

Northern Region - DJ Basin

Wells Ranch

BB Section 07

SLW Ranch State BB07-621

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 BB07-621
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 BB07-621	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	17,808.9	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	6,600.0	10,779.0	516.3	406.2	4.689	SF
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,621.5	10,779.0	515.6	405.6	4.690	CC, ES
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,539.3	10,812.0	420.6	318.5	4.120	CC
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,550.0	10,812.0	420.7	318.0	4.093	ES
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,600.0	10,812.0	426.6	321.5	4.060	SF
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,479.5	10,993.0	979.3	850.6	7.610	CC
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,500.0	10,993.0	979.5	850.2	7.572	ES
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,600.0	10,993.0	988.6	857.0	7.513	SF
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,309.9	10,974.0	1,609.4	1,532.4	20.911	CC, ES
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,450.0	10,974.0	1,616.0	1,538.0	20.706	SF
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,154.4	10,992.0	2,150.7	2,074.3	28.141	CC, ES
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,450.0	10,992.0	2,171.1	2,092.5	27.656	SF
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,081.5	11,132.0	2,468.3	2,390.9	31.888	CC
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,100.0	11,132.0	2,468.3	2,390.7	31.809	ES
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,450.0	11,132.0	2,495.2	2,414.9	31.073	SF
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	5,953.3	11,201.9	3,074.0	2,939.1	22.781	CC, ES
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,400.0	11,248.3	3,113.3	2,972.6	22.123	SF
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,168.2	6,678.0	4,879.6	4,834.3	107.686	CC, ES
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,400.0	6,678.0	4,927.2	4,880.9	106.420	SF
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,648.0	10,833.0	694.8	570.7	5.597	CC, ES, SF
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,043.8	5,849.6	4,374.8	4,332.4	103.262	CC
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,050.0	5,853.9	4,374.8	4,332.4	103.163	ES
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,400.0	6,141.3	4,470.0	4,425.4	100.332	SF
Trebor B12-05 - Wellbore #1 - As Drilled	6,032.8	6,078.3	4,457.4	4,413.8	102.177	CC, ES
Trebor B12-05 - Wellbore #1 - As Drilled	6,500.0	6,516.1	4,604.2	4,557.6	98.865	SF
Trebor B12-06 - Wellbore #1 - As Drilled	4,000.7	3,933.6	3,761.9	3,734.4	136.439	CC
Trebor B12-06 - Wellbore #1 - As Drilled	4,100.0	4,012.0	3,762.2	3,734.0	133.273	ES
Trebor B12-06 - Wellbore #1 - As Drilled	6,400.0	6,187.1	3,950.7	3,906.0	88.320	SF
Trebor B12-07 - Wellbore #1 - As Drilled	100.0	37.5	2,760.8	2,760.6	10,000.000	CC
Trebor B12-07 - Wellbore #1 - As Drilled	2,400.0	2,354.3	2,774.0	2,757.6	169.368	ES
Trebor B12-07 - Wellbore #1 - As Drilled	6,350.0	6,123.7	3,150.7	3,106.4	71.188	SF
Trebor B12-19 - Wellbore #1 - As Drilled	5,155.4	5,120.7	4,550.7	4,514.4	125.469	CC
Trebor B12-19 - Wellbore #1 - As Drilled	5,300.0	5,240.7	4,551.1	4,513.8	122.101	ES
Trebor B12-19 - Wellbore #1 - As Drilled	6,800.0	6,800.0	4,934.6	4,887.0	103.647	SF
Trebor B12-8 - Wellbore #1 - As Drilled	0.0	0.0	1,895.5			
Trebor B12-8 - Wellbore #1 - As Drilled	2,000.0	1,963.5	1,904.3	1,890.6	139.670	ES
Trebor B12-8 - Wellbore #1 - As Drilled	6,800.0	6,552.4	2,802.4	2,755.8	60.025	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 BB07-621
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 BB07-621	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						

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Summary						
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Offset Well - Wellbore - Design						
BB Section 07						
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	828.0	792.1	3,238.2	3,232.9	607.678	CC
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	1,900.0	1,848.7	3,239.8	3,227.0	251.942	ES
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	9,700.0	6,569.7	4,662.6	4,599.2	73.514	SF
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	100.0	60.9	649.3	649.1	2,794.043	CC
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	2,245.4	2,216.9	658.0	642.6	42.777	ES
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	7,800.0	6,509.5	1,381.7	1,331.0	27.275	SF
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	2,223.4	2,232.8	3,721.5	3,706.1	242.367	CC, ES
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	14,100.0	14,100.0	6,639.0	6,528.8	60.250	SF
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	8,939.9	6,550.0	1,490.4	1,322.3	8.864	CC, ES
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	9,000.0	6,550.0	1,491.7	1,323.0	8.846	SF
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,279.2	6,578.5	1,608.4	1,534.6	21.787	CC
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,300.0	6,578.3	1,608.5	1,534.5	21.733	ES
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,500.0	6,576.3	1,623.5	1,547.9	21.502	SF
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,611.7	6,624.8	1,317.2	1,228.0	14.773	CC, ES
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,700.0	6,679.5	1,320.0	1,230.0	14.660	SF
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,253.2	6,561.6	749.7	693.6	13.355	CC, ES
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,300.0	6,562.2	751.2	694.8	13.319	SF
Skurich-SLW 7D - Original Drilling - Original Drilling - As	2,200.0	2,193.0	2,817.9	2,766.4	54.702	CC
Skurich-SLW 7D - Original Drilling - Original Drilling - As	2,300.0	2,293.0	2,819.7	2,765.8	52.356	ES
Skurich-SLW 7D - Original Drilling - Original Drilling - As	9,000.0	6,553.0	3,503.7	3,335.5	20.835	SF
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	10,878.2	6,623.4	671.7	591.1	8.336	CC, ES
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	10,900.0	6,624.3	672.1	591.4	8.327	SF
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	0.0	0.0	1,818.3			
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	2,100.0	2,079.8	1,828.4	1,814.0	126.976	ES
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	8,400.0	6,570.2	2,891.3	2,837.3	53.502	SF
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	7,523.4	6,532.5	81.6	-77.9	0.512	Level 1, CC, ES, SF
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	2,236.1	2,264.2	2,675.0	2,659.5	172.436	CC, ES
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	9,700.0	6,533.5	2,972.3	2,906.8	45.414	SF
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	8,982.0	6,538.3	140.9	80.7	2.340	CC, ES, SF
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,140.3	6,613.8	4,170.8	4,098.4	57.572	CC
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,200.0	6,614.3	4,171.2	4,098.2	57.096	ES
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	11,600.0	6,627.7	4,418.2	4,333.4	52.071	SF
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	9,979.3	6,459.2	2,966.6	2,896.7	42.439	CC
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	10,000.0	6,459.1	2,966.7	2,896.6	42.316	ES
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	10,800.0	6,452.9	3,077.9	3,001.3	40.183	SF
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,333.0	6,627.6	87.6	13.1	1.176	Level 2, CC, ES, SF
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,550.1	6,576.6	4,201.8	4,113.7	47.666	CC
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,600.0	6,576.8	4,202.1	4,113.4	47.379	ES
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	12,800.0	6,581.6	4,383.3	4,284.3	44.274	SF
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,501.3	6,542.5	2,836.4	2,749.0	32.455	CC, ES
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	12,100.0	6,542.1	2,898.8	2,806.4	31.365	SF
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,562.2	6,601.8	155.8	67.4	1.763	CC, ES, SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,872.7	7,051.0	18.0	5.6	1.447	Level 3, CC, ES, SF
SLW Ranch State BB06-690 - Original Drilling - Plan 1	1,910.8	1,925.8	2,485.3	2,472.0	187.045	CC
SLW Ranch State BB06-690 - Original Drilling - Plan 1	2,000.0	2,011.0	2,485.3	2,471.4	178.641	ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	13,500.0	12,849.2	4,993.1	4,829.3	30.485	SF
SLW Ranch State BB07-615 - Original Drilling - Plan 1	2,000.0	2,000.0	21.9	8.0	1.576	CC, ES
SLW Ranch State BB07-615 - Original Drilling - Plan 1	17,808.9	17,980.2	358.8	81.2	1.292	Level 3, SF
SLW Ranch State BB07-627 - Original Drilling - Plan 1	2,200.0	2,200.0	25.5	10.2	1.666	CC, ES
SLW Ranch State BB07-627 - Original Drilling - Plan 1	17,808.9	17,888.5	430.4	158.4	1.582	SF
SLW Ranch State BB07-633 - Original Drilling - Plan 1	2,200.0	2,199.0	47.4	32.1	3.095	CC, ES
SLW Ranch State BB07-633 - Original Drilling - Plan 1	17,808.9	17,693.1	838.2	557.2	2.983	SF
SLW Ranch State BB07-639 - Original Drilling - Plan 1	2,200.0	2,199.0	69.3	54.0	4.527	CC, ES

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Offset Well - Wellbore - Design						
BB Section 07						
SLW Ranch State BB07-639 - Original Drilling - Plan 1	17,808.9	17,867.1	1,201.7	922.0	4.297	SF
SLW Ranch State BB07-646 - Original Drilling - Plan 1	2,000.0	2,000.0	91.1	77.2	6.568	CC, ES
SLW Ranch State BB07-646 - Original Drilling - Plan 1	17,808.9	17,711.4	1,646.8	1,365.8	5.861	SF
SLW Ranch State BB07-650 - Original Drilling - Plan 1	2,000.0	2,000.0	113.0	99.1	8.143	CC, ES
SLW Ranch State BB07-650 - Original Drilling - Plan 1	17,808.9	17,804.1	2,063.4	1,782.7	7.351	SF
SLW Ranch State BB07-653 - Original Drilling - Plan 1	3,139.1	3,836.0	2,296.4	2,272.6	96.633	CC
SLW Ranch State BB07-653 - Original Drilling - Plan 1	17,808.9	17,872.1	2,484.5	2,204.0	8.858	ES, SF
SLW Ranch State BB07-660 - Original Drilling - Plan 1	2,200.0	2,214.0	2,377.5	2,362.1	154.816	CC, ES
SLW Ranch State BB07-660 - Original Drilling - Plan 1	17,808.9	17,880.3	2,969.2	2,688.7	10.583	SF
SLW Ranch State BB07-668 - Original Drilling - Plan 1	2,200.0	2,214.0	2,398.1	2,382.8	156.160	CC, ES
SLW Ranch State BB07-668 - Original Drilling - Plan 1	17,808.9	17,833.3	3,453.7	3,172.5	12.285	SF
SLW Ranch State BB07-673 - Original Drilling - Plan 1	2,200.0	2,214.0	2,418.8	2,403.4	157.506	CC, ES
SLW Ranch State BB07-673 - Original Drilling - Plan 1	17,808.9	17,847.4	3,843.9	3,563.5	13.711	SF
SLW Ranch State BB07-678 - Original Drilling - Plan 1	2,200.0	2,215.0	2,440.4	2,425.0	158.874	CC, ES
SLW Ranch State BB07-678 - Original Drilling - Plan 1	17,808.9	17,808.3	4,145.2	3,865.2	14.804	SF
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,110.8	2,125.8	2,464.5	2,449.8	167.418	CC
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,200.0	2,200.0	2,464.6	2,449.3	161.015	ES
SLW Ranch State BB07-685 - Original Drilling - Plan 1	17,808.9	17,178.4	4,574.3	4,302.5	16.828	SF

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Well Error:	0.0 ft	Output errors are at	2.00 sigma
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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	12,866.6	6,595.0	4,256.1	4,043.4	20.012	CC
State 11-08 - Original Drilling - Original Drilling - As Drille	12,900.0	6,595.0	4,256.2	4,043.2	19.977	ES
State 11-08 - Original Drilling - Original Drilling - As Drille	13,600.0	6,595.0	4,318.7	4,099.0	19.656	SF
State 5519 08-34 - Original Drilling - Original Drilling - As	15,502.6	6,653.3	58.4	-77.1	0.431	Level 1, CC, ES, SF
State 5519 08-43 - Original Drilling - Original Drilling - As	16,856.6	6,671.8	1,195.1	1,042.9	7.855	CC, ES
State 5519 08-43 - Original Drilling - Original Drilling - As	16,900.0	6,674.3	1,195.8	1,043.4	7.843	SF
State 5519 12-08 - Original Drilling - Original Drilling - As	12,876.4	6,548.2	2,736.7	2,633.2	26.436	CC
State 5519 12-08 - Original Drilling - Original Drilling - As	12,900.0	6,548.1	2,736.8	2,633.1	26.373	ES
State 5519 12-08 - Original Drilling - Original Drilling - As	13,300.0	6,547.1	2,769.3	2,662.1	25.838	SF
State 5519 13-08 - Original Drilling - Original Drilling - As	12,767.6	6,590.0	1,421.8	1,210.4	6.725	CC, ES
State 5519 13-08 - Original Drilling - Original Drilling - As	12,800.0	6,590.0	1,422.2	1,210.5	6.718	SF
State 5519 14-08 - Original Drilling - Original Drilling - As	12,565.4	6,607.1	274.5	174.3	2.741	CC, ES, SF
State 5519 21-08 - Original Drilling - Original Drilling - As	14,026.4	6,725.4	3,880.7	3,762.7	32.897	CC
State 5519 21-08 - Original Drilling - Original Drilling - As	14,100.0	6,726.0	3,881.4	3,762.6	32.678	ES
State 5519 21-08 - Original Drilling - Original Drilling - As	14,800.0	6,732.0	3,956.9	3,832.1	31.701	SF
State 5519 23-08 - Original Drilling - Original Drilling - As	14,181.8	6,643.0	1,360.4	1,240.9	11.379	CC
State 5519 23-08 - Original Drilling - Original Drilling - As	14,200.0	6,642.7	1,360.6	1,240.8	11.364	ES
State 5519 23-08 - Original Drilling - Original Drilling - As	14,300.0	6,640.7	1,365.6	1,245.2	11.346	SF
State 5519 24-08 - Original Drilling - Original Drilling - As	14,085.6	6,631.3	261.9	143.4	2.209	CC, ES
State 5519 24-08 - Original Drilling - Original Drilling - As	14,100.0	6,631.6	262.3	143.5	2.209	SF
State 5519 31-08 - Original Drilling - Original Drilling - As	15,726.6	6,733.7	3,764.0	3,625.0	27.082	CC
State 5519 31-08 - Original Drilling - Original Drilling - As	15,800.0	6,739.7	3,764.7	3,624.9	26.927	ES
State 5519 31-08 - Original Drilling - Original Drilling - As	16,400.0	6,788.2	3,823.3	3,678.3	26.375	SF
State 5519 32-08 - Original Drilling - Original Drilling - As	15,458.5	6,729.2	2,664.5	2,529.2	19.697	CC
State 5519 32-08 - Original Drilling - Original Drilling - As	15,500.0	6,729.8	2,664.8	2,529.1	19.636	ES
State 5519 32-08 - Original Drilling - Original Drilling - As	15,800.0	6,670.5	2,686.2	2,548.3	19.479	SF
State 5519 33-08 - Original Drilling - Original Drilling - As	15,458.7	6,691.1	1,316.2	1,181.0	9.735	CC, ES
State 5519 33-08 - Original Drilling - Original Drilling - As	15,500.0	6,691.4	1,316.9	1,181.3	9.715	SF
State 5519 41-08 - Original Drilling - Original Drilling - As	16,793.5	6,597.5	4,285.0	4,134.0	28.375	CC
State 5519 41-08 - Original Drilling - Original Drilling - As	16,800.0	6,597.5	4,285.0	4,133.9	28.362	ES
State 5519 41-08 - Original Drilling - Original Drilling - As	17,500.0	6,598.9	4,342.7	4,185.3	27.599	SF
State 5519 42-08 - Original Drilling - Original Drilling - As	16,857.7	6,600.0	2,785.9	2,634.1	18.354	CC
State 5519 42-08 - Original Drilling - Original Drilling - As	16,900.0	6,600.0	2,786.2	2,634.0	18.302	ES
State 5519 42-08 - Original Drilling - Original Drilling - As	17,200.0	6,600.0	2,806.8	2,652.2	18.155	SF
State 5519 44-08 - Original Drilling - Original Drilling - As	16,742.6	6,659.0	140.9	-9.8	0.935	Level 1, CC, ES, SF
State 5519 8A - Original Drilling - Original Drilling - As Dr	16,010.4	6,646.6	680.0	538.4	4.804	CC, ES, SF
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,484.8	6,738.7	3,476.2	3,364.6	31.138	CC
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,500.0	6,738.5	3,476.2	3,364.4	31.092	ES
State 5519 8D - Original Drilling - Original Drilling - As Dr	14,200.0	6,728.9	3,548.8	3,431.1	30.153	SF
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,259.5	6,553.6	3,097.0	2,977.0	25.813	CC
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,300.0	6,551.4	3,097.3	2,976.9	25.723	ES
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,700.0	6,530.1	3,128.0	3,004.2	25.270	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 BB07-621
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 BB07-621	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	17,808.9	6,604.7	4,457.1	4,294.4	27.384	CC, ES, SF
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	17,808.9	6,694.2	3,367.9	3,217.2	22.362	CC, ES, SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	17,808.9	6,386.0	4,880.6	4,740.4	34.825	CC, ES, SF
70 Ranch 41-09 - Original Drilling - Original Drilling - As D	17,808.9	6,555.8	5,944.6	5,819.9	47.640	CC, ES, SF
70 Ranch 44-09 - Original Drilling - Original Drilling - As D	17,808.9	6,513.2	4,260.5	4,207.1	79.767	CC, ES, SF
70 Ranch USX BB09-05 - Original Drilling - Original Drilling	17,808.9	6,654.3	2,897.4	2,734.2	17.749	CC, ES, SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilling	17,808.9	6,643.9	4,112.4	3,986.6	32.678	CC, ES, SF
70 Ranch USX BB09-08 - Original Drilling - Original Drilling	17,808.9	6,625.8	5,053.9	4,948.1	47.738	CC, ES, SF
70 Ranch USX BB09-09 - Original Drilling - Original Drilling	17,808.9	6,602.4	4,505.9	4,426.7	56.888	CC, ES, SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	17,808.9	6,609.7	3,338.3	3,240.9	34.284	CC, ES, SF
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	17,808.9	6,630.3	2,210.5	2,087.9	18.033	CC, ES, SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilling	17,808.9	6,623.6	2,654.7	2,602.7	51.048	CC, ES, SF
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	17,808.9	10,902.0	633.2	387.0	2.572	CC, ES, SF
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	17,808.9	9,217.7	3,655.4	3,484.2	21.355	CC, ES, SF
National Hog Farm 13-09 - Original Drilling - Original Drilling	17,808.9	6,622.3	1,586.1	1,424.0	9.788	CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,641.2	6,645.9	481.0	319.3	2.975	CC, ES, SF
National Hog Farm 21-09 - Original Drilling - Original Drilling	17,808.9	6,746.0	4,605.7	4,450.0	29.580	CC, ES, SF
National Hog Farm 24-09 - Original Drilling - Original Drilling	17,808.9	6,706.0	1,739.7	1,684.7	31.653	CC, ES, SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-621
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 BB07-621	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 17						
70 Ranch BB18-622 - Original Drilling - APD - Rev 0	16,481.7	6,965.3	5,008.7	4,884.3	40.263	CC
70 Ranch BB18-622 - Original Drilling - APD - Rev 0	16,900.0	6,605.1	5,010.7	4,881.1	38.671	ES
70 Ranch BB18-622 - Original Drilling - APD - Rev 0	17,808.9	6,228.0	5,074.3	4,934.6	36.305	SF
70 Ranch BB18-622 - Original Drilling - Original Drilling -	16,703.2	6,748.6	4,973.2	4,822.5	32.994	CC
70 Ranch BB18-622 - Original Drilling - Original Drilling -	16,800.0	6,707.5	4,973.8	4,822.0	32.775	ES
70 Ranch BB18-622 - Original Drilling - Original Drilling -	17,808.9	6,202.0	5,050.3	4,889.4	31.381	SF
70 Ranch State BB18-611 - Original Drilling - APD - Rev	16,447.8	6,864.6	5,734.5	5,610.5	46.255	CC
70 Ranch State BB18-611 - Original Drilling - APD - Rev	16,800.0	6,578.2	5,736.5	5,608.1	44.695	ES
70 Ranch State BB18-611 - Original Drilling - APD - Rev	17,808.9	6,217.6	5,812.5	5,672.8	41.617	SF
70 Ranch State BB18-611 - Original Drilling - Original Dri	16,413.6	6,887.0	5,717.8	5,569.1	38.434	CC
70 Ranch State BB18-611 - Original Drilling - Original Dri	16,500.0	6,868.0	5,718.3	5,568.7	38.221	ES
70 Ranch State BB18-611 - Original Drilling - Original Dri	17,808.9	6,313.4	5,827.9	5,667.0	36.226	SF
70 Ranch State BB18-611 - Original Drilling - ST01 - ST0	7,050.0	16,361.6	5,739.6	5,596.8	40.167	ES
70 Ranch State BB18-611 - Original Drilling - ST01 - ST0	7,076.7	16,334.9	5,739.5	5,596.9	40.237	CC
70 Ranch State BB18-611 - Original Drilling - ST01 - ST0	14,900.0	14,900.0	5,790.5	5,600.4	30.458	SF
70 Ranch State BB18-615 - Original Drilling - APD - Rev	16,571.0	6,779.7	5,487.5	5,362.1	43.741	CC
70 Ranch State BB18-615 - Original Drilling - APD - Rev	16,800.0	6,594.7	5,488.6	5,360.3	42.771	ES
70 Ranch State BB18-615 - Original Drilling - APD - Rev	17,808.9	6,250.0	5,566.5	5,427.0	39.888	SF
70 Ranch State BB18-615 - Original Drilling - Original Dr	12,989.0	10,222.7	5,464.7	5,330.9	40.841	CC
70 Ranch State BB18-615 - Original Drilling - Original Dr	15,900.0	15,900.0	5,491.7	5,314.7	31.022	ES, SF
70 Ranch State BB18-627 - Original Drilling - 3D Plannin	16,553.3	6,988.2	4,577.9	4,452.7	36.570	CC
70 Ranch State BB18-627 - Original Drilling - 3D Plannin	16,600.0	6,988.2	4,578.1	4,452.4	36.398	ES
70 Ranch State BB18-627 - Original Drilling - 3D Plannin	17,808.9	6,643.7	4,701.2	4,562.6	33.925	SF
70 Ranch State BB18-627 - Original Drilling - APD - Rev	16,879.6	6,707.0	4,637.3	4,508.1	35.887	CC
70 Ranch State BB18-627 - Original Drilling - APD - Rev	17,000.0	6,619.6	4,637.9	4,507.2	35.470	ES
70 Ranch State BB18-627 - Original Drilling - APD - Rev	17,808.9	6,336.4	4,698.5	4,558.8	33.640	SF
70 Ranch State BB18-627 - Original Drilling - Original Dr	15,815.0	7,578.4	4,606.4	4,465.8	32.759	CC
70 Ranch State BB18-627 - Original Drilling - Original Dr	16,200.0	7,258.0	4,607.2	4,463.0	31.937	ES
70 Ranch State BB18-627 - Original Drilling - Original Dr	17,600.0	6,766.6	4,760.0	4,601.9	30.124	SF
70 Ranch State BB18-634 - Original Drilling - APD - Rev	16,671.0	6,920.0	4,083.5	3,956.9	32.232	CC
70 Ranch State BB18-634 - Original Drilling - APD - Rev	16,900.0	6,718.0	4,084.3	3,954.8	31.528	ES
70 Ranch State BB18-634 - Original Drilling - APD - Rev	17,808.9	6,299.2	4,150.0	4,010.5	29.750	SF
70 Ranch State BB18-634 - Original Drilling - Original Dr	16,600.0	16,600.0	4,065.1	3,705.6	11.308	ES, SF
70 Ranch State BB18-634 - Original Drilling - Original Dr	17,383.0	5,895.0	4,024.1	3,869.3	25.990	CC
70 Ranch State BB18-647 - Original Drilling - APD - Rev	7,852.8	15,730.5	3,553.2	3,525.1	126.291	CC
70 Ranch State BB18-647 - Original Drilling - APD - Rev	16,900.0	6,704.3	3,580.0	3,450.5	27.635	ES
70 Ranch State BB18-647 - Original Drilling - APD - Rev	17,808.9	6,299.2	3,658.7	3,519.8	26.334	SF
70 Ranch State BB18-647 - Original Drilling - Original Dr	7,839.1	15,740.3	3,541.6	3,399.1	24.848	CC
70 Ranch State BB18-647 - Original Drilling - Original Dr	13,400.0	13,400.0	3,558.2	3,387.2	20.807	ES
70 Ranch State BB18-647 - Original Drilling - Original Dr	15,000.0	15,000.0	3,583.1	3,390.4	18.592	SF
70 Ranch State BB18-655 - Original Drilling - APD - Rev	7,491.8	16,085.0	2,845.5	2,819.5	109.367	CC
70 Ranch State BB18-655 - Original Drilling - APD - Rev	16,800.0	6,793.1	2,899.0	2,770.7	22.594	ES
70 Ranch State BB18-655 - Original Drilling - APD - Rev	17,500.0	6,397.6	2,945.5	2,809.6	21.671	SF
70 Ranch State BB18-655 - Original Drilling - Original Dr	7,492.2	16,252.0	2,815.4	2,669.8	19.341	CC
70 Ranch State BB18-655 - Original Drilling - Original Dr	7,500.0	16,252.0	2,815.4	2,669.8	19.334	ES
70 Ranch State BB18-655 - Original Drilling - Original Dr	17,300.0	6,768.8	2,891.7	2,734.6	18.411	SF
70 Ranch State BB18-662 - Original Drilling - APD - Rev	16,725.4	6,769.2	2,366.2	2,238.9	18.585	CC
70 Ranch State BB18-662 - Original Drilling - APD - Rev	16,800.0	6,706.3	2,366.5	2,238.2	18.445	ES
70 Ranch State BB18-662 - Original Drilling - APD - Rev	17,300.0	6,446.9	2,399.7	2,266.1	17.963	SF
70 Ranch State BB18-662 - Original Drilling - Original Dr	16,408.0	7,089.8	2,350.9	2,204.7	16.084	CC
70 Ranch State BB18-662 - Original Drilling - Original Dr	16,808.0	6,651.0	2,353.0	2,203.0	15.689	ES
70 Ranch State BB18-662 - Original Drilling - Original Dr	17,200.0	6,461.0	2,375.6	2,221.8	15.452	SF
70 Ranch State BB18-675 - Original Drilling - APD - Rev	7,482.2	15,897.5	1,682.3	1,656.2	64.393	CC

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 BB07-621
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 BB07-621	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 17						
70 Ranch State BB18-675 - Original Drilling - APD - Rev	16,400.0	6,984.4	1,740.7	1,617.2	14.097	ES
70 Ranch State BB18-675 - Original Drilling - APD - Rev	17,000.0	6,517.9	1,766.3	1,636.0	13.559	SF
70 Ranch State BB18-675 - Original Drilling - Original Dr	7,481.9	15,876.5	1,664.9	1,525.0	11.903	CC, ES
70 Ranch State BB18-675 - Original Drilling - Original Dr	12,600.0	12,600.0	1,695.1	1,543.4	11.178	SF
70 Ranch State BB18-681 - Original Drilling - APD - Rev	16,700.2	6,742.2	1,016.8	889.7	8.004	CC, ES
70 Ranch State BB18-681 - Original Drilling - APD - Rev	16,900.0	6,599.4	1,024.4	895.0	7.919	SF
70 Ranch State BB18-681 - Original Drilling - Original Dr	15,871.0	7,615.0	1,002.9	860.6	7.050	CC
70 Ranch State BB18-681 - Original Drilling - Original Dr	15,900.0	7,590.6	1,003.0	860.4	7.038	ES
70 Ranch State BB18-681 - Original Drilling - Original Dr	16,800.0	6,697.0	1,023.0	873.7	6.853	SF
70 Ranch State BB18-689 - Original Drilling - As Drilled -	7,466.6	15,865.7	746.0	720.0	28.722	CC
70 Ranch State BB18-689 - Original Drilling - As Drilled -	16,300.0	7,033.0	808.2	685.9	6.610	ES
70 Ranch State BB18-689 - Original Drilling - As Drilled -	16,700.0	6,673.1	819.7	692.9	6.461	SF
70 Ranch State BB18-689 - Original Drilling - As Drilled -	7,500.0	15,839.7	740.0	597.8	5.206	SF
70 Ranch State BB18-689 - Original Drilling - As Drilled -	10,772.2	12,546.6	720.2	587.1	5.409	CC, ES
National Hog Farm 17-11 - Original Drilling - Original Drill	12,847.0	6,578.7	1,437.1	1,326.5	12.994	CC, ES
National Hog Farm 17-11 - Original Drilling - Original Drill	13,000.0	6,575.2	1,445.3	1,333.0	12.876	SF
National Hog Farm 17-12 - Original Drilling - Original Drill	12,839.5	6,514.1	2,697.0	2,593.9	26.148	CC
National Hog Farm 17-12 - Original Drilling - Original Drill	12,900.0	6,509.9	2,697.7	2,593.8	25.964	ES
National Hog Farm 17-12 - Original Drilling - Original Drill	13,400.0	6,482.0	2,754.6	2,645.9	25.344	SF
National Hog Farm 17-21 - Original Drilling - Original Drill	14,222.7	6,619.6	1,390.3	1,270.3	11.585	CC, ES
National Hog Farm 17-21 - Original Drilling - Original Drill	14,400.0	6,616.8	1,401.6	1,279.8	11.507	SF
National Hog Farm 17-22 - Original Drilling - Original Drill	14,154.4	6,501.8	2,734.8	2,616.0	23.008	CC
National Hog Farm 17-22 - Original Drilling - Original Drill	14,200.0	6,502.4	2,735.2	2,615.7	22.897	ES
National Hog Farm 17-22 - Original Drilling - Original Drill	14,600.0	6,507.1	2,770.9	2,647.4	22.430	SF
National Hog Farm 31-17 - Original Drilling - Original Drill	15,258.1	6,717.1	1,439.7	1,307.2	10.863	CC, ES
National Hog Farm 31-17 - Original Drilling - Original Drill	15,400.0	6,702.8	1,446.6	1,312.6	10.789	SF
National Hog Farm 32-17 - Original Drilling - Original Drill	15,469.2	6,589.2	2,551.3	2,416.3	18.899	CC
National Hog Farm 32-17 - Original Drilling - Original Drill	15,500.0	6,588.3	2,551.5	2,416.1	18.844	ES
National Hog Farm 32-17 - Original Drilling - Original Drill	15,800.0	6,579.5	2,572.7	2,434.2	18.576	SF
National Hog Farm 41-17 - Original Drilling - Original Drill	16,548.6	6,596.9	1,110.1	949.0	6.888	CC, ES
National Hog Farm 41-17 - Original Drilling - Original Drill	16,600.0	6,597.2	1,111.3	949.5	6.867	SF
National Hog Farm 42-17 - Original Drilling - Original Drill	16,745.6	6,565.7	2,696.7	2,546.3	17.929	CC
National Hog Farm 42-17 - Original Drilling - Original Drill	16,800.0	6,565.7	2,697.3	2,546.2	17.848	ES
National Hog Farm 42-17 - Original Drilling - Original Drill	17,100.0	6,565.7	2,720.0	2,565.9	17.649	SF
Peterson Champlin K Unit 1 - Original Drilling - Original D	16,434.0	6,567.0	4,700.3	4,445.2	18.424	CC
Peterson Champlin K Unit 1 - Original Drilling - Original D	16,500.0	6,567.0	4,700.8	4,444.8	18.366	ES
Peterson Champlin K Unit 1 - Original Drilling - Original D	17,200.0	6,567.0	4,762.5	4,499.2	18.085	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-621
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 BB07-621	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 Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
BB Section 18						
Christensen 15-18 - Original Drilling - Original Drilling - A	10,110.8	6,316.1	4,795.9	4,724.7	67.376	CC
Christensen 15-18 - Original Drilling - Original Drilling - A	10,200.0	6,317.5	4,796.8	4,724.6	66.441	ES
Christensen 15-18 - Original Drilling - Original Drilling - A	12,200.0	6,352.0	5,232.4	5,141.5	57.615	SF
Christensen 16-18 - Original Drilling - Original Drilling - A	11,790.9	6,505.0	4,863.1	4,664.9	24.531	CC
Christensen 16-18 - Original Drilling - Original Drilling - A	11,800.0	6,505.0	4,863.1	4,664.8	24.518	ES
Christensen 16-18 - Original Drilling - Original Drilling - A	12,900.0	6,505.0	4,988.4	4,778.3	23.744	SF
DKW Green State BB 18-01 - Original Drilling - Original D	11,408.7	6,570.0	1,523.0	1,327.9	7.805	CC, ES
DKW Green State BB 18-01 - Original Drilling - Original D	11,500.0	6,570.0	1,525.7	1,329.5	7.775	SF
DKW Green State BB18-02 - Original Drilling - Original D	10,010.3	6,618.5	1,301.9	1,231.0	18.361	CC, ES
DKW Green State BB18-02 - Original Drilling - Original D	10,200.0	6,574.8	1,315.6	1,242.8	18.075	SF
DKW Green State BB18-07 - Original Drilling - Original D	10,233.9	6,487.2	2,612.1	2,539.1	35.751	CC, ES
DKW Green State BB18-07 - Original Drilling - Original D	10,900.0	6,467.3	2,695.8	2,616.2	33.860	SF
DKW Green State BB18-08 - Original Drilling - Original D	11,488.1	6,447.3	2,645.7	2,558.6	30.362	CC
DKW Green State BB18-08 - Original Drilling - Original D	11,500.0	6,447.0	2,645.7	2,558.4	30.311	ES
DKW Green State BB18-08 - Original Drilling - Original D	12,100.0	6,430.8	2,715.6	2,622.4	29.124	SF
Odle BB18-13 - Original Drilling - Original Drilling - As Dr	7,586.3	6,501.5	5,244.0	5,175.9	77.026	CC
Odle BB18-13 - Original Drilling - Original Drilling - As Dr	7,600.0	6,501.4	5,244.0	5,175.9	76.946	ES
Odle BB18-13 - Original Drilling - Original Drilling - As Dr	10,300.0	6,487.6	5,906.6	5,817.6	66.339	SF
Odle BB18-14 - Original Drilling - Original Drilling - As Dr	8,928.9	6,526.7	5,123.2	5,063.6	85.911	CC
Odle BB18-14 - Original Drilling - Original Drilling - As Dr	9,000.0	6,526.4	5,123.7	5,063.4	84.921	ES
Odle BB18-14 - Original Drilling - Original Drilling - As Dr	11,600.0	6,512.3	5,779.7	5,696.4	69.351	SF
Peterson 14W-434 - Original Drilling - Original Drilling - A	6,214.6	6,010.1	6,023.5	5,977.8	131.582	CC, ES
Peterson 14W-434 - Original Drilling - Original Drilling - A	6,600.0	6,100.0	6,127.1	6,079.9	129.653	SF
Robin Green State BB18-04 - Original Drilling - Original D	7,602.5	6,514.3	1,327.3	1,231.3	13.819	CC, ES
Robin Green State BB18-04 - Original Drilling - Original D	7,700.0	6,514.9	1,330.9	1,234.3	13.770	SF
Robin Green State BB18-05 - Original Drilling - Original D	7,618.1	6,532.1	2,610.9	2,561.5	52.869	CC, ES
Robin Green State BB18-05 - Original Drilling - Original D	8,600.0	6,535.7	2,789.7	2,733.6	49.705	SF
SLW Green State BB18-09 - Original Drilling - Original D	11,373.9	6,537.1	3,931.9	3,846.0	45.743	CC
SLW Green State BB18-09 - Original Drilling - Original D	11,400.0	6,537.2	3,932.0	3,845.8	45.576	ES
SLW Green State BB18-09 - Original Drilling - Original D	12,600.0	6,550.0	4,119.1	4,021.1	42.031	SF
SLW Green State BB18-10 - Original Drilling - Original D	10,372.3	6,505.8	3,953.7	3,879.1	53.008	CC
SLW Green State BB18-10 - Original Drilling - Original D	10,400.0	6,505.9	3,953.8	3,878.8	52.780	ES
SLW Green State BB18-10 - Original Drilling - Original D	11,800.0	6,513.2	4,204.2	4,115.9	47.633	SF
SLW Green State BB18-11 - Original Drilling - Original Dr	9,054.9	6,530.6	3,806.8	3,745.9	62.554	CC
SLW Green State BB18-11 - Original Drilling - Original Dr	9,100.0	6,528.7	3,807.1	3,745.8	62.095	ES
SLW Green State BB18-11 - Original Drilling - Original Dr	10,600.0	6,449.9	4,108.6	4,033.9	54.966	SF
SLW Green State BB18-12 - Original Drilling - Original D	7,545.2	6,539.8	3,702.3	3,653.3	75.537	CC, ES
SLW Green State BB18-12 - Original Drilling - Original D	9,400.0	6,610.8	4,141.3	4,078.8	66.313	SF
SLW Ranch State B14-653 - Original Drilling - Plan 1	7,784.6	5,865.7	2,969.4	2,920.1	60.271	CC
SLW Ranch State B14-653 - Original Drilling - Plan 1	7,800.0	5,865.8	2,969.5	2,920.1	60.145	ES
SLW Ranch State B14-653 - Original Drilling - Plan 1	9,000.0	5,871.1	3,208.9	3,150.5	54.914	SF
SLW Ranch State B14-653 - Original Drilling - Prelim - R	8,002.8	5,868.3	2,970.9	2,920.1	58.434	CC, ES
SLW Ranch State B14-653 - Original Drilling - Prelim - R	9,200.0	5,898.6	3,203.0	3,142.5	52.964	SF
SLW Ranch State B14-658 - Original Drilling - Plan 1	7,719.5	5,998.1	2,581.2	2,532.4	52.897	CC, ES
SLW Ranch State B14-658 - Original Drilling - Plan 1	8,600.0	5,963.2	2,727.0	2,671.9	49.526	SF
SLW Ranch State B14-658 - Original Drilling - Prelim - R	7,734.6	6,054.8	2,644.1	2,594.9	53.734	CC, ES
SLW Ranch State B14-658 - Original Drilling - Prelim - R	8,700.0	5,977.0	2,812.6	2,756.6	50.253	SF
SLW Ranch State B14-667 - Original Drilling - Plan 1	7,065.9	6,909.3	2,211.5	2,163.2	45.783	CC, ES
SLW Ranch State B14-667 - Original Drilling - Plan 1	8,200.0	6,226.9	2,321.0	2,268.3	44.055	SF
SLW Ranch State B14-667 - Original Drilling - Prelim - R	7,059.9	6,735.2	2,192.8	2,144.7	45.605	CC, ES
SLW Ranch State B14-667 - Original Drilling - Prelim - R	8,000.0	6,239.0	2,292.9	2,241.5	44.583	SF
SLW Ranch State B14-672 - Original Drilling - Plan 1	7,079.3	6,868.3	1,831.3	1,782.6	37.609	CC, ES
SLW Ranch State B14-672 - Original Drilling - Plan 1	7,900.0	6,320.1	1,887.7	1,836.4	36.842	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 BB07-621
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 BB07-621	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 18						
SLW Ranch State B14-672 - Original Drilling - Prelim - R	7,078.2	6,810.1	1,845.4	1,796.8	37.988	CC, ES
SLW Ranch State B14-672 - Original Drilling - Prelim - R	7,800.0	6,338.7	1,894.9	1,844.3	37.414	SF
SLW Ranch State B14-679 - Original Drilling - Plan 1	6,900.0	7,101.6	1,353.6	1,304.1	27.364	SF
SLW Ranch State B14-679 - Original Drilling - Plan 1	7,017.6	6,987.2	1,350.6	1,301.3	27.400	CC, ES
SLW Ranch State B14-679 - Original Drilling - Prelim - R	6,900.0	7,093.9	1,441.5	1,392.1	29.183	SF
SLW Ranch State B14-679 - Original Drilling - Prelim - R	7,017.7	6,979.2	1,438.5	1,389.3	29.225	CC, ES
SLW Ranch State B14-685 - Original Drilling - Plan 1	7,050.0	7,037.3	1,038.6	989.0	20.928	SF
SLW Ranch State B14-685 - Original Drilling - Plan 1	7,058.1	7,030.8	1,038.6	989.0	20.928	CC, ES
SLW Ranch State B14-685 - Original Drilling - Prelim - R	7,072.8	7,302.4	1,078.3	1,028.0	21.418	CC, ES
SLW Ranch State B14-685 - Original Drilling - Prelim - R	7,700.0	6,761.4	1,096.5	1,045.2	21.351	SF
SLW State PC BB18-65HN - Original Drilling - Original D	7,201.0	6,418.0	3,135.9	3,088.4	66.009	CC
SLW State PC BB18-65HN - Original Drilling - Original D	9,700.0	8,892.0	3,167.6	3,063.8	30.517	ES
SLW State PC BB18-65HN - Original Drilling - Original D	12,200.0	10,986.0	3,297.7	3,112.5	17.804	SF
SLW State PC BB18-65HN - Original Drilling - Plan A - R	7,370.1	6,592.1	3,124.0	3,098.2	121.304	CC
SLW State PC BB18-65HN - Original Drilling - Plan A - R	7,400.0	6,612.4	3,124.0	3,098.2	120.759	ES
SLW State PC BB18-65HN - Original Drilling - Plan A - R	12,700.0	10,948.7	3,416.6	3,340.0	44.603	SF
SLW State PC BB18-67HN - Original Drilling - Original D	7,375.9	6,549.4	2,040.9	1,992.1	41.822	CC
SLW State PC BB18-67HN - Original Drilling - Original D	11,700.0	10,895.0	2,133.1	1,954.5	11.943	ES
SLW State PC BB18-67HN - Original Drilling - Original D	11,900.0	10,895.0	2,143.7	1,963.3	11.886	SF
SLW State PC BB18-67HN - Original Drilling - Plan B - R	7,509.7	6,679.1	2,055.0	2,028.6	77.801	CC
SLW State PC BB18-67HN - Original Drilling - Plan B - R	7,600.0	6,755.0	2,055.4	2,028.6	76.552	ES
SLW State PC BB18-67HN - Original Drilling - Plan B - R	12,100.0	10,870.1	2,177.9	2,106.7	30.571	SF
State 18-01 - Original Drilling - Original Drilling - As Drille	8,953.2	6,510.7	1,380.9	1,321.0	23.050	CC, ES
State 18-01 - Original Drilling - Original Drilling - As Drille	9,200.0	6,505.1	1,402.8	1,340.5	22.524	SF
State SLW 18-24 - Original Drilling - Original Drilling - As	8,908.0	6,508.9	2,634.9	2,575.5	44.354	CC, ES
State SLW 18-24 - Original Drilling - Original Drilling - As	9,700.0	6,470.7	2,751.2	2,684.6	41.310	SF
Vince State B13-63HN - Original Drilling - Original Drilling	6,400.0	9,340.6	4,597.9	4,498.5	46.257	SF
Vince State B13-63HN - Original Drilling - Original Drilling	9,288.2	6,620.0	4,363.3	4,300.5	69.471	CC
Vince State B13-63HN - Original Drilling - Original Drilling	9,300.0	6,620.0	4,363.3	4,300.4	69.338	ES
Vince State B13-63HN - Original Drilling - Plan A - Rev 1	9,243.0	6,600.7	4,458.7	4,418.5	110.827	CC
Vince State B13-63HN - Original Drilling - Plan A - Rev 1	9,400.0	6,491.7	4,459.8	4,417.9	106.452	ES
Vince State B13-63HN - Original Drilling - Plan A - Rev 1	11,900.0	5,980.5	5,038.2	4,973.7	78.112	SF

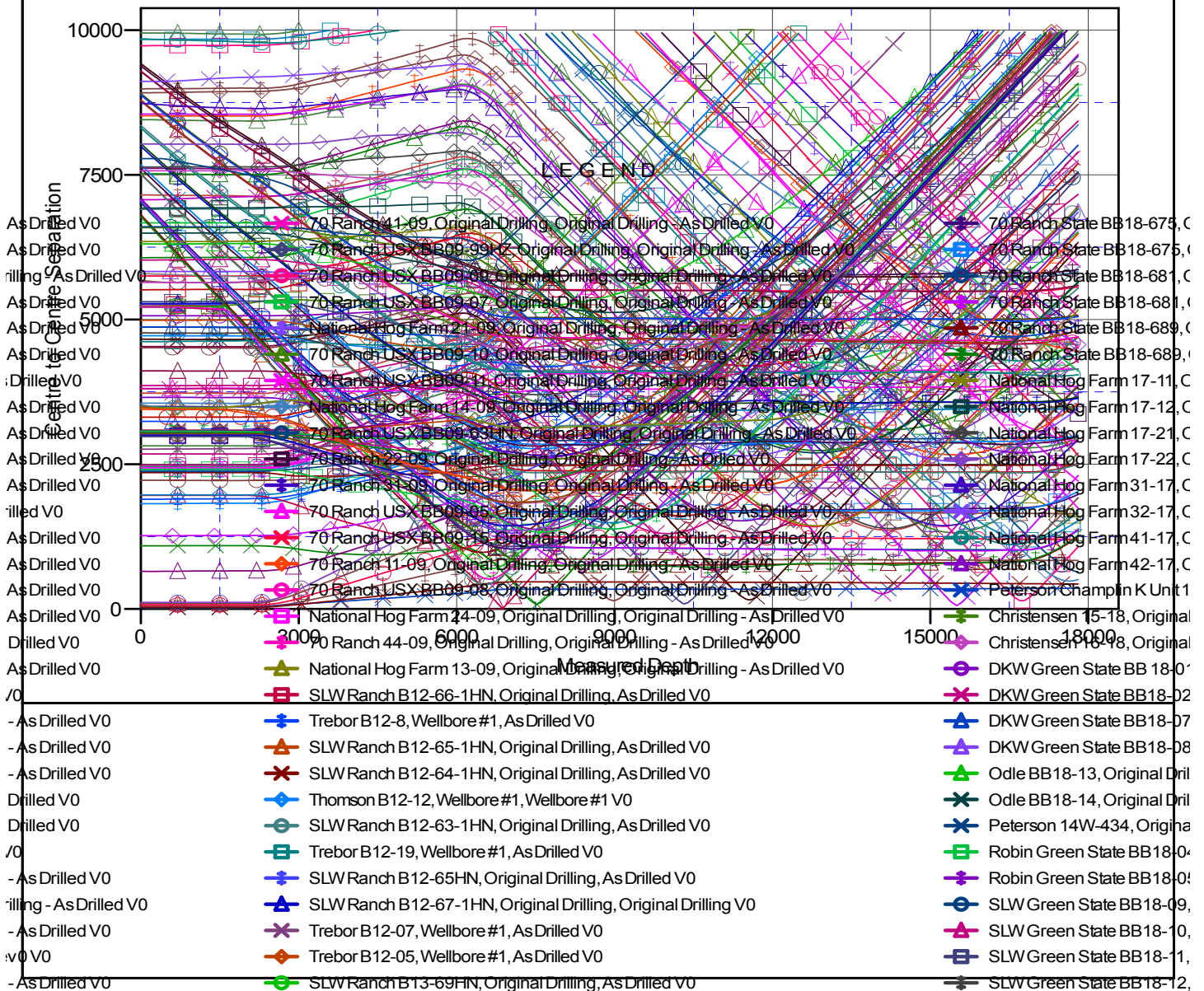
Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-621
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 BB07-621	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 BB07-621
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.65°

Ladder Plot



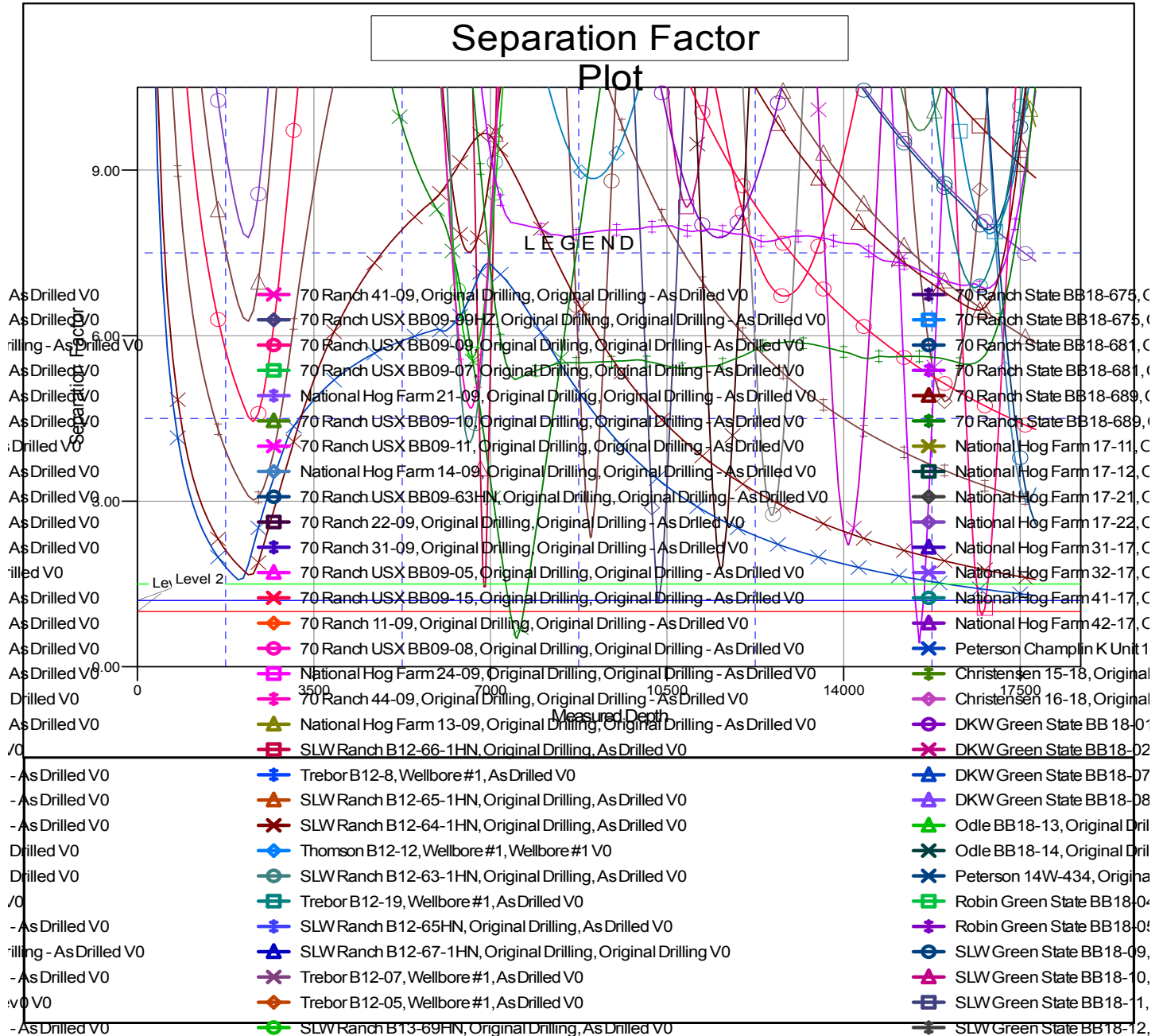
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

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Offset Depths are relative to Offset Datum
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Coordinates are relative to: SLW Ranch State BB07-621
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