

# **Northern Region - DJ Basin**

**Wells Ranch**

**BB Section 07**

**SLW Ranch State BB07-660**

**Original Drilling**

**Plan 1**

## **Anticollision Summary Report**

**26 September, 2017**

# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well SLW Ranch State BB07-660
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4661.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4661.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-660	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan 1	<b>Offset TVD Reference:</b>	Offset Datum

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

<b>Survey Tool Program</b>		<b>Date</b>	9/26/2017	
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	17,949.8	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
<b>Summary</b>						
<b>Offset Well - Wellbore - Design</b>						
<b>B Section 12</b>						
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,813.2	10,779.0	3,283.6	3,147.0	24.029	CC, ES
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,850.0	10,779.0	3,284.0	3,147.3	24.021	SF
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,799.2	10,812.0	2,589.9	2,452.1	18.786	CC, ES, SF
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,800.0	10,993.0	1,971.8	1,835.2	14.435	SF
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,807.1	10,993.0	1,971.8	1,835.2	14.437	CC, ES
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,770.1	10,974.0	1,295.6	1,215.8	16.222	CC, ES
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,800.0	10,974.0	1,296.2	1,216.3	16.221	SF
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,743.9	10,992.0	746.1	668.8	9.652	CC, ES, SF
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,739.8	11,132.0	457.9	386.3	6.400	CC, ES
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,750.0	11,132.0	458.1	386.4	6.396	SF
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,709.2	11,248.0	360.3	246.2	3.159	CC, ES
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,750.0	11,248.0	363.6	248.1	3.148	SF
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,418.8	9,585.0	4,999.1	4,923.0	65.714	CC, ES
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,550.0	9,585.0	5,017.2	4,940.5	65.475	SF
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,821.5	10,833.0	3,507.3	3,369.9	25.519	CC, ES
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,900.0	10,833.0	3,509.0	3,371.4	25.504	SF
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,374.5	5,990.7	4,433.1	4,389.5	101.640	CC, ES
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,600.0	6,177.6	4,479.8	4,435.0	99.967	SF
Trebor B12-05 - Wellbore #1 - As Drilled	6,380.3	6,143.0	3,921.1	3,875.8	86.499	CC, ES
Trebor B12-05 - Wellbore #1 - As Drilled	6,600.0	6,377.0	3,965.8	3,919.2	85.146	SF
Trebor B12-06 - Wellbore #1 - As Drilled	6,370.4	6,054.7	2,785.4	2,741.5	63.445	CC, ES
Trebor B12-06 - Wellbore #1 - As Drilled	6,600.0	6,328.7	2,835.2	2,789.8	62.466	SF
Trebor B12-07 - Wellbore #1 - As Drilled	6,376.0	6,072.8	1,606.6	1,562.7	36.597	CC, ES
Trebor B12-07 - Wellbore #1 - As Drilled	6,500.0	6,204.2	1,621.0	1,576.3	36.295	SF
Trebor B12-19 - Wellbore #1 - As Drilled	6,368.9	6,075.8	3,461.7	3,417.6	78.497	CC, ES
Trebor B12-19 - Wellbore #1 - As Drilled	6,600.0	6,289.0	3,512.5	3,467.1	77.401	SF
Trebor B12-8 - Wellbore #1 - As Drilled	6,423.5	6,147.2	248.4	204.0	5.599	CC, ES
Trebor B12-8 - Wellbore #1 - As Drilled	6,450.0	6,173.7	248.9	204.4	5.593	SF

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

# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well SLW Ranch State BB07-660
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4661.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4661.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-660	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan 1	<b>Offset TVD Reference:</b>	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	1,158.7	1,109.0	940.6	933.0	123.419	CC
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	1,800.0	1,745.4	942.8	930.6	77.663	ES
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	7,900.0	6,638.2	1,284.3	1,231.9	24.526	SF
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	7,722.5	6,608.3	1,540.2	1,488.1	29.589	CC, ES
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	7,900.0	6,607.1	1,550.4	1,497.6	29.336	SF
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	9,053.6	6,603.4	1,264.3	1,203.2	20.699	CC, ES
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	9,200.0	6,606.5	1,272.7	1,210.4	20.424	SF
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	9,055.9	6,622.0	1,420.3	1,249.7	8.323	CC, ES
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	9,100.0	6,622.0	1,421.0	1,250.0	8.309	SF
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,390.8	6,661.9	1,306.6	1,231.9	17.487	CC
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,400.0	6,662.0	1,306.6	1,231.8	17.465	ES
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,500.0	6,663.0	1,311.2	1,235.4	17.308	SF
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,718.3	6,621.0	1,604.0	1,514.7	17.947	CC, ES
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,900.0	6,626.1	1,614.3	1,523.2	17.712	SF
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,370.7	6,603.1	2,160.3	2,102.5	37.376	CC
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,400.0	6,603.5	2,160.5	2,102.5	37.243	ES
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,900.0	6,609.9	2,224.4	2,162.9	36.183	SF
Skurich-SLW 7D - Original Drilling - Original Drilling - As	8,554.1	6,625.0	547.9	381.5	3.293	CC, ES, SF
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	10,980.3	6,682.3	2,244.3	2,163.0	27.630	CC
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	11,000.0	6,681.5	2,244.4	2,162.9	27.558	ES
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	11,400.0	6,664.6	2,283.3	2,198.3	26.865	SF
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	7,682.3	6,625.3	141.9	90.7	2.775	CC, ES, SF
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	7,643.5	6,640.1	2,825.7	2,660.4	17.093	CC, ES
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	7,900.0	6,642.3	2,837.4	2,670.8	17.030	SF
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	8,971.3	6,629.8	60.5	0.1	1.002	Level 2, CC, ES, SF
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	9,092.9	6,632.8	3,051.3	2,989.2	49.121	CC
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	9,100.0	6,632.7	3,051.3	2,989.2	49.072	ES
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	10,000.0	6,621.4	3,183.9	3,114.6	45.958	SF
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,261.1	6,644.5	1,256.3	1,183.0	17.142	CC, ES
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,400.0	6,643.2	1,263.9	1,189.4	16.962	SF
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	10,096.9	6,639.9	54.2	-17.3	0.758	Level 1, CC, ES, SF
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,436.0	6,679.4	3,001.5	2,926.2	39.891	CC, ES
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	11,200.0	6,658.3	3,097.6	3,015.5	37.760	SF
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,670.9	6,658.1	1,281.4	1,192.5	14.409	CC, ES
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,800.0	6,657.7	1,287.9	1,197.8	14.297	SF
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,615.5	6,651.1	82.6	-5.7	0.936	Level 1, CC, ES, SF
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,660.1	6,676.9	3,075.8	2,986.9	34.605	CC
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,700.0	6,675.9	3,076.0	2,986.7	34.434	ES
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	12,400.0	6,658.1	3,163.9	3,068.3	33.099	SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,950.0	9,953.8	57.7	36.8	2.758	SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,992.8	9,952.7	40.6	29.3	3.594	CC, ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	2,000.0	2,001.0	113.0	99.1	8.142	CC, ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	2,200.0	2,195.6	117.6	102.4	7.704	SF
SLW Ranch State BB07-615 - Original Drilling - Plan 1	2,000.0	1,986.0	2,398.1	2,384.3	173.493	CC, ES
SLW Ranch State BB07-615 - Original Drilling - Plan 1	17,949.8	17,978.2	3,322.6	3,040.7	11.788	SF
SLW Ranch State BB07-621 - Original Drilling - Plan 1	2,200.0	2,186.0	2,377.5	2,362.2	155.835	CC, ES
SLW Ranch State BB07-621 - Original Drilling - Plan 1	17,949.8	17,808.9	2,970.0	2,688.6	10.551	SF
SLW Ranch State BB07-627 - Original Drilling - Plan 1	4,215.7	3,722.5	2,340.1	2,312.4	84.519	CC
SLW Ranch State BB07-627 - Original Drilling - Plan 1	17,949.8	17,892.1	2,569.8	2,288.3	9.130	ES, SF
SLW Ranch State BB07-633 - Original Drilling - Plan 1	7,152.2	6,908.9	2,046.2	1,996.0	40.762	CC
SLW Ranch State BB07-633 - Original Drilling - Plan 1	17,949.8	17,701.3	2,131.8	1,850.5	7.578	ES, SF
SLW Ranch State BB07-639 - Original Drilling - Plan 1	7,171.6	7,100.3	1,677.4	1,626.4	32.912	CC
SLW Ranch State BB07-639 - Original Drilling - Plan 1	17,949.8	17,875.1	1,785.0	1,503.5	6.341	ES, SF

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**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well SLW Ranch State BB07-660
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4661.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4661.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-660	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan 1	<b>Offset TVD Reference:</b>	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 BB07-646 - Original Drilling - Plan 1	7,221.3	7,009.6	1,233.2	1,182.1	24.157	CC
SLW Ranch State BB07-646 - Original Drilling - Plan 1	17,949.8	17,723.1	1,323.4	1,042.3	4.707	ES, SF
SLW Ranch State BB07-650 - Original Drilling - Plan 1	7,255.8	7,132.8	780.6	728.6	15.006	CC
SLW Ranch State BB07-650 - Original Drilling - Plan 1	17,949.8	17,821.5	907.1	625.7	3.223	ES, SF
SLW Ranch State BB07-653 - Original Drilling - Plan 1	2,200.0	2,199.0	21.9	6.6	1.428	Level 3, CC, ES
SLW Ranch State BB07-653 - Original Drilling - Plan 1	2,300.0	2,298.6	22.7	6.7	1.418	Level 3, SF
SLW Ranch State BB07-668 - Original Drilling - Plan 1	2,400.0	2,400.0	21.9	5.1	1.306	Level 3, CC
SLW Ranch State BB07-668 - Original Drilling - Plan 1	2,500.0	2,499.9	22.4	5.0	1.284	Level 3, ES, SF
SLW Ranch State BB07-673 - Original Drilling - Plan 1	2,400.0	2,400.0	43.7	27.0	2.611	CC
SLW Ranch State BB07-673 - Original Drilling - Plan 1	2,500.0	2,500.0	44.2	26.7	2.531	ES
SLW Ranch State BB07-673 - Original Drilling - Plan 1	2,600.0	2,599.8	45.8	27.7	2.526	SF
SLW Ranch State BB07-678 - Original Drilling - Plan 1	2,400.0	2,401.0	65.6	48.9	3.920	CC, ES
SLW Ranch State BB07-678 - Original Drilling - Plan 1	2,500.0	2,500.1	66.8	49.4	3.830	SF
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,200.0	2,201.0	91.1	75.8	5.951	CC, ES
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,300.0	2,298.3	92.6	76.6	5.784	SF

# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well SLW Ranch State BB07-660
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4661.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4661.0ft
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<b>Reference Well:</b>	SLW Ranch State BB07-660	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan 1	<b>Offset TVD Reference:</b>	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 08						
State 11-08 - Original Drilling - Original Drilling - As Drille	12,986.7	6,667.0	1,328.9	1,114.5	6.197	CC
State 11-08 - Original Drilling - Original Drilling - As Drille	13,000.0	6,667.0	1,329.0	1,114.4	6.193	ES
State 11-08 - Original Drilling - Original Drilling - As Drille	13,100.0	6,667.0	1,333.8	1,118.3	6.190	SF
State 5519 08-34 - Original Drilling - Original Drilling - As	15,586.2	6,731.0	2,887.7	2,752.2	21.314	CC
State 5519 08-34 - Original Drilling - Original Drilling - As	15,600.0	6,731.2	2,887.7	2,752.0	21.288	ES
State 5519 08-34 - Original Drilling - Original Drilling - As	16,000.0	6,736.1	2,917.3	2,777.8	20.912	SF
State 5519 08-43 - Original Drilling - Original Drilling - As	16,943.8	6,664.4	1,764.5	1,612.8	11.632	CC, ES
State 5519 08-43 - Original Drilling - Original Drilling - As	17,100.0	6,670.7	1,771.4	1,618.1	11.558	SF
State 5519 12-08 - Original Drilling - Original Drilling - As	12,987.3	6,659.7	189.6	85.4	1.820	CC, ES, SF
State 5519 13-08 - Original Drilling - Original Drilling - As	12,871.0	6,662.0	1,504.7	1,291.7	7.064	CC
State 5519 13-08 - Original Drilling - Original Drilling - As	12,900.0	6,662.0	1,505.0	1,291.7	7.055	ES
State 5519 13-08 - Original Drilling - Original Drilling - As	13,000.0	6,662.0	1,510.2	1,296.0	7.048	SF
State 5519 14-08 - Original Drilling - Original Drilling - As	12,658.4	6,686.6	3,199.6	3,097.9	31.453	CC
State 5519 14-08 - Original Drilling - Original Drilling - As	12,700.0	6,685.9	3,199.9	3,097.7	31.310	ES
State 5519 14-08 - Original Drilling - Original Drilling - As	13,300.0	6,675.9	3,263.6	3,156.0	30.321	SF
State 5519 21-08 - Original Drilling - Original Drilling - As	14,142.7	6,730.8	945.6	827.4	8.003	CC, ES
State 5519 21-08 - Original Drilling - Original Drilling - As	14,200.0	6,730.3	947.3	828.7	7.985	SF
State 5519 23-08 - Original Drilling - Original Drilling - As	14,279.4	6,704.9	1,575.7	1,455.9	13.160	CC
State 5519 23-08 - Original Drilling - Original Drilling - As	14,300.0	6,704.8	1,575.8	1,455.8	13.134	ES
State 5519 23-08 - Original Drilling - Original Drilling - As	14,400.0	6,704.3	1,580.3	1,459.3	13.064	SF
State 5519 24-08 - Original Drilling - Original Drilling - As	13,700.0	13,700.0	3,232.1	3,095.7	23.700	SF
State 5519 24-08 - Original Drilling - Original Drilling - As	14,171.3	6,569.5	3,197.5	3,079.5	27.103	CC
State 5519 24-08 - Original Drilling - Original Drilling - As	14,200.0	6,571.0	3,197.6	3,079.3	27.023	ES
State 5519 31-08 - Original Drilling - Original Drilling - As	15,840.6	6,732.8	814.9	675.9	5.865	CC, ES, SF
State 5519 32-08 - Original Drilling - Original Drilling - As	15,562.6	6,735.7	281.6	146.4	2.083	CC, ES, SF
State 5519 33-08 - Original Drilling - Original Drilling - As	15,552.4	6,704.0	1,630.5	1,495.5	12.077	CC, ES
State 5519 33-08 - Original Drilling - Original Drilling - As	15,700.0	6,705.0	1,637.2	1,500.8	11.998	SF
State 5519 41-08 - Original Drilling - Original Drilling - As	16,911.5	6,700.6	1,327.9	1,176.4	8.767	CC, ES
State 5519 41-08 - Original Drilling - Original Drilling - As	17,000.0	6,700.4	1,330.8	1,178.6	8.745	SF
State 5519 42-08 - Original Drilling - Original Drilling - As	16,961.3	6,710.3	170.8	18.7	1.123	Level 2, CC, ES, SF
State 5519 44-08 - Original Drilling - Original Drilling - As	16,818.1	6,710.5	3,098.8	2,948.5	20.610	CC, ES
State 5519 44-08 - Original Drilling - Original Drilling - As	17,300.0	6,714.2	3,136.2	2,981.3	20.247	SF
State 5519 8A - Original Drilling - Original Drilling - As Dr	16,088.0	6,798.7	2,267.7	2,125.9	15.996	CC
State 5519 8A - Original Drilling - Original Drilling - As Dr	16,100.0	6,798.0	2,267.7	2,125.8	15.980	ES
State 5519 8A - Original Drilling - Original Drilling - As Dr	16,300.0	6,786.8	2,277.6	2,133.7	15.828	SF
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,599.8	6,713.7	544.3	432.7	4.876	CC
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,600.0	6,713.7	544.3	432.7	4.875	ES, SF
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,360.1	6,714.6	164.7	44.1	1.365	Level 3, CC, ES, SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well SLW Ranch State BB07-660
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4661.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4661.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-660	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan 1	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
BB Section 09						
70 Ranch 11-09 - Original Drilling - Original Drilling - As D	17,949.8	6,705.8	1,547.5	1,391.8	9.936	CC, ES, SF
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	17,949.8	6,708.6	1,567.0	1,514.9	30.050	CC, ES, SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	17,949.8	6,463.8	2,955.0	2,877.9	38.341	CC, ES, SF
70 Ranch 41-09 - Original Drilling - Original Drilling - As D	17,949.8	6,666.5	4,398.3	4,329.5	63.970	CC, ES, SF
70 Ranch 44-09 - Original Drilling - Original Drilling - As D	17,949.8	6,583.3	5,009.0	4,906.8	48.993	CC, ES, SF
70 Ranch USX BB09-05 - Original Drilling - Original Drilli	17,949.8	6,721.6	288.8	215.7	3.951	CC, ES, SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilli	17,949.8	6,691.7	2,904.9	2,853.6	56.606	CC, ES, SF
70 Ranch USX BB09-08 - Original Drilling - Original Drilli	17,949.8	6,695.1	4,210.3	4,158.3	80.921	CC, ES, SF
70 Ranch USX BB09-09 - Original Drilling - Original Drilli	17,949.8	6,693.7	4,473.6	4,396.6	58.111	CC, ES, SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilli	17,949.8	6,701.3	3,207.0	3,118.3	36.149	CC, ES, SF
70 Ranch USX BB09-11 - Original Drilling - Original Drillin	17,949.8	6,724.1	2,173.3	2,052.1	17.938	CC, ES, SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilli	17,949.8	6,726.5	3,931.5	3,801.4	30.218	CC, ES, SF
70 Ranch USX BB09-63HN - Original Drilling - Original D	17,900.0	10,829.0	2,360.0	2,108.2	9.374	SF
70 Ranch USX BB09-63HN - Original Drilling - Original D	17,949.8	10,784.3	2,355.8	2,104.6	9.377	CC, ES
70 Ranch USX BB09-99HZ - Original Drilling - Original D	17,949.8	7,167.8	1,508.3	1,381.4	11.887	CC, ES, SF
National Hog Farm 13-09 - Original Drilling - Original Dril	17,949.8	6,780.5	1,420.5	1,257.8	8.733	CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Dril	17,707.3	6,590.9	3,448.4	3,287.6	21.454	CC
National Hog Farm 14-09 - Original Drilling - Original Dril	17,900.0	17,900.0	3,453.5	3,251.1	17.059	ES, SF
National Hog Farm 21-09 - Original Drilling - Original Dril	17,949.8	6,727.4	2,122.4	2,009.6	18.820	CC, ES, SF
National Hog Farm 24-09 - Original Drilling - Original Dril	17,949.8	6,899.3	3,313.0	3,167.1	22.706	CC, ES, SF

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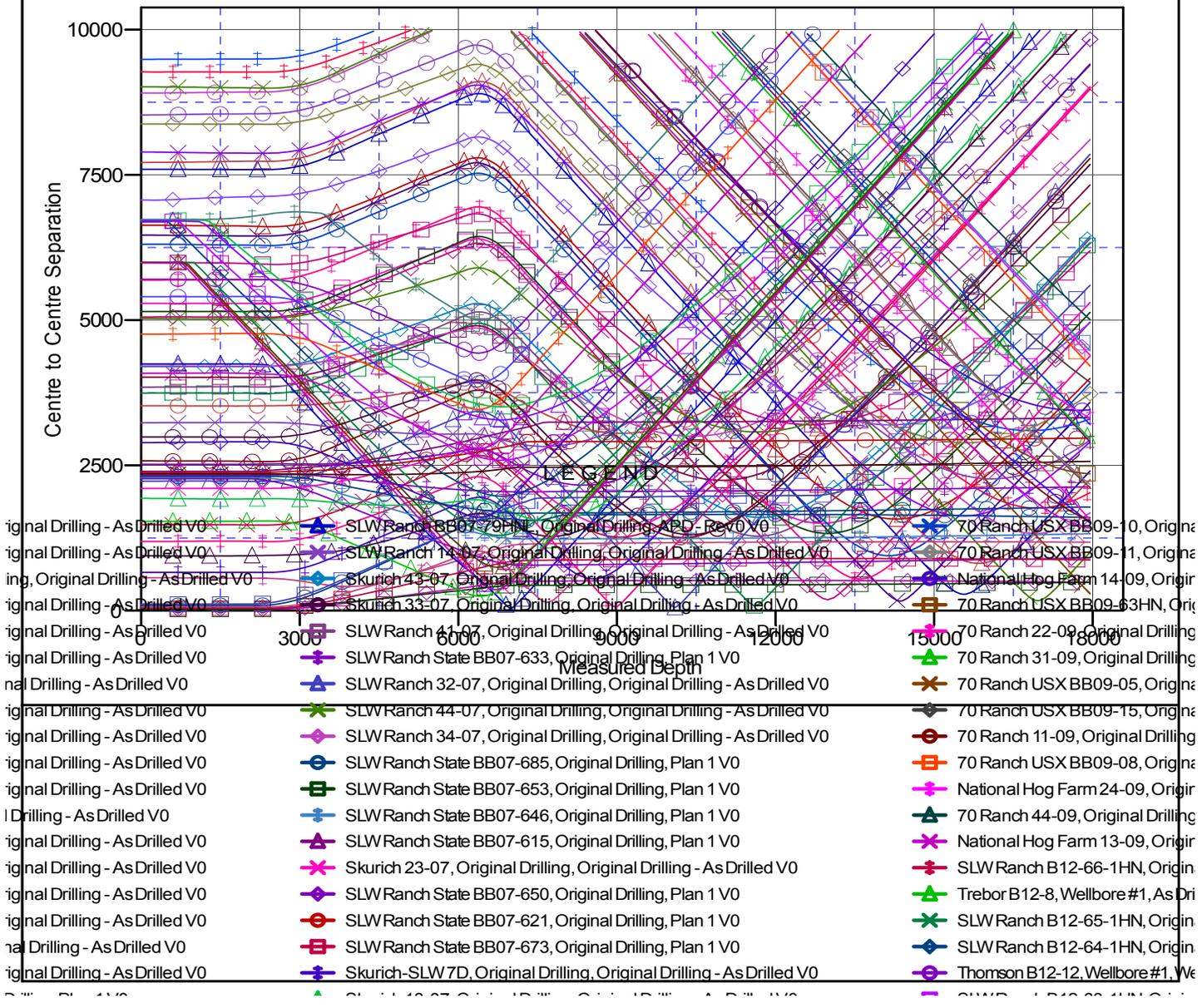
## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well SLW Ranch State BB07-660
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4661.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4661.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-660	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan 1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4661.0ft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.5000000

Coordinates are relative to: SLW Ranch State BB07-660  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.66°

### Ladder Plot



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

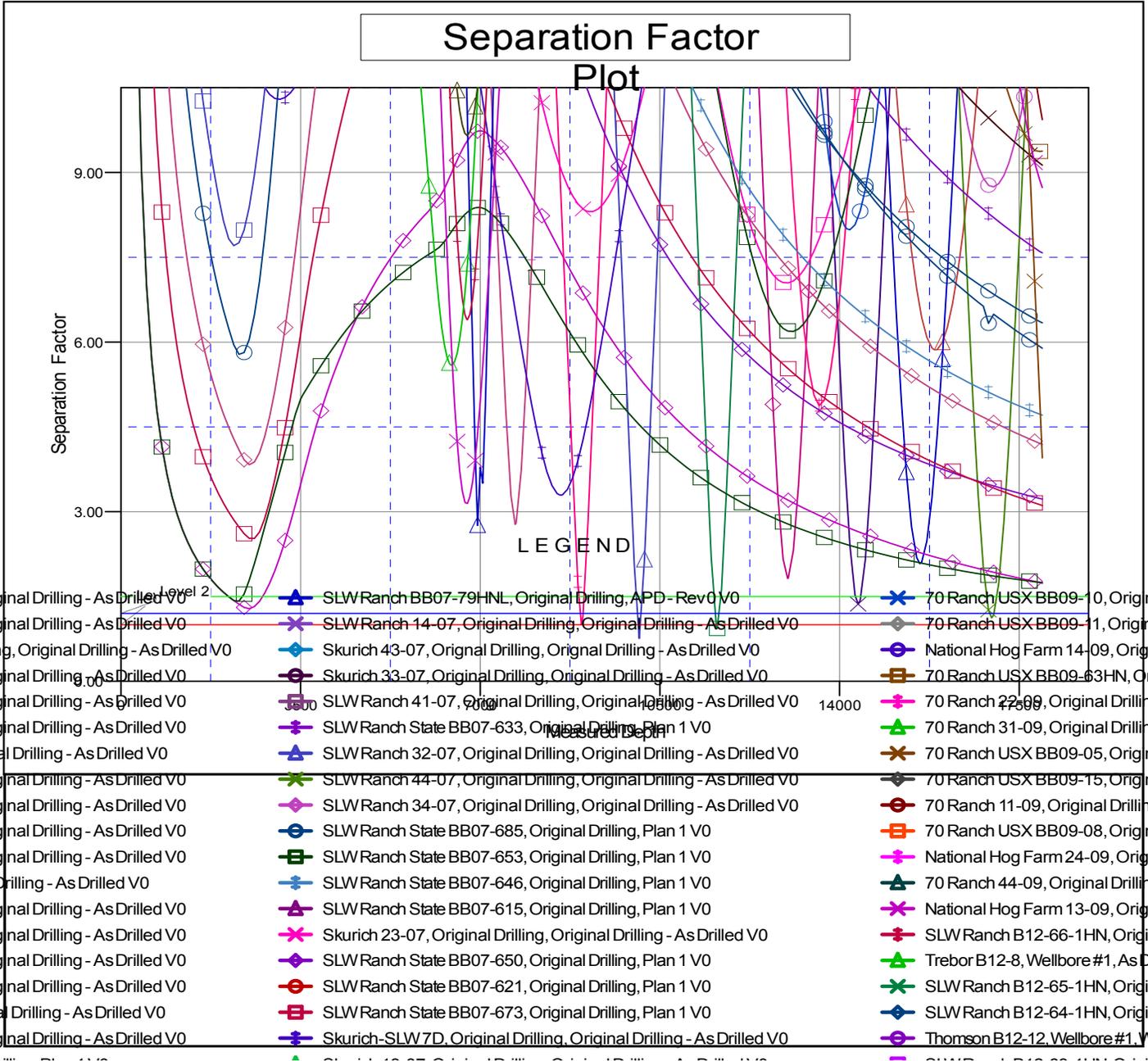
# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b> Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b> Well SLW Ranch State BB07-660
<b>Project:</b> Wells Ranch	<b>TVD Reference:</b> WELL @ 4661.0ft
<b>Reference Site:</b> BB Section 07	<b>MD Reference:</b> WELL @ 4661.0ft
<b>Site Error:</b> 0.0 ft	<b>North Reference:</b> Grid
<b>Reference Well:</b> SLW Ranch State BB07-660	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Well Error:</b> 0.0 ft	<b>Output errors are at:</b> 2.00 sigma
<b>Reference Wellbore:</b> Original Drilling	<b>Database:</b> EDMP
<b>Reference Design:</b> Plan 1	<b>Offset TVD Reference:</b> Offset Datum

Reference Depths are relative to WELL @ 4661.0ft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.5000000

Coordinates are relative to: SLW Ranch State BB07-660  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.66°



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