

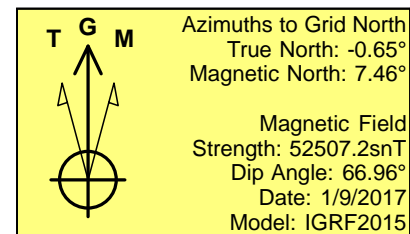
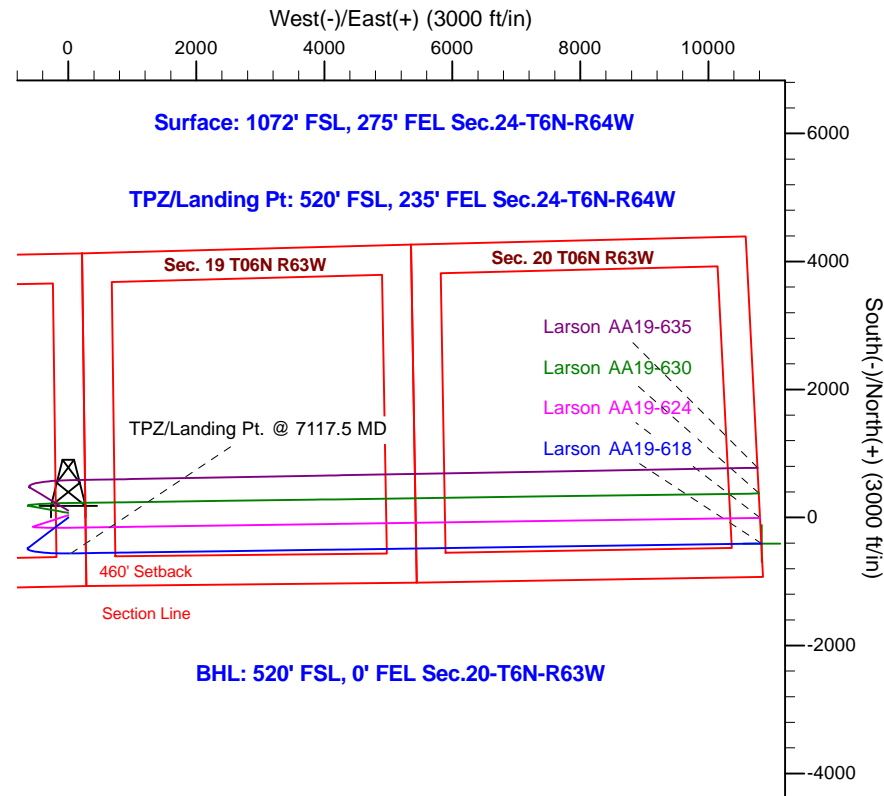
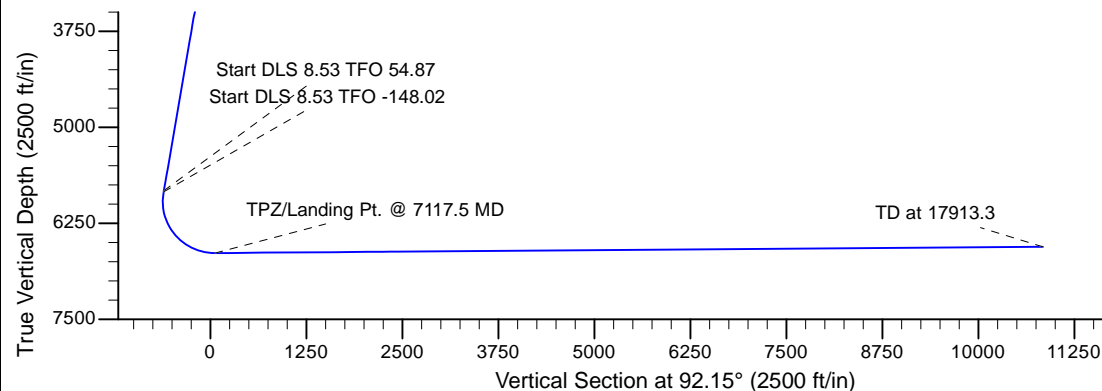
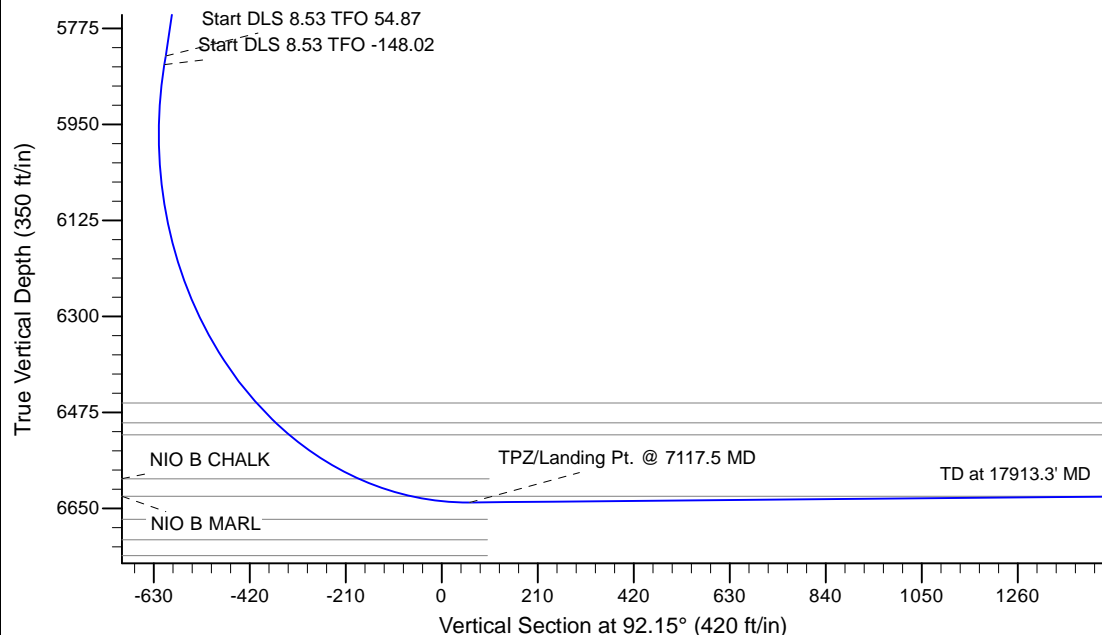
Project: Wells Ranch  
 Site: A Section 24  
 Well: Larson AA19-618  
 Wellbore: Original Drilling  
 Design: APD - Rev 0

# 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	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2625.0	12.50	233.00	2620.1	-40.9	-54.2	2.00	233.00	-52.7	
4	5907.8	12.50	233.00	5825.0	-468.5	-621.7	0.00	0.00	-603.7	
5	5924.1	13.35	237.95	5841.0	-470.5	-624.7	8.53	54.87	-606.6	
6	7117.5	90.43	89.18	6639.0	-560.0	40.0	8.53	-148.02	60.9	
7	17913.3	90.43	89.19	6557.6	-406.1	10834.4	0.00	57.32	10842.0	Larson AA19-618 BHL 520'FSL, 0'FEL



WELL DETAILS: Larson AA19-618					
		Ground Elevation: 4646.0			
	Northing	Easting	Latitude	Longitude	
0.0	0.0	1414828.22	3281075.20	40.4677100	-104.4897600
Plan: APD - Rev 0 (Larson AA19-618/Original Drilling)					
Created By: :Shailey Jewell			Date: 9:46, January 09 2017		
OK to submit with 2A as per Noble Drilling					
1/9/2017 9:56					

# **Northern Region - DJ Basin**

**Wells Ranch**

**A Section 24**

**Larson AA19-618**

**Original Drilling**

**APD - Rev 0**

## **Anticollision Summary Report**

**09 January, 2017**

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 24	<b>MD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Larson AA19-618	<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>	Stations	<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 10,000.0 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>	1/9/2017		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	17,913.3	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

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						
A Section 23						
Cecil 23-13 - Original Drilling - Original Drilling - As Drille	6,035.9	6,063.3	7,215.4	7,174.7	177.353	CC, ES
Cecil 23-13 - Original Drilling - Original Drilling - As Drille	6,350.0	6,343.2	7,282.4	7,240.4	173.507	SF
Champlin 23-02 (PA) - Original Drilling - Original Drilling -	6,045.1	5,968.1	9,143.6	8,953.0	47.977	CC
Champlin 23-02 (PA) - Original Drilling - Original Drilling -	6,050.0	5,973.0	9,143.6	8,952.8	47.938	ES
Champlin 23-02 (PA) - Original Drilling - Original Drilling -	6,650.0	6,495.1	9,395.3	9,189.0	45.556	SF
Champlin 23-03 - Original Drilling - Original Drilling - As D	6,065.2	6,068.8	7,917.2	7,879.7	210.874	CC, ES
Champlin 23-03 - Original Drilling - Original Drilling - As D	6,500.0	6,430.7	8,054.6	8,015.1	203.936	SF
Champlin Amoco A 1 #308 - Original Drilling - Original Dr	6,057.1	5,955.1	8,075.2	7,886.2	42.733	CC, ES
Champlin Amoco A 1 #308 - Original Drilling - Original Dr	6,650.0	6,470.1	8,320.5	8,115.9	40.665	SF
Cooper 23-1-17 - Original Drilling - Original Drilling - As Dr	6,001.2	5,936.5	7,122.7	7,081.1	171.138	CC, ES
Cooper 23-1-17 - Original Drilling - Original Drilling - As Dr	9,700.0	6,591.4	9,961.7	9,895.1	149.462	SF
Cooper 23-1-19 - Original Drilling - Original Drilling - As D	6,018.2	5,926.7	7,652.5	7,611.8	187.837	CC, ES
Cooper 23-1-19 - Original Drilling - Original Drilling - As D	6,350.0	6,253.8	7,724.1	7,682.0	183.342	SF
Cooper 23-12 - Original Drilling - Original Drilling - As Dri	6,016.3	6,013.6	7,421.0	7,379.6	179.080	CC, ES
Cooper 23-12 - Original Drilling - Original Drilling - As Dri	9,300.0	6,682.8	9,995.2	9,937.2	172.324	SF
Cooper 23-1-20 - Original Drilling - Original Drilling - As D	6,037.2	5,964.8	7,144.4	7,104.6	179.595	CC, ES
Cooper 23-1-20 - Original Drilling - Original Drilling - As D	6,400.0	6,306.5	7,235.8	7,194.5	175.097	SF
Cooper 23-15 - Original Drilling - Original Drilling - As Dri	6,009.5	5,903.6	6,570.9	6,529.8	160.051	CC, ES
Cooper 23-15 - Original Drilling - Original Drilling - As Dri	6,300.0	6,215.6	6,624.4	6,582.0	156.287	SF
Foss 41-23D - Original Drilling - Original Drilling - As Drill	3,594.2	3,000.0	6,180.5	6,159.6	296.536	CC
Foss 41-23D - Original Drilling - Original Drilling - As Drill	3,600.0	3,000.0	6,180.5	6,159.6	296.103	ES
Foss 41-23D - Original Drilling - Original Drilling - As Drill	10,500.0	6,929.3	9,912.6	9,833.0	124.491	SF
Foss 42-23 - Original Drilling - Original Drilling - As Drille	6,017.6	5,906.6	5,775.2	5,734.6	142.300	CC, ES
Foss 42-23 - Original Drilling - Original Drilling - As Drille	6,300.0	6,193.5	5,828.5	5,786.6	139.156	SF
J&L Farms 23-11 - Original Drilling - Original Drilling - As	6,019.1	5,901.2	9,927.1	9,886.8	246.115	CC, ES
J&L Farms 23-11 - Original Drilling - Original Drilling - As	6,300.0	6,164.9	9,980.6	9,939.0	240.025	SF
J&L Farms 23-12 - Original Drilling - Original Drilling - As	6,036.2	5,979.1	9,522.1	9,482.7	241.561	CC, ES
J&L Farms 23-12 - Original Drilling - Original Drilling - As	6,400.0	6,228.6	9,616.9	9,576.1	235.836	SF
J&L Farms 23-21 - Original Drilling - Original Drilling - As	6,020.8	6,033.0	8,577.5	8,536.3	208.069	CC, ES
J&L Farms 23-21 - Original Drilling - Original Drilling - As	6,350.0	6,298.0	8,648.0	8,605.6	203.823	SF
J&L Farms 23-22 - Original Drilling - Original Drilling - As	6,016.6	5,780.8	8,149.5	8,109.9	205.560	CC, ES
J&L Farms 23-22 - Original Drilling - Original Drilling - As	6,300.0	5,925.6	8,207.4	8,166.7	201.640	SF
McIntosh 33-23 - Original Drilling - Original Drilling - As D	6,065.9	6,171.8	6,442.8	6,403.5	164.115	CC, ES
McIntosh 33-23 - Original Drilling - Original Drilling - As D	6,300.0	6,300.0	6,484.4	6,444.2	161.326	SF
McIntosh 34-23 - Original Drilling - Original Drilling - As D	6,049.7	5,852.9	6,203.5	6,165.7	164.097	CC
McIntosh 34-23 - Original Drilling - Original Drilling - As D	6,050.0	5,853.1	6,203.5	6,165.7	164.091	ES
McIntosh 34-23 - Original Drilling - Original Drilling - As D	6,450.0	6,251.5	6,319.1	6,279.2	158.582	SF

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

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 24	<b>MD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Larson AA19-618	<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
<b>Offset Well - Wellbore - Design</b>						
A Section 23						
McIntosh 43-23 - Original Drilling - Original Drilling - As D	6,040.5	5,971.2	5,056.5	5,016.9	127.697	CC, ES
McIntosh 43-23 - Original Drilling - Original Drilling - As D	6,350.0	6,241.6	5,125.2	5,084.2	125.158	SF
McIntosh 44-23 - Original Drilling - Original Drilling - As D	6,050.0	5,855.4	4,767.1	4,730.1	129.032	CC
McIntosh 44-23 - Original Drilling - Original Drilling - As D	6,050.0	5,855.4	4,767.1	4,730.1	129.031	ES
McIntosh 44-23 - Original Drilling - Original Drilling - As D	6,400.0	6,166.4	4,856.3	4,817.7	125.678	SF
Schroeder 23-31 - Original Drilling - Original Drilling - As	6,056.3	6,089.7	7,580.5	7,541.8	195.660	CC, ES
Schroeder 23-31 - Original Drilling - Original Drilling - As	6,450.0	6,410.4	7,692.8	7,652.4	190.507	SF
Schroeder 23-33 - Original Drilling - Original Drilling - As	6,067.9	6,102.7	9,167.6	9,130.3	245.671	CC, ES
Schroeder 23-33 - Original Drilling - Original Drilling - As	6,600.0	6,588.7	9,367.9	9,328.2	235.806	SF
A Section 24						
Larson A23-622 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	163.9	151.8	13.510	CC
Larson A23-622 - Original Drilling - APD - Rev 0	2,100.0	2,103.0	164.0	151.3	12.910	ES
Larson A23-622 - Original Drilling - APD - Rev 0	7,300.0	6,835.2	308.0	250.1	5.324	SF
Larson A23-627 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	185.8	173.7	15.311	CC, ES
Larson A23-627 - Original Drilling - APD - Rev 0	7,600.0	6,618.2	666.8	603.4	10.520	SF
Larson A23-633 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	207.6	195.5	17.113	CC, ES
Larson A23-633 - Original Drilling - APD - Rev 0	7,800.0	6,470.4	1,028.9	960.1	14.958	SF
Larson A23-639 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	229.5	217.4	18.914	CC, ES
Larson A23-639 - Original Drilling - APD - Rev 0	8,100.0	6,381.7	1,405.3	1,327.0	17.941	SF
Larson AA19-624 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	36.4	24.3	3.002	CC
Larson AA19-624 - Original Drilling - APD - Rev 0	17,900.0	17,932.0	570.5	-59.8	0.905	Level 1, ES, SF
Larson AA19-630 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	72.9	60.7	6.005	CC
Larson AA19-630 - Original Drilling - APD - Rev 0	17,846.0	19,048.3	783.2	-127.8	0.860	Level 1, ES, SF
Larson AA19-635 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	109.3	97.2	9.007	CC, ES
Larson AA19-635 - Original Drilling - APD - Rev 0	17,900.0	17,894.4	1,188.3	326.0	1.378	Level 3, SF
Larson Farms 01-24 - Original Drilling - Original Drilling -	1,205.6	1,191.3	3,124.1	3,116.6	418.009	CC
Larson Farms 01-24 - Original Drilling - Original Drilling -	1,700.0	1,685.6	3,126.6	3,114.8	265.005	ES
Larson Farms 01-24 - Original Drilling - Original Drilling -	9,900.0	6,603.0	5,153.3	5,016.8	37.749	SF
Larson Farms 02-24 - Original Drilling - Original Drilling -	4,646.8	5,087.1	2,535.1	2,484.7	50.249	CC
Larson Farms 02-24 - Original Drilling - Original Drilling -	4,800.0	5,205.9	2,536.4	2,484.1	48.470	ES
Larson Farms 02-24 - Original Drilling - Original Drilling -	8,400.0	7,020.6	3,190.8	3,101.8	35.845	SF
Larson Farms 03-24 - Original Drilling - Original Drilling -	5,969.2	6,000.9	1,700.5	1,649.9	33.584	CC, ES
Larson Farms 03-24 - Original Drilling - Original Drilling -	6,100.0	6,157.1	1,706.6	1,655.1	33.109	SF
Larson Farms 04-24 - Original Drilling - Original Drilling -	4,720.9	5,298.8	1,216.9	1,140.5	15.946	CC
Larson Farms 04-24 - Original Drilling - Original Drilling -	4,800.0	5,354.4	1,217.9	1,140.3	15.683	ES
Larson Farms 04-24 - Original Drilling - Original Drilling -	5,400.0	5,864.5	1,272.1	1,186.9	14.940	SF
Larson Farms 05-24 - Original Drilling - Original Drilling -	5,959.7	6,247.7	848.7	790.2	14.514	CC, ES
Larson Farms 05-24 - Original Drilling - Original Drilling -	6,050.0	6,335.1	852.2	792.8	14.357	SF
Larson Farms 06-24 - Original Drilling - Original Drilling -	6,450.0	6,965.1	133.3	40.3	1.433	Level 3, SF
Larson Farms 06-24 - Original Drilling - Original Drilling -	6,500.0	7,009.4	129.6	39.9	1.445	Level 3, ES
Larson Farms 06-24 - Original Drilling - Original Drilling -	6,517.7	7,024.7	129.2	41.4	1.471	Level 3, CC
Larson Farms 07-24 - Original Drilling - Original Drilling -	6,067.7	6,384.0	1,046.7	978.8	15.422	CC, ES
Larson Farms 07-24 - Original Drilling - Original Drilling -	6,100.0	6,413.5	1,047.5	979.5	15.405	SF
Peppler 24-32 - Original Drilling - Original Drilling - As Dr	6,014.5	5,829.3	4,149.5	4,109.6	103.972	CC, ES
Peppler 24-32 - Original Drilling - Original Drilling - As Dr	6,350.0	6,220.3	4,227.0	4,185.5	101.745	SF
Roth 24-21 - Original Drilling - Original Drilling - As Drilled	4,450.5	4,375.3	4,544.3	4,515.7	158.636	CC
Roth 24-21 - Original Drilling - Original Drilling - As Drilled	5,600.0	5,512.3	4,548.0	4,509.2	117.385	ES
Roth 24-21 - Original Drilling - Original Drilling - As Drilled	10,600.0	6,500.0	7,676.9	7,585.4	83.954	SF

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

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 24	<b>MD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Larson AA19-618	<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
AA Section 19						
J&L Farms 31-19 - Original Drilling - Original Drilling - As	10,380.0	6,653.0	4,123.2	3,959.7	25.204	CC
J&L Farms 31-19 - Original Drilling - Original Drilling - As	10,500.0	6,652.5	4,125.0	3,957.1	24.564	ES
J&L Farms 31-19 - Original Drilling - Original Drilling - As	12,100.0	6,645.3	4,467.6	4,256.8	21.188	SF
J&L Farms 32-19 - Original Drilling - Original Drilling - As	10,209.1	6,606.2	2,465.3	2,311.5	16.026	CC
J&L Farms 32-19 - Original Drilling - Original Drilling - As	10,300.0	6,601.6	2,467.0	2,310.0	15.718	ES
J&L Farms 32-19 - Original Drilling - Original Drilling - As	10,900.0	6,568.7	2,560.1	2,387.7	14.853	SF
J&L Farms 41-19 - Original Drilling - Original Drilling - As	11,652.9	6,606.6	4,309.2	4,100.0	20.602	CC
J&L Farms 41-19 - Original Drilling - Original Drilling - As	12,100.0	12,100.0	4,331.9	4,094.3	18.229	ES
J&L Farms 41-19 - Original Drilling - Original Drilling - As	12,200.0	12,200.0	4,343.4	4,102.4	18.025	SF
J&L Farms 42-19 - Original Drilling - Original Drilling - As	12,044.9	6,622.3	2,539.9	2,315.5	11.317	CC
J&L Farms 42-19 - Original Drilling - Original Drilling - As	12,100.0	6,622.3	2,540.5	2,314.1	11.223	ES
J&L Farms 42-19 - Original Drilling - Original Drilling - As	12,600.0	6,622.4	2,599.9	2,360.8	10.873	SF
Larson A23-622 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	163.9	151.8	13.510	CC
Larson A23-622 - Original Drilling - APD - Rev 0	2,100.0	2,103.0	164.1	151.3	12.910	ES
Larson A23-622 - Original Drilling - APD - Rev 0	7,300.0	6,835.2	308.0	250.1	5.324	SF
Larson A23-627 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	185.8	173.7	15.312	CC, ES
Larson A23-627 - Original Drilling - APD - Rev 0	7,600.0	6,618.2	666.8	603.4	10.520	SF
Larson A23-633 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	207.7	195.5	17.113	CC, ES
Larson A23-633 - Original Drilling - APD - Rev 0	7,800.0	6,470.4	1,028.9	960.1	14.958	SF
Larson A23-639 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	229.5	217.4	18.914	CC, ES
Larson A23-639 - Original Drilling - APD - Rev 0	8,100.0	6,381.7	1,405.3	1,327.0	17.941	SF
Larson A23-645 - Original Drilling - APD - Rev 0	6,683.0	8,185.3	1,726.2	1,666.9	29.129	CC
Larson A23-645 - Original Drilling - APD - Rev 0	8,000.0	6,950.0	1,732.7	1,655.5	22.447	ES
Larson A23-645 - Original Drilling - APD - Rev 0	8,900.0	6,536.8	1,880.3	1,778.9	18.547	SF
Larson A23-651 - Original Drilling - APD - Rev 0	2,000.0	2,003.0	1,936.9	1,924.8	159.498	CC, ES
Larson A23-651 - Original Drilling - APD - Rev 0	9,100.0	6,427.0	2,229.7	2,123.1	20.917	SF
Larson A23-656 - Original Drilling - APD - Rev 0	2,000.0	2,003.0	1,959.0	1,946.8	161.314	CC, ES
Larson A23-656 - Original Drilling - APD - Rev 0	9,400.0	6,326.9	2,677.7	2,562.3	23.204	SF
Larson A23-662 - Original Drilling - APD - Rev 0	2,000.0	2,003.0	1,978.9	1,966.8	162.956	CC, ES
Larson A23-662 - Original Drilling - APD - Rev 0	9,800.0	6,200.0	3,256.4	3,129.6	25.693	SF
Larson A23-668 - Original Drilling - APD - Rev 0	6,400.0	7,756.6	3,204.2	3,150.8	59.990	ES
Larson A23-668 - Original Drilling - APD - Rev 0	6,408.9	7,752.2	3,204.2	3,150.9	60.072	CC
Larson A23-668 - Original Drilling - APD - Rev 0	9,800.0	6,477.6	3,951.3	3,831.4	32.939	SF
Larson A23-672 - Original Drilling - APD - Rev 0	2,000.0	2,006.0	3,450.0	3,437.8	283.874	CC, ES
Larson A23-672 - Original Drilling - APD - Rev 0	10,100.0	6,421.6	4,358.9	4,231.6	34.251	SF
Larson A23-678 - Original Drilling - APD - Rev 0	2,000.0	2,005.0	3,471.8	3,459.7	285.746	CC, ES
Larson A23-678 - Original Drilling - APD - Rev 0	10,400.0	6,277.4	4,903.2	4,771.0	37.094	SF
Larson A23-683 - Original Drilling - APD - Rev 0	2,000.0	2,006.0	3,493.7	3,481.5	287.471	CC, ES
Larson A23-683 - Original Drilling - APD - Rev 0	10,700.0	6,200.0	5,184.5	5,041.4	36.207	SF
Larson USX AA19-03 - Original Drilling - Original Drilling	9,429.7	6,911.4	3,841.0	3,715.8	30.686	CC
Larson USX AA19-03 - Original Drilling - Original Drilling	9,600.0	6,918.1	3,844.8	3,713.6	29.299	ES
Larson USX AA19-03 - Original Drilling - Original Drilling	11,200.0	6,981.4	4,228.8	4,054.9	24.314	SF
Larson USX AA19-04 - Original Drilling - Original Drilling	1,151.0	1,127.1	3,531.0	3,524.9	576.770	CC
Larson USX AA19-04 - Original Drilling - Original Drilling	2,058.9	2,093.0	3,531.3	3,520.0	313.539	ES
Larson USX AA19-04 - Original Drilling - Original Drilling	10,600.0	6,715.5	4,588.3	4,444.7	31.956	SF
Larson USX AA19-05 - Original Drilling - Original Drilling	1,705.2	1,678.4	2,210.2	2,201.0	240.435	CC
Larson USX AA19-05 - Original Drilling - Original Drilling	1,900.0	1,858.3	2,210.9	2,200.7	216.471	ES
Larson USX AA19-05 - Original Drilling - Original Drilling	9,400.0	6,723.6	2,983.9	2,875.4	27.498	SF
Larson USX AA19-06 - Original Drilling - Original Drilling	9,138.2	6,819.0	2,807.1	2,692.0	24.404	CC
Larson USX AA19-06 - Original Drilling - Original Drilling	9,200.0	6,818.9	2,807.7	2,690.6	23.962	ES
Larson USX AA19-06 - Original Drilling - Original Drilling	10,300.0	6,816.5	3,038.0	2,892.1	20.824	SF
Thrall USX AA19-11 - Original Drilling - Original Drilling -	9,359.5	6,579.9	1,257.2	1,135.6	10.344	CC
Thrall USX AA19-11 - Original Drilling - Original Drilling -	9,400.0	6,579.2	1,257.8	1,135.0	10.242	ES

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

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 24	<b>MD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Larson AA19-618	<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						
AA Section 19						
Thrall USX AA19-11 - Original Drilling - Original Drilling -	9,600.0	6,575.9	1,280.0	1,152.5	10.042	SF
Thrall USX AA19-12 - Original Drilling - Original Drilling -	1,305.1	1,276.1	1,221.9	1,215.0	176.875	CC
Thrall USX AA19-12 - Original Drilling - Original Drilling -	2,001.0	1,972.4	1,222.0	1,211.2	113.498	ES
Thrall USX AA19-12 - Original Drilling - Original Drilling -	8,400.0	6,597.9	1,682.0	1,602.1	21.056	SF
Thrall USX AA19-13 - Original Drilling - Original Drilling -	8,105.2	6,601.4	158.8	83.3	2.103	CC, ES, SF
Thrall USX AA19-14 - Original Drilling - Original Drilling -	9,116.3	6,595.9	89.1	-23.4	0.792	Level 1, CC, ES, SF
Thrall USX AA19-25 - Original Drilling - Original Drilling -	8,387.6	6,602.0	1,057.2	971.7	12.352	CC
Thrall USX AA19-25 - Original Drilling - Original Drilling -	8,400.0	6,601.9	1,057.3	971.3	12.298	ES
Thrall USX AA19-25 - Original Drilling - Original Drilling -	8,600.0	6,601.1	1,078.4	987.5	11.862	SF
Wells Ranch USX AA19-09 - Original Drilling - Original D	11,857.9	6,577.9	1,507.9	1,290.7	6.942	CC
Wells Ranch USX AA19-09 - Original Drilling - Original D	11,900.0	6,577.9	1,508.4	1,289.9	6.902	ES
Wells Ranch USX AA19-09 - Original Drilling - Original D	12,000.0	6,577.7	1,514.5	1,293.4	6.850	SF
Wells Ranch USX AA19-10 - Original Drilling - Original D	10,538.5	6,590.2	1,476.0	1,309.7	8.874	CC
Wells Ranch USX AA19-10 - Original Drilling - Original D	10,600.0	6,588.2	1,477.3	1,309.0	8.779	ES
Wells Ranch USX AA19-10 - Original Drilling - Original D	10,800.0	6,582.0	1,499.0	1,326.3	8.678	SF
Wells Ranch USX AA19-15 - Original Drilling - Original D	10,354.8	6,591.9	122.4	-41.9	0.745	Level 1, CC, ES, SF
Wells Ranch USX AA19-16 - Original Drilling - Original D	11,921.4	6,583.5	27.3	-192.0	0.124	Level 1, CC, ES, SF
Wells Ranch USX AA19-23 - Original Drilling - Original D	11,205.7	6,576.6	694.8	503.0	3.622	CC, ES, SF

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 24	<b>MD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Larson AA19-618	<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 Produccion
<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)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AA Section 20						
Cook 20D - Original Drilling - Original Drilling - As Drilled	16,519.3	6,574.1	1,041.5	644.4	2.623	CC, ES
Cook 20D - Original Drilling - Original Drilling - As Drilled	16,600.0	6,574.0	1,044.6	646.2	2.622	SF
Cook 33-20 - Original Drilling - Original Drilling - As Drille	15,709.8	6,564.1	1,355.4	989.8	3.707	CC, ES
Cook 33-20 - Original Drilling - Original Drilling - As Drille	15,800.0	6,563.8	1,358.4	990.5	3.693	SF
Cook 34-20 - Original Drilling - Original Drilling - As Drilled	15,676.7	6,567.3	169.7	-195.3	0.465	Level 1, CC, ES, SF
Cook 43-20 - Original Drilling - Original Drilling - As Drille	17,284.2	6,570.2	1,348.1	921.4	3.159	CC
Cook 43-20 - Original Drilling - Original Drilling - As Drille	17,300.0	6,570.2	1,348.2	921.0	3.156	ES
Cook 43-20 - Original Drilling - Original Drilling - As Drille	17,400.0	6,570.2	1,353.1	924.0	3.154	SF
Cook 44-20 - Original Drilling - Original Drilling - As Drille	17,277.6	6,558.7	192.0	-234.1	0.451	Level 1, CC, ES, SF
J&L Farms 01-20 - Original Drilling - Original Drilling - As	17,142.7	6,539.3	4,177.2	3,753.5	9.858	CC
J&L Farms 01-20 - Original Drilling - Original Drilling - As	17,300.0	6,542.4	4,180.2	3,750.9	9.738	ES
J&L Farms 01-20 - Original Drilling - Original Drilling - As	17,900.0	6,554.1	4,245.3	3,800.5	9.544	SF
J&L Farms 02-20 - Original Drilling - Original Drilling - As	15,839.9	6,551.3	4,174.1	3,803.5	11.262	CC
J&L Farms 02-20 - Original Drilling - Original Drilling - As	16,000.0	6,550.0	4,177.2	3,800.9	11.102	ES
J&L Farms 02-20 - Original Drilling - Original Drilling - As	16,700.0	6,544.6	4,261.8	3,867.5	10.807	SF
J&L Farms 08-20 - Original Drilling - Original Drilling - As	17,169.6	6,559.2	2,807.3	2,218.2	4.766	CC
J&L Farms 08-20 - Original Drilling - Original Drilling - As	17,300.0	6,558.2	2,810.3	2,217.0	4.737	ES
J&L Farms 08-20 - Original Drilling - Original Drilling - As	17,500.0	6,556.7	2,826.7	2,228.6	4.727	SF
J&L Farms 11-20 - Original Drilling - Original Drilling - As	12,978.3	6,518.1	4,311.8	4,051.9	16.587	CC
J&L Farms 11-20 - Original Drilling - Original Drilling - As	13,100.0	6,513.8	4,313.5	4,049.2	16.319	ES
J&L Farms 11-20 - Original Drilling - Original Drilling - As	14,200.0	6,479.1	4,481.4	4,187.4	15.243	SF
J&L Farms 12-20 - Original Drilling - Original Drilling - As	12,936.3	6,585.0	2,621.3	2,362.8	10.141	CC
J&L Farms 12-20 - Original Drilling - Original Drilling - As	13,000.0	6,584.9	2,622.1	2,361.4	10.057	ES
J&L Farms 12-20 - Original Drilling - Original Drilling - As	13,400.0	6,583.8	2,662.0	2,390.8	9.815	SF
J&L Farms 22-20 - Original Drilling - Original Drilling - As	14,485.4	6,547.5	2,772.6	2,454.4	8.714	CC
J&L Farms 22-20 - Original Drilling - Original Drilling - As	14,600.0	6,547.6	2,774.9	2,452.9	8.617	ES
J&L Farms 22-20 - Original Drilling - Original Drilling - As	14,900.0	6,547.7	2,803.4	2,473.8	8.505	SF
J&L Farms 32-20 - Original Drilling - Original Drilling - As	15,881.7	6,584.1	2,778.1	2,405.9	7.465	CC
J&L Farms 32-20 - Original Drilling - Original Drilling - As	16,000.0	6,584.2	2,780.6	2,404.5	7.393	ES
J&L Farms 32-20 - Original Drilling - Original Drilling - As	16,300.0	6,584.2	2,809.4	2,426.3	7.333	SF
Wells Ranch 13-20 - Original Drilling - Original Drilling - A	13,183.7	6,578.1	1,281.5	1,013.3	4.779	CC
Wells Ranch 13-20 - Original Drilling - Original Drilling - A	13,200.0	6,578.0	1,281.6	1,012.9	4.770	ES
Wells Ranch 13-20 - Original Drilling - Original Drilling - A	13,300.0	6,576.9	1,286.7	1,015.8	4.749	SF
Wells Ranch 14-20 - Original Drilling - Original Drilling - A	13,164.9	6,577.9	112.4	-155.3	0.420	Level 1, CC, ES, SF
Wells Ranch 23-20 - Original Drilling - Original Drilling - A	14,660.6	6,572.0	1,278.3	953.3	3.934	CC
Wells Ranch 23-20 - Original Drilling - Original Drilling - A	14,700.0	6,572.3	1,278.9	952.8	3.922	ES, SF
Wells Ranch 24-20 - Original Drilling - Original Drilling - A	14,313.1	6,569.8	54.8	-256.7	0.176	Level 1, CC, ES, SF

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



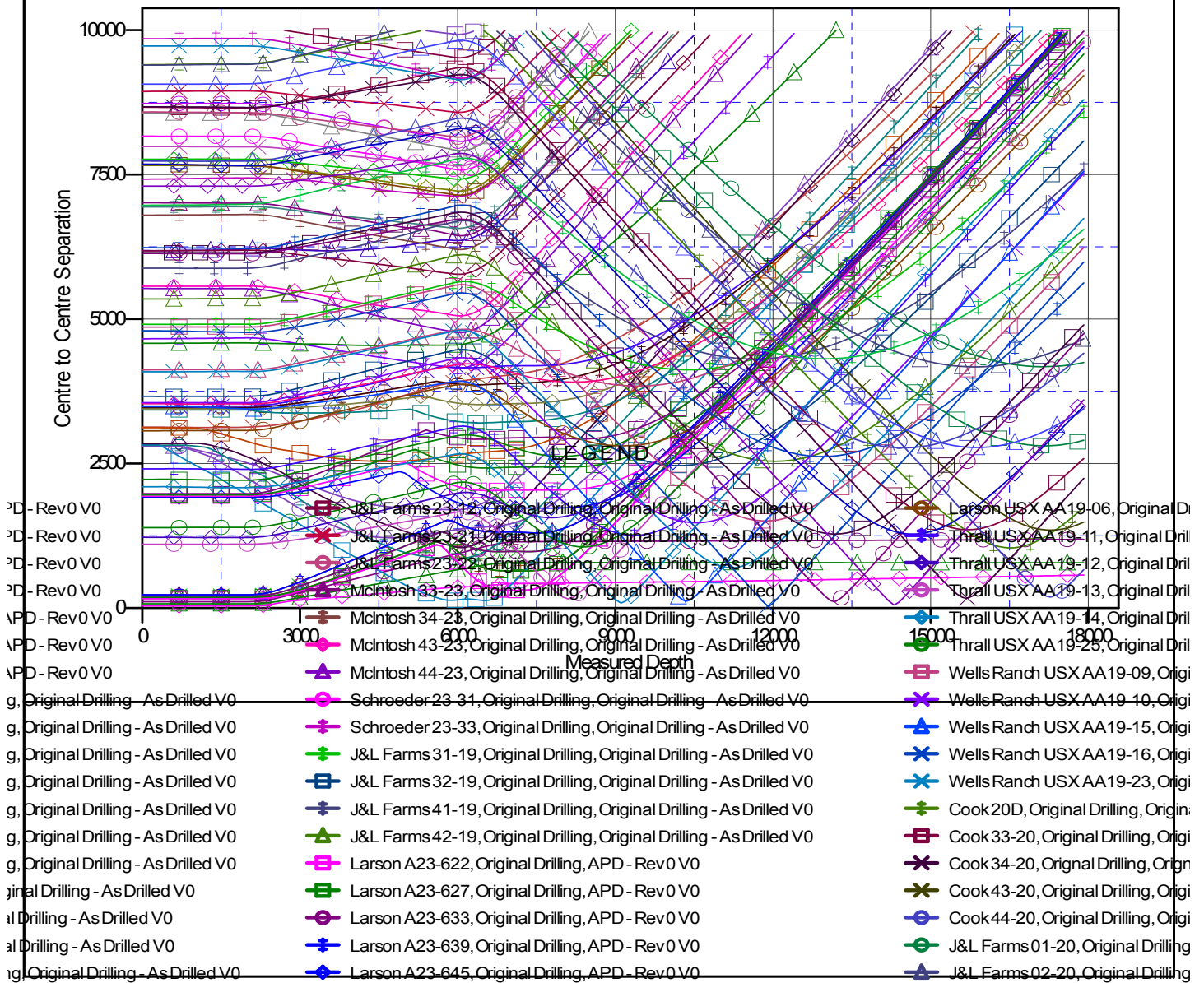
# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 24	<b>MD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Larson AA19-618	<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

Reference Depths are relative to WELL @ 4676.0ft (Original Well Elev.)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: Larson AA19-618  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.65°

## Ladder Plot



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

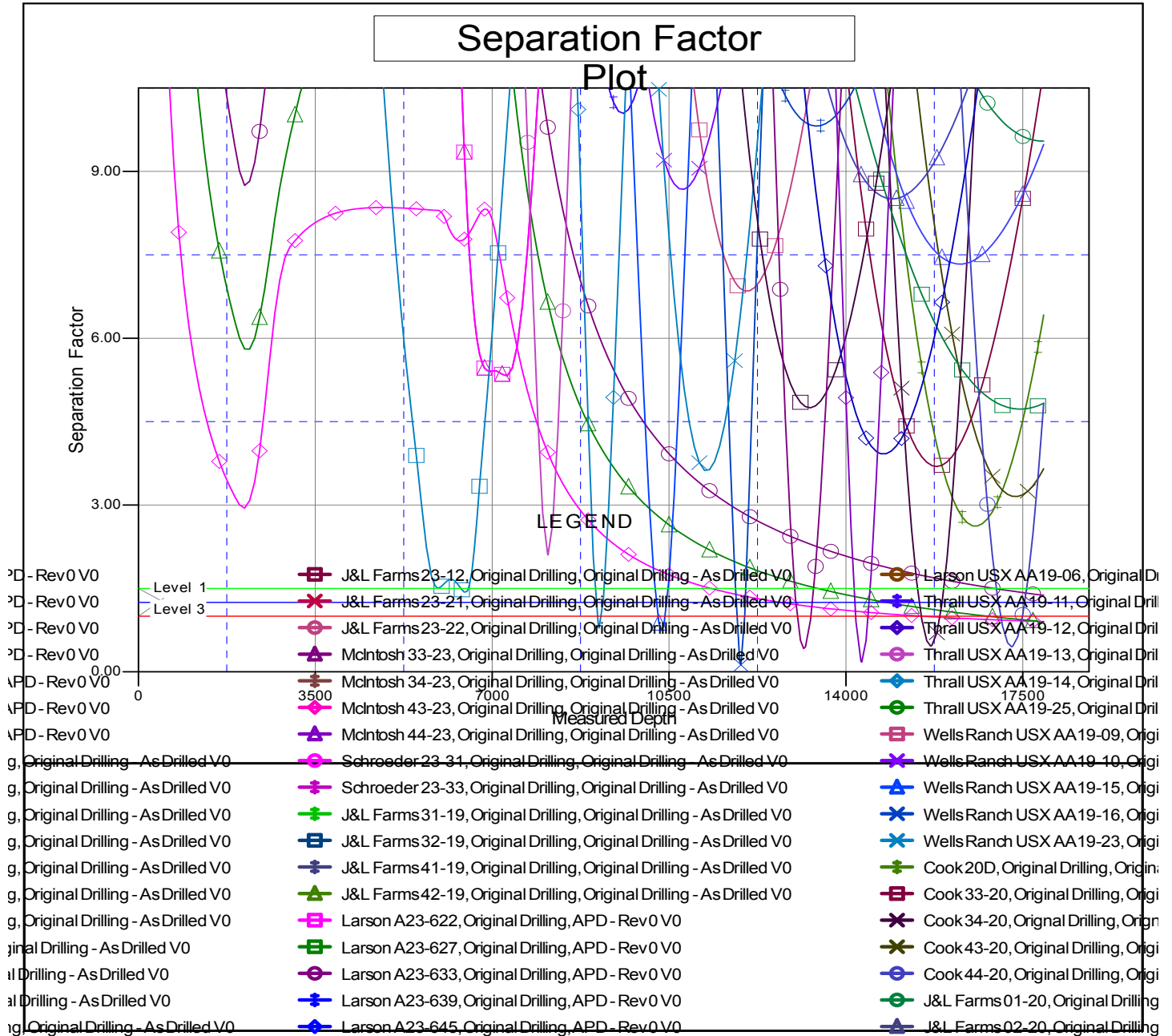


# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-618
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 24	<b>MD Reference:</b>	WELL @ 4676.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Larson AA19-618	<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

Reference Depths are relative to WELL @ 4676.0ft (Original Well Elev.)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.5000000

Coordinates are relative to: Larson AA19-618  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.65°



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