

Northern Region - DJ Basin

Wells Ranch

BB Section 07

SLW Ranch State BB07-646

Original Drilling

Plan 1

Anticollision Summary Report

26 September, 2017

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-646
Project:	Wells Ranch	TVD Reference:	WELL @ 4647.0ft (Original Well Elev.)
Reference Site:	BB Section 07	MD Reference:	WELL @ 4647.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-646	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference	Plan 1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	9/26/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,723.1	Plan 1 (Original Drilling)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis

Summary						
Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (ft)	Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
B Section 12						
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,296.0	10,779.0	2,006.2	1,873.9	15.167	CC
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,300.0	10,779.0	2,006.2	1,873.8	15.161	ES
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,450.0	10,779.0	2,013.6	1,879.8	15.056	SF
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,374.5	10,812.0	1,324.5	1,191.7	9.973	CC
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,400.0	10,812.0	1,324.8	1,191.7	9.950	ES
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,450.0	10,812.0	1,327.3	1,193.7	9.933	SF
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,475.5	10,993.0	753.6	630.7	6.130	CC, ES
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,500.0	10,993.0	754.2	630.9	6.116	SF
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,512.0	10,974.0	304.5	257.5	6.475	CC, ES
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,550.0	10,974.0	308.0	260.4	6.465	SF
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,549.3	10,992.0	645.2	571.9	8.801	CC, ES
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,550.0	10,992.0	645.2	571.9	8.801	SF
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,579.0	11,132.0	947.8	869.8	12.148	CC, ES
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,600.0	11,132.0	948.2	870.1	12.147	SF
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,615.4	11,248.0	1,556.6	1,415.6	11.036	CC, ES, SF
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,100.0	8,608.6	4,968.3	4,908.1	82.617	ES
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,127.1	6,127.1	4,968.0	4,941.8	189.734	CC
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,450.0	8,659.4	5,066.9	5,004.7	81.481	SF
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,266.6	10,833.0	2,225.6	2,092.6	16.730	CC
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,300.0	10,833.0	2,226.0	2,092.5	16.684	ES
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,450.0	10,833.0	2,234.8	2,100.0	16.589	SF
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,036.9	5,880.0	4,163.4	4,121.5	99.323	CC, ES
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,350.0	6,139.7	4,242.8	4,199.0	96.960	SF
Trebor B12-05 - Wellbore #1 - As Drilled	6,082.6	6,107.8	3,943.2	3,899.6	90.358	CC, ES
Trebor B12-05 - Wellbore #1 - As Drilled	6,450.0	6,467.3	4,048.9	4,003.0	88.301	SF
Trebor B12-06 - Wellbore #1 - As Drilled	6,091.1	5,974.9	3,033.5	2,991.1	71.497	CC, ES
Trebor B12-06 - Wellbore #1 - As Drilled	6,350.0	6,214.0	3,083.2	3,039.1	70.047	SF
Trebor B12-07 - Wellbore #1 - As Drilled	6,120.9	6,001.2	1,989.3	1,946.6	46.621	CC, ES
Trebor B12-07 - Wellbore #1 - As Drilled	6,350.0	6,220.7	2,023.8	1,979.7	45.899	SF
Trebor B12-19 - Wellbore #1 - As Drilled	6,096.5	6,005.6	3,789.2	3,746.7	89.018	CC
Trebor B12-19 - Wellbore #1 - As Drilled	6,100.0	6,008.7	3,789.2	3,746.7	88.970	ES
Trebor B12-19 - Wellbore #1 - As Drilled	6,400.0	6,271.7	3,857.2	3,812.9	86.970	SF
Trebor B12-8 - Wellbore #1 - As Drilled	6,459.3	6,360.2	1,177.4	1,132.3	26.094	CC, ES
Trebor B12-8 - Wellbore #1 - As Drilled	6,600.0	6,467.7	1,185.6	1,139.8	25.880	SF

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

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Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-646
Project:	Wells Ranch	TVD Reference:	WELL @ 4647.0ft (Original Well Elev.)
Reference Site:	BB Section 07	MD Reference:	WELL @ 4647.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-646	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 07						
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	7,548.5	6,634.1	2,511.1	2,461.3	50.394	CC, ES
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	8,400.0	6,591.5	2,651.3	2,596.0	47.931	SF
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	7,507.0	6,546.6	308.1	258.1	6.157	CC, ES, SF
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	8,830.8	6,526.0	2,499.3	2,439.6	41.896	CC, ES
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	9,600.0	6,534.2	2,614.9	2,548.6	39.424	SF
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	8,842.9	6,571.0	184.7	16.2	1.096	Level 2, CC, ES, SF
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,180.5	6,592.4	65.1	-8.6	0.883	Level 1, CC, ES, SF
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,511.9	6,601.9	353.6	264.9	3.987	CC, ES, SF
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,157.3	6,565.1	926.1	870.0	16.520	CC, ES
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,200.0	6,565.7	927.1	870.8	16.454	SF
Skurich-SLW 7D - Original Drilling - Original Drilling - As	8,335.0	6,574.0	1,782.0	1,618.0	10.864	CC, ES
Skurich-SLW 7D - Original Drilling - Original Drilling - As	8,500.0	6,574.0	1,789.7	1,624.2	10.816	SF
Skurich-SLW Ranch 7A - Original Drilling - Original Drilling	10,779.1	6,620.4	1,000.3	919.7	12.419	CC, ES
Skurich-SLW Ranch 7A - Original Drilling - Original Drilling	10,900.0	6,614.1	1,007.5	926.2	12.388	SF
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	7,463.9	6,576.6	1,090.7	1,041.4	22.131	CC, ES
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	7,600.0	6,578.5	1,099.2	1,049.1	21.962	SF
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	100.0	69.0	1,171.2	1,171.0	4,745.801	CC
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	2,007.4	1,983.2	1,174.5	1,160.7	85.611	ES
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	7,500.0	6,574.7	1,595.6	1,434.0	9.875	SF
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	8,754.3	6,566.6	1,174.1	1,115.1	19.878	CC, ES
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	8,900.0	6,565.9	1,183.1	1,122.7	19.585	SF
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	8,886.2	6,565.6	1,815.9	1,755.7	30.154	CC
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	8,900.0	6,565.3	1,816.0	1,755.7	30.095	ES
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	9,200.0	6,560.4	1,842.9	1,780.2	29.412	SF
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,037.7	6,600.6	2,497.1	2,424.9	34.584	CC, ES
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,700.0	6,606.9	2,583.4	2,505.0	32.964	SF
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	9,878.7	6,579.8	1,294.1	1,223.7	18.372	CC
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	9,900.0	6,580.0	1,294.3	1,223.6	18.311	ES
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	10,100.0	6,582.0	1,312.9	1,240.4	18.105	SF
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,236.1	6,613.2	1,760.6	1,686.2	23.647	CC, ES
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,500.0	6,605.9	1,780.3	1,703.6	23.233	SF
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,444.5	6,595.9	2,530.8	2,442.8	28.762	CC
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,500.0	6,596.1	2,531.4	2,442.8	28.555	ES
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	12,000.0	6,597.6	2,591.0	2,497.7	27.768	SF
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,398.7	6,588.5	1,165.7	1,078.2	13.325	CC
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,400.0	6,588.5	1,165.7	1,078.2	13.323	ES
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,500.0	6,588.5	1,170.1	1,081.5	13.211	SF
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,465.8	6,624.2	1,826.7	1,738.3	20.673	CC
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,500.0	6,623.4	1,827.0	1,738.3	20.595	ES
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,700.0	6,618.3	1,841.6	1,751.3	20.380	SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,785.0	8,711.1	9.3	-2.7	0.776	Level 1, CC, SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,800.0	8,712.0	17.7	-4.7	0.792	Level 1, ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	2,660.8	2,505.7	2,394.7	2,376.7	133.121	CC
SLW Ranch State BB06-690 - Original Drilling - Plan 1	2,700.0	2,535.1	2,394.8	2,376.6	131.355	ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	12,900.0	12,849.2	3,268.0	3,108.3	20.468	SF
SLW Ranch State BB07-615 - Original Drilling - Plan 1	2,000.0	2,000.0	113.0	99.1	8.143	CC, ES
SLW Ranch State BB07-615 - Original Drilling - Plan 1	17,723.1	17,978.2	2,000.5	1,719.0	7.106	SF
SLW Ranch State BB07-621 - Original Drilling - Plan 1	2,000.0	2,000.0	91.1	77.2	6.568	CC, ES
SLW Ranch State BB07-621 - Original Drilling - Plan 1	17,712.8	17,819.3	1,646.8	1,365.6	5.858	SF
SLW Ranch State BB07-627 - Original Drilling - Plan 1	2,000.0	2,000.0	65.6	51.8	4.731	CC, ES
SLW Ranch State BB07-627 - Original Drilling - Plan 1	17,723.1	17,897.0	1,253.3	972.6	4.465	SF
SLW Ranch State BB07-633 - Original Drilling - Plan 1	2,000.0	2,001.0	43.8	29.9	3.156	CC, ES
SLW Ranch State BB07-633 - Original Drilling - Plan 1	17,723.1	17,709.4	808.7	527.5	2.876	SF

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Anticollision Summary Report

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Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 07						
SLW Ranch State BB07-639 - Original Drilling - Plan 1	2,000.0	2,001.0	21.9	8.0	1.575	CC, ES, SF
SLW Ranch State BB07-650 - Original Drilling - Plan 1	2,000.0	2,000.0	21.9	8.0	1.575	CC
SLW Ranch State BB07-650 - Original Drilling - Plan 1	2,100.0	2,099.4	22.2	7.6	1.522	ES
SLW Ranch State BB07-650 - Original Drilling - Plan 1	17,723.1	17,816.9	419.1	140.9	1.507	SF
SLW Ranch State BB07-653 - Original Drilling - Plan 1	7,000.4	7,174.9	800.2	749.4	15.749	CC
SLW Ranch State BB07-653 - Original Drilling - Plan 1	17,723.1	17,893.0	837.9	557.2	2.984	ES, SF
SLW Ranch State BB07-660 - Original Drilling - Plan 1	7,004.7	7,221.9	1,233.2	1,182.1	24.163	CC
SLW Ranch State BB07-660 - Original Drilling - Plan 1	17,723.1	17,918.5	1,323.1	1,042.3	4.712	ES, SF
SLW Ranch State BB07-668 - Original Drilling - Plan 1	6,947.1	7,044.5	1,733.4	1,682.7	34.199	CC
SLW Ranch State BB07-668 - Original Drilling - Plan 1	17,723.1	17,844.6	1,807.0	1,525.7	6.424	ES, SF
SLW Ranch State BB07-673 - Original Drilling - Plan 1	6,457.9	6,301.4	2,057.8	2,010.4	43.452	CC
SLW Ranch State BB07-673 - Original Drilling - Plan 1	17,723.1	17,871.1	2,197.3	1,916.8	7.834	ES, SF
SLW Ranch State BB07-678 - Original Drilling - Plan 1	4,627.2	4,518.6	2,273.5	2,240.5	68.871	CC
SLW Ranch State BB07-678 - Original Drilling - Plan 1	17,723.1	17,839.0	2,498.8	2,218.3	8.910	ES, SF
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,648.9	2,500.0	2,367.6	2,349.7	131.991	CC
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,700.0	2,531.7	2,367.9	2,349.6	129.910	ES
SLW Ranch State BB07-685 - Original Drilling - Plan 1	17,723.1	17,190.7	2,927.6	2,655.9	10.773	SF

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Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 08						
State 11-08 - Original Drilling - Original Drilling - As Drille	12,757.6	6,616.0	2,588.6	2,375.8	12.162	CC
State 11-08 - Original Drilling - Original Drilling - As Drille	12,800.0	6,616.0	2,588.9	2,375.6	12.134	ES
State 11-08 - Original Drilling - Original Drilling - As Drille	13,000.0	6,616.0	2,599.9	2,384.4	12.063	SF
State 5519 08-34 - Original Drilling - Original Drilling - As	15,405.6	6,722.2	1,599.5	1,463.8	11.792	CC, ES
State 5519 08-34 - Original Drilling - Original Drilling - As	15,500.0	6,721.1	1,602.3	1,465.8	11.738	SF
State 5519 08-43 - Original Drilling - Original Drilling - As	16,752.3	6,649.4	456.6	305.0	3.011	CC, ES, SF
State 5519 12-08 - Original Drilling - Original Drilling - As	12,771.8	6,595.8	1,069.6	966.0	10.326	CC, ES
State 5519 12-08 - Original Drilling - Original Drilling - As	12,900.0	6,595.6	1,077.3	972.5	10.283	SF
State 5519 13-08 - Original Drilling - Original Drilling - As	12,667.1	6,611.0	246.0	34.3	1.162	Level 2, CC, ES, SF
State 5519 14-08 - Original Drilling - Original Drilling - As	12,469.4	6,632.1	1,942.8	1,842.3	19.323	CC
State 5519 14-08 - Original Drilling - Original Drilling - As	12,500.0	6,631.6	1,943.0	1,842.2	19.265	ES
State 5519 14-08 - Original Drilling - Original Drilling - As	12,700.0	6,628.3	1,956.4	1,853.9	19.088	SF
State 5519 21-08 - Original Drilling - Original Drilling - As	13,915.9	6,713.2	2,216.9	2,099.3	18.852	CC, ES
State 5519 21-08 - Original Drilling - Original Drilling - As	14,200.0	6,715.7	2,235.0	2,114.5	18.549	SF
State 5519 23-08 - Original Drilling - Original Drilling - As	14,079.9	6,664.0	302.8	183.3	2.535	CC, ES, SF
State 5519 24-08 - Original Drilling - Original Drilling - As	13,988.8	6,578.6	1,924.9	1,807.0	16.331	CC
State 5519 24-08 - Original Drilling - Original Drilling - As	14,000.0	6,579.0	1,924.9	1,806.9	16.314	ES
State 5519 24-08 - Original Drilling - Original Drilling - As	14,200.0	6,585.8	1,936.4	1,816.7	16.171	SF
State 5519 31-08 - Original Drilling - Original Drilling - As	15,611.3	6,712.6	2,107.0	1,968.6	15.228	CC, ES
State 5519 31-08 - Original Drilling - Original Drilling - As	15,800.0	6,727.9	2,115.4	1,975.0	15.072	SF
State 5519 32-08 - Original Drilling - Original Drilling - As	15,349.9	6,712.1	1,006.3	871.3	7.458	CC, ES
State 5519 32-08 - Original Drilling - Original Drilling - As	15,400.0	6,712.8	1,007.5	872.0	7.436	SF
State 5519 33-08 - Original Drilling - Original Drilling - As	15,356.0	6,679.0	342.0	207.2	2.537	CC, ES, SF
State 5519 41-08 - Original Drilling - Original Drilling - As	16,675.1	6,635.5	2,633.3	2,482.5	17.455	CC
State 5519 41-08 - Original Drilling - Original Drilling - As	16,700.0	6,635.5	2,633.4	2,482.3	17.420	ES
State 5519 41-08 - Original Drilling - Original Drilling - As	17,000.0	6,635.7	2,653.3	2,499.2	17.221	SF
State 5519 42-08 - Original Drilling - Original Drilling - As	16,746.6	6,630.8	1,135.0	983.3	7.480	CC, ES
State 5519 42-08 - Original Drilling - Original Drilling - As	16,800.0	6,630.9	1,136.3	983.9	7.459	SF
State 5519 44-08 - Original Drilling - Original Drilling - As	16,646.2	6,668.9	1,793.2	1,642.7	11.912	CC, ES
State 5519 44-08 - Original Drilling - Original Drilling - As	16,800.0	6,670.1	1,799.8	1,648.0	11.854	SF
State 5519 8A - Original Drilling - Original Drilling - As Dr	15,906.7	6,711.3	974.7	832.9	6.874	CC, ES, SF
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,377.4	6,704.7	1,810.8	1,699.8	16.314	CC
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,400.0	6,704.4	1,811.0	1,699.7	16.274	ES
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,600.0	6,701.7	1,824.4	1,711.2	16.114	SF
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,147.2	6,622.6	1,435.6	1,315.4	11.945	CC, ES
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,300.0	6,613.6	1,443.6	1,322.0	11.866	SF

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Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-646
Project:	Wells Ranch	TVD Reference:	WELL @ 4647.0ft (Original Well Elev.)
Reference Site:	BB Section 07	MD Reference:	WELL @ 4647.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-646	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

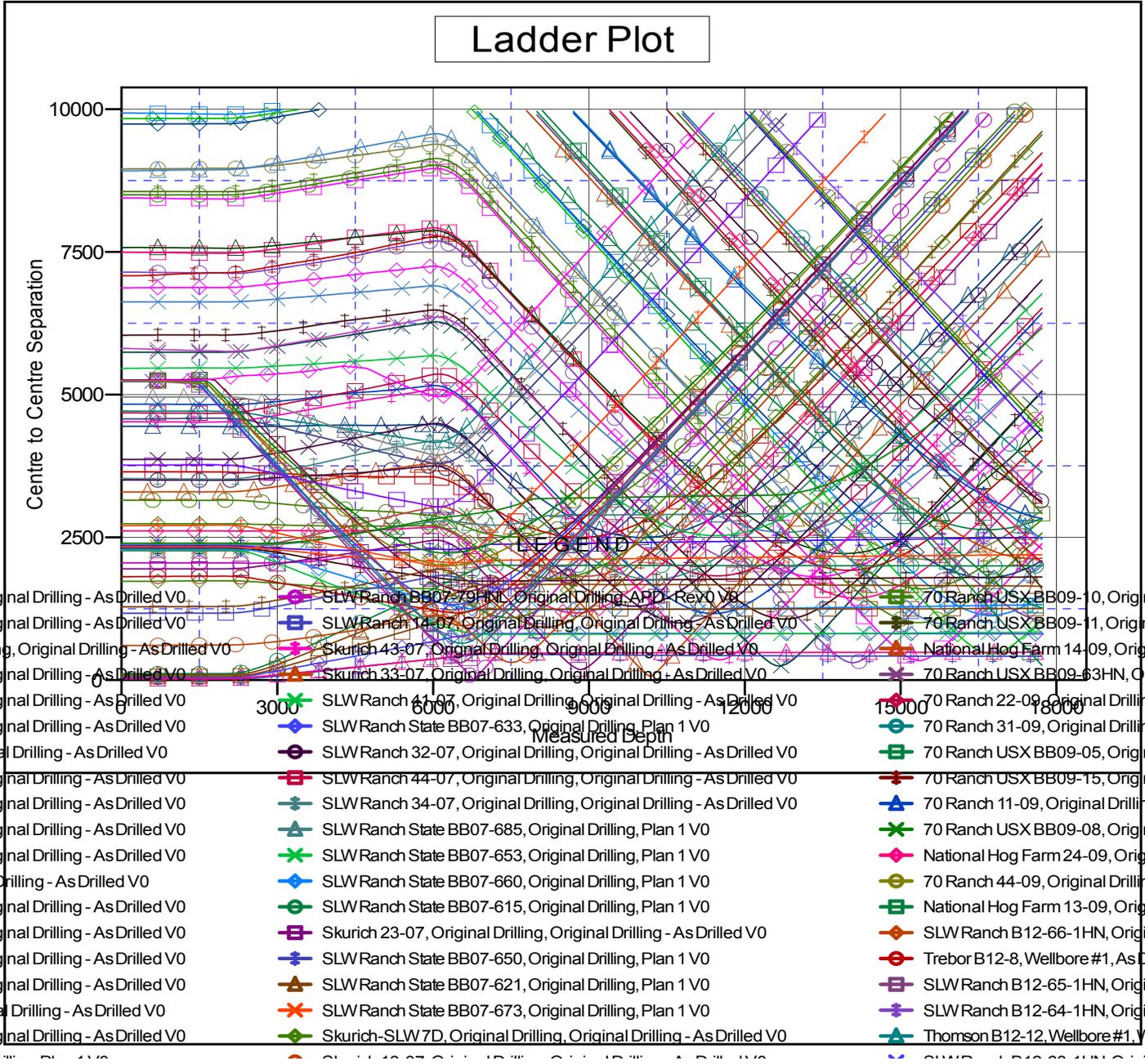
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 09						
70 Ranch 11-09 - Original Drilling - Original Drilling - As D	17,400.0	17,400.0	2,906.2	2,714.9	15.190	SF
70 Ranch 11-09 - Original Drilling - Original Drilling - As D	17,723.1	6,637.2	2,828.2	2,667.2	17.571	CC, ES
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	17,723.1	6,683.2	2,058.1	1,941.9	17.711	CC, ES, SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	17,723.1	6,418.2	3,642.5	3,527.4	31.659	CC, ES, SF
70 Ranch 41-09 - Original Drilling - Original Drilling - As D	17,723.1	6,592.6	4,928.7	4,831.8	50.839	CC, ES, SF
70 Ranch 44-09 - Original Drilling - Original Drilling - As D	17,723.1	6,536.7	4,452.1	4,377.7	59.872	CC, ES, SF
70 Ranch USX BB09-05 - Original Drilling - Original Drilling	17,723.1	6,668.7	1,267.8	1,107.8	7.923	CC, ES, SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilling	17,723.1	6,647.8	3,167.9	3,085.2	38.310	CC, ES, SF
70 Ranch USX BB09-08 - Original Drilling - Original Drilling	17,723.1	6,645.3	4,362.6	4,295.5	64.979	CC, ES, SF
70 Ranch USX BB09-09 - Original Drilling - Original Drilling	17,723.1	6,633.3	4,238.8	4,187.0	81.762	CC, ES, SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	17,723.1	6,643.3	2,914.1	2,862.7	56.715	CC, ES, SF
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	17,723.1	6,665.9	1,618.4	1,564.0	29.716	CC, ES, SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilling	17,723.1	6,659.0	3,088.1	2,987.1	30.576	CC, ES, SF
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	17,723.1	10,902.0	1,040.6	787.3	4.109	CC, ES, SF
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	17,300.0	17,300.0	2,761.8	2,438.3	8.536	SF
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	17,723.1	8,042.3	2,466.1	2,322.4	17.155	CC, ES
National Hog Farm 13-09 - Original Drilling - Original Drilling	17,723.1	6,689.8	259.9	183.3	3.393	CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,545.5	6,597.5	2,128.4	1,967.3	13.211	CC, ES
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,723.1	6,606.1	2,135.8	1,973.1	13.124	SF
National Hog Farm 21-09 - Original Drilling - Original Drilling	17,723.1	6,716.7	3,125.6	2,983.5	22.000	CC, ES, SF
National Hog Farm 24-09 - Original Drilling - Original Drilling	17,723.1	6,794.1	2,295.8	2,175.5	19.079	CC, ES, SF

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Reference Site:	BB Section 07	MD Reference:	WELL @ 4647.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-646	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4647.0ft (Original Well Elev.) Coordinates are relative to: SLW Ranch State BB07-646
 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: 0.65°



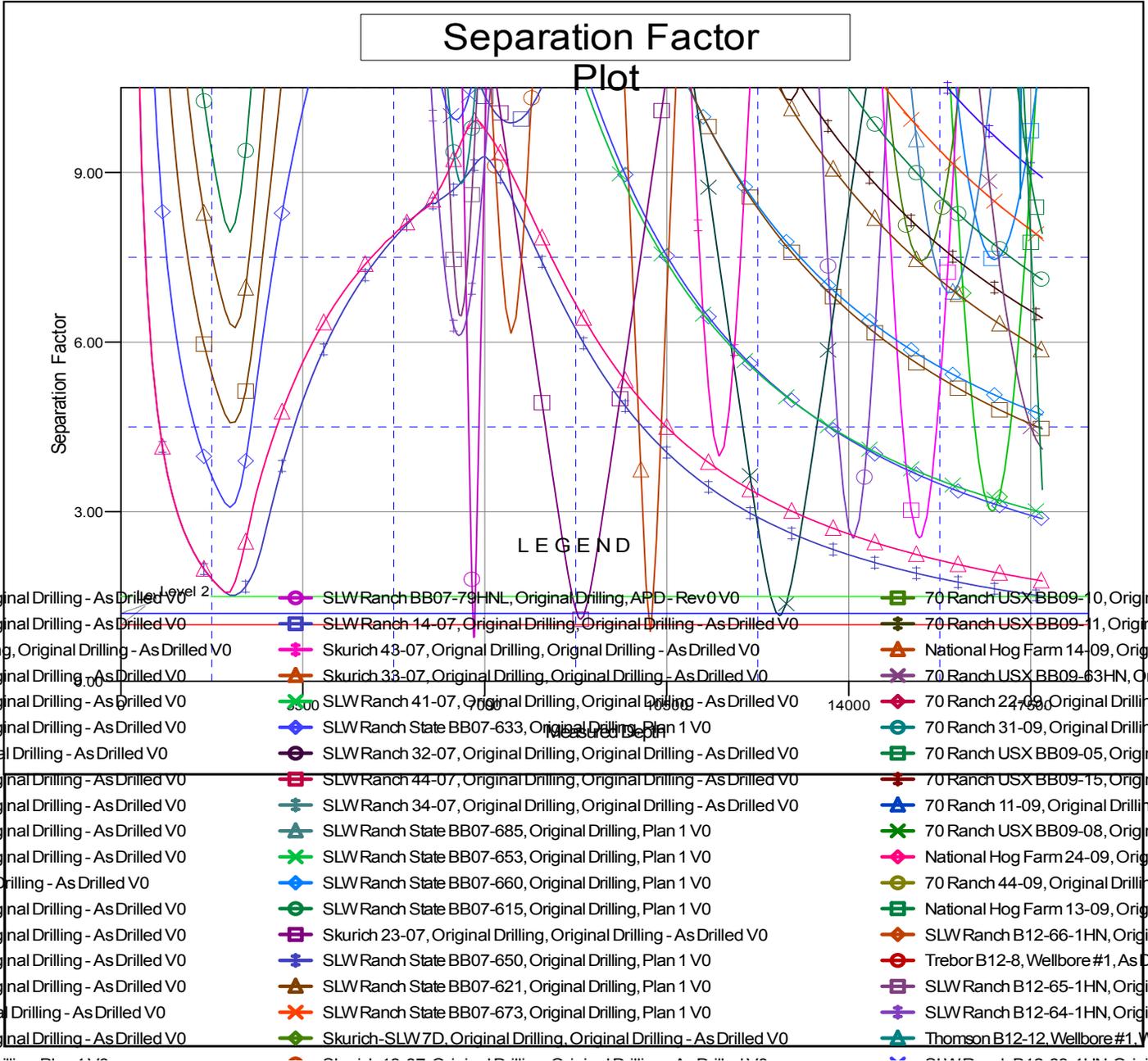
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Anticollision Summary Report

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