

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

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Summary						
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

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 BB07-650
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
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

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 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 Drilli	17,821.5	6,718.8	867.8	711.8	5.562	CC, ES, SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilli	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 Drilli	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 Drilli	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 Drilli	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 Drillin	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 Drilli	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 D	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 D	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 Dril	17,821.5	6,758.4	549.2	397.3	3.615	CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Dril	17,639.2	17,639.2	2,544.7	2,345.1	12.750	CC
National Hog Farm 14-09 - Original Drilling - Original Dril	17,700.0	17,700.0	2,545.4	2,344.9	12.698	ES
National Hog Farm 14-09 - Original Drilling - Original Dril	17,821.5	17,821.5	2,551.2	2,349.2	12.632	SF
National Hog Farm 21-09 - Original Drilling - Original Dril	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 Dril	17,821.5	6,867.1	2,583.4	2,450.9	19.505	CC, ES, SF

Noble Energy, Inc.

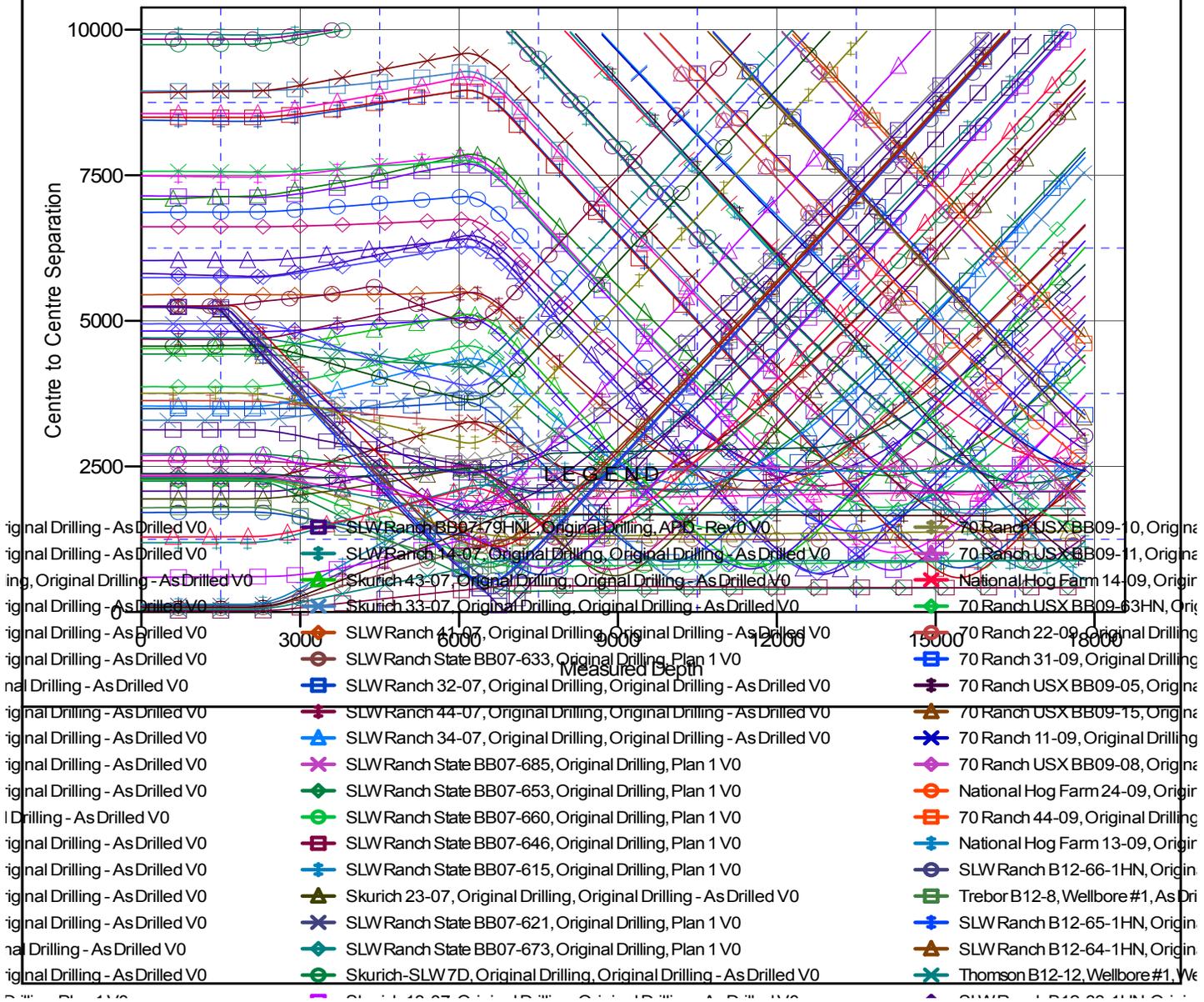
Anticollision Summary Report

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 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



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

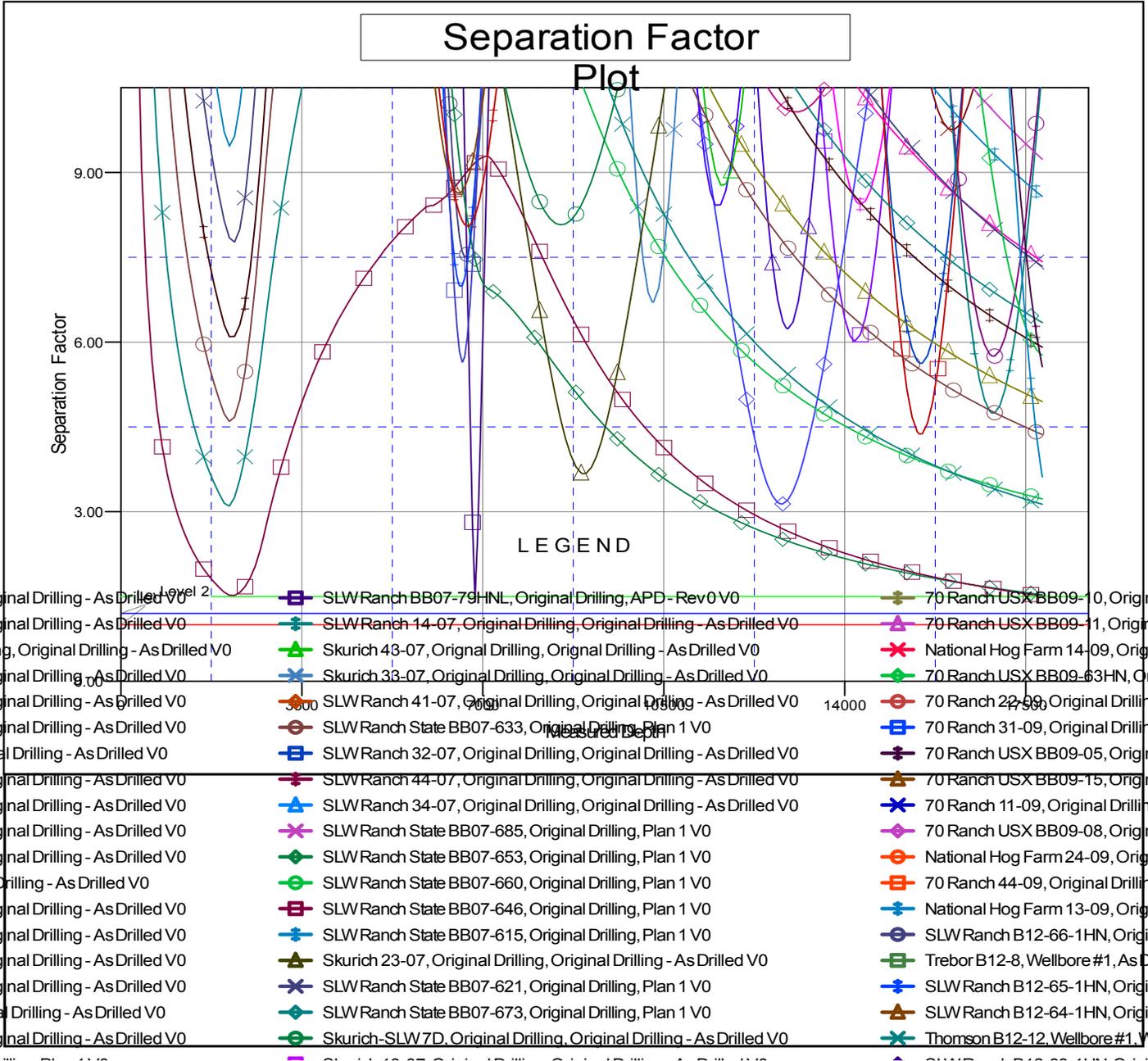
Noble Energy, Inc.

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

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°



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