

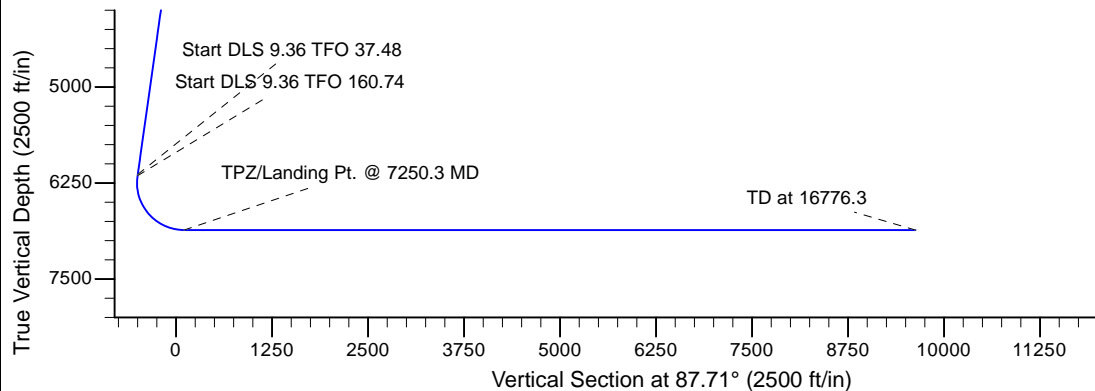
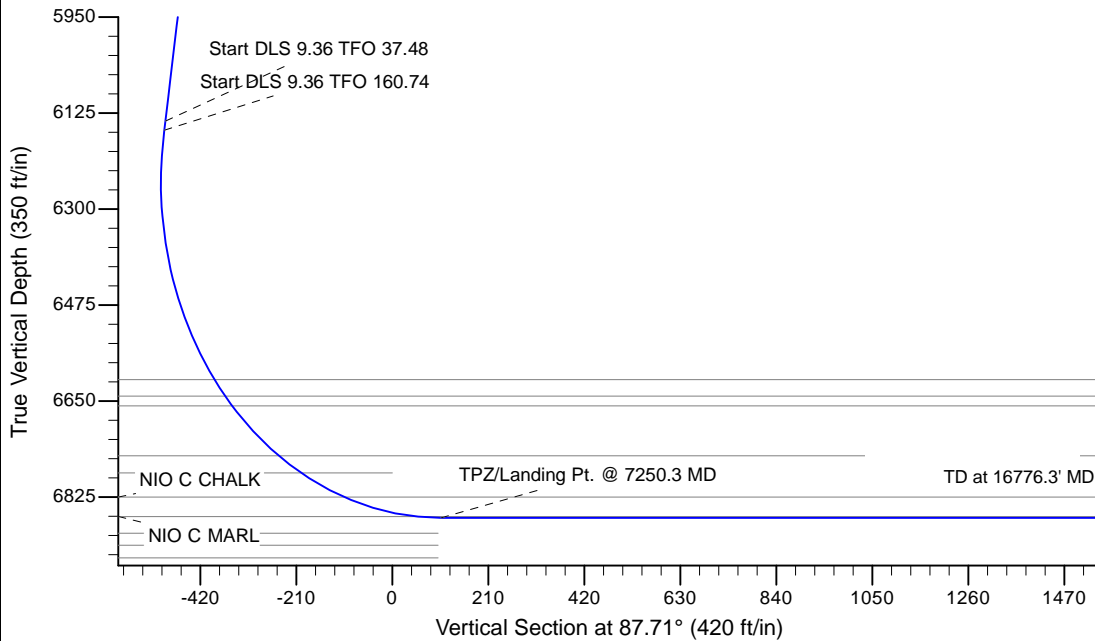
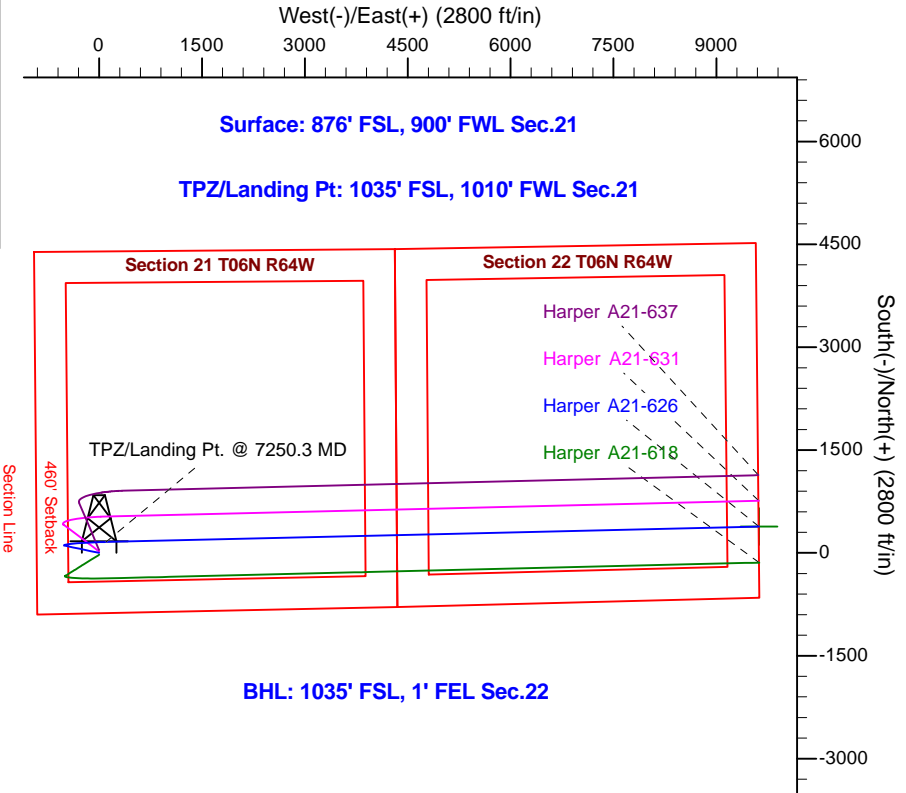
Project: Wells Ranch  
 Site: A Section 21-T6N-R64W Weld County, CO  
 Well: Harper A21-626  
 Wellbore: Original Drilling  
 Design: APD - Rev 0

# 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	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2400.0	0.00	0.00	2400.0	0.0	0.0	0.00	0.00	0.0	
3	2812.5	8.25	282.00	2811.1	6.2	-29.0	2.00	282.00	-28.7	
4	6176.2	8.25	282.00	6140.0	106.5	-501.1	0.00	0.00	-496.5	
5	6192.6	9.51	287.66	6156.2	107.2	-503.6	9.36	37.48	-498.9	
6	7250.3	90.00	88.65	6863.0	160.0	100.0	9.36	160.74	106.3	Harper A21-626 BHL 1035'FSL, 1'FEL
7	16776.3	90.00	88.65	6863.0	384.3	9623.4	0.00	0.00	9631.0	



**T G M**

Azimuths to Grid North  
 True North: -0.61°  
 Magnetic North: 7.55°

Magnetic Field  
 Strength: 52502.0snT  
 Dip Angle: 66.95°  
 Date: 12/29/2016  
 Model: IGRF2015

WELL DETAILS: Harper A21-626					
	Northing	Easting	Ground Elevation: 4727.0	Latitude	Longitude
0.0	0.0	1414226.79	3261156.25	40.4666600	-104.5613700
Plan: APD - Rev 0 (Harper A21-626/Original Drilling)					
Created By: Shailey Jewell			Date: 12:05, December 29 2016		
OK to submit with 2A as per Noble Drilling 12/29/2016 12:11					

# **Northern Region - DJ Basin**

**Wells Ranch**

**A Section 21**

**Harper A21-626**

**Original Drilling**

**APD - Rev 0**

## **Anticollision Summary Report**

**29 December, 2016**

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Harper A21-626
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Harper A21-626	<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>Depth Range:</b>	Unlimited
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.0 ft
<b>Warning Levels Evaluated at:</b>	2.79 Sigma

<b>Survey Tool Program</b>	<b>Date</b> 12/29/2016			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	16,776.3	APD - Rev 0 (Original Drilling)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis 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						
A Section 19						
Anderson 03-19 (PA) - Original Drilling - Original Drilling -	6,302.7	6,181.7	9,514.3	9,322.2	49.517	CC, ES
Anderson 03-19 (PA) - Original Drilling - Original Drilling -	6,900.0	6,681.6	9,763.3	9,556.3	47.164	SF
Ley 07-19 - Original Drilling - Original Drilling - As Drilled	6,302.3	6,233.3	7,996.6	7,961.9	230.682	CC, ES
Ley 07-19 - Original Drilling - Original Drilling - As Drilled	6,700.0	6,621.6	8,115.5	8,079.2	223.541	SF
Ley 08-19 - Original Drilling - Original Drilling - As Drilled	6,288.6	6,079.2	6,878.8	6,844.5	200.335	CC, ES
Ley 08-19 - Original Drilling - Original Drilling - As Drilled	6,700.0	6,573.3	7,000.7	6,964.4	193.168	SF
Luppens 05-19 - Original Drilling - Original Drilling - As D						Out of range
Roth 11-19 - Original Drilling - Original Drilling - As Drilled	6,293.7	6,189.0	9,073.4	9,037.4	251.959	CC
Roth 11-19 - Original Drilling - Original Drilling - As Drilled	6,300.0	6,195.3	9,073.4	9,037.3	251.089	ES
Roth 11-19 - Original Drilling - Original Drilling - As Drilled	7,100.0	6,776.8	9,529.3	9,482.1	201.996	SF
Roth 14-19 (PA) - Original Drilling - Original Drilling - As D	6,287.6	6,167.6	8,956.1	8,764.5	46.744	CC
Roth 14-19 (PA) - Original Drilling - Original Drilling - As D	6,300.0	6,180.0	8,956.2	8,764.2	46.653	ES
Roth 14-19 (PA) - Original Drilling - Original Drilling - As D	6,850.0	6,653.9	9,196.7	8,990.7	44.645	SF
Roth 19-19 - Original Drilling - Original Drilling - As Drilled	194.9	110.8	9,578.0	9,577.4	10,000.000	CC
Roth 19-19 - Original Drilling - Original Drilling - As Drilled	6,290.3	6,256.2	9,593.8	9,558.1	269.066	ES
Roth 19-19 - Original Drilling - Original Drilling - As Drilled	6,950.0	6,898.6	9,918.4	9,880.4	261.002	SF
Roth 22-19 - Original Drilling - Original Drilling - As Drilled	100.0	0.0	9,546.7	9,546.6	10,000.000	CC
Roth 22-19 - Original Drilling - Original Drilling - As Drilled	200.0	73.2	9,546.9	9,546.4	10,000.000	ES
Roth 22-19 - Original Drilling - Original Drilling - As Drilled	6,800.0	6,801.9	9,791.2	9,752.8	255.079	SF
Roth 23-19 - Original Drilling - Original Drilling - As Drilled	5,114.4	3,836.7	8,849.3	8,823.5	343.033	CC
Roth 23-19 - Original Drilling - Original Drilling - As Drilled	6,284.8	6,200.0	8,850.1	8,815.3	254.736	ES
Roth 23-19 - Original Drilling - Original Drilling - As Drilled	6,800.0	6,585.4	9,057.4	9,021.0	248.352	SF
Roth 25-19 - Original Drilling - Original Drilling - As Drilled	6,300.6	6,363.8	8,519.5	8,483.3	235.093	CC, ES
Roth 25-19 - Original Drilling - Original Drilling - As Drilled	6,700.0	6,791.5	8,641.9	8,604.0	227.943	SF
Roth A19-12 - Original Drilling - Original Drilling - As Drill						Out of range
Roth A19-13 (PA) - Original Drilling - Original Drilling - As						Out of range
Weber 04-19 (PA) - Original Drilling - Original Drilling - As						Out of range
Winter 09-19 - Original Drilling - Original Drilling - As Drill	6,287.1	6,140.8	6,443.9	6,409.5	187.245	CC, ES
Winter 09-19 - Original Drilling - Original Drilling - As Drill	6,700.0	6,564.2	6,575.4	6,539.2	181.885	SF
Winter 15-19 - Original Drilling - Original Drilling - As Drill	6,287.5	6,167.6	7,826.9	7,635.3	40.851	CC
Winter 15-19 - Original Drilling - Original Drilling - As Drill	6,300.0	6,180.0	7,827.0	7,635.0	40.771	ES
Winter 15-19 - Original Drilling - Original Drilling - As Drill	6,800.0	6,622.0	8,029.0	7,824.0	39.152	SF
Winter 15-19-0 (PA) - Original Drilling - Original Drilling -	4,100.0	4,004.3	8,122.1	7,997.9	65.414	SF
Winter 15-19-0 (PA) - Original Drilling - Original Drilling -	4,922.9	3,700.0	8,086.0	7,968.7	68.927	CC, ES
Winters 10-19 - Original Drilling - Original Drilling - As Dr	6,285.8	6,073.1	8,166.5	8,131.8	235.463	CC, ES
Winters 10-19 - Original Drilling - Original Drilling - As Dr	7,050.0	7,050.0	8,577.6	8,539.5	225.255	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 Harper A21-626
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Harper A21-626	<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
A Section 20						
Foe 16-20 - Original Drilling - Original Drilling - As Drilled	6,282.5	6,206.2	1,118.4	1,083.7	32.303	CC, ES
Foe 16-20 - Original Drilling - Original Drilling - As Drilled	6,400.0	6,318.1	1,129.4	1,094.2	32.102	SF
Foe 33-20 - Original Drilling - Original Drilling - As Drilled	6,303.5	6,241.9	2,428.3	2,393.6	69.950	CC, ES
Foe 33-20 - Original Drilling - Original Drilling - As Drilled	6,500.0	6,439.9	2,458.0	2,422.4	69.044	SF
Foe 34-20 (PA) - Original Drilling - Original Drilling - As D	6,281.7	6,187.8	2,436.3	2,244.1	12.677	CC
Foe 34-20 (PA) - Original Drilling - Original Drilling - As D	6,300.0	6,206.0	2,436.5	2,243.8	12.641	ES
Foe 34-20 (PA) - Original Drilling - Original Drilling - As D	6,500.0	6,401.6	2,474.0	2,275.3	12.456	SF
Foe 43-20 - Original Drilling - Original Drilling - As Drilled	6,345.5	6,303.1	1,423.7	1,388.3	40.212	CC
Foe 43-20 - Original Drilling - Original Drilling - As Drilled	6,350.0	6,307.6	1,423.7	1,388.3	40.189	ES
Foe 43-20 - Original Drilling - Original Drilling - As Drilled	6,500.0	6,435.2	1,437.2	1,401.2	39.892	SF
Linda Rae 1 - Original Drilling - Original Drilling - As Drille	6,294.0	6,264.2	6,570.4	6,528.8	158.102	CC
Linda Rae 1 - Original Drilling - Original Drilling - As Drille	6,300.0	6,270.2	6,570.4	6,528.7	157.612	ES
Linda Rae 1 - Original Drilling - Original Drilling - As Drille	7,050.0	6,841.8	6,980.8	6,927.3	130.628	SF
Simmons 42-20D - Original Drilling - Original Drilling - As	6,372.1	6,371.5	2,565.9	2,525.2	63.077	CC, ES
Simmons 42-20D - Original Drilling - Original Drilling - As	6,700.0	6,671.8	2,601.9	2,559.9	61.954	SF
Snider 1-20EG - Original Drilling - Original Drilling - As D	6,278.7	6,144.4	3,714.2	3,679.7	107.905	CC, ES
Snider 1-20EG - Original Drilling - Original Drilling - As D	6,500.0	6,300.0	3,755.3	3,720.0	106.436	SF
Stump A20-11 - Original Drilling - Original Drilling - As Dr	6,312.5	6,330.5	3,935.4	3,900.2	111.796	CC, ES
Stump A20-11 - Original Drilling - Original Drilling - As Dr	6,550.0	6,561.7	3,979.9	3,943.7	109.775	SF
Stump A20-12 - Original Drilling - Original Drilling - As Dr	6,292.7	6,171.3	5,001.7	4,967.2	144.996	CC, ES
Stump A20-12 - Original Drilling - Original Drilling - As Dr	6,750.0	6,782.6	5,157.2	5,120.5	140.514	SF
Stump A20-13 - Original Drilling - Original Drilling - As Dr	6,285.4	6,186.8	5,003.3	4,968.9	145.122	CC, ES
Stump A20-13 - Original Drilling - Original Drilling - As Dr	6,600.0	6,483.5	5,082.0	5,046.2	141.925	SF
Winter 20-19 - Original Drilling - Original Drilling - As Dril	6,289.6	6,265.6	6,846.1	6,810.8	193.765	CC, ES
Winter 20-19 - Original Drilling - Original Drilling - As Dril	6,700.0	6,683.9	6,977.9	6,940.9	188.503	SF
Winter 24-19 - Original Drilling - Original Drilling - As Dril	6,296.0	6,540.5	6,859.7	6,815.7	155.893	CC
Winter 24-19 - Original Drilling - Original Drilling - As Dril	6,300.0	6,544.2	6,859.7	6,815.7	155.836	ES
Winter 24-19 - Original Drilling - Original Drilling - As Dril	6,550.0	6,751.6	6,910.5	6,865.6	154.006	SF
Winter 39-19 - Original Drilling - Original Drilling - As Dril	6,297.1	6,411.3	5,692.7	5,656.1	155.849	CC
Winter 39-19 - Original Drilling - Original Drilling - As Dril	6,300.0	6,413.4	5,692.7	5,656.1	155.798	ES
Winter 39-19 - Original Drilling - Original Drilling - As Dril	6,600.0	6,625.0	5,768.1	5,730.5	153.512	SF
Winter 40-19 - Original Drilling - Original Drilling - As Dril	6,296.3	6,547.8	5,714.4	5,669.3	126.574	CC
Winter 40-19 - Original Drilling - Original Drilling - As Dril	6,300.0	6,551.0	5,714.4	5,669.3	126.535	ES
Winter 40-19 - Original Drilling - Original Drilling - As Dril	6,550.0	6,825.0	5,764.5	5,718.4	125.176	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 Harper A21-626
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Harper A21-626	<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
A Section 21						
Offset Well - Wellbore - Design						
Culbreath 23-21 - Original Drilling - Original Drilling - As D	8,465.8	6,854.3	1,008.9	954.7	18.620	CC, ES
Culbreath 23-21 - Original Drilling - Original Drilling - As D	8,700.0	6,854.4	1,035.7	978.3	18.050	SF
Culbreath 33-21 (PA) - Original Drilling - Original Drilling	9,519.5	6,824.0	875.6	630.3	3.569	CC, ES
Culbreath 33-21 (PA) - Original Drilling - Original Drilling	9,600.0	6,824.0	879.3	632.7	3.566	SF
Harper A21-618 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	25.5	13.4	2.102	CC, ES
Harper A21-618 - Original Drilling - APD - Rev 0	16,776.3	16,715.0	529.6	152.9	1.406	Level 3, SF
Harper A21-631 - Original Drilling - APD - Rev 0	2,200.0	2,200.0	21.9	8.5	1.633	CC, ES
Harper A21-631 - Original Drilling - APD - Rev 0	16,776.3	16,717.3	385.4	11.0	1.029	Level 2, SF
Harper A21-637 - Original Drilling - APD - Rev 0	2,000.0	2,000.0	43.7	31.6	3.602	CC, ES
Harper A21-637 - Original Drilling - APD - Rev 0	16,776.3	16,559.5	750.4	373.8	1.992	SF
Kona A19-616 - Original Drilling - APD - Rev 0	1,900.0	1,896.0	152.4	140.9	13.258	CC, ES
Kona A19-616 - Original Drilling - APD - Rev 0	2,100.0	2,087.0	158.0	145.4	12.519	SF
Kona A19-624 - Original Drilling - APD - Rev 0	7,747.6	6,885.1	103.1	53.9	2.097	CC, ES, SF
Kona A19-630 - Original Drilling - APD - Rev 0	2,100.0	2,096.0	151.8	139.1	11.909	CC, ES
Kona A19-630 - Original Drilling - APD - Rev 0	7,050.0	7,301.4	278.9	233.0	6.078	SF
Kona A19-636 - Original Drilling - APD - Rev 0	1,900.0	1,896.0	156.5	145.0	13.613	CC, ES
Kona A19-636 - Original Drilling - APD - Rev 0	7,900.0	6,869.5	623.0	570.3	11.825	SF
Kona A19-640 - Original Drilling - APD - Rev 0	7,276.1	7,179.4	975.2	930.0	21.580	CC, ES
Kona A19-640 - Original Drilling - APD - Rev 0	7,800.0	6,808.5	1,012.8	964.4	20.947	SF
Kona A19-646 - Original Drilling - APD - Rev 0	7,480.6	6,988.2	1,400.1	1,353.8	30.205	CC
Kona A19-646 - Original Drilling - APD - Rev 0	7,500.0	6,971.3	1,400.2	1,353.7	30.132	ES
Kona A19-646 - Original Drilling - APD - Rev 0	8,100.0	6,650.0	1,466.0	1,413.8	28.097	SF
Kona A19-652 - Original Drilling - APD - Rev 0	2,721.4	2,725.4	1,438.1	1,421.5	86.595	CC, ES
Kona A19-652 - Original Drilling - APD - Rev 0	8,300.0	6,500.0	1,807.7	1,753.4	33.290	SF
Kona A19-662 - Original Drilling - APD - Rev 0	2,009.8	2,026.8	1,504.2	1,491.9	122.795	CC
Kona A19-662 - Original Drilling - APD - Rev 0	2,100.0	2,111.2	1,504.2	1,491.4	117.548	ES
Kona A19-662 - Original Drilling - APD - Rev 0	8,700.0	6,430.4	2,538.7	2,478.3	42.051	SF
Kona A19-670 - Original Drilling - APD - Rev 0	1,809.8	1,826.8	1,525.8	1,514.8	138.772	CC
Kona A19-670 - Original Drilling - APD - Rev 0	1,900.0	1,911.1	1,525.8	1,514.3	132.200	ES
Kona A19-670 - Original Drilling - APD - Rev 0	9,200.0	6,278.9	3,182.4	3,114.6	46.938	SF
Kona A19-679 - Original Drilling - APD - Rev 0	2,493.8	2,509.8	1,460.7	1,445.5	95.675	CC
Kona A19-679 - Original Drilling - APD - Rev 0	2,500.0	2,510.8	1,460.8	1,445.5	95.544	ES
Kona A19-679 - Original Drilling - APD - Rev 0	9,900.0	6,228.9	3,451.4	3,372.1	43.480	SF
Kona A19-685 - Original Drilling - APD - Rev 0	2,210.3	2,226.3	1,482.5	1,469.0	109.788	CC
Kona A19-685 - Original Drilling - APD - Rev 0	2,300.0	2,310.7	1,482.5	1,468.5	105.526	ES
Kona A19-685 - Original Drilling - APD - Rev 0	13,000.0	13,000.0	5,789.2	5,635.1	37.574	SF
McKee 12-21 (PA) - Original Drilling - Original Drilling - A	6,925.0	6,775.7	2,020.8	1,810.2	9.595	CC
McKee 12-21 (PA) - Original Drilling - Original Drilling - A	6,950.0	6,787.9	2,020.9	1,809.9	9.576	ES
McKee 12-21 (PA) - Original Drilling - Original Drilling - A	7,100.0	6,841.7	2,028.8	1,815.7	9.520	SF
McKee 21-21 (PA) - Original Drilling - Original Drilling - A	8,469.0	6,876.0	3,341.1	3,111.8	14.574	CC
McKee 21-21 (PA) - Original Drilling - Original Drilling - A	8,500.0	6,876.0	3,341.2	3,111.5	14.544	ES
McKee 21-21 (PA) - Original Drilling - Original Drilling - A	9,200.0	6,876.0	3,420.1	3,179.6	14.220	SF
McKee 22-21 - Original Drilling - Original Drilling - As Dril	8,267.0	6,877.2	2,142.8	2,091.2	41.511	CC
McKee 22-21 - Original Drilling - Original Drilling - As Dril	8,300.0	6,877.4	2,143.1	2,091.0	41.125	ES
McKee 22-21 - Original Drilling - Original Drilling - As Dril	9,100.0	6,882.4	2,299.0	2,236.5	36.752	SF
McKee 31-21 - Original Drilling - Original Drilling - As Dril	9,516.5	7,029.4	3,697.5	3,625.7	51.501	CC
McKee 31-21 - Original Drilling - Original Drilling - As Dril	9,600.0	7,027.4	3,698.5	3,625.2	50.486	ES
McKee 31-21 - Original Drilling - Original Drilling - As Dril	11,200.0	6,990.2	4,062.6	3,967.2	42.599	SF
McKee 32-21 - Original Drilling - Original Drilling - As Dril	9,511.4	6,868.8	2,157.9	2,086.2	30.088	CC, ES
McKee 32-21 - Original Drilling - Original Drilling - As Dril	10,200.0	6,870.7	2,265.1	2,183.6	27.784	SF
McKee 41-21 - Original Drilling - Original Drilling - As Dril	10,816.6	6,744.8	3,630.8	3,536.1	38.340	CC
McKee 41-21 - Original Drilling - Original Drilling - As Dril	10,900.0	6,745.5	3,631.7	3,535.5	37.737	ES
McKee 41-21 - Original Drilling - Original Drilling - As Dril	12,100.0	6,755.6	3,850.9	3,737.6	33.978	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 Harper A21-626
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Harper A21-626	<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
A Section 21						
McKee 42-21 - Original Drilling - Original Drilling - As Dril	10,867.1	6,860.5	1,968.6	1,872.4	20.462	CC
McKee 42-21 - Original Drilling - Original Drilling - As Dril	10,900.0	6,860.4	1,968.9	1,872.1	20.337	ES
McKee 42-21 - Original Drilling - Original Drilling - As Dril	11,300.0	6,859.5	2,015.6	1,913.2	19.674	SF
Sexton 43-21 (PA) - Original Drilling - Original Drilling - A	10,811.9	6,816.0	1,090.3	822.0	4.064	CC, ES
Sexton 43-21 (PA) - Original Drilling - Original Drilling - A	10,900.0	6,816.0	1,093.9	824.1	4.055	SF
Wells Trust 13-21 - Original Drilling - Original Drilling - As	6,824.4	6,700.5	734.2	696.5	19.469	CC, ES
Wells Trust 13-21 - Original Drilling - Original Drilling - As	6,950.0	6,828.7	742.4	704.1	19.374	SF
Wells Trust 14-21 - Original Drilling - Original Drilling - As	5,208.8	5,138.8	361.7	332.5	12.385	CC
Wells Trust 14-21 - Original Drilling - Original Drilling - As	5,300.0	5,229.2	361.9	332.2	12.165	ES
Wells Trust 14-21 - Original Drilling - Original Drilling - As	6,550.0	6,463.3	399.0	362.3	10.847	SF
Wells Trust 24-21 - Original Drilling - Original Drilling - As	7,553.5	6,812.1	331.8	289.7	7.880	CC, ES, SF

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Harper A21-626
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	WELL @ 4757.0ft (Original Well Elev.)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Harper A21-626	<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

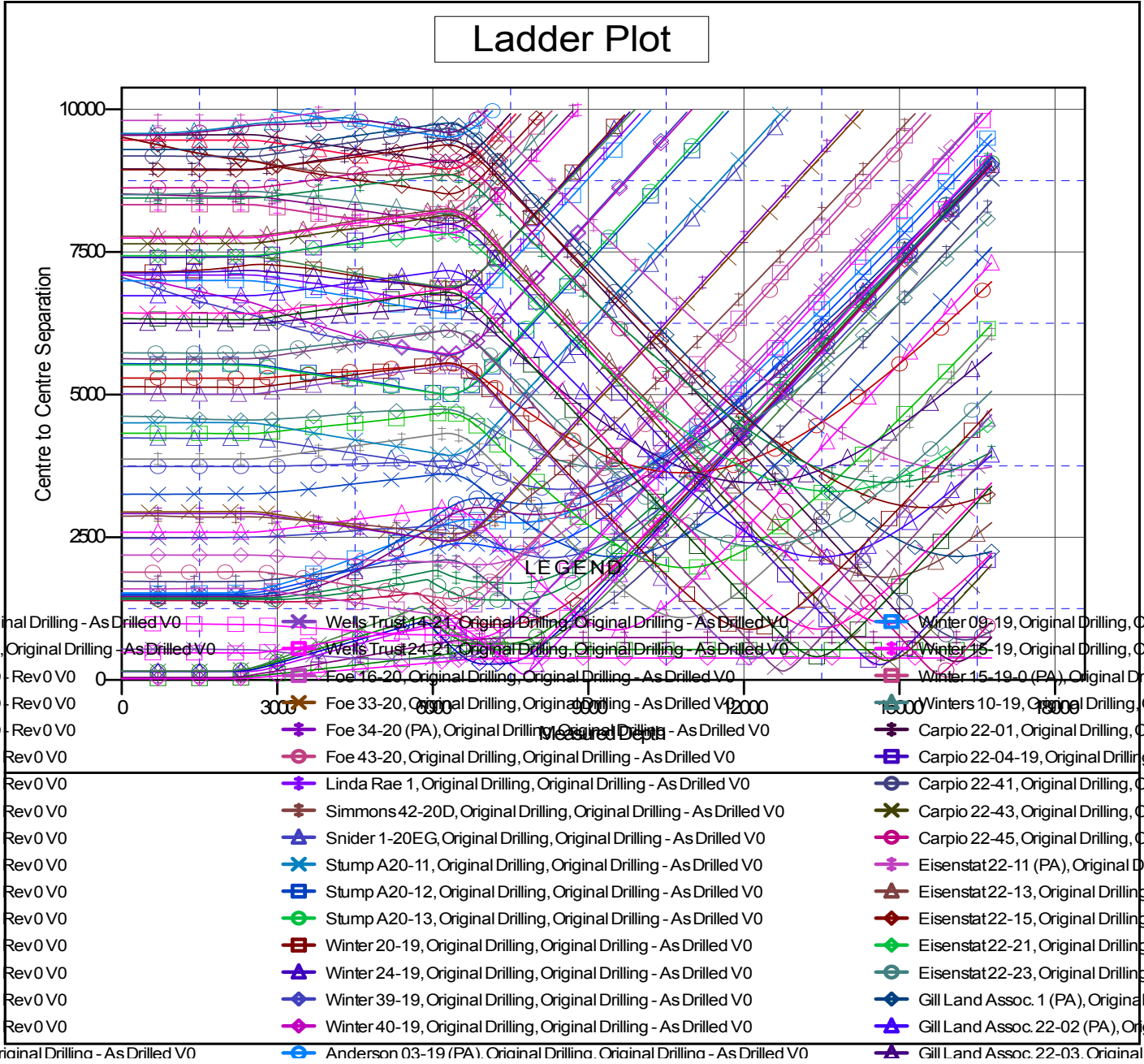
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
A Section 22						
Carpio 22-01 - Original Drilling - Original Drilling - As Dril	16,103.8	6,799.0	320.9	126.9	1.654	CC, ES, SF
Carpio 22-04-19 - Original Drilling - Original Drilling - As D	14,621.8	6,839.8	267.1	95.2	1.554	CC, ES, SF
Carpio 22-41 - Original Drilling - Original Drilling - As Dril	16,270.4	6,807.1	702.8	469.3	3.010	CC, ES
Carpio 22-41 - Original Drilling - Original Drilling - As Dril	16,300.0	6,807.0	703.4	469.5	3.006	SF
Carpio 22-43 - Original Drilling - Original Drilling - As Dril	14,783.2	6,840.8	335.3	166.5	1.987	CC, ES, SF
Carpio 22-45 - Original Drilling - Original Drilling - As Dril	15,756.6	6,815.5	102.3	-84.8	0.547	Level 1, CC, ES, SF
Eisenstat 22-11 (PA) - Original Drilling - Original Drilling -	16,168.0	6,830.0	3,683.3	3,314.3	9.984	CC
Eisenstat 22-11 (PA) - Original Drilling - Original Drilling -	16,200.0	6,830.0	3,683.4	3,313.9	9.968	ES
Eisenstat 22-11 (PA) - Original Drilling - Original Drilling -	16,600.0	6,830.0	3,708.5	3,332.5	9.864	SF
Eisenstat 22-13 - Original Drilling - Original Drilling - As D	14,687.9	6,834.9	1,798.7	1,631.6	10.768	CC
Eisenstat 22-13 - Original Drilling - Original Drilling - As D	14,700.0	6,834.8	1,798.7	1,631.4	10.753	ES
Eisenstat 22-13 - Original Drilling - Original Drilling - As D	14,900.0	6,866.8	1,811.1	1,640.9	10.639	SF
Eisenstat 22-15 - Original Drilling - Original Drilling - As D	15,508.2	6,804.4	3,022.1	2,839.7	16.567	CC
Eisenstat 22-15 - Original Drilling - Original Drilling - As D	15,600.0	6,804.8	3,023.5	2,839.4	16.422	ES
Eisenstat 22-15 - Original Drilling - Original Drilling - As D	16,000.0	6,806.5	3,061.9	2,872.2	16.141	SF
Eisenstat 22-21 - Original Drilling - Original Drilling - As D	13,706.1	6,904.6	3,303.9	3,155.3	22.236	CC
Eisenstat 22-21 - Original Drilling - Original Drilling - As D	13,800.0	6,904.0	3,305.3	3,154.9	21.987	ES
Eisenstat 22-21 - Original Drilling - Original Drilling - As D	14,400.0	6,900.2	3,376.0	3,217.1	21.251	SF
Eisenstat 22-23 - Original Drilling - Original Drilling - As D	12,289.7	6,846.5	2,337.4	2,215.3	19.155	CC
Eisenstat 22-23 - Original Drilling - Original Drilling - As D	12,300.0	6,846.6	2,337.4	2,215.2	19.124	ES
Eisenstat 22-23 - Original Drilling - Original Drilling - As D	12,700.0	6,849.5	2,373.1	2,244.9	18.504	SF
Gill Land Assoc. 1 (PA) - Original Drilling - Original Drillin	16,147.5	6,831.0	2,164.6	1,796.1	5.873	CC
Gill Land Assoc. 1 (PA) - Original Drilling - Original Drillin	16,200.0	6,831.0	2,165.2	1,795.7	5.860	ES
Gill Land Assoc. 1 (PA) - Original Drilling - Original Drillin	16,300.0	6,831.0	2,170.0	1,798.9	5.848	SF
Gill Land Assoc. 22-02 (PA) - Original Drilling - Original D	13,471.6	6,841.0	2,153.0	1,834.6	6.762	CC
Gill Land Assoc. 22-02 (PA) - Original Drilling - Original D	13,500.0	6,841.0	2,153.2	1,834.2	6.751	ES
Gill Land Assoc. 22-02 (PA) - Original Drilling - Original D	13,700.0	6,841.0	2,165.0	1,843.0	6.722	SF
Gill Land Assoc. 22-03 - Original Drilling - Original Drilling	12,194.9	6,849.2	3,452.6	3,332.0	28.631	CC
Gill Land Assoc. 22-03 - Original Drilling - Original Drilling	12,300.0	6,849.1	3,454.2	3,331.7	28.191	ES
Gill Land Assoc. 22-03 - Original Drilling - Original Drilling	13,100.0	6,848.7	3,569.3	3,435.4	26.653	SF
Gill Land Assoc. 22-04 (PA) - Original Drilling - Original D	14,776.4	6,839.0	3,462.6	3,119.7	10.098	CC
Gill Land Assoc. 22-04 (PA) - Original Drilling - Original D	14,800.0	6,839.0	3,462.7	3,119.3	10.085	ES
Gill Land Assoc. 22-04 (PA) - Original Drilling - Original D	15,200.0	6,839.0	3,488.4	3,138.5	9.971	SF
Gruen 22-01 - Original Drilling - Original Drilling - As Drill	12,114.5	6,844.7	886.9	768.2	7.469	CC, ES
Gruen 22-01 - Original Drilling - Original Drilling - As Drill	12,200.0	6,845.1	891.1	771.1	7.428	SF
Gruen 22-02 - Original Drilling - Original Drilling - As Drill	13,406.0	6,835.6	407.2	264.4	2.852	CC, ES, SF
Gruen 22-31 - Original Drilling - Original Drilling - As Drill	13,438.6	6,853.3	891.5	748.1	6.214	CC, ES
Gruen 22-31 - Original Drilling - Original Drilling - As Drill	13,500.0	6,853.1	893.6	749.2	6.188	SF
Gruen 22-33 - Original Drilling - Original Drilling - As Drill	12,143.1	6,811.6	371.1	252.0	3.117	CC, ES, SF
Gruen 22-35 - Original Drilling - Original Drilling - As Drill	12,758.3	6,759.8	155.5	25.0	1.192	Level 2, CC, ES, SF
Ottinger 22-01 - Original Drilling - Original Drilling - As Dr	14,793.0	6,844.2	988.6	819.7	5.852	CC
Ottinger 22-01 - Original Drilling - Original Drilling - As Dr	14,800.0	6,844.3	988.7	819.6	5.847	ES
Ottinger 22-01 - Original Drilling - Original Drilling - As Dr	14,900.0	6,844.5	994.4	824.2	5.842	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 Harper A21-626
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<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Harper A21-626	<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 @ 4757.0ft (Original Well Elev.)      Coordinates are relative to: Harper A21-626  
 Offset Depths are relative to Offset Datum      Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Central Meridian is -105.5000000      Grid Convergence at Surface is: 0.61°

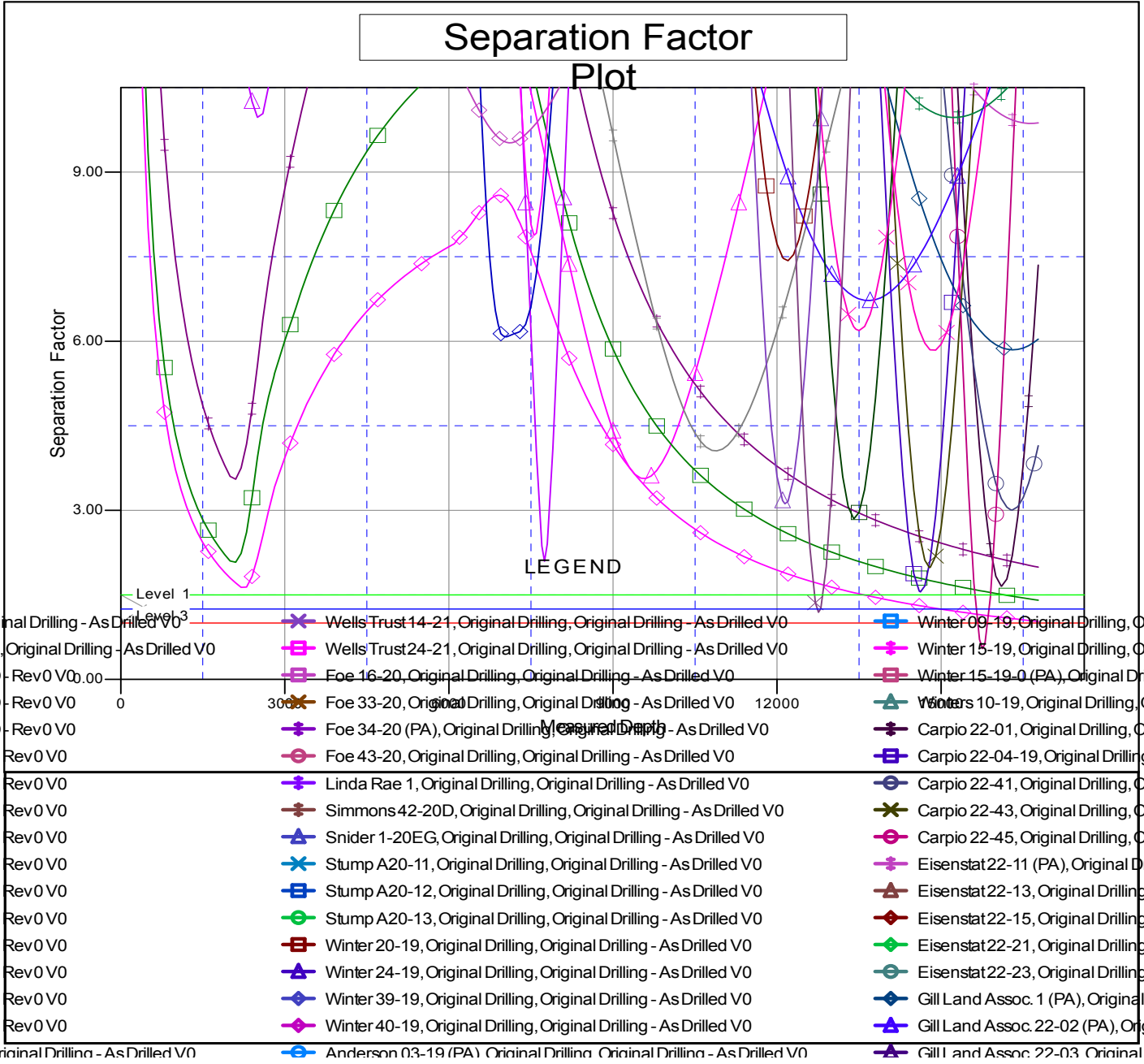


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<b>Reference Well:</b>	Harper A21-626	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.79 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM Production
<b>Reference Design:</b>	APD - Rev 0	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4757.0ft (Original Well Elev.)      Coordinates are relative to: Harper A21-626  
 Offset Depths are relative to Offset Datum      Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Central Meridian is -105.5000000      Grid Convergence at Surface is: 0.61°



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