

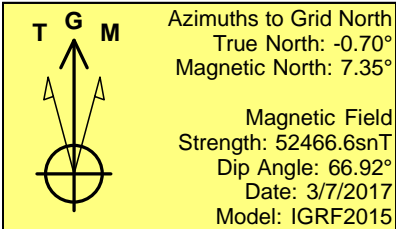
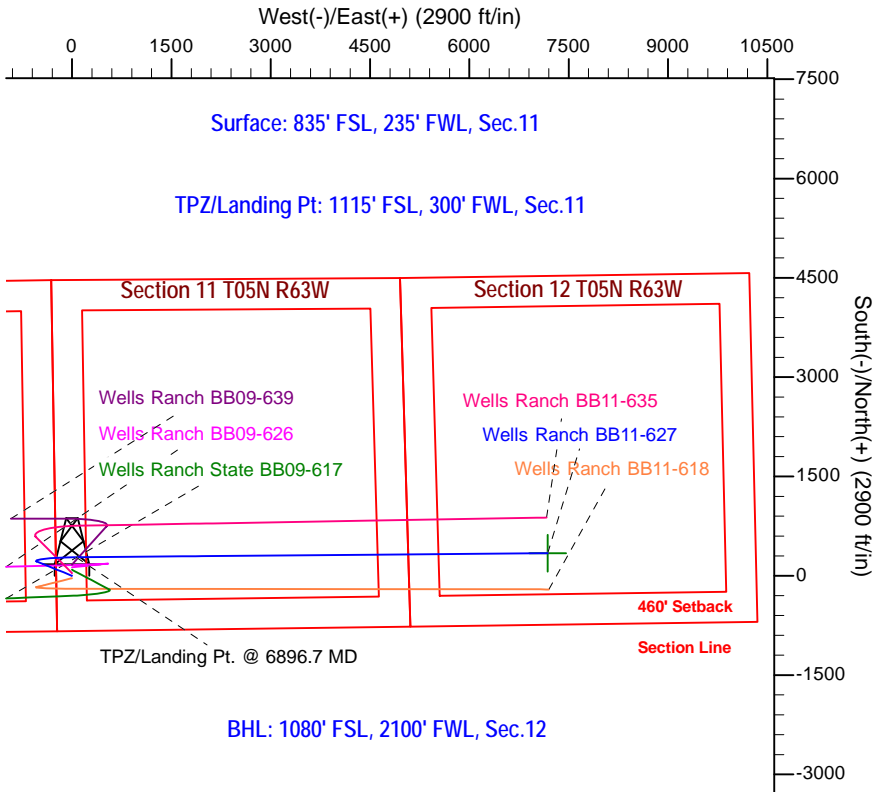
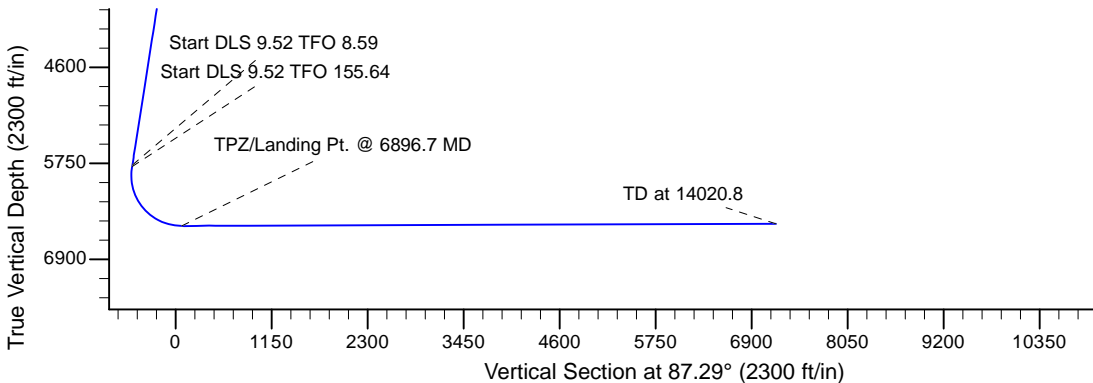
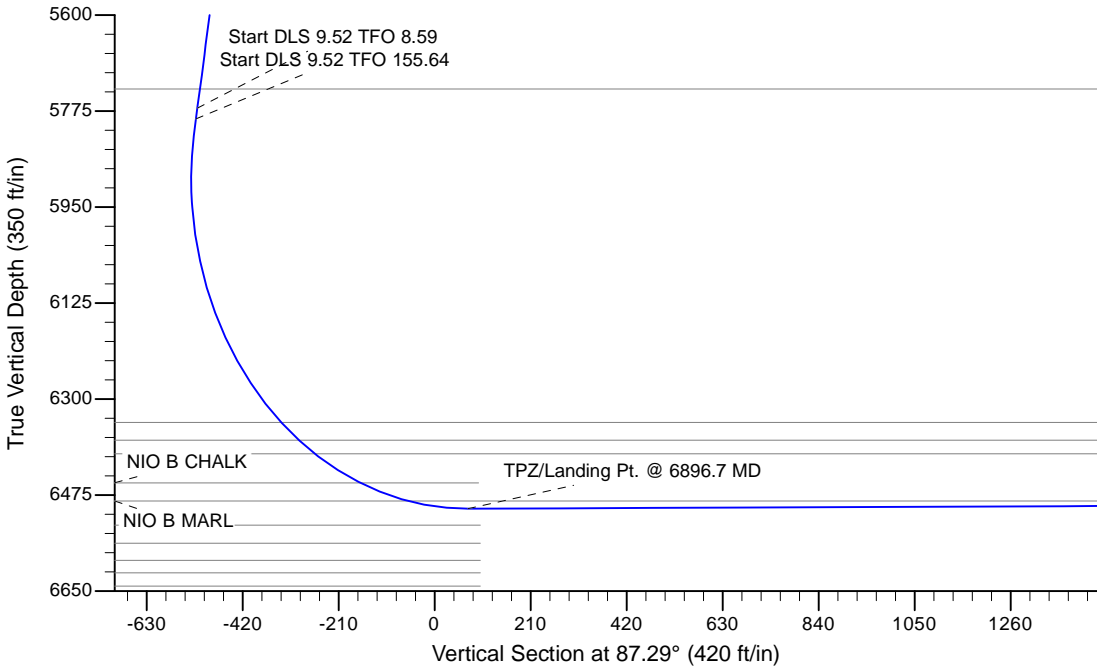
Project: Wells Ranch
Site: BB Section 11-T5N-R63W Weld County, CO
Well: Wells Ranch BB11-627
Wellbore: Original Drilling
Design: APD - Rev 0

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	2687.5	9.75	292.00	2685.2	15.5	-38.4	2.00	292.00	-37.6	
4	5817.6	9.75	292.00	5770.0	214.1	-529.8	0.00	0.00	-519.1	
5	5837.5	11.63	293.41	5789.6	215.5	-533.2	9.52	8.59	-522.4	
6	6896.7	90.20	89.51	6500.0	280.0	60.0	9.52	155.64	73.2	
7	14020.8	90.20	89.52	6474.9	340.5	7183.7	0.00	59.42	7191.8	Wells Ranch BB11-627 BHL 1080'FSL, 2100'FWL



WELL DETAILS: Wells Ranch BB11-627			
Northing	Easting	Ground Elevation: 4675.0	Latitude
0.0	1393662.8790950	3302801.9843193	40.4089100
Longitude			
-104.4126100			
Plan: APD - Rev 0 (Wells Ranch BB11-627/Original Drilling)			
Created By: Shailey Jewell		Date: 9:32, March 08 2017	
Checked: _____		Date: _____	
Reviewed: _____		Date: _____	
Approved: _____		Date: _____	

Northern Region - DJ Basin

Wells Ranch

BB Section 11

Wells Ranch BB11-627

Original Drilling

APD - Rev 0

Anticollision Summary Report

08 March, 2017

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB11-627
Project:	Wells Ranch	TVD Reference:	WELL @ 4705.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4705.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB11-627	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

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	3/8/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,020.8	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						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 BB11-627
Project:	Wells Ranch	TVD Reference:	WELL @ 4705.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4705.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB11-627	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						Out of range
Wells Ranch 10B - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10C - Original Drilling - Original Drilling - As						Out of range
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						Out of range
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	5,947.9	5,895.5	1,442.9	1,399.3	33.077	CC, ES
Wells Ranch 34-10 - Original Drilling - Original Drilling - A	6,100.0	6,049.6	1,461.3	1,416.6	32.708	SF
Wells Ranch 41-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 42-10 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 43-10 - Original Drilling - Original Drilling - A	6,075.9	5,989.2	973.5	928.7	21.726	CC, ES
Wells Ranch 43-10 - Original Drilling - Original Drilling - A	6,200.0	6,106.4	979.4	933.8	21.476	SF
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	5,901.9	5,813.0	498.3	454.9	11.486	CC, ES
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	6,000.0	5,910.7	504.6	460.5	11.444	SF

Anticollision Summary Report

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Project:	Wells Ranch	TVD Reference:	WELL @ 4705.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4705.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB11-627	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 11						
Wells 12-11 - Original Drilling - Original Drilling - As Drille						Out of range
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	7,217.9	6,450.7	879.3	828.5	17.294	CC, ES
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	7,300.0	6,450.9	883.2	831.8	17.186	SF
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	487.0	442.1	836.2	833.1	270.482	CC
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	1,900.0	1,849.9	836.9	823.4	61.671	ES
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	6,700.0	6,429.1	1,092.0	989.3	10.637	SF
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	8,516.4	6,448.8	1,129.1	1,065.1	17.642	CC, ES
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	8,700.0	6,446.3	1,143.9	1,077.7	17.277	SF
Wells Ranch 24-11 - Original Drilling - Original Drilling - A	8,569.6	6,443.2	383.7	319.1	5.939	CC, ES
Wells Ranch 24-11 - Original Drilling - Original Drilling - A	8,600.0	6,443.1	384.9	320.1	5.937	SF
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	6,900.0	6,774.7	115.1	49.1	1.745	ES, SF
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	6,905.6	6,769.3	115.1	49.2	1.746	CC
Wells Ranch BB09-639 - Original Drilling - APD - Rev 0	2,000.0	2,001.0	167.6	151.8	10.642	CC, ES
Wells Ranch BB09-639 - Original Drilling - APD - Rev 0	6,600.0	7,102.7	595.2	531.8	9.390	SF
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	2,200.0	2,200.0	36.4	15.1	1.706	CC
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	2,300.0	2,300.0	37.1	14.8	1.662	ES, SF
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0	2,000.0	2,001.0	40.1	20.7	2.070	CC, ES
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0	2,100.0	2,100.0	41.3	21.0	2.032	SF
Wells Ranch State BB09-617 - Original Drilling - APD - R	2,425.7	2,428.5	80.9	57.4	3.442	CC, ES
Wells Ranch State BB09-617 - Original Drilling - APD - R	2,500.0	2,500.3	83.0	58.8	3.433	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						Out of range
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	11,230.9	6,456.0	734.9	630.4	7.032	CC, ES
Wells Ranch USX BB11-09 - Original Drilling - Original D	11,300.0	6,456.2	738.1	632.7	7.004	SF
Wells Ranch USX BB11-10 - Original Drilling - Original D	9,825.5	6,458.0	804.6	722.2	9.767	CC, ES
Wells Ranch USX BB11-10 - Original Drilling - Original D	9,900.0	6,457.2	808.0	724.6	9.692	SF
Wells Ranch USX BB11-15 - Original Drilling - Original D	9,887.6	6,429.1	416.2	332.9	4.996	CC, ES
Wells Ranch USX BB11-15 - Original Drilling - Original D	9,900.0	6,429.0	416.4	333.0	4.991	SF
Wells Ranch USX BB11-16 - Original Drilling - Original D	11,259.3	6,451.1	391.4	286.4	3.728	CC, ES, SF
Wells Ranch USX BB11-17 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-23 - Original Drilling - Original D	10,527.6	6,436.2	243.0	149.8	2.607	CC, ES, SF
BB Section 12						
Wells Ranch 12D - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 33-12 - Original Drilling - Original Drilling - A	14,020.8	6,399.9	1,438.1	1,174.3	5.453	CC, ES, SF
Wells Ranch 34-12 - Original Drilling - Original Drilling - A	14,020.8	6,391.9	1,425.3	1,195.2	6.195	CC, ES, SF
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

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