

# **Northern Region - DJ Basin**

**Wells Ranch**

**BB Section 07**

**SLW Ranch State BB07-633**

**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 BB07-633
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4646.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4646.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-633	<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	17,700.4	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	6,490.8	10,779.0	1,261.0	1,129.6	9.599	CC, ES
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,500.0	10,779.0	1,261.0	1,129.6	9.597	SF
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,482.8	10,812.0	602.0	481.1	4.981	CC, ES, SF
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,503.3	10,993.0	352.2	287.3	5.430	CC, ES
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,550.0	10,993.0	356.9	290.3	5.355	SF
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,470.7	10,974.0	839.5	764.4	11.176	CC, ES
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,500.0	10,974.0	840.2	765.0	11.172	SF
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,451.7	10,992.0	1,381.7	1,304.3	17.849	CC, ES
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,500.0	10,992.0	1,382.9	1,305.3	17.822	SF
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,453.9	11,132.0	1,703.3	1,623.8	21.429	CC, ES
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,550.0	11,132.0	1,707.1	1,627.2	21.372	SF
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,434.5	11,248.0	2,327.1	2,186.4	16.546	CC
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,450.0	11,248.0	2,327.1	2,186.4	16.533	ES
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,550.0	11,248.0	2,330.9	2,189.5	16.493	SF
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,091.7	7,541.6	4,948.5	4,900.4	102.797	CC, ES
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,250.0	7,536.9	4,971.6	4,922.9	101.969	SF
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,497.2	10,833.0	1,477.4	1,344.1	11.087	CC
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,500.0	10,833.0	1,477.4	1,344.1	11.086	ES, SF
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,013.8	5,890.6	4,216.1	4,174.4	101.185	CC, ES
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,350.0	6,183.0	4,306.8	4,263.2	98.752	SF
Trebor B12-05 - Wellbore #1 - As Drilled	6,034.3	6,117.1	4,149.6	4,106.4	96.096	CC, ES
Trebor B12-05 - Wellbore #1 - As Drilled	6,400.0	6,489.5	4,249.9	4,204.4	93.567	SF
Trebor B12-06 - Wellbore #1 - As Drilled	6,007.0	5,926.0	3,387.2	3,345.3	80.856	CC, ES
Trebor B12-06 - Wellbore #1 - As Drilled	6,350.0	6,243.0	3,464.9	3,420.9	78.798	SF
Trebor B12-07 - Wellbore #1 - As Drilled	5,989.8	5,896.0	2,480.0	2,438.2	59.353	CC
Trebor B12-07 - Wellbore #1 - As Drilled	6,000.0	5,905.9	2,480.0	2,438.2	59.254	ES
Trebor B12-07 - Wellbore #1 - As Drilled	6,350.0	6,239.7	2,546.3	2,502.3	57.824	SF
Trebor B12-19 - Wellbore #1 - As Drilled	6,011.7	5,956.1	4,138.6	4,096.6	98.494	CC, ES
Trebor B12-19 - Wellbore #1 - As Drilled	6,400.0	6,309.7	4,239.4	4,195.1	95.658	SF
Trebor B12-8 - Wellbore #1 - As Drilled	0.0	0.0	1,851.4			
Trebor B12-8 - Wellbore #1 - As Drilled	4,400.0	4,368.0	1,864.5	1,834.0	61.005	ES
Trebor B12-8 - Wellbore #1 - As Drilled	6,650.0	6,534.4	1,961.2	1,915.4	42.761	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 BB07-633
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4646.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4646.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-633	<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	826.6	791.6	3,191.8	3,186.5	599.720	CC
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	1,900.0	1,849.9	3,193.4	3,180.6	248.252	ES
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	8,900.0	6,599.1	3,597.5	3,539.0	61.487	SF
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	7,489.2	6,540.4	506.4	456.9	10.238	CC, ES
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	7,500.0	6,540.4	506.5	457.0	10.228	SF
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	8,810.2	6,510.8	3,315.6	3,256.4	56.020	CC, ES
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	10,000.0	6,521.8	3,522.2	3,453.1	50.921	SF
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	8,825.3	6,572.0	631.7	463.5	3.756	CC, ES, SF
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,163.4	6,596.5	752.4	678.8	10.229	CC, ES
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,200.0	6,596.2	753.2	679.4	10.195	SF
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,498.8	6,676.8	463.8	374.8	5.211	CC
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,500.0	6,676.8	463.8	374.8	5.211	ES, SF
Skurich-SLW 7B - Original Drilling - Original Drilling - As	8,140.6	6,574.6	110.6	54.8	1.983	CC, ES, SF
Skurich-SLW 7D - Original Drilling - Original Drilling - As	8,314.7	6,575.0	2,597.8	2,434.2	15.876	CC, ES
Skurich-SLW 7D - Original Drilling - Original Drilling - As	8,600.0	6,575.0	2,613.4	2,447.4	15.742	SF
Skurich-SLW Ranch 7A - Original Drilling - Original Drilling	10,763.0	6,608.6	182.6	102.3	2.275	CC, ES, SF
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	0.0	0.0	1,773.0			
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	2,100.0	2,080.9	1,783.0	1,768.6	123.793	ES
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	7,900.0	6,585.5	1,959.0	1,907.7	38.136	SF
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	7,412.7	6,565.1	779.6	619.3	4.862	CC, ES, SF
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	8,735.2	6,560.4	1,990.4	1,931.8	33.932	CC, ES
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	9,200.0	6,558.6	2,043.9	1,981.5	32.743	SF
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	8,870.4	6,563.5	999.5	939.6	16.684	CC, ES
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	9,000.0	6,561.6	1,007.8	946.8	16.524	SF
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,019.1	6,604.3	3,314.5	3,242.5	46.028	CC, ES
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	11,000.0	6,605.1	3,456.3	3,375.5	42.788	SF
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	9,860.5	6,552.2	2,111.4	2,041.3	30.134	CC
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	9,900.0	6,552.4	2,111.8	2,041.3	29.962	ES
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	11,300.0	11,300.0	2,554.4	2,461.2	27.409	SF
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,220.1	6,604.5	943.1	869.0	12.713	CC, ES
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,300.0	6,602.3	946.5	871.6	12.628	SF
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,428.1	6,598.5	3,348.6	3,260.7	38.103	CC
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,500.0	6,598.7	3,349.4	3,260.7	37.763	ES
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	12,300.0	6,602.4	3,460.0	3,364.3	36.122	SF
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,382.2	6,580.7	1,983.4	1,896.1	22.724	CC
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,400.0	6,580.7	1,983.5	1,896.0	22.673	ES
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,700.0	6,580.7	2,008.7	1,918.6	22.282	SF
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,449.2	6,624.6	1,008.9	920.7	11.435	CC, ES
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,500.0	6,623.3	1,010.2	921.4	11.380	SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,750.0	7,905.8	10.4	-11.0	0.485	Level 1, ES
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,760.4	7,905.7	0.9	-10.9	0.076	Level 1, CC, SF
SLW Ranch State BB06-690 - Original Drilling - Plan 1	1,910.3	1,926.3	2,440.4	2,427.1	183.664	CC
SLW Ranch State BB06-690 - Original Drilling - Plan 1	2,000.0	2,011.9	2,440.4	2,426.5	175.378	ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	13,100.0	12,849.2	4,107.8	3,946.4	25.456	SF
SLW Ranch State BB07-615 - Original Drilling - Plan 1	2,000.0	2,001.0	69.2	55.3	4.988	CC, ES
SLW Ranch State BB07-615 - Original Drilling - Plan 1	17,701.3	17,978.2	1,192.0	910.7	4.238	SF
SLW Ranch State BB07-621 - Original Drilling - Plan 1	2,200.0	2,201.0	47.4	32.1	3.094	CC, ES
SLW Ranch State BB07-621 - Original Drilling - Plan 1	17,701.3	17,819.3	838.2	556.9	2.980	SF
SLW Ranch State BB07-627 - Original Drilling - Plan 1	2,391.9	2,392.8	20.9	4.2	1.255	Level 3, CC
SLW Ranch State BB07-627 - Original Drilling - Plan 1	2,400.0	2,400.8	20.9	4.2	1.251	Level 3, ES, SF
SLW Ranch State BB07-639 - Original Drilling - Plan 1	2,200.0	2,200.0	22.0	6.7	1.439	Level 3, CC, ES
SLW Ranch State BB07-639 - Original Drilling - Plan 1	2,300.0	2,299.9	22.9	6.9	1.432	Level 3, SF
SLW Ranch State BB07-646 - Original Drilling - Plan 1	2,000.0	2,001.0	43.8	29.9	3.156	CC, ES

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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<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4646.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4646.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-633	<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 Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
BB Section 07						
SLW Ranch State BB07-646 - Original Drilling - Plan 1	17,701.3	17,717.2	808.8	527.7	2.878	SF
SLW Ranch State BB07-650 - Original Drilling - Plan 1	2,000.0	2,001.0	65.6	51.7	4.729	CC, ES
SLW Ranch State BB07-650 - Original Drilling - Plan 1	17,701.3	17,810.5	1,225.3	944.8	4.369	SF
SLW Ranch State BB07-653 - Original Drilling - Plan 1	6,956.3	7,154.1	1,613.7	1,563.6	32.213	CC
SLW Ranch State BB07-653 - Original Drilling - Plan 1	17,701.3	17,882.6	1,646.6	1,366.1	5.870	ES, SF
SLW Ranch State BB07-660 - Original Drilling - Plan 1	6,908.9	7,152.2	2,046.2	1,996.0	40.762	CC
SLW Ranch State BB07-660 - Original Drilling - Plan 1	17,701.3	17,899.6	2,131.2	1,850.6	7.593	ES, SF
SLW Ranch State BB07-668 - Original Drilling - Plan 1	2,200.0	2,215.0	2,353.4	2,338.1	153.214	CC
SLW Ranch State BB07-668 - Original Drilling - Plan 1	17,701.3	17,838.9	2,615.7	2,334.6	9.304	ES, SF
SLW Ranch State BB07-673 - Original Drilling - Plan 1	2,200.0	2,215.0	2,374.1	2,358.7	154.556	CC, ES
SLW Ranch State BB07-673 - Original Drilling - Plan 1	17,701.3	17,859.3	3,005.8	2,725.4	10.720	SF
SLW Ranch State BB07-678 - Original Drilling - Plan 1	2,200.0	2,216.0	2,395.6	2,380.2	155.923	CC, ES
SLW Ranch State BB07-678 - Original Drilling - Plan 1	17,701.3	17,823.8	3,307.4	3,027.2	11.805	SF
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,110.3	2,126.3	2,419.7	2,405.0	164.370	CC
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,200.0	2,200.0	2,419.8	2,404.5	158.087	ES
SLW Ranch State BB07-685 - Original Drilling - Plan 1	17,701.3	17,184.5	3,736.2	3,464.4	13.748	SF
BB Section 08						
State 11-08 - Original Drilling - Original Drilling - As Drille	12,743.3	6,617.0	3,405.9	3,193.1	16.005	CC
State 11-08 - Original Drilling - Original Drilling - As Drille	12,800.0	6,617.0	3,406.4	3,192.9	15.958	ES
State 11-08 - Original Drilling - Original Drilling - As Drille	13,200.0	6,617.0	3,436.4	3,218.9	15.802	SF
State 5519 08-34 - Original Drilling - Original Drilling - As	15,388.0	6,722.9	785.4	649.8	5.792	CC
State 5519 08-34 - Original Drilling - Original Drilling - As	15,400.0	6,722.8	785.5	649.7	5.787	ES, SF
State 5519 08-43 - Original Drilling - Original Drilling - As	16,738.2	6,670.9	354.4	202.5	2.334	CC, ES, SF
State 5519 12-08 - Original Drilling - Original Drilling - As	12,756.6	6,586.6	1,886.9	1,783.5	18.241	CC, ES
State 5519 12-08 - Original Drilling - Original Drilling - As	13,000.0	6,586.2	1,902.5	1,796.9	18.010	SF
State 5519 13-08 - Original Drilling - Original Drilling - As	12,651.0	6,612.0	571.4	359.8	2.700	CC, ES, SF
State 5519 14-08 - Original Drilling - Original Drilling - As	12,452.4	6,631.2	1,125.3	1,024.9	11.206	CC, ES
State 5519 14-08 - Original Drilling - Original Drilling - As	12,500.0	6,630.4	1,126.3	1,025.4	11.160	SF
State 5519 21-08 - Original Drilling - Original Drilling - As	13,902.9	6,707.9	3,033.2	2,915.6	25.795	CC, ES
State 5519 21-08 - Original Drilling - Original Drilling - As	14,400.0	6,712.1	3,073.5	2,951.3	25.141	SF
State 5519 23-08 - Original Drilling - Original Drilling - As	14,064.1	6,667.0	513.3	393.9	4.299	CC, ES, SF
State 5519 24-08 - Original Drilling - Original Drilling - As	13,972.0	6,620.4	1,109.4	991.3	9.390	CC, ES
State 5519 24-08 - Original Drilling - Original Drilling - As	14,000.0	6,621.0	1,109.7	991.3	9.367	SF
State 5519 31-08 - Original Drilling - Original Drilling - As	15,602.4	6,734.1	2,920.5	2,781.9	21.071	CC, ES
State 5519 31-08 - Original Drilling - Original Drilling - As	16,000.0	6,766.3	2,947.2	2,804.8	20.702	SF
State 5519 32-08 - Original Drilling - Original Drilling - As	15,336.9	6,709.2	1,820.5	1,685.5	13.491	CC, ES
State 5519 32-08 - Original Drilling - Original Drilling - As	15,500.0	6,711.3	1,827.7	1,691.3	13.397	SF
State 5519 33-08 - Original Drilling - Original Drilling - As	15,340.8	6,696.3	472.0	337.1	3.498	CC, ES, SF
State 5519 41-08 - Original Drilling - Original Drilling - As	16,667.2	6,627.3	3,444.7	3,293.9	22.832	CC
State 5519 41-08 - Original Drilling - Original Drilling - As	16,700.0	6,627.3	3,444.9	3,293.6	22.775	ES
State 5519 41-08 - Original Drilling - Original Drilling - As	17,200.0	6,627.7	3,485.6	3,329.9	22.382	SF
State 5519 42-08 - Original Drilling - Original Drilling - As	16,735.2	6,612.0	1,946.1	1,794.5	12.836	CC, ES
State 5519 42-08 - Original Drilling - Original Drilling - As	16,900.0	6,612.0	1,953.1	1,800.0	12.755	SF
State 5519 44-08 - Original Drilling - Original Drilling - As	16,627.8	6,724.8	981.7	831.0	6.514	CC, ES
State 5519 44-08 - Original Drilling - Original Drilling - As	16,700.0	6,724.2	984.4	833.0	6.505	SF
State 5519 8A - Original Drilling - Original Drilling - As Dr	15,891.5	6,689.5	161.8	20.2	1.143	Level 2, CC, ES, SF
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,363.0	6,732.7	2,627.2	2,516.0	23.628	CC
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,400.0	6,732.2	2,627.4	2,515.8	23.541	ES
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,800.0	6,726.8	2,663.2	2,548.1	23.133	SF
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,135.2	6,599.4	2,251.2	2,131.2	18.765	CC, ES
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,400.0	6,584.0	2,266.6	2,144.3	18.521	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 BB07-633
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4646.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4646.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-633	<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 09						
70 Ranch 11-09 - Original Drilling - Original Drilling - As D	17,500.0	17,500.0	3,662.2	3,465.4	18.614	SF
70 Ranch 11-09 - Original Drilling - Original Drilling - As D	17,701.3	6,631.7	3,626.4	3,464.3	22.371	CC, ES
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	17,701.3	6,699.9	2,654.9	2,515.9	19.099	CC, ES, SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	17,701.3	6,410.8	4,216.6	4,086.7	32.461	CC, ES, SF
70 Ranch 41-09 - Original Drilling - Original Drilling - As D	17,701.3	6,583.3	5,389.2	5,276.9	47.997	CC, ES, SF
70 Ranch 44-09 - Original Drilling - Original Drilling - As D	17,701.3	6,534.2	4,281.0	4,225.9	77.644	CC, ES, SF
70 Ranch USX BB09-05 - Original Drilling - Original Drilling	17,701.3	6,668.4	2,064.9	1,902.5	12.715	CC, ES, SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilling	17,701.3	6,658.7	3,568.8	3,461.3	33.203	CC, ES, SF
70 Ranch USX BB09-08 - Original Drilling - Original Drilling	17,701.3	6,647.0	4,642.5	4,555.3	53.207	CC, ES, SF
70 Ranch USX BB09-09 - Original Drilling - Original Drilling	17,701.3	6,630.5	4,294.0	4,235.7	73.555	CC, ES, SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	17,701.3	6,639.2	3,019.7	2,951.4	44.231	CC, ES, SF
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	17,701.3	6,660.2	1,748.2	1,665.6	21.148	CC, ES, SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilling	17,701.3	6,653.5	2,763.6	2,692.8	39.052	CC, ES, SF
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	17,701.3	10,902.0	267.9	48.7	1.222	Level 3, CC, ES, SF
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	17,701.3	8,470.0	3,063.2	2,905.4	19.411	CC, ES, SF
National Hog Farm 13-09 - Original Drilling - Original Drilling	17,701.3	6,666.9	770.4	614.1	4.929	CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,526.8	6,647.4	1,319.6	1,158.2	8.174	CC, ES
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,600.0	6,649.2	1,321.6	1,159.4	8.149	SF
National Hog Farm 21-09 - Original Drilling - Original Drilling	17,701.3	6,742.4	3,835.5	3,685.0	25.482	CC, ES, SF
National Hog Farm 24-09 - Original Drilling - Original Drilling	17,701.3	6,762.0	1,868.6	1,786.1	22.655	CC, ES, SF

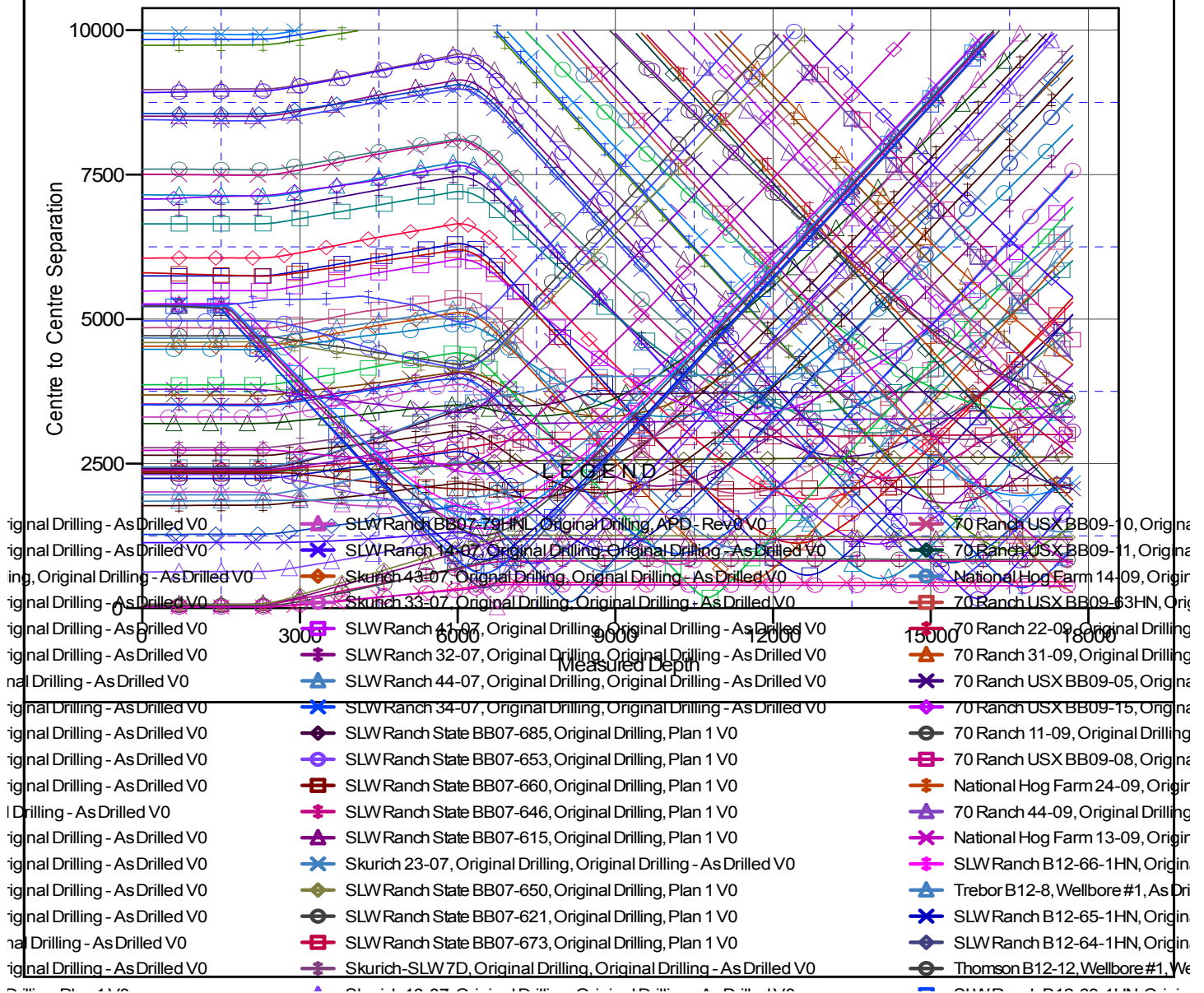
**Noble Energy, Inc.**  
**Anticollision Summary Report**

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well SLW Ranch State BB07-633
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4646.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4646.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-633	<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 @ 4646.0ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: SLW Ranch State BB07-633  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.65°

## Ladder Plot



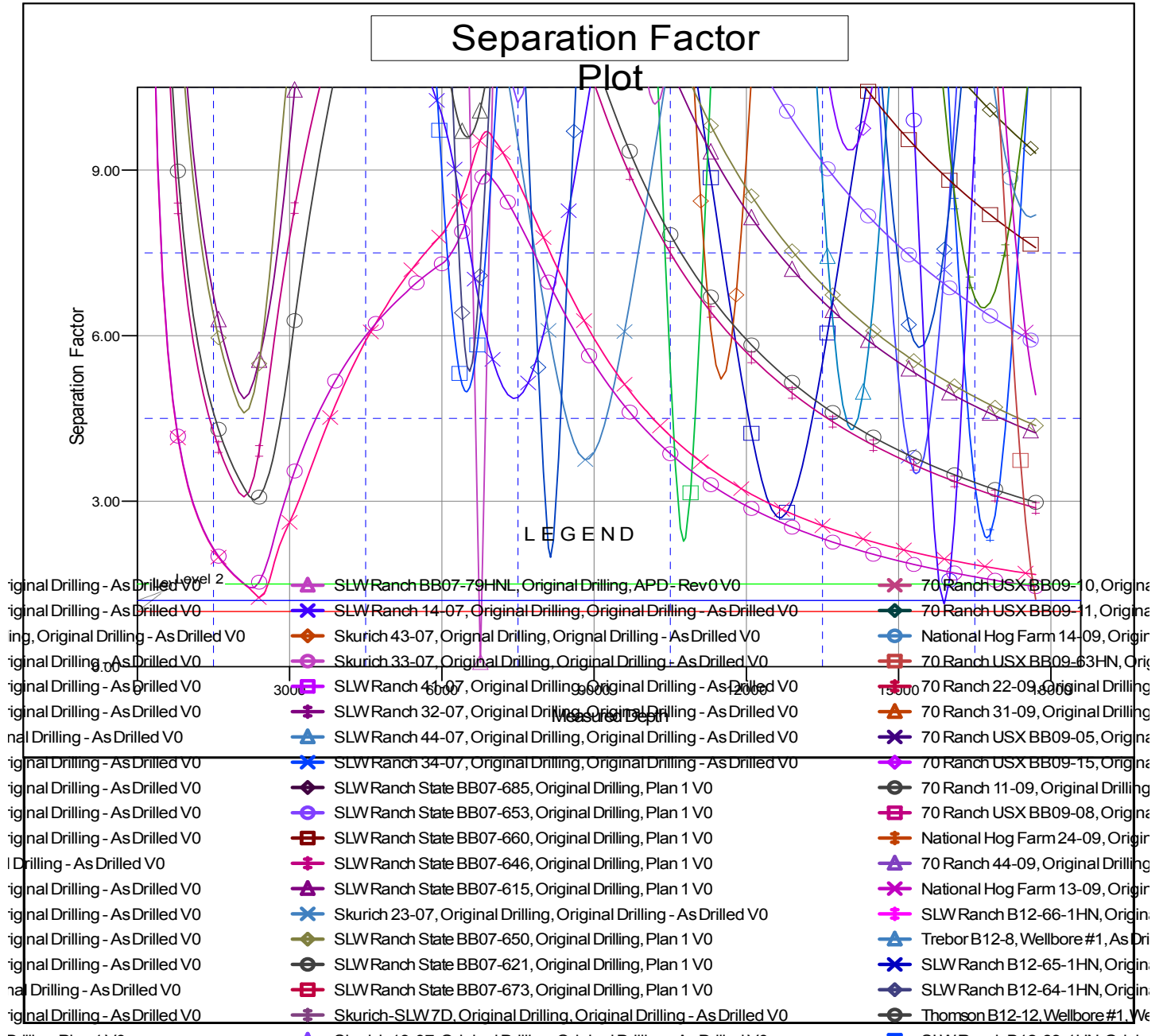
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well SLW Ranch State BB07-633
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	WELL @ 4646.0ft
<b>Reference Site:</b>	BB Section 07	<b>MD Reference:</b>	WELL @ 4646.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	SLW Ranch State BB07-633	<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 @ 4646.0ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: SLW Ranch State BB07-633  
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