 23-10 - Original Drilling - Original Drilling - A	10,700.0	6,680.2	872.1	778.0	9.264	SF
Wells Ranch 24-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 31-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 32-10 - Original Drilling - Original Drilling - A	8,936.4	6,653.5	585.1	508.7	7.654	CC, ES
Wells Ranch 32-10 - Original Drilling - Original Drilling - A	9,000.0	6,653.9	588.6	511.3	7.620	SF
Wells Ranch 33-10 - Original Drilling - Original Drilling - A	9,179.0	6,643.1	779.5	707.5	10.818	CC, ES
Wells Ranch 33-10 - Original Drilling - Original Drilling - A	9,200.0	6,642.9	779.8	707.5	10.787	SF
Wells Ranch 34-10 - Original Drilling - Original Drilling - A	8,915.6	6,643.7	1,874.8	1,801.4	25.559	CC, ES
Wells Ranch 34-10 - Original Drilling - Original Drilling - A	9,000.0	6,644.1	1,876.7	1,802.3	25.223	SF
Wells Ranch 41-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 42-10 - Original Drilling - Original Drilling - A	7,976.9	6,620.1	636.9	579.9	11.164	CC, ES
Wells Ranch 42-10 - Original Drilling - Original Drilling - A	8,000.0	6,620.5	637.3	580.0	11.122	SF
Wells Ranch 43-10 - Original Drilling - Original Drilling - A	7,871.7	6,598.2	744.2	688.1	13.281	CC, ES
Wells Ranch 43-10 - Original Drilling - Original Drilling - A	7,900.0	6,598.7	744.7	688.5	13.237	SF
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	0.0	0.0	1,817.9			
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	2,209.9	2,187.5	1,825.5	1,809.5	114.300	ES
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	2,800.0	2,771.3	1,877.9	1,857.6	92.677	SF

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB09-650
Project:	Wells Ranch	TVD Reference:	WELL @ 4698.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4698.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-650	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 11						
Wells 12-11 - Original Drilling - Original Drilling - As Drille	6,416.4	6,314.0	721.7	513.6	3.468	CC, ES
Wells 12-11 - Original Drilling - Original Drilling - As Drille	6,500.0	6,381.4	724.4	514.1	3.444	SF
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	3,783.9	3,722.9	485.9	458.2	17.586	CC
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	3,800.0	3,738.3	485.9	458.1	17.510	ES
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	6,500.0	6,359.0	692.9	645.2	14.543	SF
Wells Ranch 14-11 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	6,069.1	5,999.4	1,218.3	1,173.1	26.936	CC, ES
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	6,200.0	6,122.5	1,232.0	1,185.8	26.689	SF
Wells Ranch 24-11 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	2,200.0	2,209.0	1,373.4	1,352.0	64.185	CC
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	2,300.0	2,309.0	1,374.3	1,351.9	61.373	ES
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	13,900.0	13,741.4	1,879.6	1,621.2	7.272	SF
Wells Ranch BB09-639 - Original Drilling - APD - Rev 0	17,235.8	17,160.7	987.0	627.0	2.742	CC, ES, SF
Wells Ranch BB09-649 - Original Drilling - APD - Rev 0	2,200.0	2,200.0	36.4	15.1	1.706	CC
Wells Ranch BB09-649 - Original Drilling - APD - Rev 0	2,300.0	2,300.0	37.3	15.0	1.670	ES
Wells Ranch BB09-649 - Original Drilling - APD - Rev 0	17,235.8	17,183.5	465.6	120.7	1.350	Level 3, SF
Wells Ranch BB09-654 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	36.4	17.1	1.883	CC, ES
Wells Ranch BB09-654 - Original Drilling - APD - Rev 0	17,235.8	17,254.4	460.8	105.7	1.298	Level 3, SF
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	2,200.0	2,207.0	1,537.4	1,516.0	71.880	CC
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	2,300.0	2,307.0	1,538.2	1,515.8	68.725	ES
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	4,400.0	4,232.1	1,864.2	1,822.0	44.142	SF
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0	2,397.4	2,455.8	1,500.7	1,477.2	63.679	CC
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0	2,600.0	2,701.3	1,501.6	1,475.9	58.316	ES
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0	6,400.0	7,309.1	1,573.9	1,506.0	23.196	SF
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0	6,573.1	7,328.1	1,104.7	1,035.6	15.998	CC, ES, SF
Wells Ranch BB11-643 - Original Drilling - APD - Rev 0	2,200.0	2,200.0	164.0	142.6	7.678	CC, ES
Wells Ranch BB11-643 - Original Drilling - APD - Rev 0	2,500.0	2,495.6	175.0	150.8	7.219	SF
Wells Ranch BB11-650 - Original Drilling - APD - Rev 0	6,897.5	7,042.8	120.9	52.6	1.771	CC
Wells Ranch BB11-650 - Original Drilling - APD - Rev 0	6,900.0	7,040.4	120.9	52.6	1.771	ES, SF
Wells Ranch BB11-658 - Original Drilling - APD - Rev 0	2,440.6	2,447.2	76.3	52.6	3.220	CC, ES
Wells Ranch BB11-658 - Original Drilling - APD - Rev 0	2,500.0	2,505.9	77.6	53.2	3.190	SF
Wells Ranch State BB09-617 - Original Drilling - APD - R	2,000.0	2,008.0	1,409.9	1,390.5	72.701	CC
Wells Ranch State BB09-617 - Original Drilling - APD - R	2,100.0	2,087.1	1,410.7	1,390.4	69.589	ES
Wells Ranch State BB09-617 - Original Drilling - APD - R	5,100.0	4,947.6	1,871.9	1,822.3	37.728	SF
Wells Ranch USX BB11-01 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-02 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-03 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-04 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-06 - Original Drilling - Original D	6,103.7	5,996.4	1,332.4	1,287.5	29.673	CC, ES
Wells Ranch USX BB11-06 - Original Drilling - Original D	6,200.0	6,089.0	1,338.7	1,293.1	29.382	SF
Wells Ranch USX BB11-07 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-08 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-09 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-10 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-15 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-16 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-17 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-23 - Original Drilling - Original D						Out of range

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB09-650
Project:	Wells Ranch	TVD Reference:	WELL @ 4698.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4698.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-650	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Produccction
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 12						
Wells Ranch 12D - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 33-12 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 34-12 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 43-12 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 44-12 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch BB12-01 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-02 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-03 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-04 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-05 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-06 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-07 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB12-08 - Original Drilling - Original Drilling						Out of range