

Northern Region - DJ Basin

Wells Ranch

BB Section 07

SLW Ranch State BB07-668

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 BB07-668
Project:	Wells Ranch	TVD Reference:	WELL @ 4661.0ft
Reference Site:	BB Section 07	MD Reference:	WELL @ 4661.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-668	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	17,858.3	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	6,532.5	10,779.0	3,757.7	3,621.8	27.654	CC
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,550.0	10,779.0	3,757.8	3,621.8	27.637	ES
SLW Ranch B12-62-1HN - Original Drilling - As Drilled	6,700.0	10,779.0	3,763.4	3,626.8	27.562	SF
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,557.2	10,812.0	3,064.5	2,926.9	22.279	CC, ES
SLW Ranch B12-63-1HN - Original Drilling - As Drilled	6,650.0	10,812.0	3,066.6	2,928.7	22.246	SF
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,615.7	10,993.0	2,449.7	2,312.9	17.897	CC, ES
SLW Ranch B12-64-1HN - Original Drilling - As Drilled	6,650.0	10,993.0	2,450.1	2,313.1	17.887	SF
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,615.9	10,974.0	1,769.9	1,690.0	22.128	CC, ES
SLW Ranch B12-65-1HN - Original Drilling - As Drilled	6,700.0	10,974.0	1,773.0	1,692.7	22.078	SF
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,627.5	10,992.0	1,212.8	1,133.7	15.344	CC, ES
SLW Ranch B12-65HN - Original Drilling - As Drilled	6,650.0	10,992.0	1,213.1	1,133.9	15.330	SF
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,646.8	11,132.0	904.7	825.9	11.481	CC
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,650.0	11,132.0	904.7	825.9	11.478	ES
SLW Ranch B12-66-1HN - Original Drilling - As Drilled	6,700.0	11,132.0	907.1	828.1	11.472	SF
SLW Ranch B12-67-1HN - Original Drilling - Original Drill	6,662.7	11,248.0	374.0	287.0	4.297	CC, ES, SF
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,335.7	10,106.7	5,031.8	4,947.9	59.979	CC, ES
SLW Ranch B12-79HN - Original Drilling - As Drilled	6,450.0	10,108.1	5,045.1	4,960.6	59.744	SF
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,523.5	10,833.0	3,981.4	3,844.8	29.157	CC, ES
SLW Ranch B13-69HN - Original Drilling - As Drilled	6,750.0	10,833.0	3,990.9	3,853.5	29.042	SF
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,258.2	5,886.4	4,592.7	4,549.6	106.656	CC, ES
Thomson B12-12 - Wellbore #1 - Wellbore #1	6,550.0	6,124.0	4,664.9	4,620.3	104.593	SF
Trebor B12-05 - Wellbore #1 - As Drilled	6,274.8	6,020.6	4,009.3	3,964.6	89.738	CC, ES
Trebor B12-05 - Wellbore #1 - As Drilled	6,550.0	6,317.7	4,075.3	4,029.1	88.090	SF
Trebor B12-06 - Wellbore #1 - As Drilled	6,275.3	5,973.6	2,839.0	2,795.8	65.742	CC, ES
Trebor B12-06 - Wellbore #1 - As Drilled	6,450.0	6,141.3	2,866.7	2,822.5	64.817	SF
Trebor B12-07 - Wellbore #1 - As Drilled	6,274.8	5,988.0	1,705.9	1,662.6	39.396	CC, ES
Trebor B12-07 - Wellbore #1 - As Drilled	6,400.0	6,112.5	1,719.6	1,675.5	39.007	SF
Trebor B12-19 - Wellbore #1 - As Drilled	6,283.0	6,006.4	3,463.8	3,420.5	79.990	CC, ES
Trebor B12-19 - Wellbore #1 - As Drilled	6,500.0	6,194.6	3,507.3	3,462.8	78.809	SF
Trebor B12-8 - Wellbore #1 - As Drilled	6,214.0	5,947.5	621.0	576.8	14.030	CC, ES
Trebor B12-8 - Wellbore #1 - As Drilled	6,350.0	6,082.7	627.0	581.8	13.877	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 BB07-668
Project:	Wells Ranch	TVD Reference:	WELL @ 4661.0ft
Reference Site:	BB Section 07	MD Reference:	WELL @ 4661.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-668	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 07						
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	7,680.2	6,561.7	774.4	723.2	15.112	CC, ES
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	7,700.0	6,560.9	774.7	723.3	15.087	SF
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	1,579.5	1,527.6	1,943.4	1,932.8	183.216	CC
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	2,000.0	1,936.0	1,944.3	1,930.7	143.661	ES
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	8,000.0	6,552.2	2,081.4	2,027.9	38.910	SF
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	8,959.4	6,545.3	752.1	691.3	12.368	CC, ES
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	9,000.0	6,545.7	753.2	692.1	12.314	SF
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	8,951.7	6,564.0	1,931.9	1,762.6	11.411	CC, ES
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	9,100.0	6,564.0	1,937.6	1,767.1	11.359	SF
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,290.4	6,577.9	1,822.0	1,747.7	24.533	CC
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,300.0	6,577.8	1,822.0	1,747.6	24.500	ES
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	10,600.0	6,574.6	1,848.1	1,771.2	24.025	SF
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	11,614.0	6,507.4	2,118.4	2,029.7	23.896	CC, ES
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	12,000.0	6,546.6	2,153.0	2,060.7	23.336	SF
Skurich-SLW 7B - Original Drilling - Original Drilling - As	1,611.6	1,590.6	2,539.5	2,528.5	232.463	CC
Skurich-SLW 7B - Original Drilling - Original Drilling - As	2,000.0	1,961.9	2,540.9	2,527.3	186.663	ES
Skurich-SLW 7B - Original Drilling - Original Drilling - As	9,000.0	6,549.1	2,768.7	2,706.4	44.399	SF
Skurich-SLW 7D - Original Drilling - Original Drilling - As	8,458.3	6,567.0	38.5	-126.7	0.233	Level 1, CC, ES, SF
Skurich-SLW Ranch 7A - Original Drilling - Original Drilling	10,881.7	6,630.3	2,761.4	2,680.4	34.115	CC
Skurich-SLW Ranch 7A - Original Drilling - Original Drilling	10,900.0	6,629.6	2,761.4	2,680.3	34.033	ES
Skurich-SLW Ranch 7A - Original Drilling - Original Drilling	11,500.0	6,608.5	2,829.6	2,743.2	32.757	SF
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	3,513.5	3,459.3	527.5	503.2	21.741	CC
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	3,537.5	3,481.5	527.5	503.1	21.594	ES
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	7,600.0	6,566.6	646.6	595.7	12.709	SF
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	3,444.2	3,421.2	3,256.1	3,227.3	112.832	CC
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	7,526.8	6,588.1	3,330.7	3,167.5	20.409	ES
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	7,900.0	6,591.3	3,351.5	3,186.3	20.287	SF
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	8,873.0	6,576.7	572.5	512.3	9.519	CC, ES
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	8,900.0	6,576.6	573.1	512.8	9.498	SF
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	1,774.8	1,737.8	3,543.1	3,531.1	294.474	CC
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	9,000.0	6,564.2	3,563.5	3,502.3	58.245	ES
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	10,300.0	6,535.5	3,798.9	3,727.3	53.071	SF
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,165.9	6,615.9	741.2	668.1	10.142	CC, ES
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	10,200.0	6,616.2	742.0	668.6	10.107	SF
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	9,998.1	6,583.9	460.6	389.5	6.471	CC
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	10,000.0	6,583.9	460.6	389.4	6.469	ES, SF
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,333.3	6,627.8	3,517.8	3,442.9	46.955	CC
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	10,400.0	6,625.9	3,518.4	3,442.8	46.531	ES
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	11,400.0	6,601.8	3,675.8	3,591.7	43.662	SF
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,572.2	6,585.6	765.0	676.4	8.640	CC, ES
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,600.0	6,585.7	765.5	676.7	8.617	SF
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	11,517.0	6,602.5	599.8	511.8	6.817	CC, ES, SF
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,563.3	6,619.4	3,592.6	3,504.0	40.559	CC
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	11,600.0	6,618.5	3,592.8	3,503.8	40.375	ES
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	12,500.0	6,604.5	3,712.6	3,615.6	38.257	SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,925.7	10,447.6	25.7	14.6	2.320	CC, ES
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,950.0	10,448.4	35.8	16.2	1.824	SF
SLW Ranch State BB06-690 - Original Drilling - Plan 1	2,000.0	2,001.0	91.1	77.2	6.567	CC, ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	2,200.0	2,196.6	95.8	80.5	6.272	SF
SLW Ranch State BB07-615 - Original Drilling - Plan 1	2,000.0	1,986.0	2,418.8	2,405.0	174.989	CC, ES
SLW Ranch State BB07-615 - Original Drilling - Plan 1	17,858.3	17,978.2	3,807.4	3,525.6	13.512	SF
SLW Ranch State BB07-621 - Original Drilling - Plan 1	2,200.0	2,186.0	2,398.1	2,382.9	157.188	CC, ES
SLW Ranch State BB07-621 - Original Drilling - Plan 1	17,858.3	17,808.9	3,453.8	3,172.3	12.272	SF

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Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-668
Project:	Wells Ranch	TVD Reference:	WELL @ 4661.0ft
Reference Site:	BB Section 07	MD Reference:	WELL @ 4661.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-668	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						
SLW Ranch State BB07-627 - Original Drilling - Plan 1	2,420.0	2,406.0	2,374.0	2,357.2	141.040	CC
SLW Ranch State BB07-627 - Original Drilling - Plan 1	2,500.0	2,449.9	2,374.3	2,357.0	137.550	ES
SLW Ranch State BB07-627 - Original Drilling - Plan 1	17,858.3	17,892.1	3,056.3	2,774.9	10.859	SF
SLW Ranch State BB07-633 - Original Drilling - Plan 1	2,200.0	2,185.0	2,353.4	2,338.2	154.294	CC
SLW Ranch State BB07-633 - Original Drilling - Plan 1	17,858.3	17,701.3	2,615.8	2,334.5	9.297	ES, SF
SLW Ranch State BB07-639 - Original Drilling - Plan 1	6,059.2	5,916.7	2,168.3	2,123.9	48.776	CC
SLW Ranch State BB07-639 - Original Drilling - Plan 1	17,858.3	17,875.1	2,272.4	1,990.8	8.071	ES, SF
SLW Ranch State BB07-646 - Original Drilling - Plan 1	7,042.6	6,945.8	1,733.4	1,682.7	34.205	CC
SLW Ranch State BB07-646 - Original Drilling - Plan 1	17,858.3	17,723.1	1,807.0	1,525.6	6.421	ES, SF
SLW Ranch State BB07-650 - Original Drilling - Plan 1	7,126.1	7,107.0	1,283.8	1,231.9	24.717	CC
SLW Ranch State BB07-650 - Original Drilling - Plan 1	17,858.3	17,821.5	1,393.1	1,111.5	4.947	ES, SF
SLW Ranch State BB07-653 - Original Drilling - Plan 1	2,200.0	2,199.0	43.7	28.4	2.857	CC, ES
SLW Ranch State BB07-653 - Original Drilling - Plan 1	2,300.0	2,298.3	44.5	28.5	2.782	SF
SLW Ranch State BB07-660 - Original Drilling - Plan 1	2,400.0	2,400.0	21.9	5.1	1.306	Level 3, CC
SLW Ranch State BB07-660 - Original Drilling - Plan 1	2,500.0	2,499.8	22.4	5.0	1.284	Level 3, ES, SF
SLW Ranch State BB07-673 - Original Drilling - Plan 1	2,495.3	2,504.8	21.8	4.3	1.249	Level 3, CC
SLW Ranch State BB07-673 - Original Drilling - Plan 1	2,600.0	2,599.8	22.5	4.3	1.237	Level 3, ES, SF
SLW Ranch State BB07-678 - Original Drilling - Plan 1	2,400.0	2,401.0	43.8	27.1	2.616	CC
SLW Ranch State BB07-678 - Original Drilling - Plan 1	2,500.0	2,500.4	44.4	27.0	2.548	ES
SLW Ranch State BB07-678 - Original Drilling - Plan 1	17,858.3	17,873.9	692.1	411.1	2.463	SF
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,200.0	2,201.0	69.3	54.0	4.524	CC, ES
SLW Ranch State BB07-685 - Original Drilling - Plan 1	17,858.3	17,205.4	1,122.8	851.3	4.137	SF

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Anticollision Summary Report

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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	12,885.3	6,609.0	813.7	600.6	3.818	CC
State 11-08 - Original Drilling - Original Drilling - As Drille	12,900.0	6,609.0	813.8	600.5	3.815	ES, SF
State 5519 08-34 - Original Drilling - Original Drilling - As	15,505.2	6,725.8	3,391.9	3,256.4	25.019	CC, ES
State 5519 08-34 - Original Drilling - Original Drilling - As	16,100.0	6,718.4	3,443.7	3,302.7	24.427	SF
State 5519 08-43 - Original Drilling - Original Drilling - As	16,857.4	6,609.8	2,257.2	2,105.6	14.896	CC
State 5519 08-43 - Original Drilling - Original Drilling - As	16,900.0	6,611.5	2,257.6	2,105.5	14.850	ES
State 5519 08-43 - Original Drilling - Original Drilling - As	17,100.0	6,619.3	2,270.1	2,116.3	14.762	SF
State 5519 12-08 - Original Drilling - Original Drilling - As	12,889.2	6,607.9	705.3	601.4	6.787	CC
State 5519 12-08 - Original Drilling - Original Drilling - As	12,900.0	6,607.9	705.4	601.3	6.780	ES, SF
State 5519 13-08 - Original Drilling - Original Drilling - As	12,775.5	6,604.0	2,020.2	1,808.4	9.540	CC
State 5519 13-08 - Original Drilling - Original Drilling - As	12,800.0	6,604.0	2,020.3	1,808.3	9.529	ES
State 5519 13-08 - Original Drilling - Original Drilling - As	12,900.0	6,604.0	2,024.0	1,811.0	9.500	SF
State 5519 14-08 - Original Drilling - Original Drilling - As	12,566.2	6,629.8	3,715.6	3,615.0	36.935	CC
State 5519 14-08 - Original Drilling - Original Drilling - As	12,600.0	6,629.2	3,715.8	3,614.8	36.798	ES
State 5519 14-08 - Original Drilling - Original Drilling - As	13,400.0	6,615.9	3,808.0	3,699.9	35.217	SF
State 5519 21-08 - Original Drilling - Original Drilling - As	14,040.9	6,729.9	434.2	316.2	3.680	CC, ES, SF
State 5519 23-08 - Original Drilling - Original Drilling - As	14,188.0	6,655.4	2,086.5	1,967.0	17.456	CC
State 5519 23-08 - Original Drilling - Original Drilling - As	14,200.0	6,655.3	2,086.5	1,966.9	17.436	ES
State 5519 23-08 - Original Drilling - Original Drilling - As	14,400.0	6,653.1	2,097.2	1,975.7	17.255	SF
State 5519 24-08 - Original Drilling - Original Drilling - As	14,075.0	6,383.1	3,704.5	3,587.6	31.675	CC
State 5519 24-08 - Original Drilling - Original Drilling - As	14,100.0	6,384.2	3,704.6	3,587.4	31.594	ES
State 5519 24-08 - Original Drilling - Original Drilling - As	15,000.0	15,000.0	3,817.4	3,661.1	24.422	SF
State 5519 31-08 - Original Drilling - Original Drilling - As	15,730.8	6,662.5	314.0	175.6	2.269	CC, ES, SF
State 5519 32-08 - Original Drilling - Original Drilling - As	15,466.7	6,675.3	785.8	650.9	5.823	CC, ES
State 5519 32-08 - Original Drilling - Original Drilling - As	15,500.0	6,674.8	786.5	651.3	5.816	SF
State 5519 33-08 - Original Drilling - Original Drilling - As	15,463.6	6,637.7	2,133.7	1,998.9	15.835	CC
State 5519 33-08 - Original Drilling - Original Drilling - As	15,500.0	6,637.9	2,134.0	1,998.8	15.788	ES
State 5519 33-08 - Original Drilling - Original Drilling - As	15,700.0	6,639.0	2,146.7	2,009.8	15.678	SF
State 5519 41-08 - Original Drilling - Original Drilling - As	16,801.8	6,649.8	832.7	681.6	5.511	CC, ES, SF
State 5519 42-08 - Original Drilling - Original Drilling - As	16,863.9	6,662.8	665.8	514.0	4.384	CC, ES
State 5519 42-08 - Original Drilling - Original Drilling - As	16,900.0	6,662.9	666.8	514.7	4.384	SF
State 5519 44-08 - Original Drilling - Original Drilling - As	16,744.6	6,649.9	3,593.6	3,443.2	23.902	CC
State 5519 44-08 - Original Drilling - Original Drilling - As	16,800.0	6,650.3	3,594.0	3,443.0	23.801	ES
State 5519 44-08 - Original Drilling - Original Drilling - As	17,300.0	6,654.1	3,636.2	3,480.7	23.375	SF
State 5519 8A - Original Drilling - Original Drilling - As Dr	16,008.1	6,753.5	2,769.9	2,628.1	19.534	CC, ES
State 5519 8A - Original Drilling - Original Drilling - As Dr	16,400.0	6,731.5	2,797.4	2,652.1	19.257	SF
State 5519 8D - Original Drilling - Original Drilling - As Dr	13,500.6	6,638.8	32.9	-78.3	0.296	Level 1, CC, ES, SF
State Lease 5519 22-08 - Original Drilling - Original Drillin	14,263.4	6,675.2	347.8	227.4	2.887	CC, ES, SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB07-668
Project:	Wells Ranch	TVD Reference:	WELL @ 4661.0ft
Reference Site:	BB Section 07	MD Reference:	WELL @ 4661.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB07-668	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	17,858.3	6,644.2	1,100.8	953.4	7.472	CC, ES, SF
70 Ranch 22-09 - Original Drilling - Original Drilling - As D	17,858.3	6,641.2	1,635.0	1,561.2	22.129	CC, ES, SF
70 Ranch 31-09 - Original Drilling - Original Drilling - As D	17,858.3	6,428.4	2,811.9	2,752.6	47.445	CC, ES, SF
70 Ranch 41-09 - Original Drilling - Original Drilling - As D	17,858.3	6,612.8	4,289.1	4,231.6	74.636	CC, ES, SF
70 Ranch 44-09 - Original Drilling - Original Drilling - As D	17,858.3	6,538.4	5,279.9	5,169.2	47.701	CC, ES, SF
70 Ranch USX BB09-05 - Original Drilling - Original Drilling	17,858.3	6,664.6	631.2	479.7	4.165	CC, ES, SF
70 Ranch USX BB09-07 - Original Drilling - Original Drilling	17,858.3	6,616.3	2,953.6	2,891.9	47.924	CC, ES, SF
70 Ranch USX BB09-08 - Original Drilling - Original Drilling	17,858.3	6,636.7	4,256.7	4,197.6	71.992	CC, ES, SF
70 Ranch USX BB09-09 - Original Drilling - Original Drilling	17,858.3	6,634.5	4,651.2	4,563.1	52.779	CC, ES, SF
70 Ranch USX BB09-10 - Original Drilling - Original Drilling	17,858.3	6,647.4	3,437.1	3,334.0	33.342	CC, ES, SF
70 Ranch USX BB09-11 - Original Drilling - Original Drilling	17,858.3	6,673.4	2,523.3	2,389.0	18.796	CC, ES, SF
70 Ranch USX BB09-15 - Original Drilling - Original Drilling	17,858.3	6,666.5	4,301.3	4,164.7	31.487	CC, ES, SF
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	17,700.0	10,883.4	2,850.2	2,598.1	11.307	SF
70 Ranch USX BB09-63HN - Original Drilling - Original Drilling	17,858.3	10,738.1	2,835.2	2,584.9	11.329	CC, ES
70 Ranch USX BB09-99HZ - Original Drilling - Original Drilling	17,858.3	6,823.7	1,160.6	1,037.2	9.408	CC, ES, SF
National Hog Farm 13-09 - Original Drilling - Original Drilling	17,858.3	6,737.0	1,901.5	1,738.1	11.636	CC, ES, SF
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,639.1	6,460.2	3,931.3	3,770.9	24.512	CC
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,700.0	6,460.8	3,931.8	3,770.7	24.404	ES
National Hog Farm 14-09 - Original Drilling - Original Drilling	17,858.3	6,462.3	3,937.1	3,774.2	24.176	SF
National Hog Farm 21-09 - Original Drilling - Original Drilling	17,858.3	6,657.4	1,856.9	1,767.0	20.657	CC, ES, SF
National Hog Farm 24-09 - Original Drilling - Original Drilling	17,858.3	6,861.2	3,736.8	3,586.4	24.841	CC, ES, SF

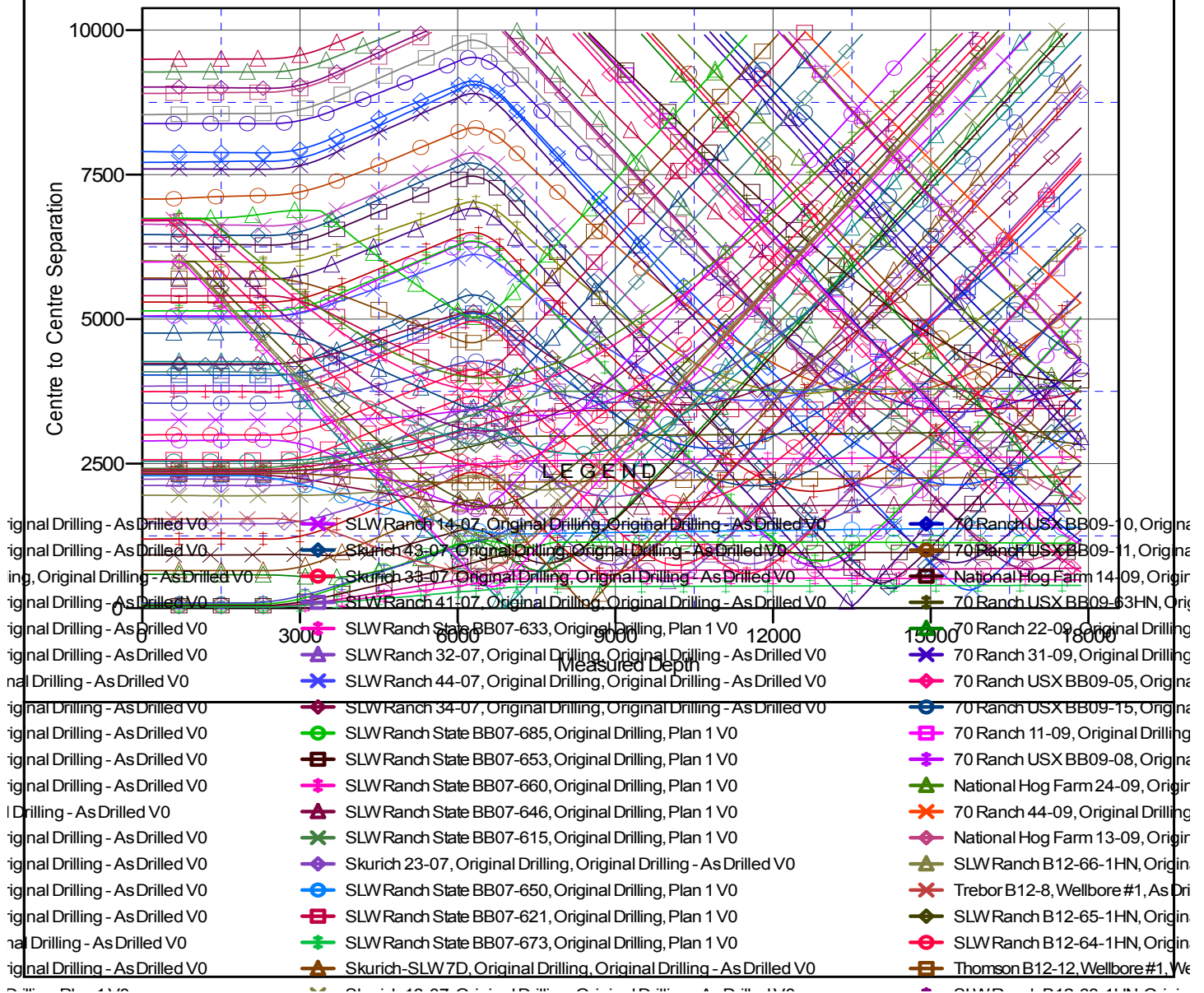
Noble Energy, Inc.
Anticollision Summary Report

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Reference Well:	SLW Ranch State BB07-668	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 @ 4661.0ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: SLW Ranch State BB07-668
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°

Ladder Plot



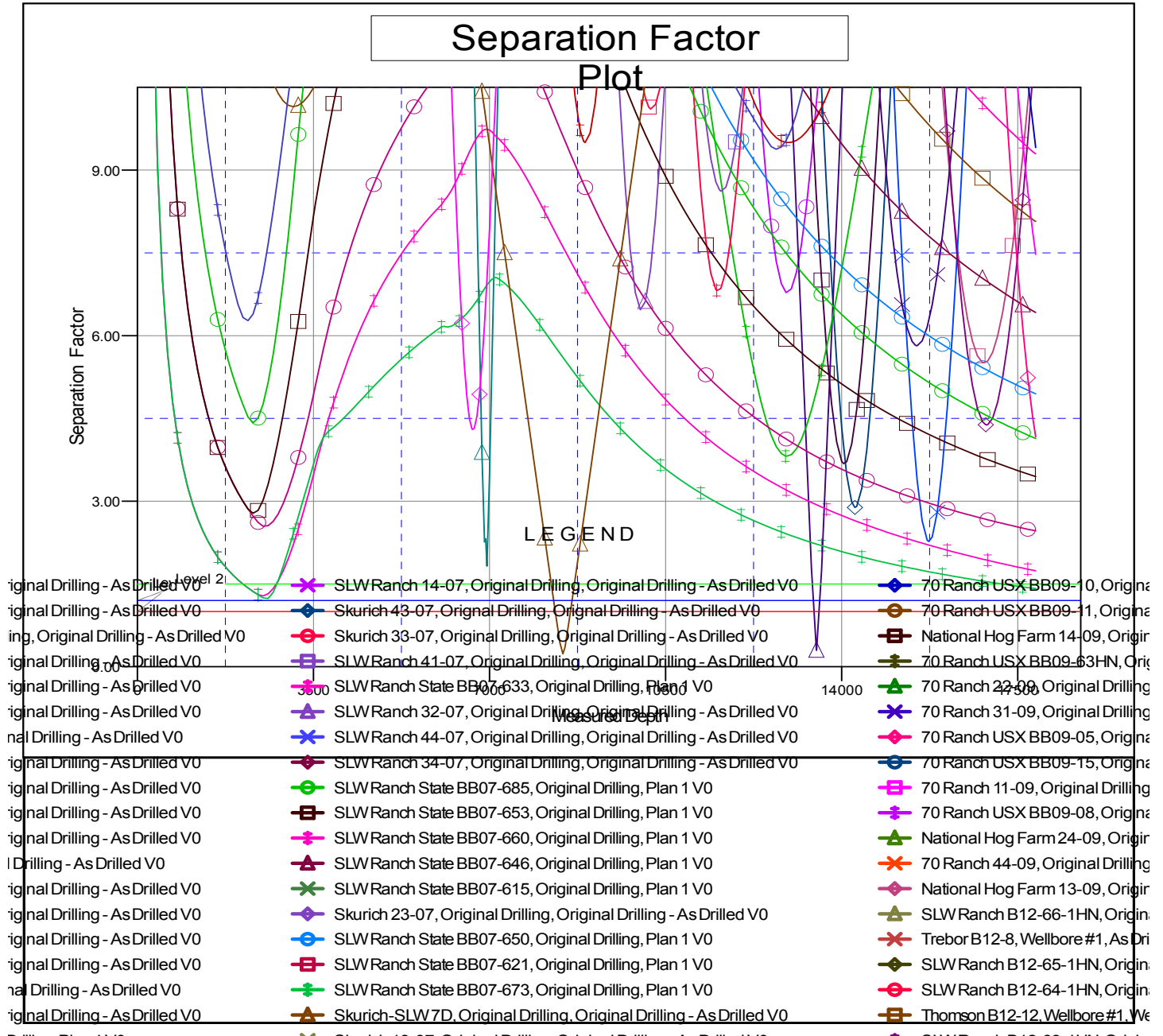
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

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