

Northern Region - DJ Basin

Wells Ranch

BB Section 07

SLW Ranch State BB07-627

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 BB07-627
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 BB07-627	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	17,892.1	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	6,640.2	10,779.0	852.8	721.3	6.487	CC, ES, SF
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,590.6	10,812.0	238.9	153.9	2.809	CC, ES, SF
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,577.3	10,993.0	552.1	425.2	4.349	CC
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,600.0	10,993.0	552.7	425.0	4.327	ES, SF
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,480.0	10,974.0	1,191.4	1,113.5	15.307	CC, ES
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,550.0	10,974.0	1,193.7	1,115.5	15.263	SF
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,400.6	10,992.0	1,747.1	1,669.2	22.420	CC, ES
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,550.0	10,992.0	1,754.0	1,675.3	22.287	SF
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,372.0	11,132.0	2,071.0	1,991.5	26.039	CC
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,400.0	11,132.0	2,071.2	1,991.5	25.974	ES
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,550.0	11,132.0	2,079.0	1,998.4	25.801	SF
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,266.7	11,194.1	2,693.6	2,555.7	19.522	CC
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,300.0	11,199.0	2,693.9	2,555.4	19.460	ES
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,550.0	11,248.0	2,708.2	2,566.7	19.135	SF
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,243.6	7,061.8	4,890.8	4,844.3	105.175	CC, ES
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,450.0	7,054.6	4,928.9	4,881.6	104.218	SF
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,650.0	10,833.0	1,068.2	934.3	7.975	SF
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,657.9	10,833.0	1,068.2	934.2	7.975	CC, ES
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,159.9	6,017.3	4,272.2	4,229.4	99.751	CC, ES
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,550.0	6,353.4	4,390.4	4,345.3	97.348	SF
Trebor B12-05 - Wellbore #1 - As Drilled	6,161.1	6,202.7	4,277.9	4,233.9	97.066	CC, ES
Trebor B12-05 - Wellbore #1 - As Drilled	6,500.0	6,566.1	4,357.3	4,310.9	94.087	SF
Trebor B12-06 - Wellbore #1 - As Drilled	6,107.8	5,981.8	3,593.6	3,550.9	84.278	CC, ES
Trebor B12-06 - Wellbore #1 - As Drilled	6,500.0	6,359.7	3,684.7	3,639.6	81.589	SF
Trebor B12-07 - Wellbore #1 - As Drilled	4,209.8	4,113.5	2,726.3	2,697.4	94.311	CC
Trebor B12-07 - Wellbore #1 - As Drilled	4,600.0	4,485.2	2,728.1	2,696.5	86.158	ES
Trebor B12-07 - Wellbore #1 - As Drilled	6,500.0	6,373.4	2,840.6	2,795.4	62.812	SF
Trebor B12-19 - Wellbore #1 - As Drilled	6,117.6	6,017.1	4,335.9	4,293.0	101.286	CC, ES
Trebor B12-19 - Wellbore #1 - As Drilled	6,650.0	6,613.7	4,502.9	4,456.6	97.132	SF
Trebor B12-8 - Wellbore #1 - As Drilled	0.0	0.0	1,871.7			
Trebor B12-8 - Wellbore #1 - As Drilled	2,000.0	1,963.6	1,880.5	1,866.8	137.923	ES
Trebor B12-8 - Wellbore #1 - As Drilled	6,900.0	6,723.5	2,376.0	2,328.6	50.151	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 BB07-627
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 BB07-627	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	827.8	791.8	3,213.2	3,207.9	603.176	CC
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	1,900.0	1,848.9	3,214.8	3,202.0	249.986	ES
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	9,400.0	6,767.8	4,101.7	4,039.9	66.463	SF
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	100.0	61.0	636.9	636.7	2,739.805	CC
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	2,445.6	2,417.6	642.6	625.8	38.257	ES
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	7,800.0	6,670.9	936.1	884.6	18.183	SF
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	2,388.2	2,367.3	3,698.6	3,682.2	225.250	CC
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	9,006.7	6,668.9	3,736.3	3,676.0	61.989	ES
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	10,400.0	6,693.9	3,987.6	3,915.8	55.519	SF
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	9,017.5	6,707.0	1,051.1	879.7	6.132	CC, ES
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	9,100.0	6,707.0	1,054.3	882.3	6.128	SF
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,353.6	6,733.7	1,170.7	1,096.3	15.728	CC, ES
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,500.0	6,732.2	1,179.8	1,104.3	15.616	SF
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,688.5	6,767.3	880.3	790.6	9.814	CC
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,700.0	6,767.4	880.4	790.6	9.803	ES, SF
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,334.0	6,714.0	308.0	250.5	5.354	CC, ES, SF
Skurich-SLW 7D - Original Drilling - Original Drilling - As	2,400.0	2,393.0	2,795.9	2,739.7	49.722	CC
Skurich-SLW 7D - Original Drilling - Original Drilling - As	2,500.0	2,493.0	2,797.5	2,739.0	47.761	ES
Skurich-SLW 7D - Original Drilling - Original Drilling - As	8,900.0	6,710.0	3,042.9	2,872.8	17.892	SF
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	10,949.2	6,738.7	237.9	156.9	2.935	CC, ES, SF
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	0.0	0.0	1,793.9			
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	2,100.0	2,079.9	1,803.9	1,789.5	125.276	ES
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	8,300.0	6,726.7	2,417.6	2,363.9	45.057	SF
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	7,604.2	6,694.9	356.9	191.1	2.153	CC, ES, SF
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	8,927.6	6,670.9	2,411.6	2,352.1	40.531	CC, ES
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	9,600.0	6,665.9	2,503.6	2,438.9	38.682	SF
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	9,059.6	6,699.5	579.2	516.4	9.220	CC, ES
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	9,100.0	6,699.0	580.6	517.4	9.186	SF
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,209.5	6,741.3	3,732.7	3,659.8	51.201	CC, ES
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	11,400.0	6,729.9	3,918.0	3,834.8	47.070	SF
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	10,053.6	6,744.7	2,529.5	2,458.3	35.516	CC
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	10,100.0	6,745.0	2,529.9	2,458.2	35.289	ES
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	10,600.0	6,748.4	2,587.8	2,511.9	34.068	SF
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,408.2	6,734.6	522.7	447.7	6.970	CC, ES, SF
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,616.6	6,768.3	3,766.7	3,677.9	42.408	CC, ES
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	12,600.0	6,766.7	3,893.0	3,795.3	39.851	SF
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,572.2	6,714.9	2,404.0	2,316.0	27.296	CC
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,600.0	6,714.9	2,404.2	2,315.8	27.205	ES
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	12,000.0	6,714.9	2,441.8	2,350.0	26.587	SF
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,638.2	6,759.2	589.3	500.3	6.619	CC, ES
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,700.0	6,757.7	592.5	502.9	6.614	SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,800.0	7,496.4	151.8	131.4	7.434	SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,892.0	7,490.6	127.9	115.0	9.926	CC, ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	1,910.8	1,925.8	2,461.1	2,447.8	185.226	CC
SLW Ranch State BB06-690 - Original Drilling - Plan 1	2,000.0	2,011.1	2,461.1	2,447.2	176.901	ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	13,400.0	12,849.2	4,543.5	4,380.7	27.912	SF
SLW Ranch State BB07-615 - Original Drilling - Plan 1	2,000.0	2,000.0	47.4	33.5	3.414	CC, ES
SLW Ranch State BB07-615 - Original Drilling - Plan 1	17,892.1	17,985.0	760.1	478.7	2.701	SF
SLW Ranch State BB07-621 - Original Drilling - Plan 1	2,200.0	2,200.0	25.5	10.2	1.666	CC, ES
SLW Ranch State BB07-621 - Original Drilling - Plan 1	17,892.1	17,815.4	430.4	158.3	1.582	SF
SLW Ranch State BB07-633 - Original Drilling - Plan 1	2,392.8	2,391.9	20.9	4.2	1.255	Level 3, CC
SLW Ranch State BB07-633 - Original Drilling - Plan 1	2,400.0	2,399.1	20.9	4.2	1.251	Level 3, ES, SF
SLW Ranch State BB07-639 - Original Drilling - Plan 1	2,200.0	2,199.0	43.8	28.5	2.862	CC

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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 BB07-627	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 BB07-639 - Original Drilling - Plan 1	2,300.0	2,298.7	44.1	28.1	2.754	ES
SLW Ranch State BB07-639 - Original Drilling - Plan 1	2,400.0	2,398.2	45.4	28.7	2.716	SF
SLW Ranch State BB07-646 - Original Drilling - Plan 1	2,000.0	2,000.0	65.6	51.8	4.731	CC, ES
SLW Ranch State BB07-646 - Original Drilling - Plan 1	17,892.1	17,715.8	1,253.3	972.8	4.467	SF
SLW Ranch State BB07-650 - Original Drilling - Plan 1	2,000.0	2,000.0	87.5	73.6	6.305	CC, ES
SLW Ranch State BB07-650 - Original Drilling - Plan 1	17,892.1	17,808.7	1,663.2	1,381.9	5.914	SF
SLW Ranch State BB07-653 - Original Drilling - Plan 1	6,038.9	6,581.5	2,008.6	1,962.2	43.347	CC
SLW Ranch State BB07-653 - Original Drilling - Plan 1	17,892.1	17,878.7	2,089.0	1,808.9	7.459	ES, SF
SLW Ranch State BB07-660 - Original Drilling - Plan 1	3,722.5	4,215.7	2,340.1	2,312.4	84.519	CC
SLW Ranch State BB07-660 - Original Drilling - Plan 1	17,892.1	17,891.1	2,569.1	2,288.4	9.153	ES, SF
SLW Ranch State BB07-668 - Original Drilling - Plan 1	2,408.7	2,429.0	2,374.0	2,357.2	140.710	CC, ES
SLW Ranch State BB07-668 - Original Drilling - Plan 1	17,892.1	17,837.5	3,056.2	2,775.0	10.868	SF
SLW Ranch State BB07-673 - Original Drilling - Plan 1	2,400.0	2,414.0	2,394.7	2,377.9	142.620	CC, ES
SLW Ranch State BB07-673 - Original Drilling - Plan 1	17,892.1	17,854.7	3,443.4	3,162.7	12.268	SF
SLW Ranch State BB07-678 - Original Drilling - Plan 1	2,310.8	2,325.8	2,416.3	2,400.1	149.570	CC
SLW Ranch State BB07-678 - Original Drilling - Plan 1	2,400.0	2,413.7	2,416.3	2,399.5	143.920	ES
SLW Ranch State BB07-678 - Original Drilling - Plan 1	17,892.1	17,817.2	3,747.0	3,466.6	13.365	SF
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,110.8	2,125.8	2,440.4	2,425.7	165.777	CC
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,200.0	2,200.0	2,440.4	2,425.1	159.438	ES
SLW Ranch State BB07-685 - Original Drilling - Plan 1	17,892.1	17,182.9	4,173.0	3,900.7	15.328	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	12,929.1	6,752.0	3,827.1	3,611.3	17.738	CC
State 11-08 - Original Drilling - Original Drilling - As Drille	13,000.0	6,752.0	3,827.7	3,611.2	17.675	ES
State 11-08 - Original Drilling - Original Drilling - As Drille	13,500.0	6,752.0	3,869.4	3,648.0	17.473	SF
State 5519 08-34 - Original Drilling - Original Drilling - As	15,583.7	6,811.3	357.3	221.1	2.623	CC, ES
State 5519 08-34 - Original Drilling - Original Drilling - As	15,600.0	6,811.5	357.7	221.3	2.623	SF
State 5519 08-43 - Original Drilling - Original Drilling - As	16,935.6	6,820.4	783.0	630.2	5.125	CC, ES, SF
State 5519 14-08 - Original Drilling - Original Drilling - As	12,945.0	6,741.1	2,308.8	2,204.5	22.142	CC, ES
State 5519 12-08 - Original Drilling - Original Drilling - As	13,300.0	6,741.4	2,335.9	2,228.6	21.759	SF
State 5519 13-08 - Original Drilling - Original Drilling - As	12,841.6	6,747.0	992.4	777.8	4.624	CC, ES
State 5519 13-08 - Original Drilling - Original Drilling - As	12,900.0	6,747.0	994.1	779.0	4.622	SF
State 5519 23-08 - Original Drilling - Original Drilling - As	12,643.4	6,765.2	704.3	601.0	6.818	CC, ES
State 5519 14-08 - Original Drilling - Original Drilling - As	12,700.0	6,764.2	706.6	602.7	6.804	SF
State 5519 21-08 - Original Drilling - Original Drilling - As	14,086.0	6,829.5	3,455.9	3,337.7	29.233	CC
State 5519 21-08 - Original Drilling - Original Drilling - As	14,100.0	6,829.4	3,456.0	3,337.6	29.194	ES
State 5519 21-08 - Original Drilling - Original Drilling - As	14,700.0	6,824.2	3,510.1	3,386.2	28.341	SF
State 5519 23-08 - Original Drilling - Original Drilling - As	14,253.5	6,807.1	936.4	816.2	7.791	CC, ES
State 5519 23-08 - Original Drilling - Original Drilling - As	14,300.0	6,806.9	937.6	817.0	7.776	SF
State 5519 24-08 - Original Drilling - Original Drilling - As	14,168.2	6,777.2	690.3	571.1	5.794	CC, ES
State 5519 24-08 - Original Drilling - Original Drilling - As	14,200.0	6,777.5	691.0	571.5	5.783	SF
State 5519 31-08 - Original Drilling - Original Drilling - As	15,795.5	6,879.2	3,345.5	3,206.0	23.983	CC
State 5519 31-08 - Original Drilling - Original Drilling - As	15,800.0	6,879.6	3,345.5	3,206.0	23.974	ES
State 5519 31-08 - Original Drilling - Original Drilling - As	16,300.0	6,920.0	3,383.1	3,238.9	23.458	SF
State 5519 32-08 - Original Drilling - Original Drilling - As	15,520.6	6,827.0	2,247.7	2,112.2	16.583	CC, ES
State 5519 32-08 - Original Drilling - Original Drilling - As	15,800.0	6,823.3	2,265.0	2,127.1	16.427	SF
State 5519 33-08 - Original Drilling - Original Drilling - As	15,531.9	6,838.6	897.0	761.2	6.607	CC, ES
State 5519 33-08 - Original Drilling - Original Drilling - As	15,600.0	6,839.2	899.5	763.4	6.607	SF
State 5519 41-08 - Original Drilling - Original Drilling - As	16,844.2	6,752.2	3,878.9	3,727.6	25.625	CC
State 5519 41-08 - Original Drilling - Original Drilling - As	16,900.0	6,752.1	3,879.3	3,727.3	25.519	ES
State 5519 41-08 - Original Drilling - Original Drilling - As	17,500.0	6,750.8	3,934.0	3,776.7	25.011	SF
State 5519 42-08 - Original Drilling - Original Drilling - As	16,919.1	6,746.9	2,381.6	2,229.4	15.644	CC, ES
State 5519 42-08 - Original Drilling - Original Drilling - As	17,200.0	6,748.9	2,398.1	2,243.5	15.509	SF
State 5519 44-08 - Original Drilling - Original Drilling - As	16,824.4	6,813.2	550.2	398.9	3.635	CC, ES, SF
State 5519 8A - Original Drilling - Original Drilling - As Dr	16,076.6	6,813.1	271.3	129.1	1.908	CC, ES, SF
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,547.1	6,881.7	3,044.8	2,932.8	27.187	CC
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,600.0	6,881.0	3,045.3	2,932.7	27.049	ES
State 5519 8D - Original Drilling - Original Drilling - As Dr	14,100.0	6,874.2	3,094.6	2,977.7	26.475	SF
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,314.0	6,707.2	2,679.7	2,559.3	22.257	CC, ES
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,700.0	6,684.1	2,707.2	2,583.5	21.875	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 BB07-627
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 BB07-627	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	17,892.1	6,770.8	4,061.2	3,897.6	24.836	CC, ES, SF
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	17,892.1	6,843.4	3,016.8	2,869.1	20.424	CC, ES, SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	17,800.0	17,800.0	4,618.3	4,444.5	26.567	SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	17,892.1	6,714.5	4,561.7	4,424.5	33.250	CC, ES
70 Ranch 41-09 - Original Drilling - Original Drilling - As D	17,892.1	6,721.4	5,671.3	5,550.9	47.113	CC, ES, SF
70 Ranch 44-09 - Original Drilling - Original Drilling - As D	17,892.1	6,663.4	4,252.1	4,200.6	82.577	CC, ES, SF
70 Ranch USX BB09-05 - Original Drilling - Original Drilling	17,892.1	6,784.3	2,500.4	2,336.9	15.288	CC, ES, SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilling	17,892.1	6,813.5	3,837.4	3,718.5	32.288	CC, ES, SF
70 Ranch USX BB09-08 - Original Drilling - Original Drilling	17,892.1	6,782.4	4,842.2	4,743.9	49.260	CC, ES, SF
70 Ranch USX BB09-09 - Original Drilling - Original Drilling	17,892.1	6,766.3	4,384.8	4,315.0	62.839	CC, ES, SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	17,892.1	6,766.9	3,161.8	3,076.9	37.242	CC, ES, SF
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	17,892.1	6,785.1	1,959.6	1,852.1	18.235	CC, ES, SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilling	17,892.1	6,793.3	2,673.5	2,617.2	47.451	CC, ES, SF
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	17,892.1	10,902.0	329.5	147.0	1.805	CC, ES, SF
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	17,892.1	9,058.2	3,380.0	3,216.5	20.682	CC, ES, SF
National Hog Farm 13-09 - Original Drilling - Original Drilling	17,892.1	6,788.6	1,194.6	1,032.8	7.387	CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,725.2	6,811.5	884.5	722.1	5.446	CC, ES, SF
National Hog Farm 21-09 - Original Drilling - Original Drilling	17,892.1	6,890.7	4,230.9	4,076.6	27.422	CC, ES, SF
National Hog Farm 24-09 - Original Drilling - Original Drilling	17,892.1	6,878.9	1,747.3	1,688.7	29.808	CC, ES, SF

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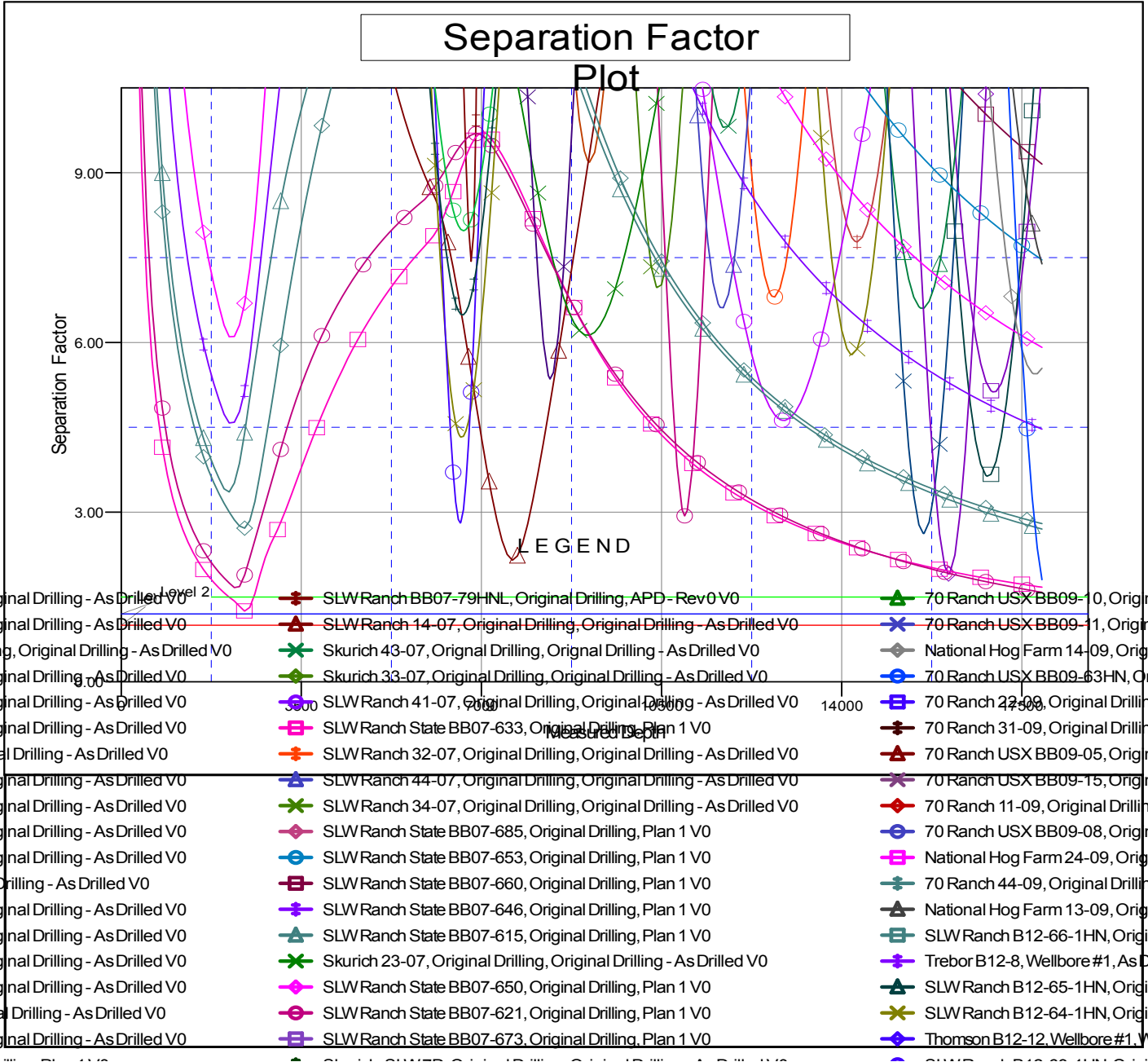
Noble Energy, Inc.

Anticollision Summary Report

Company: Northern Region - DJ Basin	Local Co-ordinate Reference: Well SLW Ranch State BB07-627
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 BB07-627	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 BB07-627
 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