

Northern Region - DJ Basin

Wells Ranch

BB Section 07

SLW Ranch State BB07-650

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 BB07-650
Project:	Wells Ranch	TVD Reference:	WELL @ 4647.0ft
Reference Site:	BB Section 07	MD Reference:	WELL @ 4647.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-650	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	17,821.5	Plan 1 (Original Drilling)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis

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						
B Section 12						
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,126.5	10,779.0	2,391.9	2,261.2	18.300	CC
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,150.0	10,779.0	2,392.0	2,261.0	18.251	ES
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,450.0	10,779.0	2,416.5	2,282.1	17.974	SF
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,270.7	10,812.0	1,717.0	1,584.2	12.935	CC
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,300.0	10,812.0	1,717.2	1,584.0	12.885	ES
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,450.0	10,812.0	1,727.5	1,592.2	12.767	SF
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,446.9	10,993.0	1,135.9	1,005.3	8.698	CC
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,450.0	10,993.0	1,135.9	1,005.2	8.694	ES
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,550.0	10,993.0	1,141.7	1,009.4	8.634	SF
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,533.1	10,974.0	503.3	431.7	7.033	CC
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,550.0	10,974.0	503.7	431.7	6.997	ES
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,600.0	10,974.0	509.2	436.4	6.992	SF
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,606.2	10,992.0	314.5	258.8	5.646	CC, ES, SF
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,653.9	11,132.0	549.1	475.9	7.500	CC, ES, SF
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,700.0	11,248.0	1,130.4	990.0	8.052	SF
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,715.7	11,248.0	1,130.2	989.9	8.053	CC, ES
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,207.8	8,870.3	4,973.3	4,908.6	76.836	CC, ES
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,500.0	8,920.0	5,046.1	4,979.4	75.678	SF
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,068.7	10,833.0	2,608.0	2,476.9	19.890	CC
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,100.0	10,833.0	2,608.3	2,476.7	19.825	ES
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,400.0	10,833.0	2,631.4	2,496.5	19.507	SF
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,117.4	5,890.9	4,199.5	4,156.9	98.509	CC, ES
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,450.0	6,165.6	4,284.8	4,240.2	95.939	SF
Trebor B12-05 - Wellbore #1 - As Drilled	6,174.9	6,117.7	3,891.2	3,846.8	87.509	CC, ES
Trebor B12-05 - Wellbore #1 - As Drilled	6,550.0	6,492.6	3,998.1	3,951.2	85.361	SF
Trebor B12-06 - Wellbore #1 - As Drilled	6,194.3	6,011.1	2,902.1	2,858.9	67.187	CC
Trebor B12-06 - Wellbore #1 - As Drilled	6,200.0	6,016.5	2,902.1	2,858.9	67.126	ES
Trebor B12-06 - Wellbore #1 - As Drilled	6,450.0	6,246.3	2,950.9	2,906.1	65.856	SF
Trebor B12-07 - Wellbore #1 - As Drilled	6,227.1	6,045.9	1,784.8	1,741.4	41.121	CC, ES
Trebor B12-07 - Wellbore #1 - As Drilled	6,400.0	6,214.6	1,806.1	1,761.6	40.560	SF
Trebor B12-19 - Wellbore #1 - As Drilled	6,205.3	6,047.1	3,648.6	3,605.3	84.140	CC, ES
Trebor B12-19 - Wellbore #1 - As Drilled	6,500.0	6,309.4	3,713.1	3,668.0	82.216	SF
Trebor B12-8 - Wellbore #1 - As Drilled	6,552.5	6,384.9	771.1	725.4	16.881	CC, ES
Trebor B12-8 - Wellbore #1 - As Drilled	6,600.0	6,423.5	772.4	726.5	16.825	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-650
Project:	Wells Ranch	TVD Reference:	WELL @ 4647.0ft
Reference Site:	BB Section 07	MD Reference:	WELL @ 4647.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-650	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	7,627.1	6,677.5	2,061.5	2,011.1	40.909	CC, ES
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	8,200.0	6,660.6	2,139.4	2,085.4	39.639	SF
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	100.0	61.2	598.3	598.1	2,570.105	CC
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	2,300.0	2,269.5	608.8	593.0	38.634	ES
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	7,606.6	6,606.4	755.8	704.7	14.800	SF
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	8,913.6	6,601.9	2,060.5	2,000.4	34.268	CC, ES
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	9,400.0	6,613.8	2,117.0	2,052.5	32.793	SF
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	8,941.2	6,627.0	624.0	454.0	3.671	CC, ES, SF
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,277.0	6,653.5	497.1	423.0	6.709	CC, ES
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,300.0	6,653.8	497.7	423.5	6.707	SF
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,610.5	6,651.3	780.6	691.6	8.773	CC, ES, SF
Skurich-SLW 7B - Original Drilling - Original Drilling - As	320.7	313.7	1,289.0	1,287.1	701.483	CC
Skurich-SLW 7B - Original Drilling - Original Drilling - As	2,019.0	2,018.3	1,295.5	1,281.7	93.301	ES
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,400.0	6,618.4	1,377.3	1,319.4	23.802	SF
Skurich-SLW 7D - Original Drilling - Original Drilling - As	8,420.8	6,630.0	1,339.5	1,174.0	8.095	CC, ES
Skurich-SLW 7D - Original Drilling - Original Drilling - As	8,500.0	6,630.0	1,341.8	1,175.6	8.074	SF
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	10,877.7	6,677.2	1,428.5	1,347.6	17.652	CC
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	10,900.0	6,676.3	1,428.7	1,347.6	17.611	ES
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	11,000.0	6,672.0	1,433.7	1,351.9	17.511	SF
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	7,554.6	6,632.0	642.1	592.1	12.829	CC, ES
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	7,600.0	6,632.7	643.7	593.4	12.795	SF
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	100.0	68.9	1,191.2	1,190.9	4,828.435	CC
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	2,006.6	1,982.3	1,194.4	1,180.7	87.105	ES
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	7,700.0	6,637.0	2,048.4	1,883.3	12.412	SF
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	8,843.8	6,624.0	734.9	675.3	12.332	CC, ES
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	8,900.0	6,623.5	737.1	676.9	12.245	SF
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	8,993.6	6,631.7	2,254.6	2,193.0	36.642	CC
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	9,000.0	6,631.6	2,254.6	2,193.0	36.611	ES
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	9,500.0	6,625.2	2,310.9	2,245.7	35.471	SF
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,120.9	6,653.5	2,064.3	1,991.8	28.501	CC, ES
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,600.0	6,648.9	2,119.0	2,042.0	27.501	SF
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	9,969.0	6,651.6	860.6	789.8	12.162	CC, ES
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	10,100.0	6,652.6	870.5	798.4	12.078	SF
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,340.0	6,674.1	2,191.4	2,116.5	29.237	CC, ES
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,700.0	6,664.1	2,220.8	2,142.9	28.517	SF
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,530.2	6,670.2	2,104.4	2,016.2	23.870	CC, ES
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,900.0	6,669.6	2,136.6	2,044.6	23.237	SF
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,490.1	6,649.1	740.0	652.3	8.433	CC
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,500.0	6,649.1	740.1	652.2	8.420	ES, SF
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,568.0	6,680.4	2,252.5	2,163.8	25.388	CC
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,600.0	6,679.6	2,252.7	2,163.7	25.299	ES
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,900.0	6,671.9	2,276.9	2,185.4	24.884	SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,850.0	9,153.9	27.9	8.0	1.398	Level 3, ES, SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,864.2	9,154.8	24.3	10.7	1.786	CC
SLW Ranch State BB06-690 - Original Drilling - Plan 1	3,541.9	3,167.4	2,312.0	2,288.4	98.219	CC
SLW Ranch State BB06-690 - Original Drilling - Plan 1	3,600.0	3,210.1	2,312.2	2,288.3	96.719	ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	12,900.0	12,849.2	2,838.9	2,679.7	17.839	SF
SLW Ranch State BB07-615 - Original Drilling - Plan 1	2,000.0	2,000.0	134.8	120.9	9.718	CC, ES
SLW Ranch State BB07-615 - Original Drilling - Plan 1	17,821.5	17,978.2	2,415.5	2,134.0	8.580	SF
SLW Ranch State BB07-621 - Original Drilling - Plan 1	2,000.0	2,000.0	113.0	99.1	8.143	CC, ES
SLW Ranch State BB07-621 - Original Drilling - Plan 1	17,821.5	17,808.9	2,063.5	1,782.6	7.346	SF
SLW Ranch State BB07-627 - Original Drilling - Plan 1	2,000.0	2,000.0	87.5	73.6	6.305	CC, ES
SLW Ranch State BB07-627 - Original Drilling - Plan 1	17,821.5	17,900.5	1,663.2	1,381.7	5.909	SF

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Anticollision Summary Report

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Project:	Wells Ranch	TVD Reference:	WELL @ 4647.0ft
Reference Site:	BB Section 07	MD Reference:	WELL @ 4647.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-650	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						
SLW Ranch State BB07-633 - Original Drilling - Plan 1	2,000.0	2,001.0	65.6	51.7	4.729	CC, ES
SLW Ranch State BB07-633 - Original Drilling - Plan 1	17,817.3	17,710.7	1,225.3	944.6	4.366	SF
SLW Ranch State BB07-639 - Original Drilling - Plan 1	2,000.0	2,001.0	43.7	29.8	3.150	CC, ES
SLW Ranch State BB07-639 - Original Drilling - Plan 1	2,100.0	2,101.0	45.2	30.6	3.098	SF
SLW Ranch State BB07-646 - Original Drilling - Plan 1	2,000.0	2,000.0	21.9	8.0	1.575	CC
SLW Ranch State BB07-646 - Original Drilling - Plan 1	2,100.0	2,100.5	22.2	7.6	1.522	ES
SLW Ranch State BB07-646 - Original Drilling - Plan 1	17,821.5	17,723.1	419.1	140.9	1.507	SF
SLW Ranch State BB07-653 - Original Drilling - Plan 1	7,082.1	7,169.5	354.9	303.9	6.955	CC
SLW Ranch State BB07-653 - Original Drilling - Plan 1	17,821.5	17,899.6	428.0	148.6	1.532	ES, SF
SLW Ranch State BB07-660 - Original Drilling - Plan 1	7,132.8	7,255.8	780.6	728.6	15.006	CC
SLW Ranch State BB07-660 - Original Drilling - Plan 1	17,821.5	17,929.5	906.9	625.7	3.225	ES, SF
SLW Ranch State BB07-668 - Original Drilling - Plan 1	7,107.0	7,126.1	1,283.8	1,231.9	24.717	CC
SLW Ranch State BB07-668 - Original Drilling - Plan 1	17,821.5	17,848.9	1,393.1	1,111.6	4.948	ES, SF
SLW Ranch State BB07-673 - Original Drilling - Plan 1	6,770.8	6,609.5	1,634.7	1,584.9	32.816	CC
SLW Ranch State BB07-673 - Original Drilling - Plan 1	17,821.5	17,878.4	1,781.3	1,500.5	6.344	ES, SF
SLW Ranch State BB07-678 - Original Drilling - Plan 1	6,572.7	6,239.9	1,882.7	1,834.6	39.163	CC
SLW Ranch State BB07-678 - Original Drilling - Plan 1	17,821.5	17,848.1	2,084.3	1,803.4	7.422	ES, SF
SLW Ranch State BB07-685 - Original Drilling - Plan 1	7,244.9	6,173.5	2,296.3	2,247.3	46.846	CC
SLW Ranch State BB07-685 - Original Drilling - Plan 1	17,821.5	17,195.2	2,511.4	2,239.4	9.232	ES, SF

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Reference Well:	SLW Ranch State BB07-650	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 08						
State 11-08 - Original Drilling - Original Drilling - As Drille	12,845.2	6,672.0	2,167.4	1,953.5	10.133	CC, ES
State 11-08 - Original Drilling - Original Drilling - As Drille	13,100.0	6,672.0	2,182.3	1,965.6	10.071	SF
State 5519 08-34 - Original Drilling - Original Drilling - As	15,502.7	6,734.7	2,015.1	1,879.4	14.852	CC, ES
State 5519 08-34 - Original Drilling - Original Drilling - As	15,700.0	6,737.1	2,024.7	1,887.4	14.743	SF
State 5519 08-43 - Original Drilling - Original Drilling - As	16,848.5	6,710.1	872.9	721.2	5.753	CC, ES
State 5519 08-43 - Original Drilling - Original Drilling - As	16,900.0	6,707.6	874.4	722.4	5.752	SF
State 5519 12-08 - Original Drilling - Original Drilling - As	12,864.1	6,660.5	648.9	545.1	6.252	CC, ES
State 5519 12-08 - Original Drilling - Original Drilling - As	12,900.0	6,660.5	649.9	545.7	6.234	SF
State 5519 13-08 - Original Drilling - Original Drilling - As	12,763.6	6,667.0	667.5	454.6	3.136	CC, ES, SF
State 5519 14-08 - Original Drilling - Original Drilling - As	12,570.7	6,689.0	2,364.8	2,263.1	23.242	CC
State 5519 14-08 - Original Drilling - Original Drilling - As	12,600.0	6,688.5	2,365.0	2,262.9	23.176	ES
State 5519 14-08 - Original Drilling - Original Drilling - As	12,900.0	6,683.5	2,387.7	2,283.2	22.857	SF
State 5519 21-08 - Original Drilling - Original Drilling - As	14,005.7	6,740.5	1,798.4	1,680.8	15.291	CC, ES
State 5519 21-08 - Original Drilling - Original Drilling - As	14,200.0	6,738.9	1,808.9	1,689.2	15.112	SF
State 5519 23-08 - Original Drilling - Original Drilling - As	14,175.3	6,715.7	720.8	601.2	6.028	CC, ES
State 5519 23-08 - Original Drilling - Original Drilling - As	14,200.0	6,715.6	721.3	601.5	6.023	SF
State 5519 24-08 - Original Drilling - Original Drilling - As	13,500.0	13,500.0	2,417.8	2,284.6	18.159	SF
State 5519 24-08 - Original Drilling - Original Drilling - As	14,089.2	6,630.4	2,344.8	2,226.7	19.861	CC
State 5519 24-08 - Original Drilling - Original Drilling - As	14,100.0	6,630.6	2,344.8	2,226.6	19.841	ES
State 5519 31-08 - Original Drilling - Original Drilling - As	15,707.7	6,758.4	1,690.3	1,551.8	12.208	CC, ES
State 5519 31-08 - Original Drilling - Original Drilling - As	15,900.0	6,774.0	1,701.1	1,560.8	12.123	SF
State 5519 32-08 - Original Drilling - Original Drilling - As	15,442.8	6,742.8	590.4	455.4	4.374	CC, ES, SF
State 5519 33-08 - Original Drilling - Original Drilling - As	15,451.4	6,726.9	758.8	623.9	5.624	CC, ES, SF
State 5519 41-08 - Original Drilling - Original Drilling - As	16,769.0	6,706.1	2,219.1	2,068.0	14.688	CC
State 5519 41-08 - Original Drilling - Original Drilling - As	16,800.0	6,706.1	2,219.3	2,067.8	14.651	ES
State 5519 41-08 - Original Drilling - Original Drilling - As	17,000.0	6,706.5	2,231.0	2,077.6	14.538	SF
State 5519 42-08 - Original Drilling - Original Drilling - As	16,841.0	6,698.3	721.3	569.3	4.747	CC, ES, SF
State 5519 44-08 - Original Drilling - Original Drilling - As	16,741.0	6,721.9	2,208.6	2,057.9	14.660	CC, ES
State 5519 44-08 - Original Drilling - Original Drilling - As	16,900.0	6,723.2	2,214.3	2,062.2	14.557	SF
State 5519 8A - Original Drilling - Original Drilling - As Dr	15,998.1	6,778.0	1,388.2	1,246.3	9.777	CC
State 5519 8A - Original Drilling - Original Drilling - As Dr	16,000.0	6,777.9	1,388.2	1,246.2	9.775	ES
State 5519 8A - Original Drilling - Original Drilling - As Dr	16,100.0	6,772.2	1,392.0	1,249.3	9.753	SF
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,467.5	6,746.8	1,389.7	1,278.7	12.518	CC
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,500.0	6,746.4	1,390.1	1,278.7	12.474	ES
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,600.0	6,745.1	1,396.0	1,283.6	12.413	SF
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,235.2	6,688.8	1,020.1	899.7	8.472	CC, ES
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,300.0	6,684.8	1,022.1	901.0	8.436	SF

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Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-650
Project:	Wells Ranch	TVD Reference:	WELL @ 4647.0ft
Reference Site:	BB Section 07	MD Reference:	WELL @ 4647.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-650	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	17,821.5	6,703.7	2,421.6	2,261.5	15.123	CC, ES, SF
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	17,821.5	6,731.2	1,815.6	1,718.0	18.600	CC, ES, SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	17,821.5	6,462.8	3,388.1	3,282.8	32.170	CC, ES, SF
70 Ranch 41-09 - Original Drilling - Original Drilling - As D	17,821.5	6,660.8	4,728.3	4,639.8	53.418	CC, ES, SF
70 Ranch 44-09 - Original Drilling - Original Drilling - As D	17,821.5	6,583.6	4,593.2	4,508.2	54.052	CC, ES, SF
70 Ranch USX BB09-05 - Original Drilling - Original Drilling	17,821.5	6,718.8	867.8	711.8	5.562	CC, ES, SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilling	17,821.5	6,708.0	3,025.0	2,956.1	43.889	CC, ES, SF
70 Ranch USX BB09-08 - Original Drilling - Original Drilling	17,821.5	6,700.9	4,270.3	4,211.7	72.789	CC, ES, SF
70 Ranch USX BB09-09 - Original Drilling - Original Drilling	17,821.5	6,695.2	4,268.9	4,210.4	72.940	CC, ES, SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	17,821.5	6,702.4	2,944.9	2,884.4	48.725	CC, ES, SF
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	17,821.5	6,722.2	1,703.2	1,624.4	21.614	CC, ES, SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilling	17,821.5	6,725.1	3,318.5	3,205.1	29.267	CC, ES, SF
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	17,821.5	10,873.6	1,456.4	1,204.1	5.773	CC, ES, SF
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	17,821.5	7,747.8	2,169.2	2,031.0	15.692	CC, ES, SF
National Hog Farm 13-09 - Original Drilling - Original Drilling	17,821.5	6,758.4	549.2	397.3	3.615	CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,639.2	17,639.2	2,544.7	2,345.1	12.750	CC
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,700.0	17,700.0	2,545.4	2,344.9	12.698	ES
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,821.5	17,821.5	2,551.2	2,349.2	12.632	SF
National Hog Farm 21-09 - Original Drilling - Original Drilling	17,821.5	6,760.1	2,780.8	2,645.1	20.490	CC, ES, SF
National Hog Farm 24-09 - Original Drilling - Original Drilling	17,821.5	6,867.1	2,583.4	2,450.9	19.505	CC, ES, SF

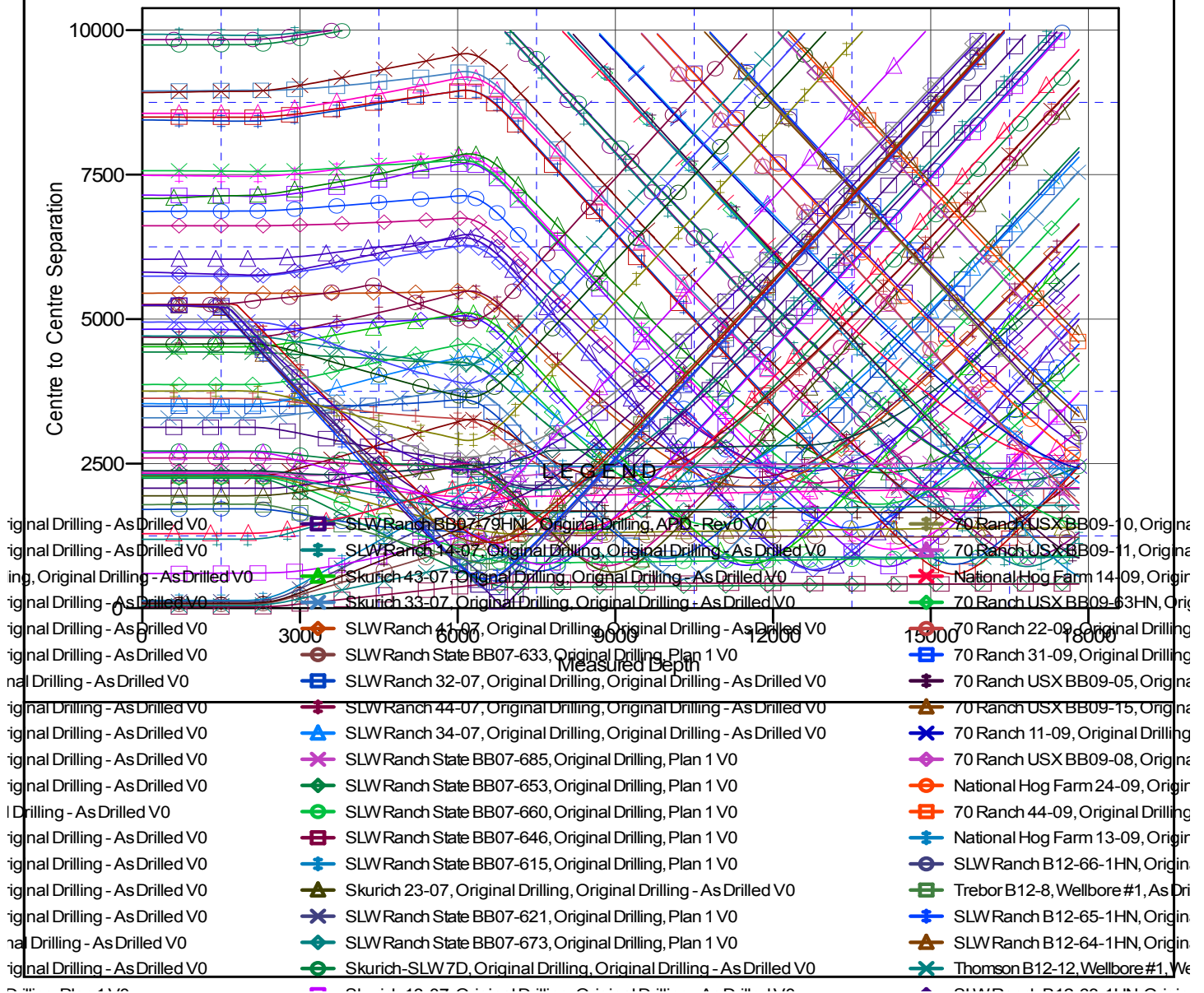
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Anticollision Summary Report

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Reference Well:	SLW Ranch State BB07-650	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
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: SLW Ranch State BB07-650
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.65°

Ladder Plot



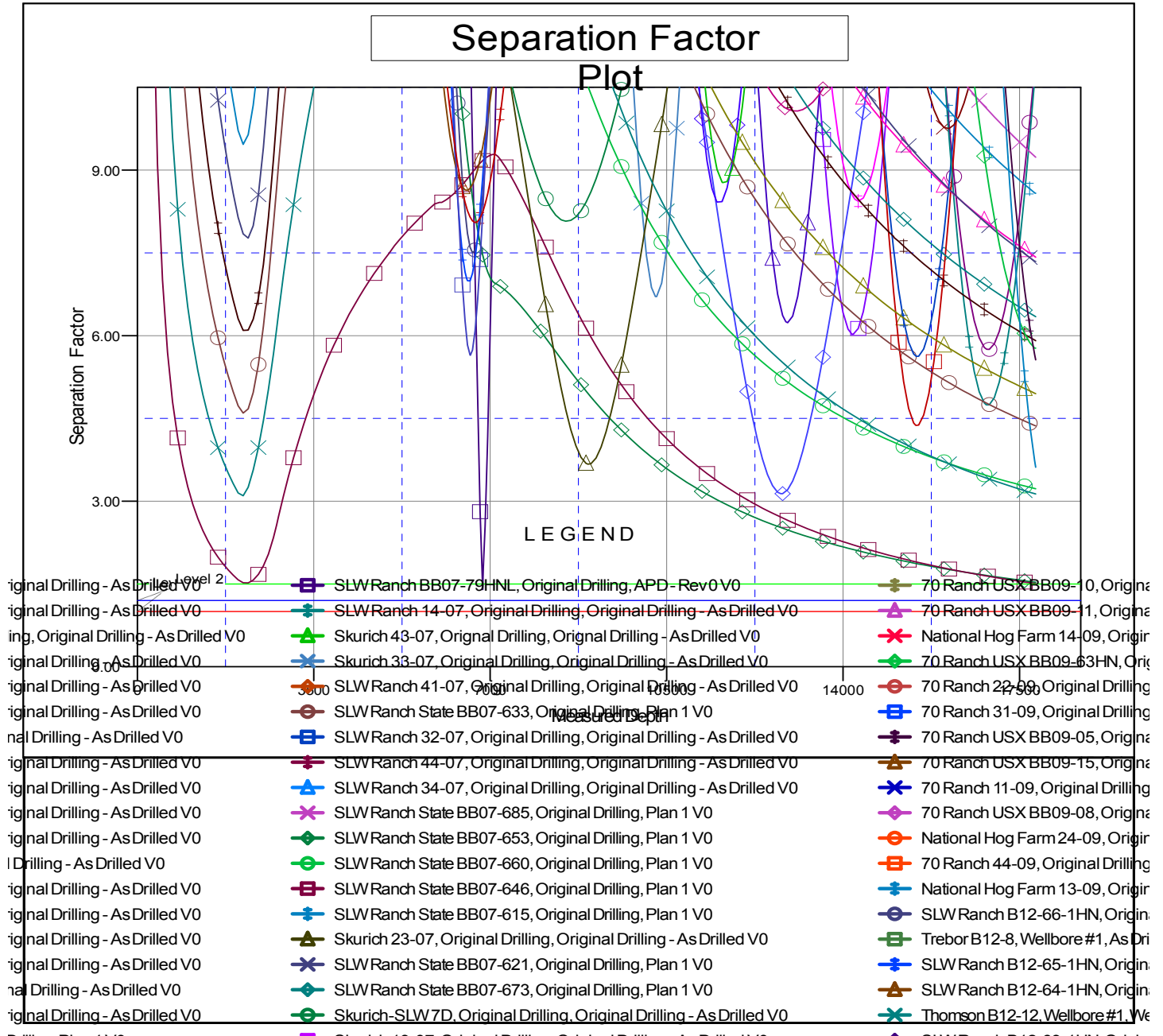
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Noble Energy, Inc.
Anticollision Summary Report

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