

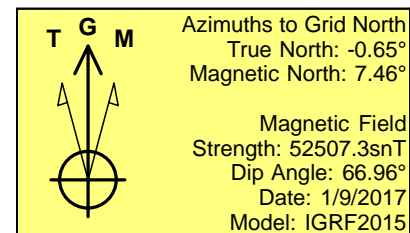
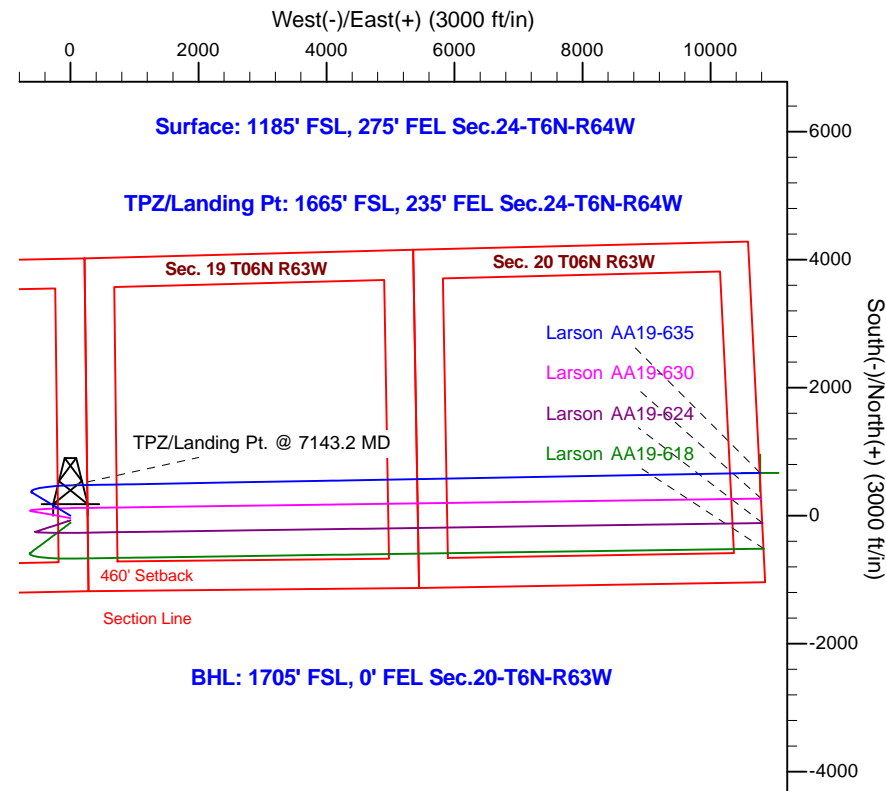
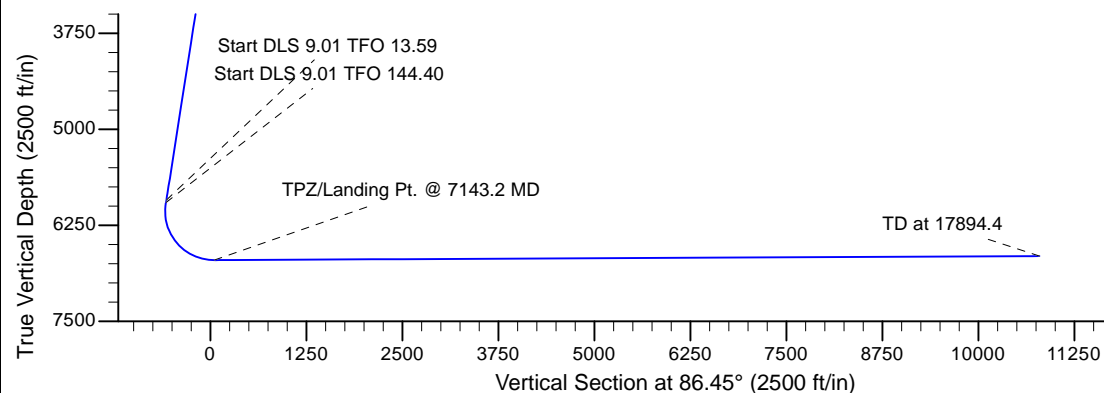
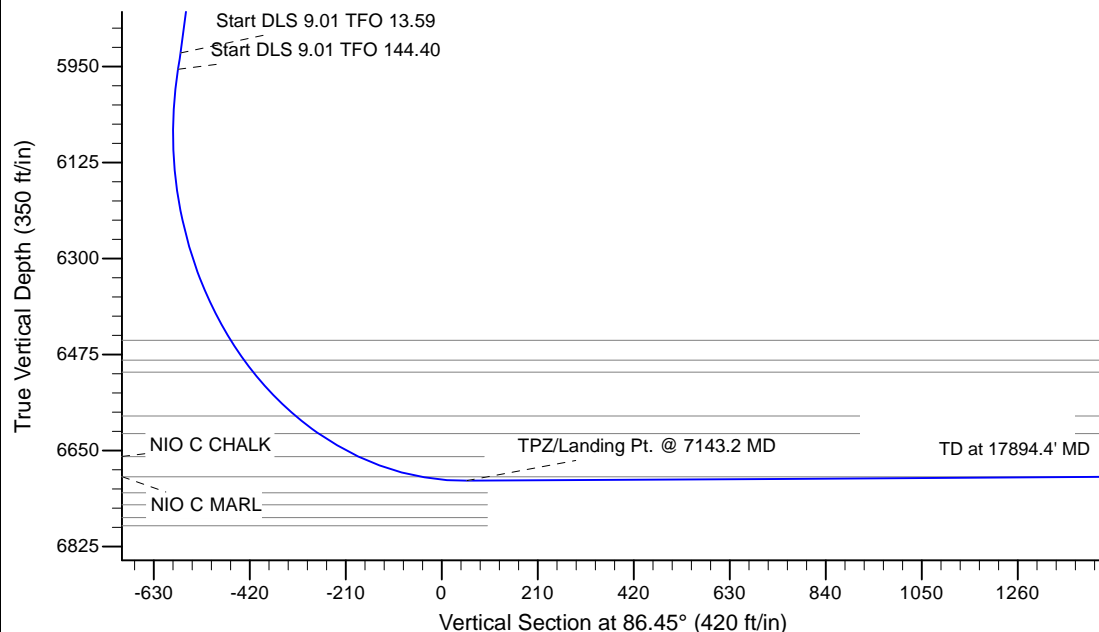
Project: Wells Ranch  
 Site: A Section 24-T6N-R64W Weld County, CO  
 Well: Larson AA19-635  
 Wellbore: Original Drilling  
 Design: APD - Rev 0

# 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	2537.5	10.75	301.00	2534.4	25.9	-43.1	2.00	301.00	-41.4	
4	5988.7	10.75	301.00	5925.0	357.4	-594.9	0.00	0.00	-571.6	
5	6019.3	13.44	303.78	5954.9	360.9	-600.3	9.01	13.59	-576.8	
6	7143.2	90.28	88.97	6705.0	475.0	25.0	9.01	144.40	54.3	
7	17894.4	90.28	88.97	6652.2	668.0	10774.3	0.00	0.00	10795.0	Larson AA19-635 BHL 1705'FSL, 0'FEL



WELL DETAILS: Larson AA19-635					
Northing		Easting		Ground Elevation: 4646.0	Longitude
0.0	0.0	1414937.51	3281073.96	40.4680100	-104.4897600
Plan: APD - Rev 0 (Larson AA19-635/Original Drilling)					
Created By: Shailey Jewell			Date: 10:25, January 09 2017		
OK to submit with 2A as per Noble Drilling					
1/9/2017 10:28					

# **Northern Region - DJ Basin**

**Wells Ranch**

**A Section 24**

**Larson AA19-635**

**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 AA19-635
<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 AA19-635	<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

<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	17,894.4	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	6,175.3	6,193.9	6,927.3	6,891.9	195.788	CC, ES
Cecil 23-13 - Original Drilling - Original Drilling - As Drille	6,900.0	6,764.5	7,286.3	7,247.2	186.573	SF
Champlin 23-02 (PA) - Original Drilling - Original Drilling -	6,145.5	6,087.2	9,086.1	8,894.8	47.485	CC
Champlin 23-02 (PA) - Original Drilling - Original Drilling -	6,150.0	6,091.7	9,086.1	8,894.6	47.451	ES
Champlin 23-02 (PA) - Original Drilling - Original Drilling -	6,750.0	6,598.1	9,352.5	9,145.5	45.170	SF
Champlin 23-03 - Original Drilling - Original Drilling - As D	6,138.9	6,141.7	8,000.9	7,963.6	214.299	CC, ES
Champlin 23-03 - Original Drilling - Original Drilling - As D	6,550.0	6,501.6	8,129.2	8,090.0	207.249	SF
Champlin Amoco A 1 #308 - Original Drilling - Original Dr	6,131.9	6,048.7	8,165.6	7,974.4	42.689	CC
Champlin Amoco A 1 #308 - Original Drilling - Original Dr	6,150.0	6,066.7	8,165.9	7,974.1	42.564	ES
Champlin Amoco A 1 #308 - Original Drilling - Original Dr	6,700.0	6,543.1	8,401.8	8,195.5	40.744	SF
Cooper 23-1-17 - Original Drilling - Original Drilling - As Dr	6,195.4	6,150.7	6,619.0	6,584.2	190.428	CC
Cooper 23-1-17 - Original Drilling - Original Drilling - As Dr	6,200.0	6,154.8	6,619.0	6,584.2	190.307	ES
Cooper 23-1-17 - Original Drilling - Original Drilling - As Dr	10,200.0	6,719.4	9,962.9	9,892.8	142.249	SF
Cooper 23-1-19 - Original Drilling - Original Drilling - As D	6,175.5	6,123.0	7,305.4	7,270.4	208.777	CC, ES
Cooper 23-1-19 - Original Drilling - Original Drilling - As D	9,300.0	6,751.7	9,955.9	9,902.5	186.548	SF
Cooper 23-12 - Original Drilling - Original Drilling - As Dri	6,187.3	6,174.3	6,991.8	6,956.9	200.282	CC, ES
Cooper 23-12 - Original Drilling - Original Drilling - As Dri	9,700.0	6,767.5	9,951.3	9,890.3	162.919	SF
Cooper 23-1-20 - Original Drilling - Original Drilling - As D	6,160.7	6,114.1	6,958.9	6,923.2	194.795	CC, ES
Cooper 23-1-20 - Original Drilling - Original Drilling - As D	6,750.0	6,609.3	7,213.0	7,174.5	187.072	SF
Cooper 23-15 - Original Drilling - Original Drilling - As Dri	6,178.6	6,100.2	6,169.1	6,134.3	177.434	CC, ES
Cooper 23-15 - Original Drilling - Original Drilling - As Dri	9,600.0	6,635.3	9,080.0	9,023.3	160.019	SF
Foss 41-23D - Original Drilling - Original Drilling - As Drill	6,191.0	6,366.7	5,844.5	5,804.5	146.189	CC, ES
Foss 41-23D - Original Drilling - Original Drilling - As Drill	10,000.0	7,028.6	9,004.0	8,931.3	123.867	SF
Foss 42-23 - Original Drilling - Original Drilling - As Drille	6,162.8	6,048.9	5,466.2	5,431.2	156.140	CC, ES
Foss 42-23 - Original Drilling - Original Drilling - As Drille	6,750.0	6,544.3	5,710.6	5,672.6	150.196	SF
J&L Farms 23-11 - Original Drilling - Original Drilling - As	6,166.7	6,067.0	9,619.5	9,584.6	275.424	CC, ES
J&L Farms 23-11 - Original Drilling - Original Drilling - As	6,900.0	6,638.7	9,979.9	9,941.3	258.089	SF
J&L Farms 23-12 - Original Drilling - Original Drilling - As	6,152.3	6,061.5	9,356.7	9,321.1	263.448	CC, ES
J&L Farms 23-12 - Original Drilling - Original Drilling - As	6,800.0	6,400.0	9,660.3	9,622.2	253.414	SF
J&L Farms 23-21 - Original Drilling - Original Drilling - As	6,184.3	6,193.4	8,184.1	8,149.1	233.974	CC, ES
J&L Farms 23-21 - Original Drilling - Original Drilling - As	8,400.0	6,774.2	9,924.0	9,873.8	197.767	SF
J&L Farms 23-22 - Original Drilling - Original Drilling - As	6,143.8	5,871.6	7,927.4	7,892.4	226.686	CC, ES
J&L Farms 23-22 - Original Drilling - Original Drilling - As	6,750.0	6,137.9	8,197.5	8,160.1	219.068	SF
McIntosh 33-23 - Original Drilling - Original Drilling - As D	6,158.2	6,200.0	6,372.7	6,336.2	174.213	CC, ES
McIntosh 33-23 - Original Drilling - Original Drilling - As D	6,500.0	6,358.7	6,466.6	6,428.6	170.193	SF
McIntosh 34-23 - Original Drilling - Original Drilling - As D	6,120.3	5,925.8	6,311.7	6,273.8	166.620	CC, ES
McIntosh 34-23 - Original Drilling - Original Drilling - As D	6,550.0	6,357.1	6,448.9	6,408.9	161.201	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 AA19-635
<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 AA19-635	<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	6,155.2	6,098.6	4,910.6	4,874.6	136.377	CC, ES
McIntosh 43-23 - Original Drilling - Original Drilling - As D	6,500.0	6,384.6	5,002.2	4,964.4	132.575	SF
McIntosh 44-23 - Original Drilling - Original Drilling - As D	6,110.7	5,919.4	4,929.4	4,891.6	130.210	CC, ES
McIntosh 44-23 - Original Drilling - Original Drilling - As D	6,400.0	6,168.1	4,993.0	4,953.8	127.235	SF
Schroeder 23-31 - Original Drilling - Original Drilling - As	6,149.9	6,161.0	7,537.3	7,500.7	206.155	CC
Schroeder 23-31 - Original Drilling - Original Drilling - As	6,150.0	6,161.1	7,537.3	7,500.7	206.151	ES
Schroeder 23-31 - Original Drilling - Original Drilling - As	6,650.0	6,557.3	7,726.1	7,687.3	199.133	SF
Schroeder 23-33 - Original Drilling - Original Drilling - As	6,137.4	6,173.8	9,277.7	9,240.1	247.166	CC, ES
Schroeder 23-33 - Original Drilling - Original Drilling - As	6,550.0	6,584.6	9,405.7	9,366.2	238.058	SF
A Section 24						
Larson A23-622 - Original Drilling - APD - Rev 0	2,286.7	2,286.7	46.5	32.7	3.372	CC, ES
Larson A23-622 - Original Drilling - APD - Rev 0	2,300.0	2,299.7	46.6	32.7	3.360	SF
Larson A23-627 - Original Drilling - APD - Rev 0	2,459.6	2,457.2	65.4	50.4	4.358	CC, ES
Larson A23-627 - Original Drilling - APD - Rev 0	2,500.0	2,496.5	65.9	50.7	4.321	SF
Larson A23-633 - Original Drilling - APD - Rev 0	2,376.1	2,372.0	90.9	76.4	6.296	CC
Larson A23-633 - Original Drilling - APD - Rev 0	2,400.0	2,395.1	91.0	76.4	6.243	ES
Larson A23-633 - Original Drilling - APD - Rev 0	6,894.8	7,217.0	159.8	102.7	2.800	SF
Larson A23-639 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	120.2	108.1	9.907	CC
Larson A23-639 - Original Drilling - APD - Rev 0	2,100.0	2,097.3	120.4	107.7	9.456	ES
Larson A23-639 - Original Drilling - APD - Rev 0	7,243.8	6,926.9	168.4	111.5	2.958	SF
Larson AA19-618 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	109.3	97.2	9.007	CC, ES
Larson AA19-618 - Original Drilling - APD - Rev 0	17,894.4	17,868.1	1,187.8	326.5	1.379	Level 3, SF
Larson AA19-624 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	72.9	60.7	6.005	CC
Larson AA19-624 - Original Drilling - APD - Rev 0	17,894.4	17,902.3	842.8	37.2	1.046	Level 2, ES, SF
Larson AA19-630 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	36.4	24.3	3.002	CC
Larson AA19-630 - Original Drilling - APD - Rev 0	17,894.4	17,828.0	407.6	-441.7	0.480	Level 1, ES, SF
Larson Farms 01-24 - Original Drilling - Original Drilling -	6,797.9	6,584.1	2,896.9	2,834.3	46.296	CC
Larson Farms 01-24 - Original Drilling - Original Drilling -	6,850.0	6,605.0	2,897.4	2,834.3	45.915	ES
Larson Farms 01-24 - Original Drilling - Original Drilling -	8,900.0	6,748.7	3,619.8	3,505.0	31.523	SF
Larson Farms 02-24 - Original Drilling - Original Drilling -	6,884.0	6,923.8	1,592.2	1,529.0	25.173	CC, ES
Larson Farms 02-24 - Original Drilling - Original Drilling -	7,300.0	6,999.8	1,665.0	1,598.6	25.050	SF
Larson Farms 03-24 - Original Drilling - Original Drilling -	6,186.8	6,237.6	1,136.5	1,096.5	28.465	CC, ES
Larson Farms 03-24 - Original Drilling - Original Drilling -	6,300.0	6,336.2	1,146.8	1,106.2	28.273	SF
Larson Farms 04-24 - Original Drilling - Original Drilling -	6,700.0	7,091.9	305.0	214.9	3.384	ES, SF
Larson Farms 04-24 - Original Drilling - Original Drilling -	6,731.6	7,111.6	303.8	214.9	3.417	CC
Larson Farms 05-24 - Original Drilling - Original Drilling -	6,109.1	6,401.9	538.3	469.0	7.763	CC, ES
Larson Farms 05-24 - Original Drilling - Original Drilling -	6,150.0	6,441.1	539.6	469.8	7.725	SF
Larson Farms 06-24 - Original Drilling - Original Drilling -	5,056.6	5,544.6	627.1	543.4	7.492	CC
Larson Farms 06-24 - Original Drilling - Original Drilling -	5,100.0	5,576.8	627.7	543.3	7.441	ES
Larson Farms 06-24 - Original Drilling - Original Drilling -	5,200.0	5,650.0	633.5	548.1	7.418	SF
Larson Farms 07-24 - Original Drilling - Original Drilling -	6,050.1	6,336.8	1,443.1	1,367.5	19.084	CC, ES
Larson Farms 07-24 - Original Drilling - Original Drilling -	6,150.0	6,469.0	1,448.6	1,372.4	19.006	SF
Peppler 24-32 - Original Drilling - Original Drilling - As Dr	6,140.7	5,960.8	3,944.6	3,909.1	111.355	CC, ES
Peppler 24-32 - Original Drilling - Original Drilling - As Dr	6,550.0	6,572.2	4,058.8	4,020.8	106.771	SF
Roth 24-21 - Original Drilling - Original Drilling - As Drilled	6,234.2	6,107.5	3,791.4	3,755.8	106.551	CC, ES
Roth 24-21 - Original Drilling - Original Drilling - As Drilled	9,400.0	6,560.5	6,044.6	5,971.2	82.374	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 AA19-635
<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 AA19-635	<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	10,416.9	6,712.6	2,965.9	2,802.6	18.163	CC
J&L Farms 31-19 - Original Drilling - Original Drilling - As	10,500.0	6,712.5	2,967.1	2,800.5	17.812	ES
J&L Farms 31-19 - Original Drilling - Original Drilling - As	11,400.0	6,710.8	3,124.6	2,930.9	16.126	SF
J&L Farms 32-19 - Original Drilling - Original Drilling - As	10,237.6	6,678.5	1,309.1	1,156.5	8.575	CC
J&L Farms 32-19 - Original Drilling - Original Drilling - As	10,300.0	6,676.7	1,310.6	1,155.4	8.447	ES
J&L Farms 32-19 - Original Drilling - Original Drilling - As	10,500.0	6,671.0	1,335.1	1,174.1	8.292	SF
J&L Farms 41-19 - Original Drilling - Original Drilling - As	11,695.3	6,738.6	3,146.7	2,938.2	15.096	CC
J&L Farms 41-19 - Original Drilling - Original Drilling - As	11,800.0	6,742.9	3,148.4	2,935.9	14.813	ES
J&L Farms 41-19 - Original Drilling - Original Drilling - As	12,600.0	6,775.7	3,274.0	3,037.8	13.865	SF
J&L Farms 42-19 - Original Drilling - Original Drilling - As	12,076.2	6,718.0	1,376.4	1,153.1	6.165	CC
J&L Farms 42-19 - Original Drilling - Original Drilling - As	12,100.0	6,717.9	1,376.6	1,152.3	6.139	ES
J&L Farms 42-19 - Original Drilling - Original Drilling - As	12,300.0	6,717.3	1,394.4	1,164.3	6.060	SF
Larson A23-622 - Original Drilling - APD - Rev 0	2,286.7	2,286.7	46.5	32.7	3.373	CC, ES
Larson A23-622 - Original Drilling - APD - Rev 0	2,300.0	2,299.7	46.6	32.7	3.360	SF
Larson A23-627 - Original Drilling - APD - Rev 0	2,459.6	2,457.2	65.4	50.4	4.358	CC, ES
Larson A23-627 - Original Drilling - APD - Rev 0	2,500.0	2,496.5	65.9	50.7	4.321	SF
Larson A23-633 - Original Drilling - APD - Rev 0	2,376.1	2,372.0	90.9	76.4	6.296	CC
Larson A23-633 - Original Drilling - APD - Rev 0	2,400.0	2,395.1	91.0	76.4	6.243	ES
Larson A23-633 - Original Drilling - APD - Rev 0	6,894.8	7,217.0	159.8	102.7	2.800	SF
Larson A23-639 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	120.2	108.1	9.907	CC
Larson A23-639 - Original Drilling - APD - Rev 0	2,100.0	2,097.3	120.4	107.7	9.456	ES
Larson A23-639 - Original Drilling - APD - Rev 0	7,243.8	6,926.9	168.4	111.5	2.958	SF
Larson A23-645 - Original Drilling - APD - Rev 0	7,829.4	7,099.3	580.9	510.5	8.245	CC
Larson A23-645 - Original Drilling - APD - Rev 0	8,000.0	6,951.4	584.1	508.6	7.732	ES
Larson A23-645 - Original Drilling - APD - Rev 0	8,200.0	6,801.9	602.0	520.6	7.392	SF
Larson A23-651 - Original Drilling - APD - Rev 0	7,837.6	7,036.0	892.7	822.4	12.700	CC
Larson A23-651 - Original Drilling - APD - Rev 0	8,000.0	6,898.5	894.9	819.8	11.912	ES
Larson A23-651 - Original Drilling - APD - Rev 0	8,400.0	6,639.1	939.0	852.0	10.801	SF
Larson A23-656 - Original Drilling - APD - Rev 0	7,132.4	7,765.9	1,291.7	1,233.4	22.179	CC
Larson A23-656 - Original Drilling - APD - Rev 0	8,200.0	6,726.5	1,296.8	1,214.9	15.847	ES
Larson A23-656 - Original Drilling - APD - Rev 0	8,700.0	6,489.6	1,373.6	1,277.2	14.243	SF
Larson A23-662 - Original Drilling - APD - Rev 0	8,283.8	6,535.2	1,797.8	1,712.9	21.168	CC
Larson A23-662 - Original Drilling - APD - Rev 0	8,400.0	6,473.3	1,800.3	1,711.5	20.266	ES
Larson A23-662 - Original Drilling - APD - Rev 0	9,100.0	6,300.0	1,946.1	1,838.0	17.994	SF
Larson A23-668 - Original Drilling - APD - Rev 0	7,135.0	7,170.4	2,079.1	2,026.9	39.804	CC
Larson A23-668 - Original Drilling - APD - Rev 0	7,200.0	7,130.6	2,079.7	2,026.4	38.996	ES
Larson A23-668 - Original Drilling - APD - Rev 0	8,900.0	6,550.0	2,497.4	2,399.2	25.441	SF
Larson A23-672 - Original Drilling - APD - Rev 0	7,128.9	7,170.4	2,391.7	2,340.2	46.414	CC
Larson A23-672 - Original Drilling - APD - Rev 0	7,300.0	7,050.0	2,394.0	2,339.3	43.793	ES
Larson A23-672 - Original Drilling - APD - Rev 0	9,200.0	6,473.3	2,898.7	2,792.8	27.367	SF
Larson A23-678 - Original Drilling - APD - Rev 0	7,074.2	6,982.4	2,743.0	2,693.5	55.385	CC
Larson A23-678 - Original Drilling - APD - Rev 0	7,100.0	6,964.1	2,743.1	2,693.3	55.007	ES
Larson A23-678 - Original Drilling - APD - Rev 0	9,400.0	6,328.5	3,383.3	3,273.8	30.898	SF
Larson A23-683 - Original Drilling - APD - Rev 0	7,135.0	7,029.4	3,050.5	2,999.0	59.256	CC
Larson A23-683 - Original Drilling - APD - Rev 0	7,600.0	6,626.4	3,054.6	2,992.5	49.197	ES
Larson A23-683 - Original Drilling - APD - Rev 0	9,700.0	6,250.0	3,671.2	3,550.8	30.488	SF
Larson USX AA19-03 - Original Drilling - Original Drilling	9,465.4	6,892.2	2,686.0	2,562.1	21.675	CC
Larson USX AA19-03 - Original Drilling - Original Drilling	9,600.0	6,897.8	2,689.4	2,560.2	20.828	ES
Larson USX AA19-03 - Original Drilling - Original Drilling	10,500.0	6,935.5	2,878.0	2,722.4	18.492	SF
Larson USX AA19-04 - Original Drilling - Original Drilling	8,234.3	6,714.4	2,759.7	2,681.4	35.208	CC
Larson USX AA19-04 - Original Drilling - Original Drilling	8,300.0	6,716.0	2,760.5	2,679.7	34.166	ES
Larson USX AA19-04 - Original Drilling - Original Drilling	9,800.0	6,754.3	3,172.7	3,048.7	25.574	SF
Larson USX AA19-05 - Original Drilling - Original Drilling	8,011.8	6,749.1	1,475.0	1,403.8	20.730	CC

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 AA19-635
<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 AA19-635	<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

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 AA19-05 - Original Drilling - Original Drilling	8,100.0	6,748.5	1,477.6	1,403.3	19.881	ES
Larson USX AA19-05 - Original Drilling - Original Drilling	8,600.0	6,744.7	1,587.9	1,499.1	17.871	SF
Larson USX AA19-06 - Original Drilling - Original Drilling	9,170.7	6,802.1	1,653.1	1,539.6	14.563	CC
Larson USX AA19-06 - Original Drilling - Original Drilling	9,200.0	6,802.1	1,653.4	1,538.7	14.417	ES
Larson USX AA19-06 - Original Drilling - Original Drilling	9,700.0	6,802.2	1,735.8	1,606.1	13.383	SF
Thrall USX AA19-11 - Original Drilling - Original Drilling -	9,384.5	6,667.8	105.6	-14.9	0.876	Level 1, CC, ES, SF
Thrall USX AA19-12 - Original Drilling - Original Drilling -	7,808.0	6,674.3	416.9	353.1	6.534	CC, ES
Thrall USX AA19-12 - Original Drilling - Original Drilling -	7,900.0	6,673.9	427.0	360.3	6.404	SF
Thrall USX AA19-13 - Original Drilling - Original Drilling -	8,127.0	6,672.5	989.1	914.6	13.266	CC, ES
Thrall USX AA19-13 - Original Drilling - Original Drilling -	8,400.0	6,670.8	1,026.1	945.3	12.700	SF
Thrall USX AA19-14 - Original Drilling - Original Drilling -	9,137.9	6,654.1	1,241.6	1,130.4	11.165	CC
Thrall USX AA19-14 - Original Drilling - Original Drilling -	9,200.0	6,654.4	1,243.1	1,130.0	10.988	ES
Thrall USX AA19-14 - Original Drilling - Original Drilling -	9,400.0	6,655.5	1,268.9	1,151.3	10.782	SF
Thrall USX AA19-25 - Original Drilling - Original Drilling -	8,413.0	6,669.9	91.8	7.2	1.085	Level 2, CC, ES, SF
Wells Ranch USX AA19-09 - Original Drilling - Original D	11,885.1	6,663.0	346.2	130.3	1.604	CC
Wells Ranch USX AA19-09 - Original Drilling - Original D	11,900.0	6,663.0	346.5	130.0	1.600	ES, SF
Wells Ranch USX AA19-10 - Original Drilling - Original D	10,562.9	6,666.9	319.5	154.5	1.936	CC, ES
Wells Ranch USX AA19-10 - Original Drilling - Original D	10,600.0	6,665.5	321.7	155.5	1.936	SF
Wells Ranch USX AA19-15 - Original Drilling - Original D	10,375.0	6,669.5	1,033.7	870.0	6.314	CC
Wells Ranch USX AA19-15 - Original Drilling - Original D	10,400.0	6,668.9	1,034.0	869.6	6.286	ES
Wells Ranch USX AA19-15 - Original Drilling - Original D	10,500.0	6,666.4	1,041.3	874.6	6.246	SF
Wells Ranch USX AA19-16 - Original Drilling - Original D	11,948.5	6,690.1	1,132.7	914.6	5.193	CC
Wells Ranch USX AA19-16 - Original Drilling - Original D	12,000.0	6,692.8	1,133.8	914.3	5.164	ES, SF
Wells Ranch USX AA19-23 - Original Drilling - Original D	11,232.3	6,680.3	462.5	271.9	2.427	CC, ES, SF

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-635
<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 AA19-635	<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

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 20						
Cook 20D - Original Drilling - Original Drilling - As Drilled	16,544.8	6,653.3	138.6	-256.6	0.351	Level 1, CC, ES, SF
Cook 33-20 - Original Drilling - Original Drilling - As Drille	15,736.4	6,653.3	179.2	-184.7	0.492	Level 1, CC, ES, SF
Cook 34-20 - Orignal Drilling - Orignal Drilling - As Drilled	15,699.5	6,681.3	1,004.2	640.9	2.764	CC
Cook 34-20 - Orignal Drilling - Orignal Drilling - As Drilled	15,700.0	6,681.3	1,004.2	640.9	2.764	ES, SF
Cook 43-20 - Original Drilling - Original Drilling - As Drille	17,311.1	6,651.8	165.2	-259.7	0.389	Level 1, CC, ES, SF
Cook 44-20 - Original Drilling - Original Drilling - As Drille	17,300.1	6,653.5	990.0	565.8	2.334	CC, ES, SF
J&L Farms 01-20 - Original Drilling - Original Drilling - As	17,181.9	6,651.4	2,995.9	2,573.3	7.090	CC
J&L Farms 01-20 - Original Drilling - Original Drilling - As	17,300.0	6,653.6	2,998.2	2,571.2	7.021	ES
J&L Farms 01-20 - Original Drilling - Original Drilling - As	17,600.0	6,659.0	3,024.9	2,589.3	6.945	SF
J&L Farms 02-20 - Original Drilling - Original Drilling - As	15,876.8	6,651.4	2,997.6	2,628.2	8.115	CC
J&L Farms 02-20 - Original Drilling - Original Drilling - As	16,000.0	6,650.9	3,000.1	2,626.0	8.020	ES
J&L Farms 02-20 - Original Drilling - Original Drilling - As	16,400.0	6,649.4	3,042.9	2,657.8	7.902	SF
J&L Farms 08-20 - Original Drilling - Original Drilling - As	17,201.3	6,651.8	1,625.5	1,035.7	2.756	CC
J&L Farms 08-20 - Original Drilling - Original Drilling - As	17,300.0	6,651.4	1,628.5	1,035.3	2.745	ES, SF
J&L Farms 11-20 - Original Drilling - Original Drilling - As	13,013.1	6,625.6	3,146.9	2,888.0	12.155	CC
J&L Farms 11-20 - Original Drilling - Original Drilling - As	13,100.0	6,623.4	3,148.1	2,885.8	12.001	ES
J&L Farms 11-20 - Original Drilling - Original Drilling - As	13,800.0	6,604.7	3,243.7	2,961.2	11.481	SF
J&L Farms 12-20 - Original Drilling - Original Drilling - As	12,967.8	6,667.5	1,455.2	1,198.0	5.658	CC
J&L Farms 12-20 - Original Drilling - Original Drilling - As	13,000.0	6,667.6	1,455.5	1,197.0	5.630	ES
J&L Farms 12-20 - Original Drilling - Original Drilling - As	13,100.0	6,667.9	1,461.2	1,199.3	5.580	SF
J&L Farms 22-20 - Original Drilling - Original Drilling - As	14,517.5	6,648.3	1,601.8	1,284.9	5.056	CC
J&L Farms 22-20 - Original Drilling - Original Drilling - As	14,600.0	6,648.3	1,603.9	1,284.0	5.013	ES
J&L Farms 22-20 - Original Drilling - Original Drilling - As	14,700.0	6,648.2	1,612.2	1,289.5	4.997	SF
J&L Farms 32-20 - Original Drilling - Original Drilling - As	15,914.0	6,755.2	1,600.7	1,229.2	4.309	CC
J&L Farms 32-20 - Original Drilling - Original Drilling - As	16,000.0	6,754.9	1,603.0	1,228.4	4.279	ES
J&L Farms 32-20 - Original Drilling - Original Drilling - As	16,100.0	6,754.5	1,611.4	1,234.5	4.275	SF
Wells Ranch 13-20 - Original Drilling - Original Drilling - A	13,209.5	6,660.9	114.5	-152.1	0.429	Level 1, CC, ES, SF
Wells Ranch 14-20 - Original Drilling - Original Drilling - A	13,186.0	6,662.8	1,279.1	1,013.1	4.809	CC
Wells Ranch 14-20 - Original Drilling - Original Drilling - A	13,200.0	6,662.8	1,279.2	1,012.7	4.801	ES
Wells Ranch 14-20 - Original Drilling - Original Drilling - A	13,300.0	6,662.7	1,284.1	1,015.3	4.776	SF
Wells Ranch 23-20 - Original Drilling - Original Drilling - A	14,687.8	6,654.5	105.7	-217.6	0.327	Level 1, CC, ES, SF
Wells Ranch 24-20 - Original Drilling - Original Drilling - A	14,335.4	6,651.1	1,226.0	916.2	3.958	CC
Wells Ranch 24-20 - Original Drilling - Original Drilling - A	14,400.0	6,651.8	1,227.7	916.2	3.941	ES, SF

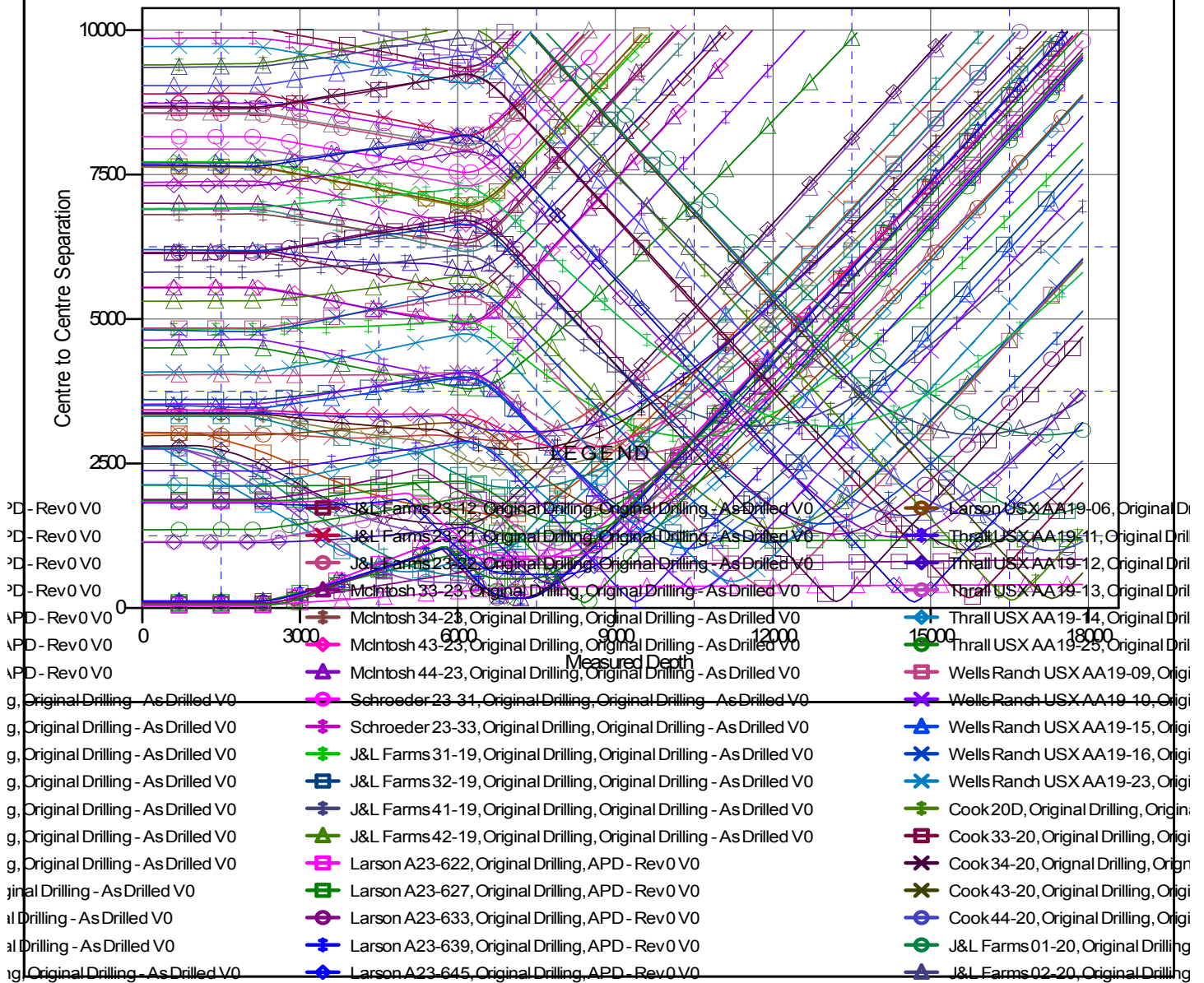
# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-635
<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 AA19-635	<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 AA19-635  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.65°

## Ladder Plot



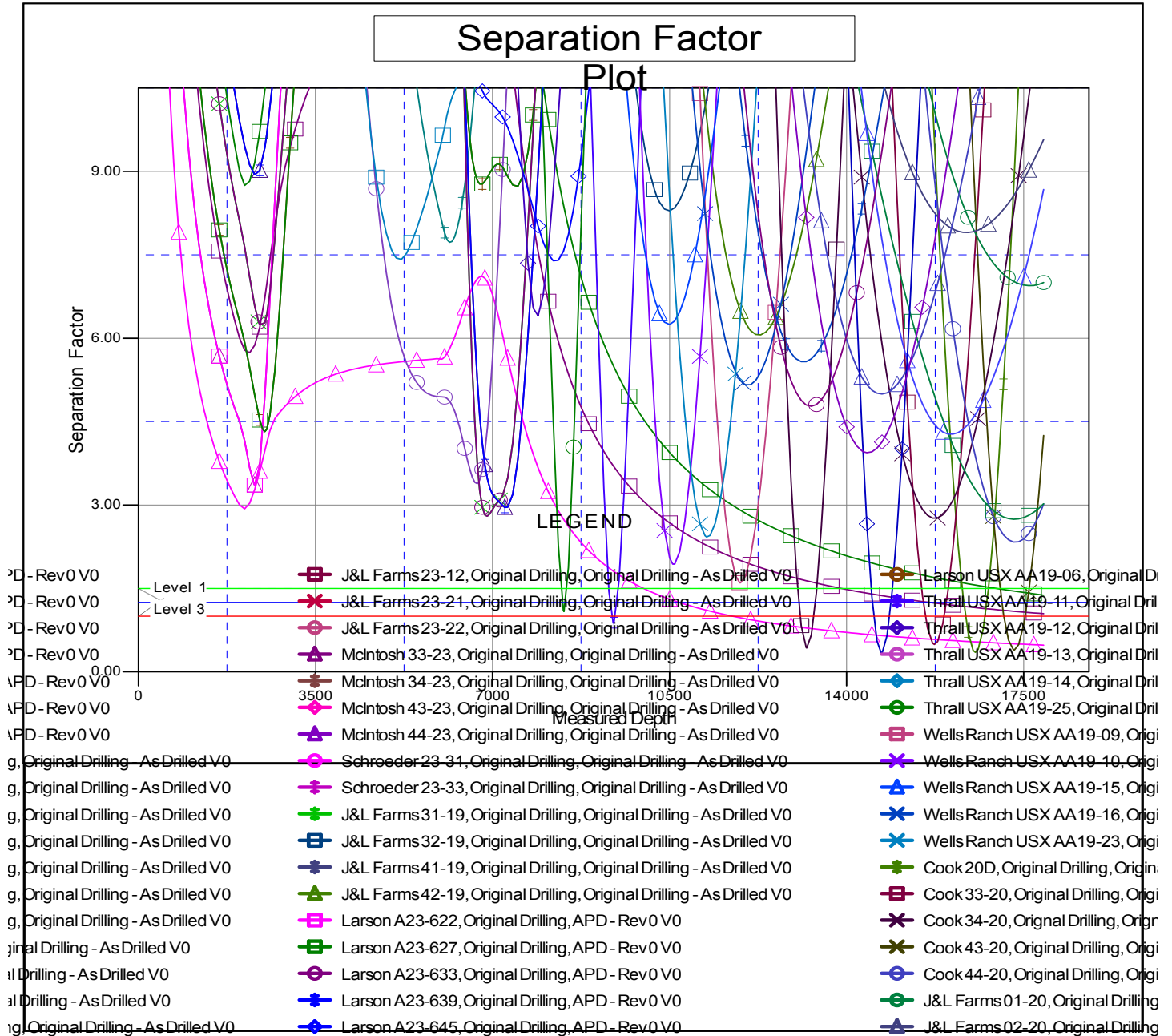
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Larson AA19-635
<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 AA19-635	<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 AA19-635  
 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