

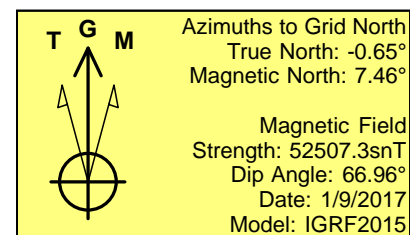
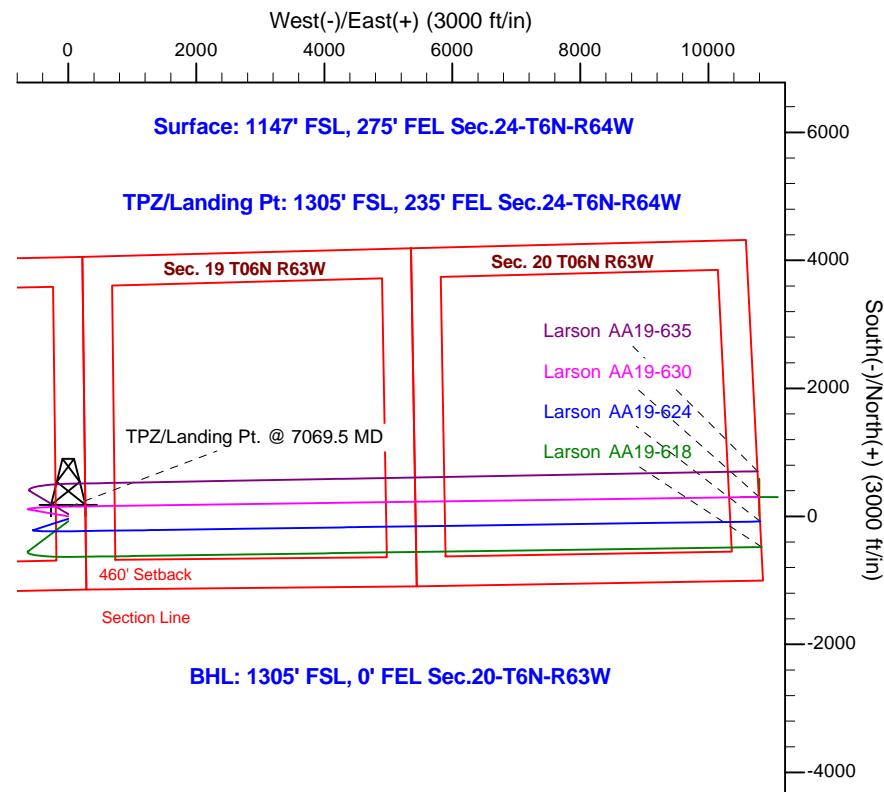
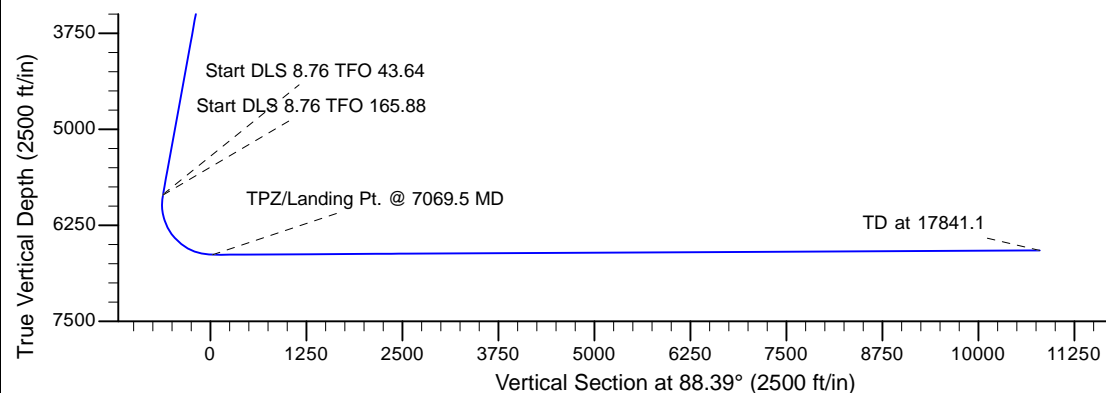
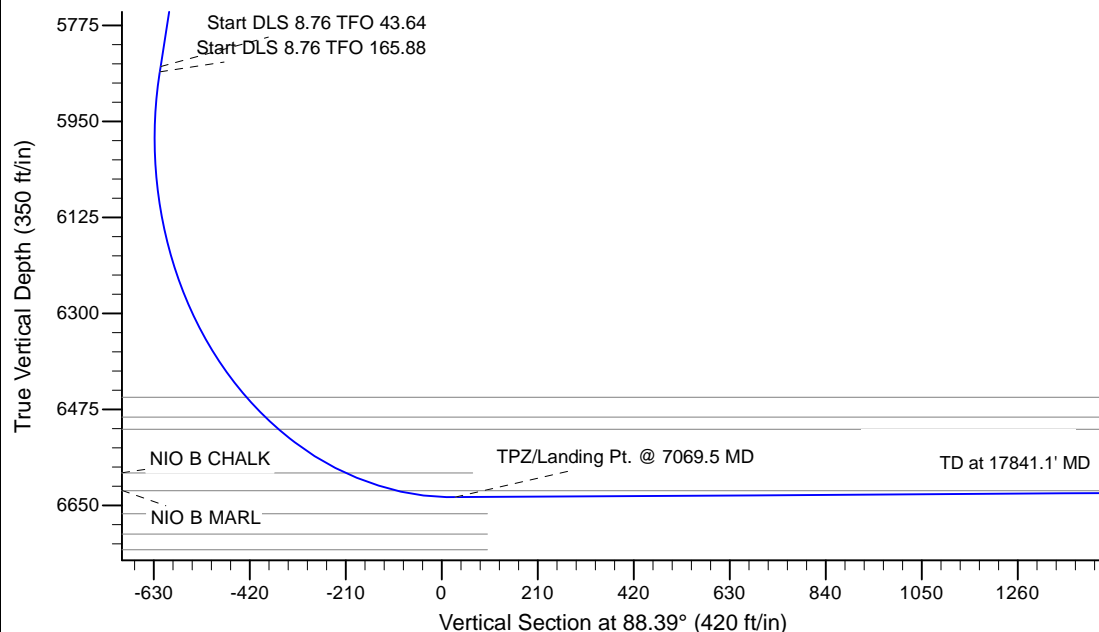
Project: Wells Ranch  
 Site: A Section 24-T6N-R64W Weld County, CO  
 Well: Larson AA19-630  
 Wellbore: Original Drilling  
 Design: APD - Rev 0

# 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	2725.0	10.50	280.00	2722.1	8.3	-47.2	2.00	280.00	-47.0	
4	5906.2	10.50	280.00	5850.0	109.0	-618.2	0.00	0.00	-614.9	
5	5916.0	11.14	283.06	5859.6	109.4	-620.0	8.76	43.64	-616.6	
6	7069.5	90.30	89.21	6635.0	155.0	25.0	8.76	165.88	29.4	
7	17841.1	90.30	89.21	6578.4	303.9	10795.3	0.00	0.00	10799.6	Larson AA19-630 BHL 1305'FSL, 0'FEL



WELL DETAILS: Larson AA19-630					
		Ground Elevation: 4646.0			
Northing		Easting		Latitude	
Longitude					
0.0	0.0	1414901.08	3281074.37	40.4679100	-104.4897600
Plan: APD - Rev 0 (Larson AA19-630/Original Drilling)					
Created By: Shailey Jewell			Date: 10/11, January 09 2017		
OK to submit with 2A as per Noble Drilling					
1/9/2017 12:38					

# **Northern Region - DJ Basin**

**Wells Ranch**

**A Section 24**

**Larson AA19-630**

**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 AA19-630
<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 AA19-630	<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	17,841.1	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	6,061.2	6,106.2	6,992.9	6,958.9	205.724	CC, ES
Cecil 23-13 - Original Drilling - Original Drilling - As Drille	6,500.0	6,510.4	7,129.1	7,093.5	200.228	SF
Champlin 23-02 (PA) - Original Drilling - Original Drilling -	6,041.7	5,992.4	9,081.2	8,894.9	48.745	CC
Champlin 23-02 (PA) - Original Drilling - Original Drilling -	6,050.0	6,000.7	9,081.3	8,894.7	48.679	ES
Champlin 23-02 (PA) - Original Drilling - Original Drilling -	6,650.0	6,515.1	9,343.7	9,142.0	46.322	SF
Champlin 23-03 - Original Drilling - Original Drilling - As D	6,045.9	6,081.3	7,951.9	7,917.8	233.050	CC
Champlin 23-03 - Original Drilling - Original Drilling - As D	6,050.0	6,085.5	7,951.9	7,917.8	232.906	ES
Champlin 23-03 - Original Drilling - Original Drilling - As D	6,450.0	6,421.9	8,074.0	8,038.4	226.771	SF
Champlin Amoco A 1 #308 - Original Drilling - Original Dr	6,036.9	5,962.6	8,114.2	7,928.3	43.669	CC
Champlin Amoco A 1 #308 - Original Drilling - Original Dr	6,050.0	5,975.7	8,114.3	7,928.1	43.576	ES
Champlin Amoco A 1 #308 - Original Drilling - Original Dr	6,600.0	6,458.9	8,341.4	8,141.0	41.628	SF
Cooper 23-1-17 - Original Drilling - Original Drilling - As Dr	6,062.7	6,021.1	6,754.7	6,720.1	194.904	CC, ES
Cooper 23-1-17 - Original Drilling - Original Drilling - As Dr	10,000.0	6,591.3	9,964.7	9,896.7	146.425	SF
Cooper 23-1-19 - Original Drilling - Original Drilling - As D	6,055.5	6,016.9	7,390.3	7,356.3	217.505	CC, ES
Cooper 23-1-19 - Original Drilling - Original Drilling - As D	9,100.0	6,693.7	9,923.3	9,872.8	196.308	SF
Cooper 23-12 - Original Drilling - Original Drilling - As Dri	6,062.1	6,067.2	7,103.3	7,068.9	206.535	CC, ES
Cooper 23-12 - Original Drilling - Original Drilling - As Dri	9,500.0	6,683.4	9,938.4	9,879.7	169.551	SF
Cooper 23-1-20 - Original Drilling - Original Drilling - As D	6,048.5	5,985.2	6,991.1	6,957.5	207.901	CC
Cooper 23-1-20 - Original Drilling - Original Drilling - As D	6,050.0	5,986.3	6,991.1	6,957.5	207.860	ES
Cooper 23-1-20 - Original Drilling - Original Drilling - As D	6,450.0	6,354.7	7,108.0	7,072.8	202.061	SF
Cooper 23-15 - Original Drilling - Original Drilling - As Dri	6,055.2	5,988.2	6,269.7	6,235.6	184.046	CC, ES
Cooper 23-15 - Original Drilling - Original Drilling - As Dri	10,300.0	6,570.7	9,917.6	9,857.2	164.189	SF
Foss 41-23D - Original Drilling - Original Drilling - As Drill	6,058.0	6,240.9	5,982.1	5,942.2	149.835	CC, ES
Foss 41-23D - Original Drilling - Original Drilling - As Drill	10,600.0	6,945.4	9,757.0	9,679.5	126.007	SF
Foss 42-23 - Original Drilling - Original Drilling - As Drille	6,047.4	5,952.1	5,533.9	5,500.2	164.231	CC
Foss 42-23 - Original Drilling - Original Drilling - As Drille	6,050.0	5,954.3	5,533.9	5,500.2	164.174	ES
Foss 42-23 - Original Drilling - Original Drilling - As Drille	6,300.0	6,219.2	5,579.5	5,544.8	160.496	SF
J&L Farms 23-11 - Original Drilling - Original Drilling - As	6,047.2	5,955.1	9,693.9	9,660.2	287.418	CC
J&L Farms 23-11 - Original Drilling - Original Drilling - As	6,050.0	5,957.7	9,693.9	9,660.2	287.309	ES
J&L Farms 23-11 - Original Drilling - Original Drilling - As	6,700.0	6,505.6	9,976.4	9,940.5	277.647	SF
J&L Farms 23-12 - Original Drilling - Original Drilling - As	6,044.6	6,000.0	9,385.6	9,352.0	279.623	CC, ES
J&L Farms 23-12 - Original Drilling - Original Drilling - As	6,450.0	6,276.1	9,507.4	9,472.5	272.315	SF
J&L Farms 23-21 - Original Drilling - Original Drilling - As	6,060.5	6,082.9	8,285.5	8,251.3	241.803	CC, ES
J&L Farms 23-21 - Original Drilling - Original Drilling - As	8,200.0	6,713.0	9,920.5	9,874.0	213.247	SF
J&L Farms 23-22 - Original Drilling - Original Drilling - As	6,038.3	5,818.7	7,971.3	7,937.9	238.821	CC, ES
J&L Farms 23-22 - Original Drilling - Original Drilling - As	6,400.0	6,000.0	8,071.8	8,037.4	234.203	SF
McIntosh 33-23 - Original Drilling - Original Drilling - As D	6,061.3	6,161.7	6,368.5	6,334.5	187.422	CC, 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 AA19-630
<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 AA19-630	<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 33-23 - Original Drilling - Original Drilling - As D	6,300.0	6,300.0	6,413.5	6,378.7	184.217	SF
McIntosh 34-23 - Original Drilling - Original Drilling - As D	6,028.5	5,855.6	6,250.5	6,216.0	181.150	CC, ES
McIntosh 34-23 - Original Drilling - Original Drilling - As D	6,400.0	6,232.2	6,352.5	6,316.4	175.976	SF
McIntosh 43-23 - Original Drilling - Original Drilling - As D	6,050.7	6,009.4	4,924.7	4,891.1	146.548	CC, ES
McIntosh 43-23 - Original Drilling - Original Drilling - As D	6,350.0	6,295.6	4,992.0	4,957.2	143.296	SF
McIntosh 44-23 - Original Drilling - Original Drilling - As D	6,022.2	5,839.0	4,847.3	4,813.1	141.765	CC, ES
McIntosh 44-23 - Original Drilling - Original Drilling - As D	6,300.0	6,107.4	4,904.4	4,869.0	138.782	SF
Schroeder 23-31 - Original Drilling - Original Drilling - As	6,049.7	6,088.6	7,526.4	7,492.5	222.436	CC
Schroeder 23-31 - Original Drilling - Original Drilling - As	6,050.0	6,089.2	7,526.4	7,492.5	222.422	ES
Schroeder 23-31 - Original Drilling - Original Drilling - As	6,450.0	6,415.4	7,646.2	7,610.9	216.546	SF
Schroeder 23-33 - Original Drilling - Original Drilling - As	6,044.3	6,104.0	9,222.4	9,188.1	269.240	CC
Schroeder 23-33 - Original Drilling - Original Drilling - As	6,050.0	6,108.8	9,222.4	9,188.1	269.031	ES
Schroeder 23-33 - Original Drilling - Original Drilling - As	6,450.0	6,510.3	9,344.1	9,308.2	260.556	SF
A Section 24						
Larson A23-622 - Original Drilling - APD - Rev 0	2,414.5	2,417.2	81.0	66.5	5.564	CC, ES
Larson A23-622 - Original Drilling - APD - Rev 0	2,500.0	2,500.2	83.8	68.7	5.558	SF
Larson A23-627 - Original Drilling - APD - Rev 0	2,516.7	2,516.0	111.1	95.8	7.263	CC
Larson A23-627 - Original Drilling - APD - Rev 0	7,312.6	6,762.4	146.3	87.5	2.488	ES, SF
Larson A23-633 - Original Drilling - APD - Rev 0	2,200.0	2,200.0	134.8	121.4	10.067	CC
Larson A23-633 - Original Drilling - APD - Rev 0	2,300.0	2,298.4	135.0	121.1	9.658	ES
Larson A23-633 - Original Drilling - APD - Rev 0	7,230.1	6,811.1	189.2	131.7	3.292	SF
Larson A23-639 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	156.6	144.5	12.909	CC, ES
Larson A23-639 - Original Drilling - APD - Rev 0	7,500.0	6,617.0	523.6	459.4	8.162	SF
Larson AA19-618 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	72.9	60.7	6.005	CC
Larson AA19-618 - Original Drilling - APD - Rev 0	17,841.1	17,884.4	783.6	-82.4	0.905	Level 1, ES, SF
Larson AA19-624 - Original Drilling - APD - Rev 0	2,200.0	2,200.0	36.4	23.0	2.721	CC
Larson AA19-624 - Original Drilling - APD - Rev 0	17,841.1	17,916.8	542.8	-88.7	0.860	Level 1, ES, SF
Larson AA19-635 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	36.4	24.3	3.002	CC
Larson AA19-635 - Original Drilling - APD - Rev 0	17,841.1	17,894.4	407.8	-441.7	0.480	Level 1, ES, SF
Larson Farms 01-24 - Original Drilling - Original Drilling -	1,216.7	1,202.6	3,061.1	3,053.5	405.425	CC
Larson Farms 01-24 - Original Drilling - Original Drilling -	3,604.2	3,604.2	3,079.9	3,045.3	89.011	ES
Larson Farms 01-24 - Original Drilling - Original Drilling -	9,100.0	6,628.2	4,068.7	3,948.3	33.789	SF
Larson Farms 02-24 - Original Drilling - Original Drilling -	6,754.5	6,813.6	1,943.3	1,880.0	30.703	CC, ES
Larson Farms 02-24 - Original Drilling - Original Drilling -	7,600.0	6,935.7	2,138.5	2,065.2	29.196	SF
Larson Farms 03-24 - Original Drilling - Original Drilling -	6,084.2	6,158.4	1,250.0	1,209.4	30.821	CC, ES
Larson Farms 03-24 - Original Drilling - Original Drilling -	6,150.0	6,215.9	1,253.0	1,212.2	30.749	SF
Larson Farms 04-24 - Original Drilling - Original Drilling -	6,600.0	7,005.6	647.5	557.1	7.165	SF
Larson Farms 04-24 - Original Drilling - Original Drilling -	6,650.0	7,038.4	646.1	556.1	7.182	ES
Larson Farms 04-24 - Original Drilling - Original Drilling -	6,653.2	7,040.4	646.1	556.2	7.185	CC
Larson Farms 05-24 - Original Drilling - Original Drilling -	6,059.2	6,364.2	461.5	412.7	9.463	CC, ES
Larson Farms 05-24 - Original Drilling - Original Drilling -	6,100.0	6,404.0	462.8	413.7	9.430	SF
Larson Farms 06-24 - Original Drilling - Original Drilling -	5,269.7	5,753.5	428.1	342.7	5.017	CC
Larson Farms 06-24 - Original Drilling - Original Drilling -	5,300.0	5,777.4	428.4	342.7	4.998	ES, SF
Larson Farms 07-24 - Original Drilling - Original Drilling -	6,013.1	6,327.8	1,248.7	1,176.5	17.277	CC, ES
Larson Farms 07-24 - Original Drilling - Original Drilling -	6,050.0	6,361.2	1,249.7	1,177.2	17.241	SF
Peppler 24-32 - Original Drilling - Original Drilling - As Dr	6,033.5	5,868.2	3,971.2	3,937.9	119.214	CC, ES
Peppler 24-32 - Original Drilling - Original Drilling - As Dr	6,350.0	6,311.0	4,042.1	4,007.2	115.870	SF
Roth 24-21 - Original Drilling - Original Drilling - As Drilled	6,071.3	5,954.3	4,012.2	3,975.6	109.679	CC, ES
Roth 24-21 - Original Drilling - Original Drilling - As Drilled	9,600.0	6,520.9	6,454.5	6,377.7	84.041	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 AA19-630
<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 AA19-630	<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	10,335.1	6,646.3	3,336.9	3,174.1	20.493	CC
J&L Farms 31-19 - Original Drilling - Original Drilling - As	10,500.0	6,645.9	3,341.0	3,171.9	19.764	ES
J&L Farms 31-19 - Original Drilling - Original Drilling - As	11,600.0	6,643.5	3,568.6	3,369.0	17.874	SF
J&L Farms 32-19 - Original Drilling - Original Drilling - As	10,164.8	6,605.8	1,678.8	1,525.6	10.958	CC
J&L Farms 32-19 - Original Drilling - Original Drilling - As	10,200.0	6,604.2	1,679.2	1,524.7	10.865	ES
J&L Farms 32-19 - Original Drilling - Original Drilling - As	10,500.0	6,590.8	1,711.9	1,548.4	10.471	SF
J&L Farms 41-19 - Original Drilling - Original Drilling - As	11,608.2	6,617.3	3,523.4	3,315.0	16.903	CC
J&L Farms 41-19 - Original Drilling - Original Drilling - As	11,700.0	6,625.8	3,524.6	3,312.6	16.628	ES
J&L Farms 41-19 - Original Drilling - Original Drilling - As	12,700.0	12,700.0	3,688.1	3,433.2	14.471	SF
J&L Farms 42-19 - Original Drilling - Original Drilling - As	12,000.7	6,618.6	1,754.3	1,530.7	7.844	CC
J&L Farms 42-19 - Original Drilling - Original Drilling - As	12,100.0	6,618.9	1,757.1	1,529.9	7.732	ES
J&L Farms 42-19 - Original Drilling - Original Drilling - As	12,300.0	6,619.3	1,779.7	1,547.2	7.656	SF
Larson A23-622 - Original Drilling - APD - Rev 0	2,414.5	2,417.2	81.0	66.5	5.565	CC, ES
Larson A23-622 - Original Drilling - APD - Rev 0	2,500.0	2,500.2	83.8	68.7	5.558	SF
Larson A23-627 - Original Drilling - APD - Rev 0	2,516.7	2,516.0	111.1	95.8	7.263	CC
Larson A23-627 - Original Drilling - APD - Rev 0	7,312.6	6,762.4	146.3	87.5	2.488	ES, SF
Larson A23-633 - Original Drilling - APD - Rev 0	2,200.0	2,200.0	134.8	121.4	10.068	CC
Larson A23-633 - Original Drilling - APD - Rev 0	2,300.0	2,298.4	135.1	121.1	9.658	ES
Larson A23-633 - Original Drilling - APD - Rev 0	7,230.1	6,811.1	189.2	131.7	3.292	SF
Larson A23-639 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	156.7	144.5	12.910	CC, ES
Larson A23-639 - Original Drilling - APD - Rev 0	7,500.0	6,617.0	523.6	459.5	8.163	SF
Larson A23-645 - Original Drilling - APD - Rev 0	7,743.4	7,113.4	943.7	873.2	13.385	CC
Larson A23-645 - Original Drilling - APD - Rev 0	8,000.0	6,889.8	947.8	869.6	12.116	ES
Larson A23-645 - Original Drilling - APD - Rev 0	8,400.0	6,644.2	998.7	908.9	11.122	SF
Larson A23-651 - Original Drilling - APD - Rev 0	7,751.7	7,048.6	1,253.4	1,183.1	17.818	CC
Larson A23-651 - Original Drilling - APD - Rev 0	8,000.0	6,831.3	1,256.3	1,178.4	16.143	ES
Larson A23-651 - Original Drilling - APD - Rev 0	8,600.0	6,512.8	1,342.7	1,247.7	14.134	SF
Larson A23-656 - Original Drilling - APD - Rev 0	7,024.0	7,807.5	1,649.9	1,591.8	28.365	CC
Larson A23-656 - Original Drilling - APD - Rev 0	8,200.0	6,638.5	1,655.6	1,570.9	19.557	ES
Larson A23-656 - Original Drilling - APD - Rev 0	8,900.0	6,400.0	1,785.8	1,681.8	17.173	SF
Larson A23-662 - Original Drilling - APD - Rev 0	2,000.0	2,003.0	1,912.6	1,900.5	157.497	CC, ES
Larson A23-662 - Original Drilling - APD - Rev 0	9,200.0	6,250.0	2,323.5	2,210.0	20.479	SF
Larson A23-668 - Original Drilling - APD - Rev 0	7,018.6	7,216.9	2,436.5	2,384.6	46.964	CC
Larson A23-668 - Original Drilling - APD - Rev 0	7,100.0	7,150.0	2,436.9	2,383.8	45.895	ES
Larson A23-668 - Original Drilling - APD - Rev 0	9,100.0	6,500.0	2,938.7	2,833.7	27.983	SF
Larson A23-672 - Original Drilling - APD - Rev 0	7,018.5	7,212.9	2,750.2	2,698.9	53.675	CC
Larson A23-672 - Original Drilling - APD - Rev 0	7,200.0	7,069.2	2,752.2	2,697.8	50.625	ES
Larson A23-672 - Original Drilling - APD - Rev 0	9,400.0	6,450.0	3,343.0	3,230.6	29.720	SF
Larson A23-678 - Original Drilling - APD - Rev 0	6,960.7	7,012.0	3,099.3	3,050.2	63.112	CC
Larson A23-678 - Original Drilling - APD - Rev 0	7,050.0	6,945.3	3,100.1	3,049.7	61.588	ES
Larson A23-678 - Original Drilling - APD - Rev 0	9,600.0	6,300.0	3,827.2	3,711.3	33.015	SF
Larson A23-683 - Original Drilling - APD - Rev 0	6,993.6	7,103.6	3,405.9	3,355.2	67.126	CC
Larson A23-683 - Original Drilling - APD - Rev 0	7,600.0	6,542.7	3,410.4	3,345.9	52.834	ES
Larson A23-683 - Original Drilling - APD - Rev 0	10,000.0	6,200.0	4,169.1	4,040.5	32.424	SF
Larson USX AA19-03 - Original Drilling - Original Drilling	9,382.9	6,850.1	3,056.6	2,932.4	24.610	CC
Larson USX AA19-03 - Original Drilling - Original Drilling	9,500.0	6,855.0	3,058.8	2,930.2	23.785	ES
Larson USX AA19-03 - Original Drilling - Original Drilling	10,700.0	6,905.2	3,327.8	3,165.5	20.504	SF
Larson USX AA19-04 - Original Drilling - Original Drilling	8,152.0	6,671.8	3,121.8	3,043.3	39.758	CC
Larson USX AA19-04 - Original Drilling - Original Drilling	8,300.0	6,674.4	3,125.3	3,041.5	37.297	ES
Larson USX AA19-04 - Original Drilling - Original Drilling	10,000.0	6,705.0	3,627.5	3,497.1	27.819	SF
Larson USX AA19-05 - Original Drilling - Original Drilling	7,936.5	6,696.2	1,838.1	1,767.1	25.896	CC
Larson USX AA19-05 - Original Drilling - Original Drilling	8,000.0	6,695.7	1,839.2	1,766.0	25.134	ES
Larson USX AA19-05 - Original Drilling - Original Drilling	8,800.0	6,688.6	2,030.8	1,935.8	21.379	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 AA19-630
<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 AA19-630	<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)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AA Section 19						
Larson USX AA19-06 - Original Drilling - Original Drilling	9,094.2	6,759.5	2,022.4	1,908.8	17.816	CC
Larson USX AA19-06 - Original Drilling - Original Drilling	9,200.0	6,759.5	2,025.1	1,907.7	17.247	ES
Larson USX AA19-06 - Original Drilling - Original Drilling	9,800.0	6,759.6	2,142.0	2,008.1	15.996	SF
Thrall USX AA19-11 - Original Drilling - Original Drilling -	9,315.6	6,591.9	470.4	349.3	3.885	CC, ES, SF
Thrall USX AA19-12 - Original Drilling - Original Drilling -	7,737.1	6,601.9	776.3	712.1	12.091	CC, ES
Thrall USX AA19-12 - Original Drilling - Original Drilling -	7,900.0	6,600.7	793.2	724.2	11.507	SF
Thrall USX AA19-13 - Original Drilling - Original Drilling -	8,062.1	6,601.3	628.7	553.5	8.359	CC, ES
Thrall USX AA19-13 - Original Drilling - Original Drilling -	8,200.0	6,600.5	643.7	565.3	8.210	SF
Thrall USX AA19-14 - Original Drilling - Original Drilling -	9,073.2	6,585.3	876.0	764.0	7.821	CC
Thrall USX AA19-14 - Original Drilling - Original Drilling -	9,100.0	6,585.5	876.4	763.5	7.763	ES
Thrall USX AA19-14 - Original Drilling - Original Drilling -	9,200.0	6,586.4	885.1	769.7	7.666	SF
Thrall USX AA19-25 - Original Drilling - Original Drilling -	8,344.1	6,599.8	269.9	184.7	3.167	CC, ES, SF
Wells Ranch USX AA19-09 - Original Drilling - Original D	11,814.1	6,588.9	722.3	505.7	3.336	CC, ES
Wells Ranch USX AA19-09 - Original Drilling - Original D	11,900.0	6,589.0	727.4	508.7	3.326	SF
Wells Ranch USX AA19-10 - Original Drilling - Original D	10,494.5	6,596.2	689.8	524.0	4.162	CC
Wells Ranch USX AA19-10 - Original Drilling - Original D	10,500.0	6,596.1	689.8	523.8	4.156	ES
Wells Ranch USX AA19-10 - Original Drilling - Original D	10,600.0	6,592.9	697.8	529.5	4.146	SF
Wells Ranch USX AA19-15 - Original Drilling - Original D	10,311.6	6,597.2	664.0	500.2	4.055	CC, ES
Wells Ranch USX AA19-15 - Original Drilling - Original D	10,400.0	6,595.1	669.8	504.3	4.046	SF
Wells Ranch USX AA19-16 - Original Drilling - Original D	11,879.6	6,608.6	758.0	539.2	3.464	CC
Wells Ranch USX AA19-16 - Original Drilling - Original D	11,900.0	6,609.8	758.2	538.8	3.455	ES, SF
Wells Ranch USX AA19-23 - Original Drilling - Original D	11,162.7	6,597.1	90.9	-100.3	0.475	Level 1, CC, ES, SF

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-630
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<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 AA19-630	<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 20						
Cook 20D - Original Drilling - Original Drilling - As Drilled	16,475.8	6,583.8	257.8	-138.3	0.651	Level 1, CC, ES, SF
Cook 33-20 - Original Drilling - Original Drilling - As Drilled	15,666.1	6,579.6	571.5	206.8	1.567	CC, ES
Cook 33-20 - Original Drilling - Original Drilling - As Drilled	15,700.0	6,579.6	572.5	207.0	1.566	SF
Cook 34-20 - Original Drilling - Original Drilling - As Drilled	15,633.7	6,600.8	613.7	249.5	1.685	CC, ES, SF
Cook 43-20 - Original Drilling - Original Drilling - As Drilled	17,240.7	6,581.7	564.8	139.1	1.327	Level 3, CC, ES, SF
Cook 44-20 - Original Drilling - Original Drilling - As Drilled	17,234.5	6,579.0	591.1	165.9	1.390	Level 3, CC, ES, SF
J&L Farms 01-20 - Original Drilling - Original Drilling - As Drilled	17,098.3	6,566.1	3,394.1	2,971.3	8.028	CC
J&L Farms 01-20 - Original Drilling - Original Drilling - As Drilled	17,200.0	6,568.3	3,395.6	2,969.0	7.960	ES
J&L Farms 01-20 - Original Drilling - Original Drilling - As Drilled	17,600.0	6,576.6	3,430.9	2,993.0	7.834	SF
J&L Farms 02-20 - Original Drilling - Original Drilling - As Drilled	15,794.9	6,573.7	3,390.4	3,020.6	9.170	CC
J&L Farms 02-20 - Original Drilling - Original Drilling - As Drilled	15,900.0	6,573.2	3,392.0	3,018.3	9.078	ES
J&L Farms 02-20 - Original Drilling - Original Drilling - As Drilled	16,400.0	6,570.8	3,443.9	3,056.4	8.887	SF
J&L Farms 08-20 - Original Drilling - Original Drilling - As Drilled	17,125.3	6,578.3	2,024.0	1,435.5	3.439	CC
J&L Farms 08-20 - Original Drilling - Original Drilling - As Drilled	17,200.0	6,578.0	2,025.4	1,434.2	3.426	ES
J&L Farms 08-20 - Original Drilling - Original Drilling - As Drilled	17,300.0	6,577.4	2,031.6	1,437.6	3.421	SF
J&L Farms 11-20 - Original Drilling - Original Drilling - As Drilled	12,932.5	6,541.1	3,526.9	3,267.7	13.608	CC
J&L Farms 11-20 - Original Drilling - Original Drilling - As Drilled	13,100.0	6,535.9	3,530.9	3,265.5	13.303	ES
J&L Farms 11-20 - Original Drilling - Original Drilling - As Drilled	13,800.0	6,513.2	3,632.0	3,346.9	12.743	SF
J&L Farms 12-20 - Original Drilling - Original Drilling - As Drilled	12,892.0	6,593.7	1,836.2	1,578.5	7.125	CC
J&L Farms 12-20 - Original Drilling - Original Drilling - As Drilled	13,000.0	6,593.7	1,839.4	1,577.8	7.031	ES
J&L Farms 12-20 - Original Drilling - Original Drilling - As Drilled	13,200.0	6,593.7	1,861.8	1,595.3	6.986	SF
J&L Farms 22-20 - Original Drilling - Original Drilling - As Drilled	14,441.1	6,566.2	1,988.3	1,671.0	6.266	CC
J&L Farms 22-20 - Original Drilling - Original Drilling - As Drilled	14,500.0	6,566.4	1,989.2	1,669.6	6.225	ES
J&L Farms 22-20 - Original Drilling - Original Drilling - As Drilled	14,700.0	6,566.9	2,005.1	1,680.1	6.170	SF
J&L Farms 32-20 - Original Drilling - Original Drilling - As Drilled	15,837.5	6,595.4	1,994.2	1,623.0	5.372	CC
J&L Farms 32-20 - Original Drilling - Original Drilling - As Drilled	15,900.0	6,595.6	1,995.2	1,621.6	5.342	ES
J&L Farms 32-20 - Original Drilling - Original Drilling - As Drilled	16,100.0	6,596.3	2,011.4	1,632.9	5.314	SF
Wells Ranch 13-20 - Original Drilling - Original Drilling - As Drilled	13,140.0	6,588.9	496.4	229.1	1.857	CC, ES, SF
Wells Ranch 14-20 - Original Drilling - Original Drilling - As Drilled	13,121.9	6,586.9	897.4	630.4	3.362	CC, ES
Wells Ranch 14-20 - Original Drilling - Original Drilling - As Drilled	13,200.0	6,586.7	900.8	631.9	3.350	SF
Wells Ranch 23-20 - Original Drilling - Original Drilling - As Drilled	14,617.1	6,582.8	493.9	169.8	1.524	CC, ES, SF
Wells Ranch 24-20 - Original Drilling - Original Drilling - As Drilled	14,270.2	6,581.2	839.3	528.6	2.701	CC
Wells Ranch 24-20 - Original Drilling - Original Drilling - As Drilled	14,300.0	6,581.6	839.8	528.2	2.695	ES, SF



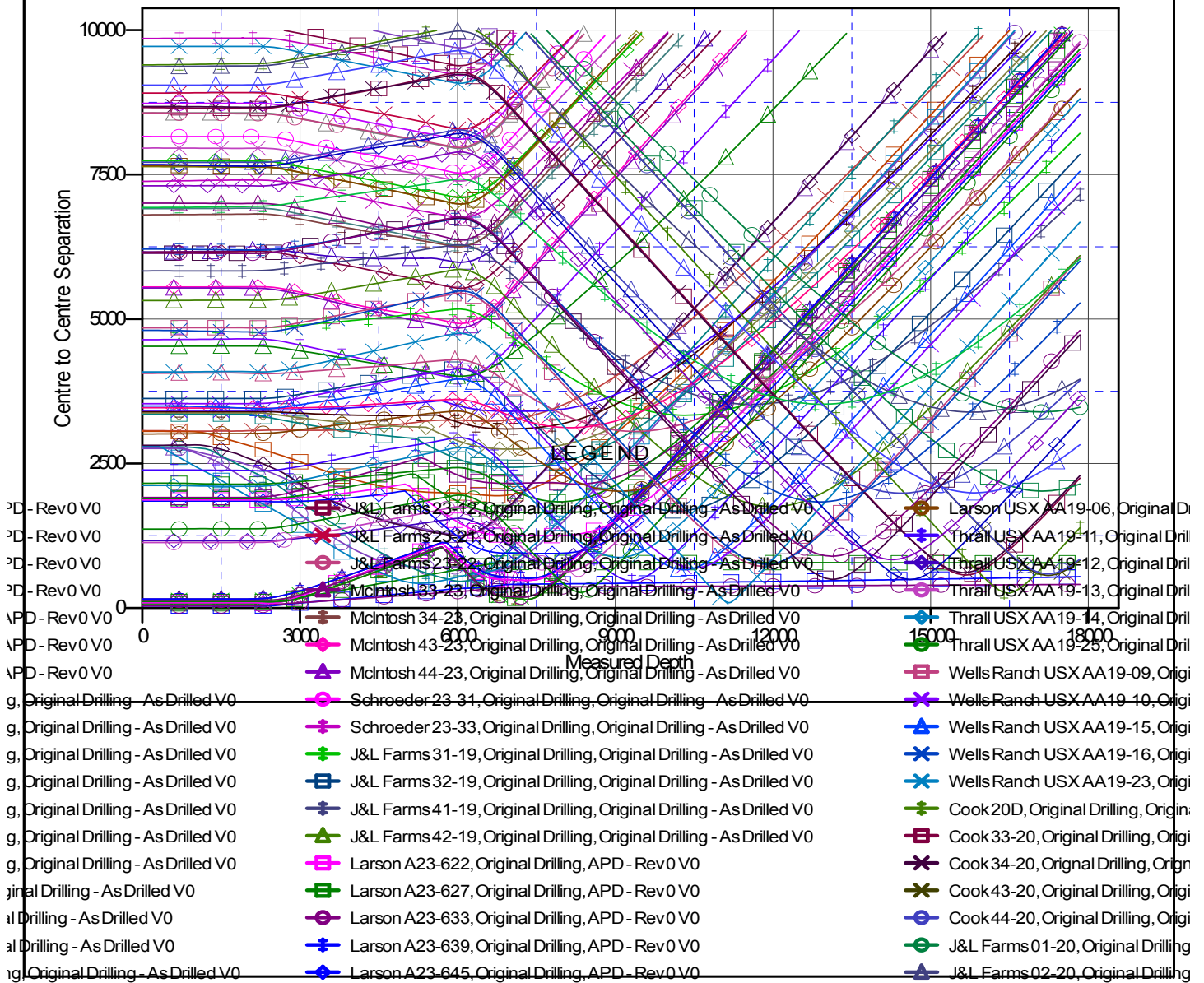
# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-630
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<b>Reference Well:</b>	Larson AA19-630	<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 AA19-630  
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

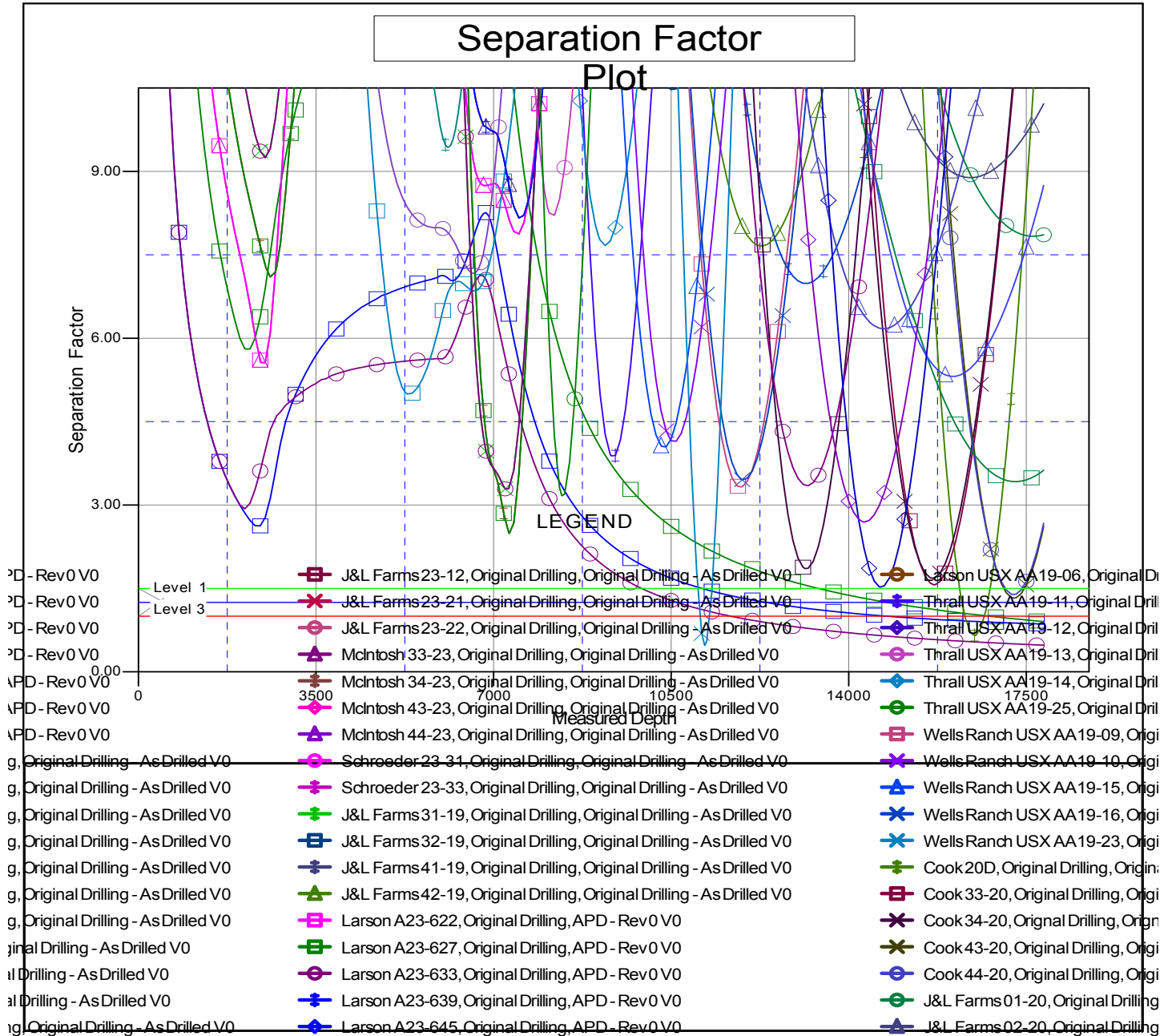


# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-630
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<b>Reference Well:</b>	Larson AA19-630	<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 AA19-630  
 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