

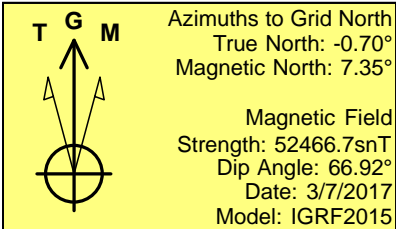
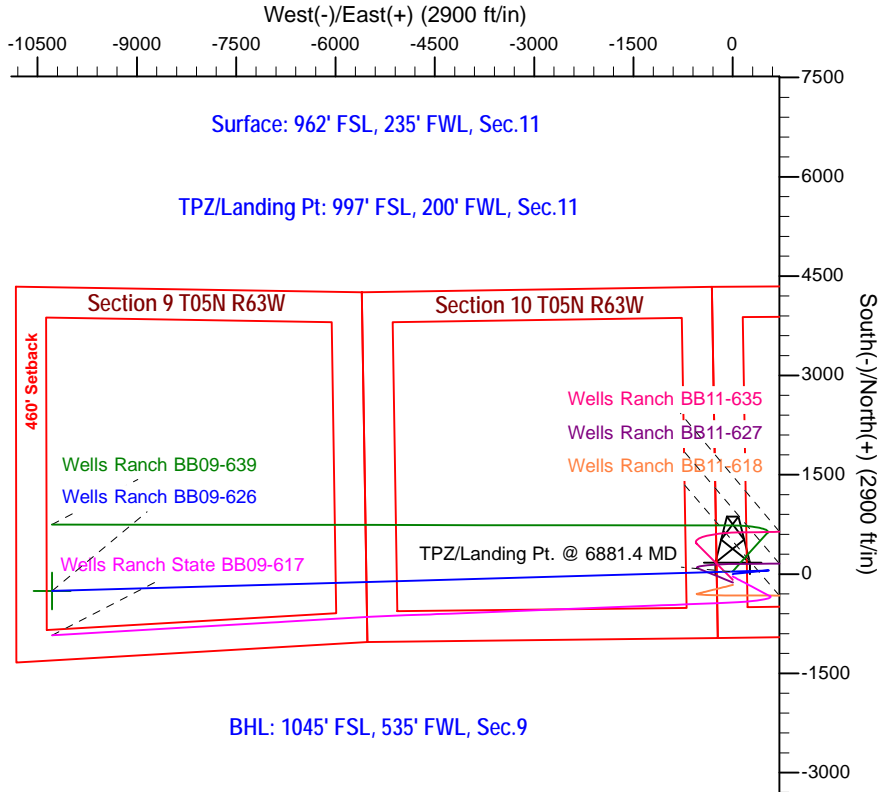
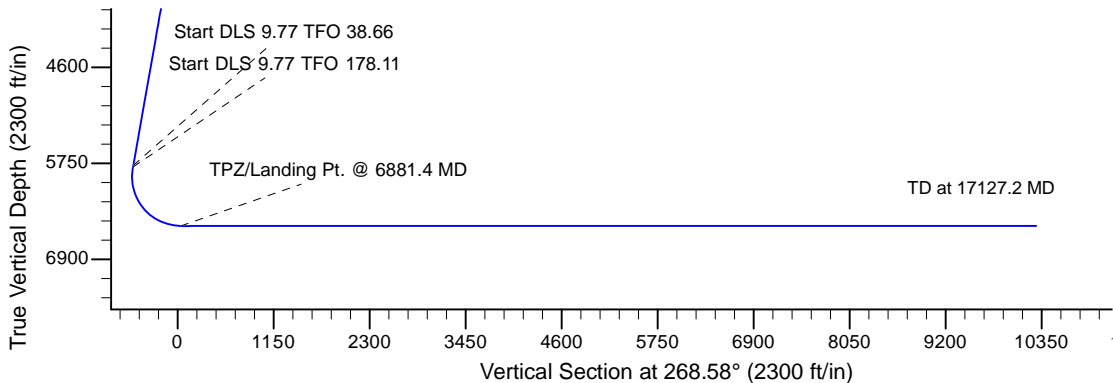
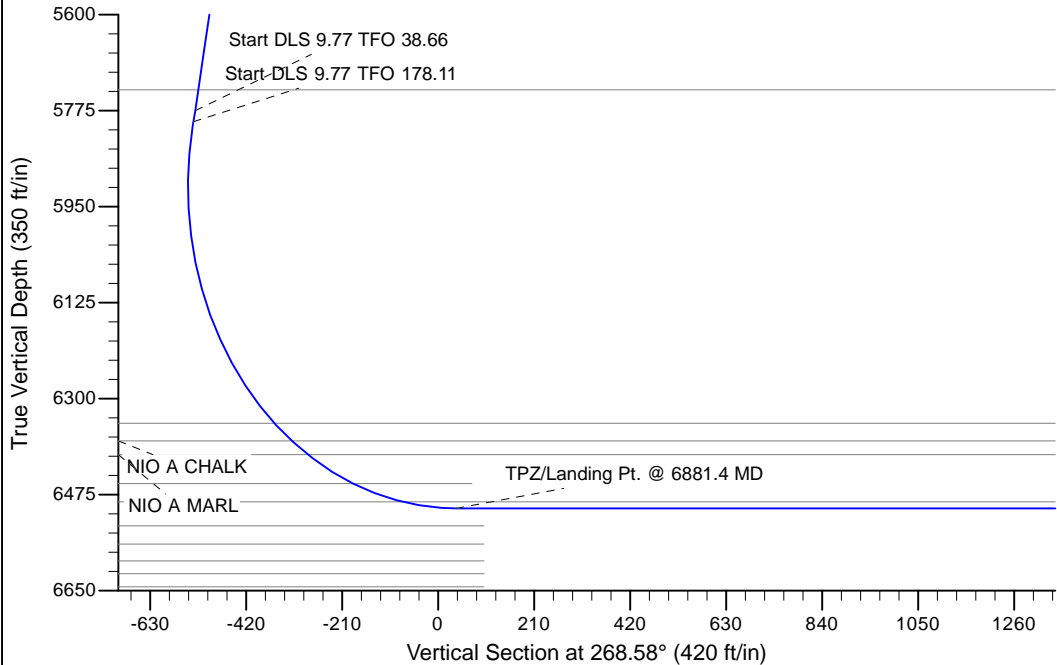
Project: Wells Ranch
Site: BB Section 11-T5N-R63W Weld County, CO
Well: Wells Ranch BB09-626
Wellbore: Original Drilling
Design: APD - Rev 0

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	2500.0	0.00	0.00	2500.0	0.0	0.0	0.00	0.00	0.0	
3	3000.0	10.00	84.00	2997.5	4.5	43.3	2.00	84.00	-43.4	
4	5820.4	10.00	84.00	5775.0	55.7	530.4	0.00	0.00	-531.6	
5	5840.9	11.63	90.23	5795.2	55.9	534.2	9.77	38.66	-535.4	
6	6881.4	90.00	268.38	6500.0	35.0	-40.0	9.77	178.11	39.1	
7	17127.2	90.00	268.38	6500.0	-255.1	-10281.7	0.00	0.00	10284.9	Wells Ranch BB09-626 BHL 1045'FSL, 535'FWL



WELL DETAILS: Wells Ranch BB09-626			
0.0	Northings	Easting	Ground Elevation: 4677.0
1093790.37362302800	4208174	40.4092600	Latitude
			Longitude
			-104.4126100
Plan: APD - Rev 0 (Wells Ranch BB09-626/Original Drilling)			
Created By: Shailey Jewell		Date: 9:05, March 08 2017	
Checked: _____		Date: _____	
Reviewed: _____		Date: _____	
Approved: _____		Date: _____	

Northern Region - DJ Basin

Wells Ranch

BB Section 11

Wells Ranch BB09-626

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 BB09-626
Project:	Wells Ranch	TVD Reference:	WELL @ 4707.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4707.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-626	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	3/8/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,126.9	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	13,032.0	6,497.3	131.8	-2.1	0.984	Level 1, CC, ES, SF
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	13,009.9	6,497.4	1,082.6	949.2	8.117	CC, ES
70 Ranch USX BB09-09 - Original Drilling - Original Drilling	13,100.0	6,496.9	1,086.3	951.8	8.075	SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	14,330.3	6,511.6	1,213.6	1,058.0	7.800	CC, ES
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	14,400.0	6,511.4	1,215.6	1,059.1	7.764	SF
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	15,635.2	6,537.8	1,131.2	953.6	6.370	CC, ES
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	15,700.0	6,537.1	1,133.1	954.6	6.349	SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilling	14,631.9	6,520.0	340.1	179.4	2.116	CC, ES, SF
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	17,127.2	10,902.0	284.9	-109.8	0.722	Level 1, CC, ES, SF
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	13,500.7	10,821.0	1,115.4	850.0	4.202	CC
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	13,600.0	10,821.0	1,119.8	842.0	4.031	ES
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	13,800.0	10,821.0	1,154.8	858.9	3.902	SF
National Hog Farm 13-09 - Original Drilling - Original Drilling	16,989.7	6,506.2	1,219.4	1,018.8	6.080	CC
National Hog Farm 13-09 - Original Drilling - Original Drilling	17,000.0	6,506.5	1,219.4	1,018.7	6.075	ES
National Hog Farm 13-09 - Original Drilling - Original Drilling	17,100.0	6,509.5	1,224.3	1,022.6	6.069	SF
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,127.2	6,494.6	876.0	687.1	4.637	CC, ES, SF
National Hog Farm 21-09 - Original Drilling - Original Drilling						Out of range
National Hog Farm 24-09 - Original Drilling - Original Drilling	15,545.9	6,554.5	248.9	72.6	1.412	Level 3, CC, ES, SF

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 BB09-626
Project:	Wells Ranch	TVD Reference:	WELL @ 4707.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4707.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-626	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 10						
Wells Ranch 10A - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10B - Original Drilling - Original Drilling - As	10,910.2	6,473.8	249.1	150.1	2.517	CC, ES, SF
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	12,190.8	6,486.2	381.5	261.7	3.185	CC
Wells Ranch 10H - Original Drilling - Original Drilling - As	12,200.0	6,486.1	381.6	261.7	3.182	ES, SF
Wells Ranch 10J - Original Drilling - Original Drilling - As						Out of range
Wells Ranch 10K - Original Drilling - Original Drilling - As	10,812.1	6,512.0	1,555.6	1,458.1	15.945	CC, ES
Wells Ranch 10K - Original Drilling - Original Drilling - As	11,000.0	6,508.0	1,566.9	1,466.9	15.668	SF
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	11,788.1	6,495.5	893.7	780.0	7.859	CC
Wells Ranch 13-10 - Original Drilling - Original Drilling - A	11,800.0	6,495.9	893.8	779.9	7.846	ES
Wells Ranch 13-10 - Original Drilling - Original Drilling - A	11,900.0	6,498.9	900.7	785.8	7.840	SF
Wells Ranch 14-10 - Original Drilling - Original Drilling - A	11,806.6	6,462.6	193.8	80.3	1.707	CC, ES, SF
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	10,455.2	6,468.0	921.4	829.6	10.033	CC, ES
Wells Ranch 23-10 - Original Drilling - Original Drilling - A	10,500.0	6,468.0	922.5	830.0	9.976	SF
Wells Ranch 24-10 - Original Drilling - Original Drilling - A	10,275.0	6,469.3	326.3	237.2	3.661	CC, ES, SF
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	9,044.7	6,458.3	976.0	905.4	13.813	CC, ES
Wells Ranch 33-10 - Original Drilling - Original Drilling - A	9,200.0	6,453.8	988.3	915.9	13.651	SF
Wells Ranch 34-10 - Original Drilling - Original Drilling - A	8,803.1	6,478.2	123.3	52.7	1.746	CC, ES, 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	7,732.2	6,464.9	984.7	930.0	17.984	CC, ES
Wells Ranch 43-10 - Original Drilling - Original Drilling - A	7,900.0	6,464.9	998.9	942.7	17.759	SF
Wells Ranch 44-10 - Original Drilling - Original Drilling - A	7,783.8	6,461.9	232.8	177.5	4.210	CC, ES, SF

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch BB09-626
Project:	Wells Ranch	TVD Reference:	WELL @ 4707.0ft (Original Well Elev.)
Reference Site:	BB Section 11	MD Reference:	WELL @ 4707.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch BB09-626	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						Out of range
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	6,376.7	6,244.1	987.1	940.6	21.239	CC
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	6,400.0	6,261.5	987.2	940.6	21.181	ES
Wells Ranch 13-11 - Original Drilling - Original Drilling - A	6,500.0	6,328.2	991.1	944.0	21.021	SF
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	484.3	437.3	960.9	957.8	313.529	CC
Wells Ranch 14-11 - Original Drilling - Original Drilling - A	7,100.0	6,459.2	969.4	864.7	9.251	ES, SF
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	5,968.6	5,904.0	1,679.1	1,635.1	38.192	CC, ES
Wells Ranch 23-11 - Original Drilling - Original Drilling - A	6,200.0	6,115.5	1,711.6	1,666.1	37.638	SF
Wells Ranch 24-11 - Original Drilling - Original Drilling - A	5,962.6	5,864.8	1,224.0	1,180.5	28.105	CC, ES
Wells Ranch 24-11 - Original Drilling - Original Drilling - A	6,100.0	6,001.9	1,239.4	1,195.0	27.858	SF
Wells Ranch BB09-639 - Original Drilling - APD - Rev 0	2,000.0	1,999.0	40.1	24.3	2.546	CC, ES
Wells Ranch BB09-639 - Original Drilling - APD - Rev 0	17,127.2	17,154.9	1,001.9	399.1	1.662	SF
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	2,400.0	2,398.0	163.9	140.6	7.023	CC
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	2,500.0	2,496.7	164.3	140.0	6.756	ES
Wells Ranch BB11-618 - Original Drilling - APD - Rev 0	7,000.0	6,678.5	355.8	290.0	5.403	SF
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0	6,769.3	6,905.6	115.1	49.2	1.746	CC
Wells Ranch BB11-627 - Original Drilling - APD - Rev 0	6,800.0	6,874.7	115.2	49.0	1.740	ES, SF
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0	2,567.8	2,571.7	61.9	36.9	2.476	CC, ES
Wells Ranch BB11-635 - Original Drilling - APD - Rev 0	2,600.0	2,603.0	62.4	37.1	2.466	SF
Wells Ranch State BB09-617 - Original Drilling - APD - R	2,000.0	1,999.0	36.4	17.1	1.883	CC
Wells Ranch State BB09-617 - Original Drilling - APD - R	2,100.0	2,098.4	37.3	17.0	1.834	ES
Wells Ranch State BB09-617 - Original Drilling - APD - R	17,127.2	17,180.4	671.7	299.1	1.803	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						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
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