

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

Site Name	Reference		Distance		Separation Factor	Warning
	Measured Depth (ft)	Offset Measured Depth (ft)	Between Centres (ft)	Between Ellipses (ft)		
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 Drillin	10,881.7	6,630.3	2,761.4	2,680.4	34.115	CC
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	10,900.0	6,629.6	2,761.4	2,680.3	34.033	ES
Skurich-SLW Ranch 7A - Original Drilling - Original Drillin	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

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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
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
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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	12,885.3	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

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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

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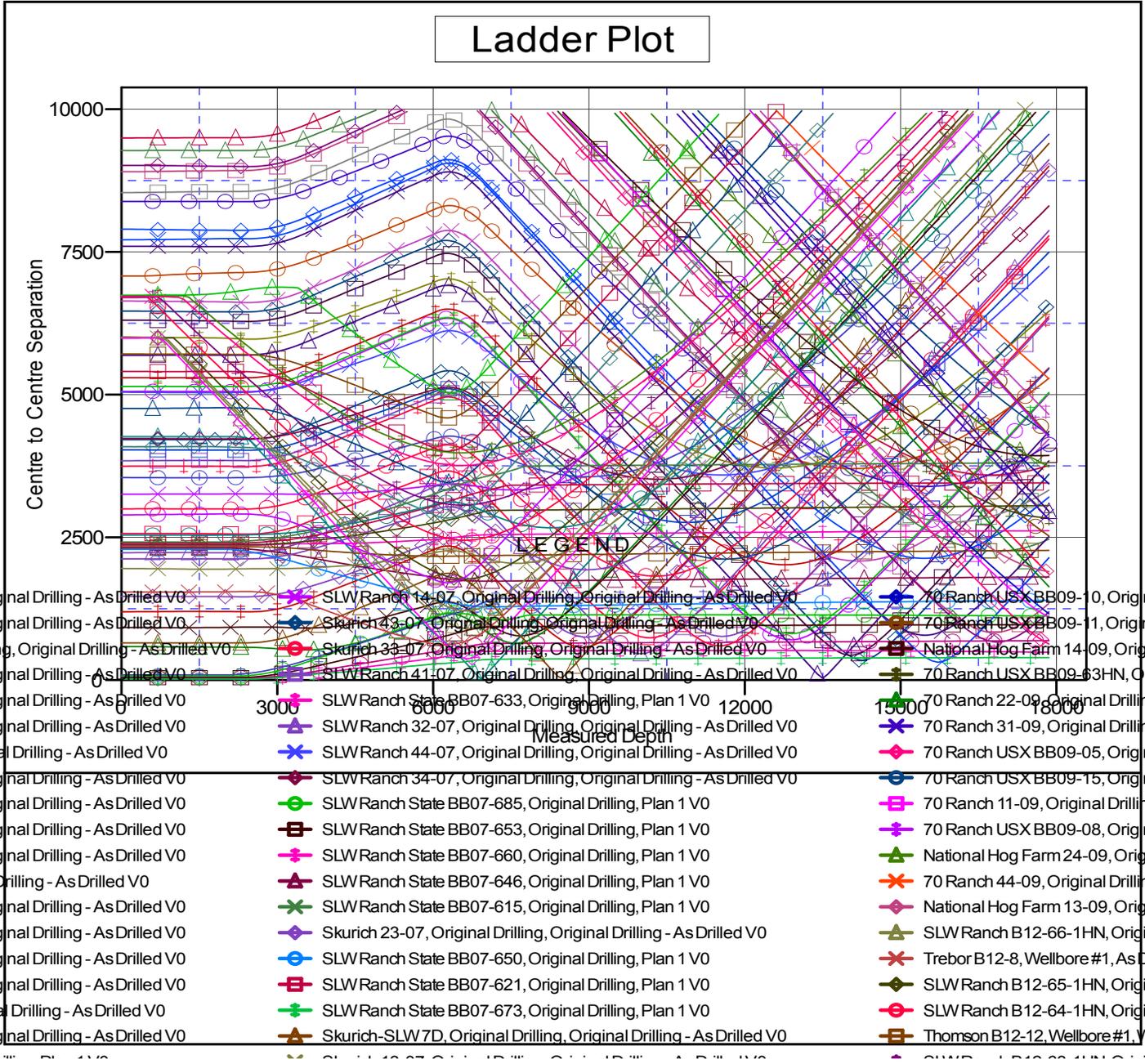
Noble Energy, Inc.

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°



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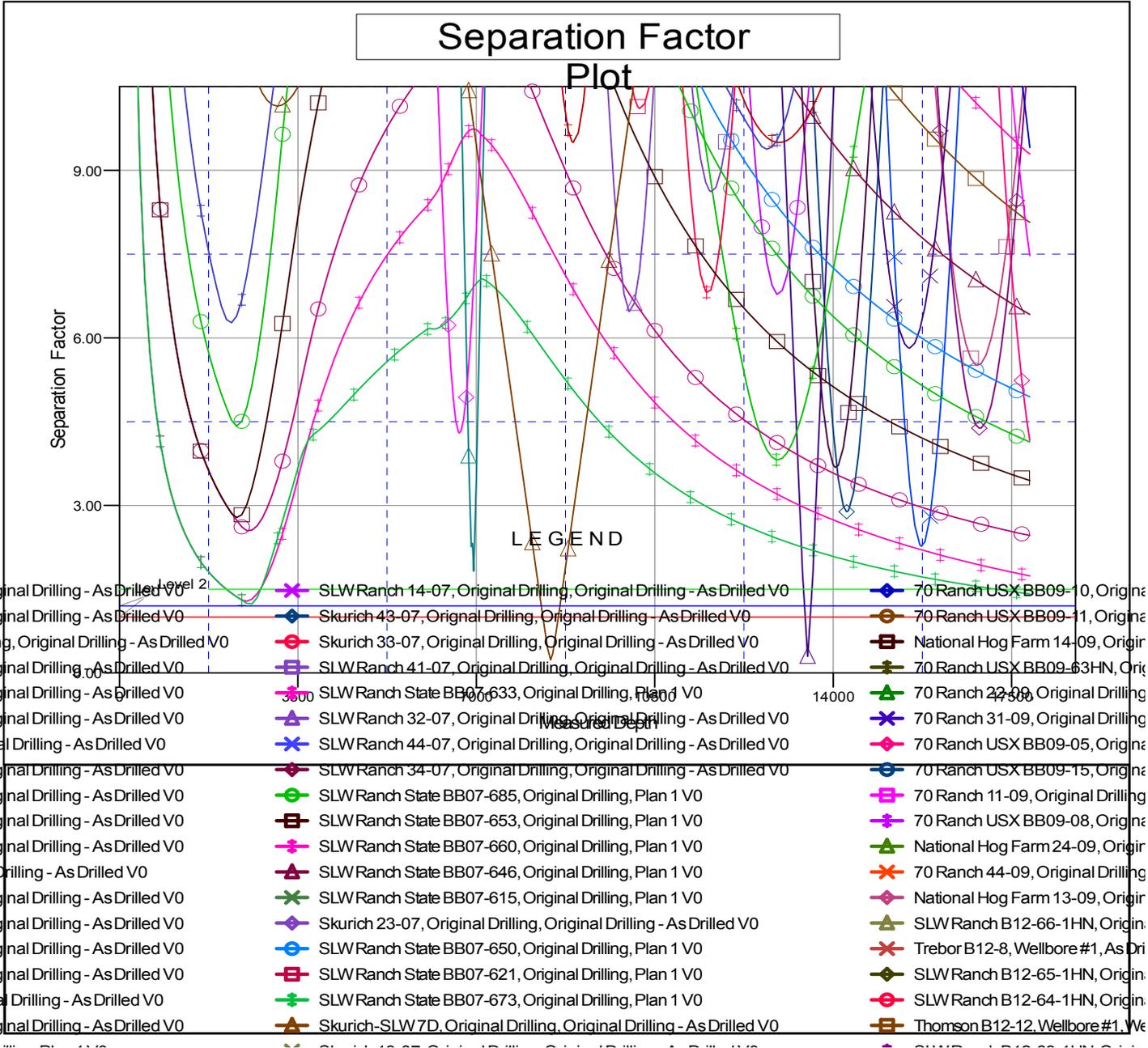
Noble Energy, Inc.

Anticollision Summary Report

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