

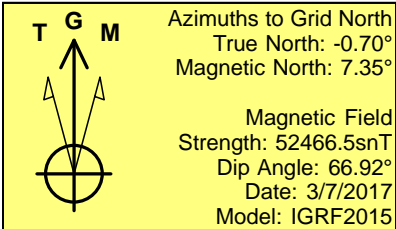
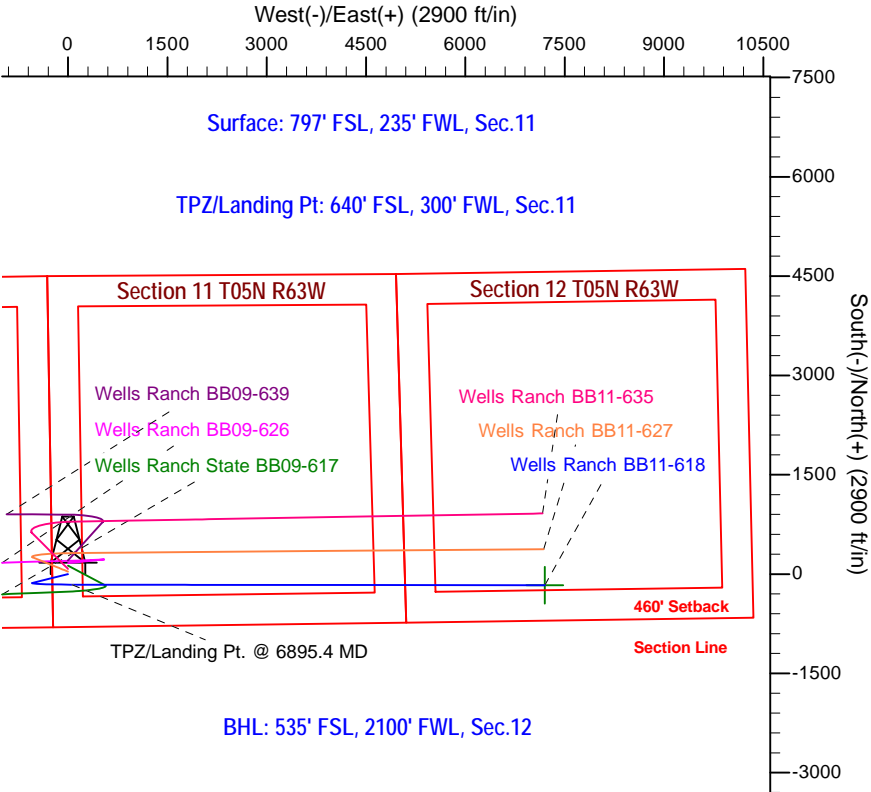
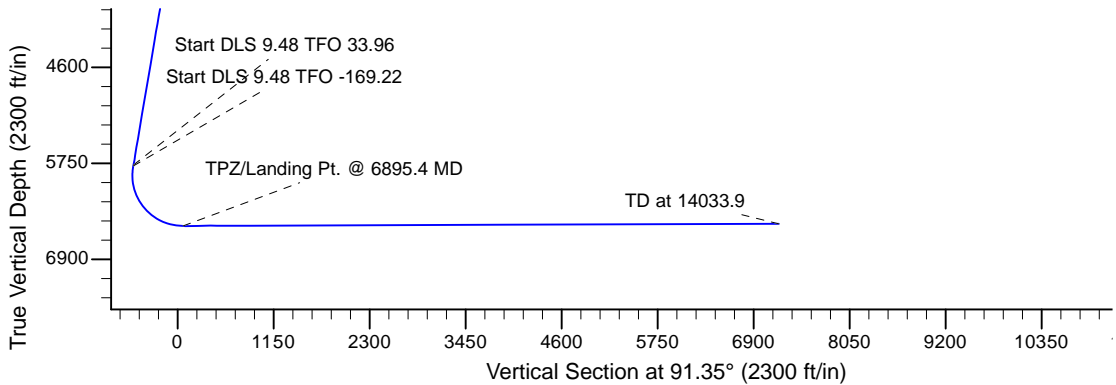
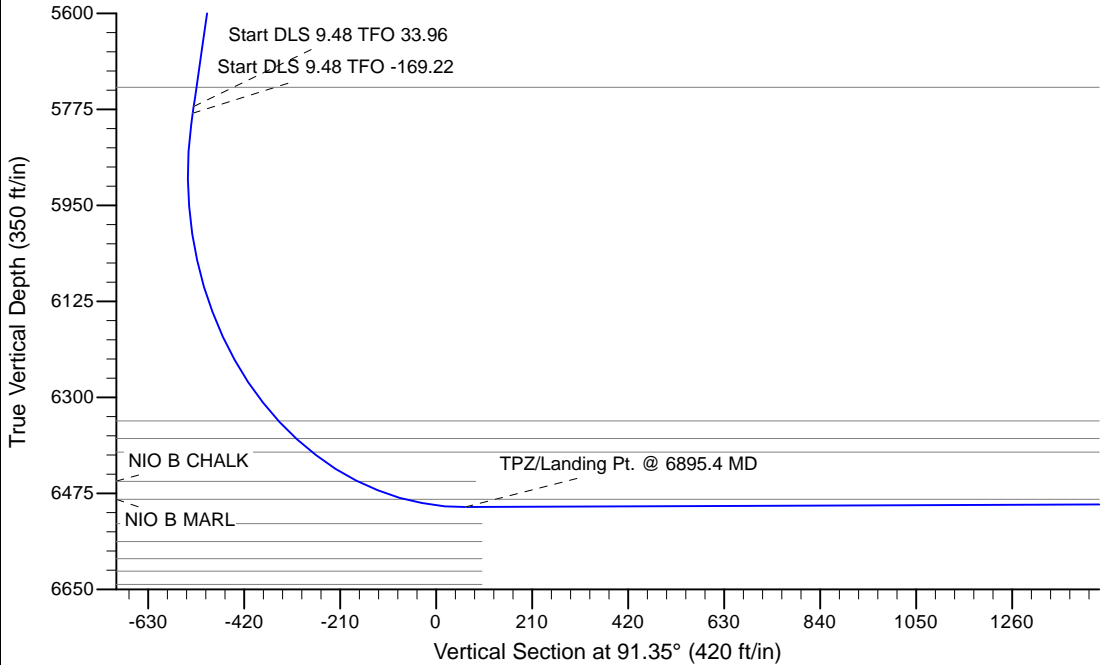
Project: Wells Ranch  
Site: BB Section 11-T5N-R63W Weld County, CO  
Well: Wells Ranch BB11-618  
Wellbore: Original Drilling  
Design: APD - Rev 0

# 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	2400.0	0.00	0.00	2400.0	0.0	0.0	0.00	0.00	0.0	
3	2900.0	10.00	256.00	2897.5	-10.5	-42.2	2.00	256.00	-42.0	
4	5816.8	10.00	256.00	5770.0	-133.1	-533.7	0.00	0.00	-530.4	
5	5829.4	11.01	259.49	5782.4	-133.5	-535.9	9.48	33.96	-532.6	
6	6895.4	90.20	90.07	6500.0	-160.0	60.0	9.48	-169.22	63.7	
7	14033.9	90.20	90.08	6474.9	-169.3	7198.5	0.00	73.56	7200.5	Wells Ranch BB11-618 BHL 535'FSL, 2100'FWL



WELL DETAILS: Wells Ranch BB11-618			
Northing	Easting	Ground Elevation: 4675.0	Longitude
0.0 1393626.4479924	3302802.4310842	40.4088100	-104.4126100
Plan: APD - Rev 0 (Wells Ranch BB11-618/Original Drilling)			
Created By: Shailey Jewell		Date: 9:22, March 08 2017	
Checked: _____		Date: _____	
Reviewed: _____		Date: _____	
Approved: _____		Date: _____	

# **Northern Region - DJ Basin**

**Wells Ranch**

**BB Section 11**

**Wells Ranch BB11-618**

**Original Drilling**

**APD - Rev 0**

## **Anticollision Summary Report**

**08 March, 2017**

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch BB11-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4705.0ft (Original Well Elev.)
<b>Reference Site:</b>	BB Section 11	<b>MD Reference:</b>	WELL @ 4705.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch BB11-618	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.79 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM Produccction
<b>Reference Design:</b>	APD - Rev 0	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	APD - Rev 0		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<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 1,880.8 ft	<b>Error Surface:</b>	Pedal Curve
<b>Warning Levels Evaluated at:</b>	2.79 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	3/8/2017		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	14,033.9	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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch BB11-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4705.0ft (Original Well Elev.)
<b>Reference Site:</b>	BB Section 11	<b>MD Reference:</b>	WELL @ 4705.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch BB11-618	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.79 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM Production
<b>Reference Design:</b>	APD - Rev 0	<b>Offset TVD Reference:</b>	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	5,947.3	5,894.1	1,429.0	1,385.5	32.841	CC, ES
Wells Ranch 34-10 - Original Drilling - Original Drilling - A	6,100.0	6,049.6	1,447.6	1,403.0	32.495	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	5,900.0	5,822.1	1,354.6	1,311.2	31.180	CC, ES
Wells Ranch 43-10 - Original Drilling - Original Drilling - A	6,200.0	6,112.0	1,377.4	1,331.9	30.301	SF
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	5,940.2	5,858.9	396.7	353.1	9.112	CC, ES
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	6,000.0	5,918.2	399.6	355.6	9.091	SF

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch BB11-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4705.0ft (Original Well Elev.)
<b>Reference Site:</b>	BB Section 11	<b>MD Reference:</b>	WELL @ 4705.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch BB11-618	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.79 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM Production
<b>Reference Design:</b>	APD - Rev 0	<b>Offset TVD Reference:</b>	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	1,984.6	1,929.8	1,260.0	1,245.7	87.736	CC
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	2,400.0	2,334.1	1,261.8	1,244.5	72.796	ES
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	7,400.0	6,454.8	1,372.5	1,320.8	26.526	SF
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	6,615.9	6,396.2	619.1	517.9	6.121	CC, ES
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	6,700.0	6,427.1	624.2	522.1	6.110	SF
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	8,502.9	6,447.2	1,621.3	1,557.7	25.491	CC, ES
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	8,900.0	6,441.9	1,669.2	1,601.2	24.561	SF
Wells Ranch 24-11 - Original Drilling - Original Drilling - A	8,570.9	6,441.1	109.1	44.7	1.694	CC, ES, SF
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	2,400.0	2,402.0	163.9	140.6	7.017	CC
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	2,500.0	2,502.0	164.3	140.0	6.750	ES
Wells Ranch BB09-626 - Original Drilling - APD - Rev 0	6,700.0	6,981.6	356.0	290.1	5.398	SF
Wells Ranch BB09-639 - Original Drilling - APD - Rev 0	2,000.0	2,001.0	204.0	188.3	12.956	CC, ES
Wells Ranch BB09-639 - Original Drilling - APD - Rev 0	2,400.0	2,378.8	224.2	205.4	11.903	SF
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0	2,200.0	2,200.0	36.4	15.1	1.706	CC
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0	2,300.0	2,299.5	37.1	14.8	1.662	ES, SF
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0	2,000.0	2,001.0	76.5	57.1	3.952	CC, ES
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0	2,100.0	2,099.1	77.8	57.4	3.823	SF
Wells Ranch State BB09-617 - Original Drilling - APD - R	7,083.8	6,663.2	90.1	24.1	1.365	Level 3, CC, ES, 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	11,221.1	6,458.7	1,253.7	1,149.4	12.016	CC, ES
Wells Ranch USX BB11-09 - Original Drilling - Original D	11,400.0	6,459.4	1,266.4	1,160.0	11.904	SF
Wells Ranch USX BB11-10 - Original Drilling - Original D	9,815.0	6,463.6	1,309.6	1,227.4	15.938	CC, ES
Wells Ranch USX BB11-10 - Original Drilling - Original D	10,000.0	6,461.6	1,322.6	1,238.2	15.673	SF
Wells Ranch USX BB11-15 - Original Drilling - Original D	9,889.1	6,426.0	89.5	6.3	1.075	Level 2, CC, ES, SF
Wells Ranch USX BB11-16 - Original Drilling - Original D	11,261.3	6,434.3	127.5	22.6	1.216	Level 2, CC, ES, SF
Wells Ranch USX BB11-17 - Original Drilling - Original D						Out of range
Wells Ranch USX BB11-23 - Original Drilling - Original D	10,522.7	6,428.7	754.9	661.9	8.116	CC, ES
Wells Ranch USX BB11-23 - Original Drilling - Original D	10,600.0	6,427.8	758.9	665.0	8.085	SF
BB Section 12						
Wells Ranch 12D - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 33-12 - Original Drilling - Original Drilling - A	14,033.9	6,399.9	1,814.1	1,526.9	6.315	CC, ES, SF
Wells Ranch 34-12 - Original Drilling - Original Drilling - A	14,033.9	6,391.9	1,362.9	1,146.8	6.307	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