

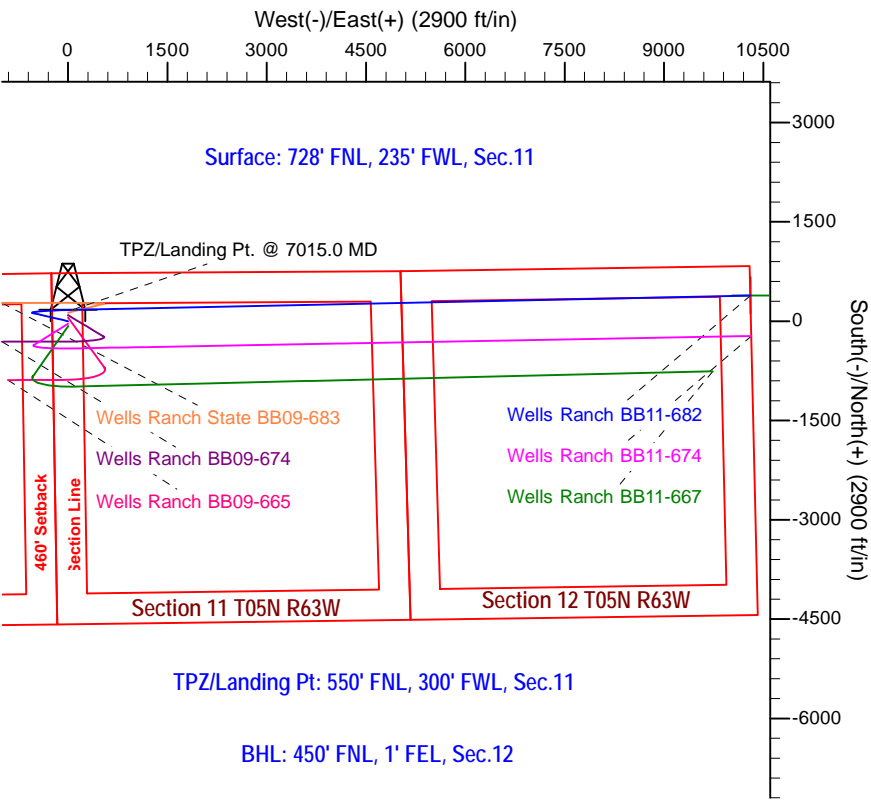
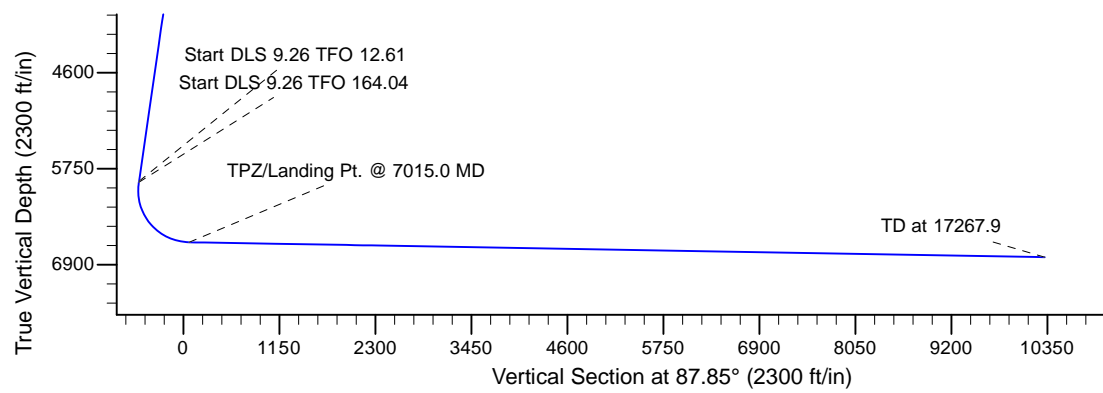
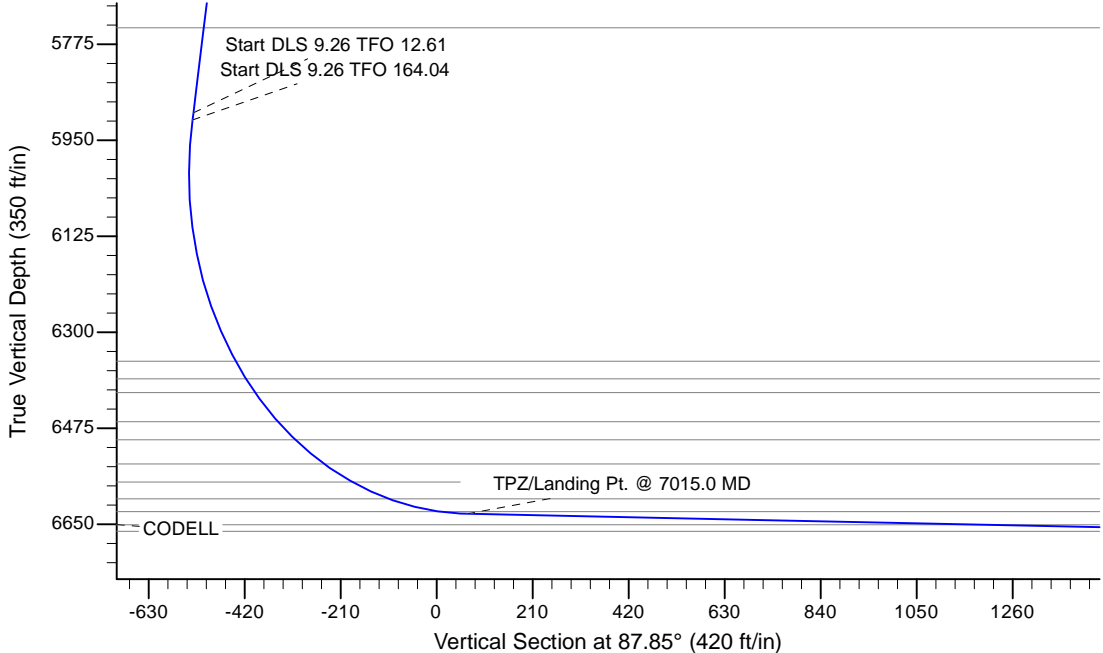
Project: Wells Ranch
Site: BB Section 11-T5N-R63W Weld County, CO
Well: Wells Ranch BB11-682
Wellbore: Original Drilling
Design: APD - Rev 0

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

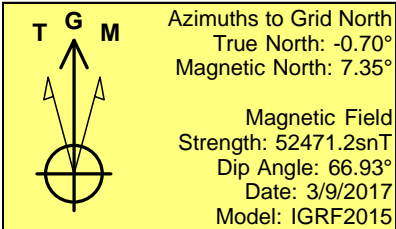
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2425.0	8.50	283.00	2423.4	7.1	-30.7	2.00	283.00	-30.4	
4	5940.2	8.50	283.00	5900.0	124.0	-536.9	0.00	0.00	-531.9	
5	5953.3	9.69	284.57	5912.9	124.5	-538.9	9.26	12.61	-533.9	
6	7015.0	89.00	88.78	6631.0	170.0	60.0	9.26	164.04	66.3	
7	17267.9	89.00	88.79	6810.0	387.2	10309.0	0.00	93.48	10316.3	Wells Ranch BB11-682 BHL 450'FNL, 1'FEL



TPZ/Landing Pt: 550' FNL, 300' FWL, Sec.11

BHL: 450' FNL, 1' FEL, Sec.12



WELL DETAILS: Wells Ranch BB11-682			
Northing	Easting	Ground Elevation: 4685.0	Longitude
0.00.0 1397403.6994526	3302736.6179111	40.4191800	-104.4126800
Plan: APD - Rev 0 (Wells Ranch BB11-682/Original Drilling)			
Created By: Shailey Jewell		Date: 14:19, March 09 2017	
Checked: _____		Date: _____	
Reviewed: _____		Date: _____	
Approved: _____		Date: _____	

Northern Region - DJ Basin

Wells Ranch

BB Section 11

Wells Ranch BB11-682

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 BB11-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4715.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4715.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB11-682	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	17,267.9	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						Out of range
70 Ranch 31-09 - Original Drilling - Original Drilling - As D						Out of range
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						Out of range
70 Ranch USX BB09-07 - Original Drilling - Original Drilling						Out of range
70 Ranch USX BB09-08 - Original Drilling - Original Drilling						Out of range
70 Ranch USX BB09-09 - Original Drilling - Original Drilling						Out of range
70 Ranch USX BB09-10 - Original Drilling - Original Drilling						Out of range
70 Ranch USX BB09-11 - Original Drilling - Original Drilling						Out of range
70 Ranch USX BB09-15 - Original Drilling - Original Drilling						Out of range
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling						Out of range
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling						Out of range
National Hog Farm 13-09 - Original Drilling - Original Drilling						Out of range
National Hog Farm 14-09 - Original Drilling - Original Drilling						Out of range
National Hog Farm 21-09 - Original Drilling - Original Drilling						Out of range
National Hog Farm 24-09 - Original Drilling - Original Drilling						Out of range

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB11-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4715.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4715.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB11-682	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)		Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 10						
Wells Ranch 10A - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10B - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10C - Original Drilling - Original Drilling - As	6,028.9	5,958.6	1,070.9	1,026.2	23.946	CC, ES
Wells Ranch 10C - Original Drilling - Original Drilling - As	6,100.0	6,029.4	1,074.3	1,029.1	23.758	SF
Wells Ranch 10F - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10H - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10J - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10K - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 11-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 12-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 13-10 - Original Drilling - Original Drilling - A						Out of range
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						Out of range
Wells Ranch 23-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 24-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 31-10 - Original Drilling - Original Drilling - A	6,056.3	5,995.8	1,623.1	1,578.1	36.114	CC, ES
Wells Ranch 31-10 - Original Drilling - Original Drilling - A	6,200.0	6,135.5	1,639.8	1,593.9	35.698	SF
Wells Ranch 32-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 33-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 34-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 41-10 - Original Drilling - Original Drilling - A	6,044.7	5,970.2	334.1	289.7	7.528	CC, ES
Wells Ranch 41-10 - Original Drilling - Original Drilling - A	6,100.0	6,025.1	336.5	291.7	7.514	SF
Wells Ranch 42-10 - Original Drilling - Original Drilling - A	6,000.0	5,916.4	1,427.3	1,383.1	32.264	CC, ES
Wells Ranch 42-10 - Original Drilling - Original Drilling - A	6,300.0	6,203.4	1,455.5	1,409.2	31.452	SF
Wells Ranch 43-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 44-10 - Original Drilling - Original Drilling - A						Out of range

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB11-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4715.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4715.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB11-682	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	2,000.0	1,955.0	1,315.4	1,251.2	20.482	CC
Wells 12-11 - Original Drilling - Original Drilling - As Drille	7,516.9	6,594.8	1,356.4	1,135.4	6.138	ES
Wells 12-11 - Original Drilling - Original Drilling - As Drille	7,600.0	6,596.2	1,358.9	1,137.3	6.131	SF
Wells Ranch 13-11 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 14-11 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 23-11 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 24-11 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0						Out of range
Wells Ranch BB09-639 - Original Drilling - APD - Rev 0						Out of range
Wells Ranch BB09-649 - Original Drilling - APD - Rev 0						Out of range
Wells Ranch BB09-650 - Original Drilling - APD - Rev 0						Out of range
Wells Ranch BB09-654 - Original Drilling - APD - Rev 0	6,600.0	7,334.8	1,576.9	1,508.0	22.886	SF
Wells Ranch BB09-654 - Original Drilling - APD - Rev 0	6,636.6	7,305.9	1,576.7	1,507.9	22.909	CC, ES
Wells Ranch BB09-665 - Original Drilling - APD - Rev 0	2,306.0	2,307.7	45.2	22.9	2.029	CC, ES, SF
Wells Ranch BB09-674 - Original Drilling - APD - Rev 0	2,378.6	2,378.8	87.2	64.2	3.784	CC
Wells Ranch BB09-674 - Original Drilling - APD - Rev 0	2,400.0	2,399.9	87.3	64.0	3.755	ES, SF
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0						Out of range
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0						Out of range
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0						Out of range
Wells Ranch BB11-643 - Original Drilling - APD - Rev 0						Out of range
Wells Ranch BB11-650 - Original Drilling - APD - Rev 0						Out of range
Wells Ranch BB11-658 - Original Drilling - APD - Rev 0	12,918.3	12,906.8	1,685.2	1,457.9	7.414	CC
Wells Ranch BB11-658 - Original Drilling - APD - Rev 0	16,600.0	16,587.5	1,687.1	1,339.0	4.847	ES
Wells Ranch BB11-658 - Original Drilling - APD - Rev 0	16,700.0	16,597.0	1,689.7	1,340.4	4.838	SF
Wells Ranch BB11-667 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	72.9	53.5	3.765	CC, ES
Wells Ranch BB11-667 - Original Drilling - APD - Rev 0	16,700.0	16,746.2	1,158.8	807.1	3.295	SF
Wells Ranch BB11-674 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	36.4	17.1	1.883	CC
Wells Ranch BB11-674 - Original Drilling - APD - Rev 0	2,100.0	2,100.0	36.9	16.5	1.813	ES, SF
Wells Ranch State BB09-617 - Original Drilling - APD - R						Out of range
Wells Ranch State BB09-683 - Original Drilling - APD - R	6,855.1	7,023.6	112.5	45.2	1.672	CC, ES, SF
Wells Ranch USX BB11-01 - Original Drilling - Original D	11,225.1	6,676.4	113.4	10.1	1.097	Level 2, CC, ES, SF
Wells Ranch USX BB11-02 - Original Drilling - Original D	9,881.4	6,644.6	110.7	27.9	1.337	Level 3, CC, ES, SF
Wells Ranch USX BB11-03 - Original Drilling - Original D	8,654.5	6,629.2	25.7	-39.5	0.394	Level 1, CC, ES, SF
Wells Ranch USX BB11-04 - Original Drilling - Original D	7,380.1	6,605.8	119.7	67.7	2.302	CC, ES, SF
Wells Ranch USX BB11-06 - Original Drilling - Original D	8,587.0	6,614.5	1,303.9	1,239.7	20.335	CC
Wells Ranch USX BB11-06 - Original Drilling - Original D	8,600.0	6,615.1	1,303.9	1,239.7	20.287	ES
Wells Ranch USX BB11-06 - Original Drilling - Original D	8,800.0	6,623.2	1,321.1	1,254.7	19.904	SF
Wells Ranch USX BB11-07 - Original Drilling - Original D	10,010.5	6,649.0	1,438.3	1,352.3	16.716	CC, ES
Wells Ranch USX BB11-07 - Original Drilling - Original D	10,200.0	6,650.6	1,450.8	1,362.4	16.420	SF
Wells Ranch USX BB11-08 - Original Drilling - Original D	11,288.1	6,689.2	1,495.2	1,390.8	14.323	CC
Wells Ranch USX BB11-08 - Original Drilling - Original D	11,300.0	6,689.4	1,495.3	1,390.7	14.298	ES
Wells Ranch USX BB11-08 - Original Drilling - Original D	11,500.0	6,692.9	1,510.2	1,403.2	14.122	SF
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	10,660.8	6,659.6	806.5	542.6	3.056	CC, ES
Wells Ranch USX BB11-17 - Original Drilling - Original D	10,700.0	6,660.3	807.5	543.0	3.053	SF
Wells Ranch USX BB11-23 - Original Drilling - Original D						Out of range

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

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB11-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4715.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4715.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB11-682	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	16,593.8	6,729.2	299.2	106.4	1.552	CC, ES
Wells Ranch BB12-01 - Original Drilling - Original Drilling	16,600.0	6,729.3	299.3	106.4	1.552	SF
Wells Ranch BB12-02 - Original Drilling - Original Drilling	15,150.9	6,717.4	147.0	-21.4	0.873	Level 1, CC, ES, SF
Wells Ranch BB12-03 - Original Drilling - Original Drilling	13,900.0	6,704.7	80.8	-66.4	0.549	Level 1, CC, ES, SF
Wells Ranch BB12-04 - Original Drilling - Original Drilling	12,858.7	6,708.8	412.9	282.7	3.173	CC, ES, SF
Wells Ranch BB12-05 - Original Drilling - Original Drilling	12,716.3	6,675.0	1,677.1	1,549.4	13.129	CC, ES
Wells Ranch BB12-05 - Original Drilling - Original Drilling	12,900.0	6,679.0	1,687.1	1,557.0	12.963	SF
Wells Ranch BB12-06 - Original Drilling - Original Drilling	13,941.5	6,677.5	1,569.6	1,421.6	10.607	CC, ES
Wells Ranch BB12-06 - Original Drilling - Original Drilling	14,100.0	6,678.4	1,577.6	1,427.6	10.521	SF
Wells Ranch BB12-07 - Original Drilling - Original Drilling	15,350.0	6,692.8	1,317.7	1,146.1	7.677	CC, ES
Wells Ranch BB12-07 - Original Drilling - Original Drilling	15,400.0	6,694.1	1,318.7	1,146.3	7.650	SF
Wells Ranch BB12-08 - Original Drilling - Original Drilling	16,762.3	6,732.0	1,583.5	1,387.7	8.087	CC
Wells Ranch BB12-08 - Original Drilling - Original Drilling	16,800.0	6,733.5	1,583.9	1,387.6	8.066	ES
Wells Ranch BB12-08 - Original Drilling - Original Drilling	16,900.0	6,737.7	1,589.5	1,392.0	8.050	SF