

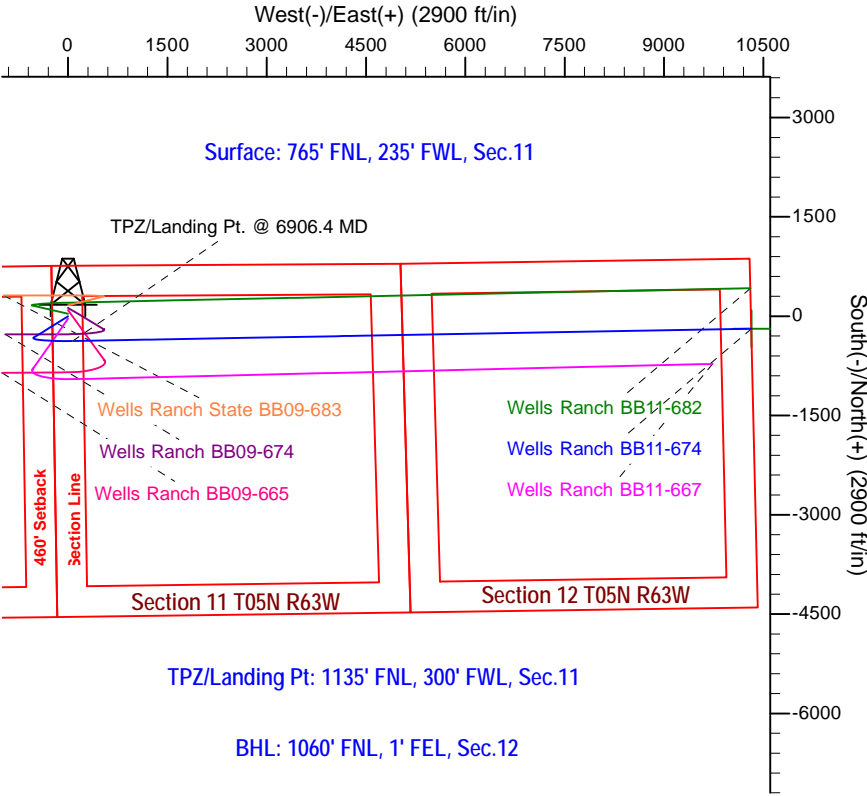
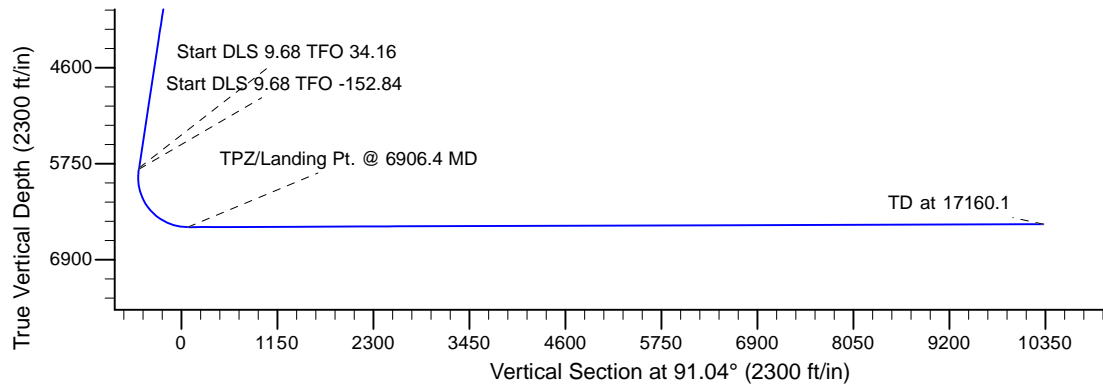
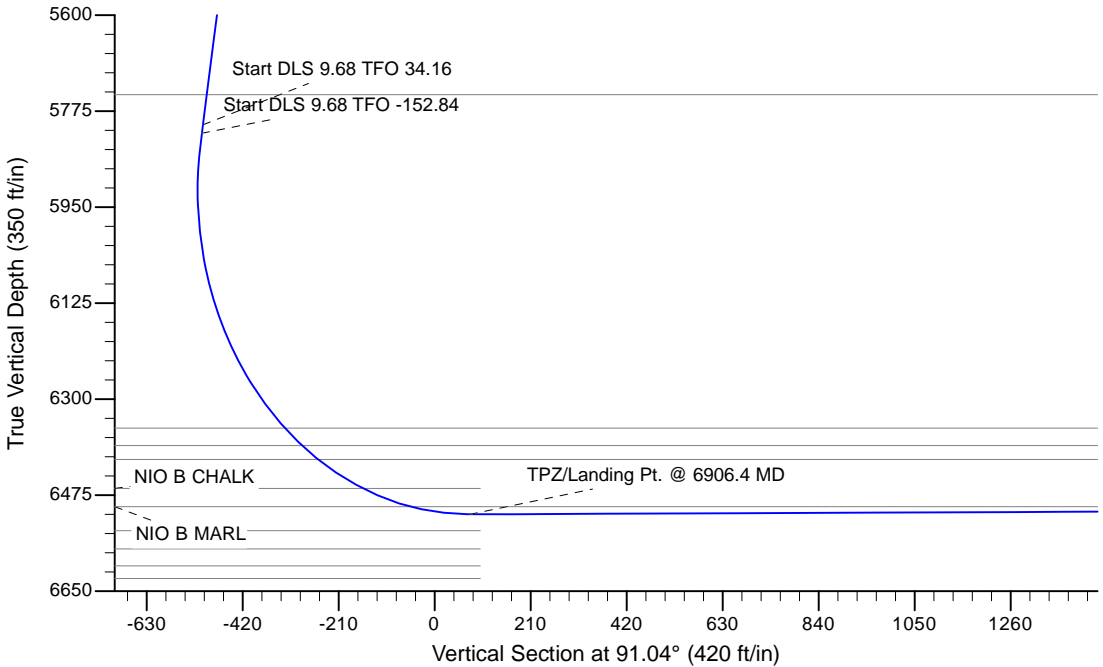
Project: Wells Ranch
Site: BB Section 11-T5N-R63W Weld County, CO
Well: Wells Ranch BB11-674
Wellbore: Original Drilling
Design: APD - Rev 0

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

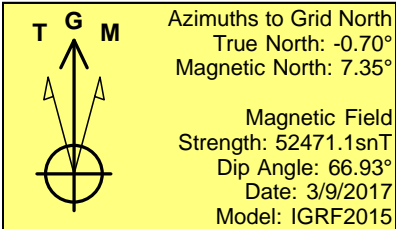
SECTION DETAILS

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	2200.0	0.00	0.00	2200.0	0.0	0.0	0.00	0.00	0.0	
3	2712.5	10.25	238.00	2709.8	-24.2	-38.8	2.00	238.00	-38.3	
4	5852.8	10.25	238.00	5800.0	-320.3	-512.7	0.00	0.00	-506.7	
5	5868.6	11.54	242.28	5815.5	-321.8	-515.3	9.68	34.16	-509.3	
6	6906.4	90.20	88.95	6510.0	-375.0	70.0	9.68	-152.84	76.8	
7	17160.1	90.20	88.96	6474.0	-188.2	10321.9	0.00	79.52	10323.6	Wells Ranch BB11-675 BHL 1060'FNL, 1'FEL



TPZ/Landing Pt: 1135' FNL, 300' FWL, Sec.11

BHL: 1060' FNL, 1' FEL, Sec.12



WELL DETAILS: Wells Ranch BB11-674			
Northing	Easting	Ground Elevation: 4685.0	Latitude
0.00.0 1397367.2682696	3302737.0646482	40.4190800	-104.4126800
Plan: APD - Rev 0 (Wells Ranch BB11-674/Original Drilling)			
Created By: Shailey Jewell		Date: 14:33, March 09 2017	
Checked: _____		Date: _____	
Reviewed: _____		Date: _____	
Approved: _____		Date: _____	

Northern Region - DJ Basin

Wells Ranch

BB Section 11

Wells Ranch BB11-674

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 BB11-674
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 BB11-674	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	17,160.1	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 BB11-674
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 BB11-674	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Producction
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	5,974.2	5,889.6	911.5	867.7	20.811	CC, ES
Wells Ranch 10C - Original Drilling - Original Drilling - As	6,100.0	6,012.8	924.9	880.3	20.721	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	5,963.8	5,892.9	1,699.1	1,654.9	38.487	CC, ES
Wells Ranch 31-10 - Original Drilling - Original Drilling - A	6,100.0	6,026.0	1,714.2	1,669.1	38.008	SF
Wells Ranch 32-10 - Original Drilling - Original Drilling - A	6,012.4	5,942.3	1,685.0	1,641.1	38.433	CC, ES
Wells Ranch 32-10 - Original Drilling - Original Drilling - A	6,400.0	6,296.8	1,792.1	1,744.4	37.591	SF
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	5,918.0	5,833.4	511.0	466.7	11.528	CC, ES
Wells Ranch 41-10 - Original Drilling - Original Drilling - A	6,000.0	5,914.8	514.8	469.9	11.454	SF
Wells Ranch 42-10 - Original Drilling - Original Drilling - A	6,072.4	5,973.3	971.3	927.0	21.941	CC, ES
Wells Ranch 42-10 - Original Drilling - Original Drilling - A	6,200.0	6,095.3	978.6	933.5	21.710	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 BB11-674
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 BB11-674	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	7,412.5	6,463.2	773.3	556.9	3.573	CC, ES, 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	6,870.6	6,966.6	1,463.9	1,397.1	21.913	CC, ES
Wells Ranch BB09-650 - Original Drilling - APD - Rev 0	7,400.0	6,557.1	1,488.4	1,420.0	21.753	SF
Wells Ranch BB09-654 - Original Drilling - APD - Rev 0	6,861.1	7,000.2	1,006.1	938.6	14.903	CC, ES
Wells Ranch BB09-654 - Original Drilling - APD - Rev 0	6,900.0	6,966.9	1,006.5	939.0	14.903	SF
Wells Ranch BB09-665 - Original Drilling - APD - Rev 0	2,464.6	2,472.1	73.7	50.0	3.105	CC, ES
Wells Ranch BB09-665 - Original Drilling - APD - Rev 0	2,500.0	2,507.2	74.1	50.1	3.078	SF
Wells Ranch BB09-674 - Original Drilling - APD - Rev 0	7,091.1	6,683.5	108.4	41.9	1.629	CC, 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	6,908.1	7,025.6	1,585.1	1,517.8	23.550	CC
Wells Ranch BB11-650 - Original Drilling - APD - Rev 0	14,000.0	14,121.1	1,592.5	1,325.9	5.975	ES
Wells Ranch BB11-650 - Original Drilling - APD - Rev 0	14,100.0	14,131.1	1,595.0	1,327.2	5.956	SF
Wells Ranch BB11-658 - Original Drilling - APD - Rev 0	16,511.5	16,606.5	1,045.6	691.4	2.952	CC, ES, SF
Wells Ranch BB11-667 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	36.4	17.1	1.882	CC, ES
Wells Ranch BB11-667 - Original Drilling - APD - Rev 0	16,564.3	16,750.8	526.9	174.6	1.496	Level 3, SF
Wells Ranch BB11-682 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	36.4	17.1	1.883	CC
Wells Ranch BB11-682 - Original Drilling - APD - Rev 0	2,100.0	2,099.7	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	2,000.0	2,000.0	163.9	144.6	8.471	CC
Wells Ranch State BB09-683 - Original Drilling - APD - R	2,100.0	2,098.7	164.3	144.0	8.081	ES
Wells Ranch State BB09-683 - Original Drilling - APD - R	2,300.0	2,294.9	169.2	146.9	7.600	SF
Wells Ranch USX BB11-01 - Original Drilling - Original D	11,115.3	6,463.0	478.9	376.8	4.691	CC, ES, SF
Wells Ranch USX BB11-02 - Original Drilling - Original D	9,773.9	6,455.3	476.7	395.1	5.847	CC, ES
Wells Ranch USX BB11-02 - Original Drilling - Original D	9,800.0	6,455.1	477.4	395.6	5.836	SF
Wells Ranch USX BB11-03 - Original Drilling - Original D	8,547.5	6,474.4	560.5	496.5	8.757	CC, ES
Wells Ranch USX BB11-03 - Original Drilling - Original D	8,600.0	6,473.6	563.0	498.5	8.724	SF
Wells Ranch USX BB11-04 - Original Drilling - Original D	311.0	278.0	429.4	427.5	237.845	CC
Wells Ranch USX BB11-04 - Original Drilling - Original D	7,271.4	6,476.3	462.6	411.8	9.115	ES
Wells Ranch USX BB11-04 - Original Drilling - Original D	7,300.0	6,476.3	463.5	412.5	9.100	SF
Wells Ranch USX BB11-06 - Original Drilling - Original D	8,478.6	6,460.1	717.9	655.0	11.414	CC, ES
Wells Ranch USX BB11-06 - Original Drilling - Original D	8,600.0	6,462.5	728.1	663.9	11.348	SF
Wells Ranch USX BB11-07 - Original Drilling - Original D	9,907.3	6,456.1	850.6	767.5	10.234	CC, ES
Wells Ranch USX BB11-07 - Original Drilling - Original D	10,000.0	6,454.5	855.6	771.3	10.149	SF
Wells Ranch USX BB11-08 - Original Drilling - Original D	11,183.2	6,470.6	903.5	800.3	8.748	CC
Wells Ranch USX BB11-08 - Original Drilling - Original D	11,200.0	6,470.4	903.7	800.1	8.726	ES
Wells Ranch USX BB11-08 - Original Drilling - Original D	11,300.0	6,469.8	911.1	806.4	8.702	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	10,554.2	6,462.2	214.2	-43.6	0.831	Level 1, CC, ES, 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 BB11-674
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 BB11-674	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	16,485.1	6,412.3	312.8	121.2	1.632	CC, ES, SF
Wells Ranch BB12-02 - Original Drilling - Original Drilling	15,043.7	6,414.1	452.3	285.2	2.707	CC, ES, SF
Wells Ranch BB12-03 - Original Drilling - Original Drilling	13,790.3	6,443.4	522.7	376.5	3.577	CC
Wells Ranch BB12-03 - Original Drilling - Original Drilling	13,800.0	6,443.3	522.8	376.5	3.574	ES, SF
Wells Ranch BB12-04 - Original Drilling - Original Drilling	12,751.4	6,455.5	181.4	52.5	1.407	Level 3, CC, ES, SF
Wells Ranch BB12-05 - Original Drilling - Original Drilling	12,610.9	6,438.3	1,076.9	950.2	8.501	CC, ES
Wells Ranch BB12-05 - Original Drilling - Original Drilling	12,700.0	6,438.6	1,080.6	952.6	8.445	SF
Wells Ranch BB12-06 - Original Drilling - Original Drilling	13,840.0	6,412.1	965.3	818.4	6.568	CC, ES
Wells Ranch BB12-06 - Original Drilling - Original Drilling	13,900.0	6,411.4	967.2	819.4	6.543	SF
Wells Ranch BB12-07 - Original Drilling - Original Drilling	15,242.1	6,400.8	709.0	538.5	4.158	CC, ES
Wells Ranch BB12-07 - Original Drilling - Original Drilling	15,300.0	6,400.9	711.3	540.2	4.157	SF
Wells Ranch BB12-08 - Original Drilling - Original Drilling	16,648.8	6,398.1	976.5	782.1	5.023	CC, ES
Wells Ranch BB12-08 - Original Drilling - Original Drilling	16,700.0	6,398.9	977.9	782.8	5.011	SF