

Northern Region - DJ Basin

Wells Ranch

BB Section 06

SLW Ranch State BB06-682

SLW Ranch State BB06-682

Plan 1

Anticollision Summary Report

24 October, 2017

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB06-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Reference Site:	BB Section 06	MD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB06-682	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	SLW Ranch State BB06-682	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	10/23/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,588.5	Plan 1 (SLW Ranch State BB06-682)	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 01						
Lucci B01-69HNL - Original Drilling - Original Drilling - As	8,030.0	12,012.4	603.0	452.9	4.017	CC
Lucci B01-69HNL - Original Drilling - Original Drilling - As	11,669.2	15,654.1	637.6	369.0	2.373	ES, SF
Lucci B01-99HZ - Original Drilling - Original Drilling - As	6,300.2	9,689.8	2,511.8	2,449.0	39.971	CC, ES
Lucci B01-99HZ - Original Drilling - Original Drilling - As	6,450.0	9,642.3	2,527.3	2,463.7	39.724	SF
Lucci B03-69HNL - Original Drilling - Original Drilling - As	6,367.7	5,814.2	4,474.7	4,432.2	105.295	CC, ES
Lucci B03-69HNL - Original Drilling - Original Drilling - As	6,700.0	5,957.5	4,558.0	4,513.7	102.893	SF
Lucci BC B1-16 - Wellbore #1 - Wellbore #1	2,004.2	1,993.9	2,389.0	2,375.3	173.871	CC, ES
Lucci BC B1-16 - Wellbore #1 - Wellbore #1	7,000.0	6,478.2	4,062.4	4,014.0	83.872	SF
SLW Ranch B01-62-1HN - Original Drilling - As Drilled	2,035.7	2,070.8	2,276.2	2,263.2	175.106	CC, ES
SLW Ranch B01-62-1HN - Original Drilling - As Drilled	8,700.0	6,338.8	4,624.5	4,564.7	77.365	SF
SLW Ranch B01-63-1HN - Original Drilling - As Drilled	2,668.4	3,045.6	2,208.7	2,189.8	116.544	CC
SLW Ranch B01-63-1HN - Original Drilling - As Drilled	2,700.0	3,066.2	2,209.0	2,189.8	115.046	ES
SLW Ranch B01-63-1HN - Original Drilling - As Drilled	6,500.0	6,464.8	3,530.7	3,479.6	69.129	SF
SLW Ranch B01-64-1HN - Original Drilling - As Drilled	2,786.5	3,196.7	2,001.3	1,981.7	102.210	CC
SLW Ranch B01-64-1HN - Original Drilling - As Drilled	2,800.0	3,206.5	2,001.3	1,981.6	101.689	ES
SLW Ranch B01-64-1HN - Original Drilling - As Drilled	6,200.0	6,399.0	2,730.7	2,680.3	54.188	SF
SLW Ranch B01-66-1HN - Original Drilling - Original Drill	4,511.8	4,361.2	123.9	92.9	3.996	CC, ES, SF
SLW Ranch B01-67-1HN - Original Drilling - As Drilled - S	4,460.5	4,319.1	21.5	-9.6	0.692	Level 1, CC, ES, SF
SLW Ranch B01-68-1HN - Original Drilling - Original Drill	5,868.2	5,597.9	205.8	164.8	5.015	CC, ES
SLW Ranch B01-68-1HN - Original Drilling - Original Drill	5,900.0	5,626.5	206.3	165.0	5.000	SF
SLW Ranch B01-69-1HN - Original Drilling - As Drilled	6,800.0	6,421.3	89.5	43.3	1.938	SF
SLW Ranch B01-69-1HN - Original Drilling - As Drilled	6,811.2	6,427.4	89.0	43.3	1.945	CC, ES
SLW Ranch B12-69-1HN - Wellbore #1 - Wellbore #1- As	853.1	1,484.1	2,320.5	2,314.8	408.387	CC
SLW Ranch B12-69-1HN - Wellbore #1 - Wellbore #1- As	1,200.0	1,817.4	2,320.7	2,312.5	286.242	ES
SLW Ranch B12-69-1HN - Wellbore #1 - Wellbore #1- As	6,550.0	6,550.0	4,487.4	4,440.8	96.202	SF

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

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Reference Site:	BB Section 06	MD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB06-682	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	SLW Ranch State BB06-682	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 03						
U P R R PAN AM 1 PA - Wellbore #1 - No Surveys						Out of range
Wells 43-3 PA - Wellbore #1 - No Surveys						Out of range
Wells 34-3 - Wellbore #1 - No Surveys						Out of range
Wells Rach USX BB 3-14 - Wellbore #1 - Gyro Surveys						Out of range
Wells Ranch 12-03 - Original Drilling - Original Drilling - A						Out of range
Wells Ranch 21-3 TA - Wellbore #1 - No Surveys						Out of range
Wells Ranch 32-3 SI - Wellbore #1 - No Surveys						Out of range
Wells Ranch 41-3 - Wellbore #1 - No Surveys						Out of range
Wells Ranch BB03-612 - Wellbore #1 - Plan 1						Out of range
Wells Ranch BB03-612 - Wellbore #1 - Revision						Out of range
Wells Ranch BB03-620 - Wellbore #1 - Plan 1						Out of range
Wells Ranch BB03-620 - Wellbore #1 - Revision						Out of range
Wells Ranch BB03-627 - Wellbore #1 - Plan 1						Out of range
Wells Ranch BB03-627 - Wellbore #1 - Revision						Out of range
Wells Ranch BB03-636 - Wellbore #1 - Plan 1						Out of range
Wells Ranch BB03-636 - Wellbore #1 - Revision						Out of range
Wells Ranch BB03-643 - Wellbore #1 - Plan 1						Out of range
Wells Ranch BB03-643 - Wellbore #1 - Revision						Out of range
Wells Ranch BB03-651 - Wellbore #1 - Plan 1						Out of range
Wells Ranch BB03-659 - Wellbore #1 - Plan 1						Out of range
Wells Ranch BB03-668 - Wellbore #1 - Plan 1						Out of range
Wells Ranch BB03-676 - Wellbore #1 - Plan 1						Out of range
Wells Ranch BB03-684 - Wellbore #1 - Plan 1						Out of range
Wells Ranch State BB05-613 - Original Drilling - Original	12,588.5	16,996.0	4,513.3	4,309.0	22.092	CC, ES, SF
Wells Ranch State BB05-617 - Original Drilling - Original	12,588.5	16,953.0	4,220.6	4,015.9	20.626	CC, ES, SF
Wells Ranch State BB05-625 - Original Drilling - Original	12,588.5	16,728.0	3,687.9	3,485.6	18.227	CC, ES, SF
Wells Ranch State BB05-630 - Original Drilling - Original	12,588.5	17,015.0	3,440.8	3,236.0	16.807	CC, ES, SF
Wells Ranch State BB05-635 - Original Drilling - Original	12,588.5	17,038.0	3,075.8	2,871.4	15.047	CC, ES, SF
Wells Ranch State BB05-644 - Original Drilling - Original	12,588.5	16,922.0	2,435.6	2,232.0	11.959	CC, ES, SF
Wells Ranch State BB05-650 - Original Drilling - Original	12,588.5	16,968.0	2,120.2	1,923.3	10.768	CC, ES, SF
Wells Ranch State BB05-656 - Original Drilling - Original	12,588.5	16,618.0	1,795.0	1,593.9	8.925	CC, ES, SF
Wells Ranch State BB05-665 - Original Drilling - Original	12,588.5	16,983.0	1,055.9	854.0	5.230	CC, ES, SF
Wells Ranch State BB05-669 - Original Drilling - Original	12,588.5	17,049.0	726.4	524.8	3.602	CC, ES, SF
Wells Ranch State BB05-678 - Original Drilling - Original	12,588.5	17,130.0	446.1	263.6	2.444	CC, ES, SF
Wells Ranch State BB05-685 - Original Drilling - Original	12,588.5	16,716.0	269.3	102.0	1.610	CC, ES, SF
Wells Ranch State BB05-690 - Original Drilling - Original	12,588.5	17,090.0	557.2	378.1	3.111	CC, ES, SF
Wells Ranch USX BB 3-10 - Wellbore #1 - Gyro Surveys						Out of range
Wells Ranch USX BB 3-11 SI - Wellbore #1 - Gyro Surve						Out of range
Wells Ranch USX BB 3-16 SI - Wellbore #1 - Gyro Surve						Out of range
Wells Ranch USX BB 3-2 SI - Wellbore #1 - No Surveys						Out of range
Wells Ranch USX BB 3-4 - Wellbore #1 - No Surveys						Out of range
Wells Ranch USX BB 3-6 SI - Wellbore #1 - Gyro Survey						Out of range
Wells Ranch USX BB 3-8 - Wellbore #1 - Gyro Surveys						Out of range
Wells Ranch USX BB03-04 - Original Drilling - Original D						Out of range
Wells Ranch USX BB03-12 - Original Drilling - Original D						Out of range
Wells Ranch USX BB03-13 - Original Drilling - Original D						Out of range
Wells Ranch USX BB03-25 PA - Original Drilling - Gyro S						Out of range

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Reference Site:	BB Section 06	MD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB06-682	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	SLW Ranch State BB06-682	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 04						
State 11-04 - Original Drilling - Original Drilling - As Drille	12,588.5	6,822.9	5,707.0	5,655.5	110.882	CC, ES, SF
State 12-04 - Original Drilling - Original Drilling - As Drille	12,588.5	7,007.0	5,821.2	5,762.1	98.520	CC, ES, SF
State 13-04 - Original Drilling - Original Drilling - As Drille	12,588.5	6,869.0	6,015.7	5,947.4	88.152	CC, ES, SF
State 21-04 - Original Drilling - Original Drilling - As Drille	12,588.5	6,594.0	6,877.1	6,826.6	136.295	CC, ES, SF
State 22-04 - Original Drilling - Original Drilling - As Drille	12,588.5	6,713.0	6,950.6	6,783.0	41.465	CC, ES, SF
State 23-04 - Original Drilling - Original Drilling - As Drille	12,588.5	6,712.5	7,428.8	7,363.5	113.758	CC, ES, SF
State 24-04 - Original Drilling - Original Drilling - As Drille	12,588.5	6,749.1	8,032.8	7,961.0	111.866	CC, ES, SF
State 31-04 (SI) - Original Drilling - Original Drilling - As D	12,588.5	6,704.5	8,227.7	8,176.7	161.149	CC, ES, SF
State 32-04 - Original Drilling - Original Drilling - As Drille	12,588.5	6,713.0	8,359.6	8,193.2	50.240	CC, ES, SF
State 33-04 - Original Drilling - Original Drilling - As Drille	12,588.5	6,698.0	8,593.3	8,420.9	49.851	CC, ES, SF
State 41-04 (SI) - Original Drilling - Original Drilling - As D	12,588.5	6,577.4	9,411.0	9,360.4	186.140	CC, ES, SF
State 42-04 (SI) - Original Drilling - Original Drilling - As D	12,588.5	6,703.0	9,483.0	9,317.9	57.425	CC, ES, SF
State Lease 34-04 (PA) - Original Drilling - Original Drillin	12,588.5	6,694.0	9,135.6	8,957.2	51.208	CC, ES, SF
State Wells 14-04 - Original Drilling - Original Drilling - As	12,588.5	6,700.0	6,925.7	6,739.5	37.195	CC, ES, SF
State Wells 44-04 - Original Drilling - Original Drilling - As						Out of range

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Reference Wellbore	SLW Ranch State BB06-682	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 05						
UPV 05-03H3 - Original Drilling - Original Drilling - As Dri	12,588.5	6,733.1	1,558.2	1,506.3	29.972	CC, ES, SF
UPV 05-04H3 - Original Drilling - Original Drilling - As Dri	12,588.5	6,599.7	533.7	455.5	6.821	CC, ES, SF
UPV 05-05H3 - Original Drilling - Original Drilling - As Dri	12,588.5	6,605.7	1,722.5	1,625.1	17.675	CC, ES, SF
UPV 05-06H3 - Original Drilling - Original Drilling - As Dri	12,588.5	6,706.5	2,205.8	2,124.6	27.169	CC, ES, SF
Well Ranch AA32-757 - Wellbore #1 - Rev 1	12,588.5	6,555.5	1,706.2	1,656.2	34.123	CC, ES, SF
Wells Ranch 31-05 - Original Drilling - Original Drilling - A	12,588.5	6,650.8	3,087.0	3,036.1	60.555	CC, ES, SF
Wells Ranch 32-05 - Original Drilling - Original Drilling - A	12,588.5	6,629.0	3,271.8	3,205.6	49.457	CC, ES, SF
Wells Ranch 41-05 - Original Drilling - Original Drilling - A	12,588.5	6,600.0	4,278.0	4,227.1	84.076	CC, ES, SF
Wells Ranch 42-05 - Original Drilling - Original Drilling - A	12,588.5	6,592.5	4,455.3	4,394.6	73.393	CC, ES, SF
Wells Ranch AA32-718 - Wellbore #1 - Rev 1	12,588.5	6,033.1	4,347.5	4,298.5	88.747	CC, ES, SF
Wells Ranch AA32-725 - Wellbore #1 - Rev 1	12,588.5	6,487.9	3,962.4	3,912.5	79.389	CC, ES, SF
Wells Ranch AA32-731 - Wellbore #1 - Rev 1	12,588.5	6,400.0	3,567.5	3,516.7	70.225	CC, ES, SF
Wells Ranch AA32-738 - Wellbore #1 - Rev 1	12,588.5	6,700.0	3,144.4	3,092.2	60.264	CC, ES, SF
Wells Ranch AA32-744 - Wellbore #1 - Rev 1	12,588.5	6,116.7	2,563.2	2,513.1	51.200	CC, ES, SF
Wells Ranch AA32-750 - Wellbore #1 - Rev 1	12,588.5	6,450.0	2,233.6	2,182.7	43.896	CC, ES, SF
Wells Ranch AA32-763 - Wellbore #1 - Rev 1	12,588.5	6,500.0	1,430.8	1,378.4	27.275	CC, ES, SF
Wells Ranch AA32-770 - Wellbore #1 - Rev 1	12,588.5	6,389.8	991.7	934.5	17.319	CC, ES, SF
Wells Ranch AA32-776 - Wellbore #1 - Rev 1	12,588.5	6,450.0	706.3	638.1	10.357	CC, ES, SF
Wells Ranch AA32-783 - Wellbore #1 - Rev 1	12,588.5	6,375.6	558.7	466.4	6.058	CC, ES, SF
Wells Ranch AA32-790 - Wellbore #1 - Rev 1	12,248.7	6,512.1	376.7	288.8	4.282	CC, ES, SF
Wells Ranch BB01-611 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB01-615 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB01-624 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB01-624 - Original Drilling - ST01 - ST01						Out of range
Wells Ranch BB01-638 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB01-649 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB01-655 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB01-669 - Original Drilling - Original Drilling						Out of range
Wells Ranch BB01-675 - Original Drilling - Original Drilling						Out of range
Wells Ranch State BB01-690 - Original Drilling - Original						Out of range
Wells Ranch USX BB05-09 - Original Drilling - Original D	12,588.5	6,612.1	5,124.7	5,053.9	72.284	CC, ES, SF
Wells Ranch USX BB05-10 - Original Drilling - Original D	12,588.5	6,582.8	4,160.2	4,079.9	51.786	CC, ES, SF
Wells Ranch USX BB05-11 - Original Drilling - Original D	12,588.5	6,708.5	3,074.5	2,984.1	34.018	CC, ES, SF
Wells Ranch USX BB05-12 - Original Drilling - Original D	12,588.5	6,744.9	2,886.3	2,787.4	29.168	CC, ES, SF
Wells Ranch USX BB05-13 - Original Drilling - Original D	12,588.5	6,721.1	4,095.8	3,997.0	41.476	CC, ES, SF
Wells Ranch USX BB05-14 - Original Drilling - Original D	12,588.5	6,770.0	4,271.5	4,175.9	44.662	CC, ES, SF
Wells Ranch USX BB05-15 - Original Drilling - Original D	12,588.5	6,486.5	4,973.8	4,886.5	56.957	CC, ES, SF
Wells Ranch USX BB05-16 - Original Drilling - Original D	12,588.5	6,602.4	5,777.3	5,696.6	71.563	CC, ES, SF
Wells Ranch USX BB05-23 - Original Drilling - Original D	12,588.5	6,658.4	5,058.3	4,978.5	63.448	CC, ES, SF
Wells Ranch USX BB05-25 - Original Drilling - Original D	12,588.5	6,691.4	3,479.0	3,381.2	35.583	CC, ES, SF

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Reference Wellbore	SLW Ranch State BB06-682	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)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
BB Section 06						
Skurich-Roth 21-06 - Original Drilling - Original Drilling - A	8,977.9	6,573.5	167.1	107.7	2.814	CC, ES, SF
Skurich-Roth 23-06 - Original Drilling - Original Drilling - A	215.8	210.8	1,919.7	1,918.6	1,739.748	CC
Skurich-Roth 23-06 - Original Drilling - Original Drilling - A	2,007.3	2,005.8	1,920.0	1,906.2	139.211	ES
Skurich-Roth 23-06 - Original Drilling - Original Drilling - A	9,800.0	6,554.1	2,842.9	2,778.0	43.752	SF
Skurich-Roth 24-06 - Original Drilling - Original Drilling - A	0.0	4.3	2,746.4			
Skurich-Roth 24-06 - Original Drilling - Original Drilling - A	10,600.0	6,652.1	4,348.1	4,276.3	60.579	SF
Skurich-Roth 24-06 - Original Drilling - Original Drilling - A	10,268.3	6,562.8	2,780.7	2,708.9	38.728	CC
Skurich-Roth 33-06 - Original Drilling - Original Drilling - A	10,300.0	6,562.1	2,780.9	2,708.8	38.579	ES
Skurich-Roth 33-06 - Original Drilling - Original Drilling - A	10,900.0	6,549.8	2,851.7	2,775.1	37.254	SF
Skurich-Roth 42-06 - Original Drilling - Original Drilling - A	11,529.7	6,615.7	1,468.7	1,382.9	17.102	CC, ES
Skurich-Roth 42-06 - Original Drilling - Original Drilling - A	11,700.0	6,619.3	1,478.6	1,391.6	16.994	SF
Skurich-Roth 6D - Original Drilling - Original Drilling - As	8,526.0	6,588.8	793.1	737.1	14.162	CC, ES
Skurich-Roth 6D - Original Drilling - Original Drilling - As	8,600.0	6,588.2	796.5	740.2	14.153	SF
Skurich-Roth 11-06 - Original Drilling - Original Drilling -	7,701.3	6,575.5	130.7	68.3	2.094	CC, ES, SF
Skurich-Roth 12-06 - Original Drilling - Original Drilling -	3,224.9	3,165.1	637.4	615.2	28.737	CC, ES
Skurich-Roth 12-06 - Original Drilling - Original Drilling -	3,800.0	3,676.6	689.3	663.2	26.398	SF
Skurich-Roth 13-06 - Original Drilling - Original Drilling -	1,884.4	1,862.4	960.6	947.7	74.675	CC
Skurich-Roth 13-06 - Original Drilling - Original Drilling -	2,002.9	1,981.9	960.7	947.0	70.095	ES
Skurich-Roth 13-06 - Original Drilling - Original Drilling -	8,300.0	6,591.9	2,797.0	2,741.2	50.136	SF
Skurich-Roth 14-06 - Original Drilling - Original Drilling -	2,002.4	1,989.2	2,230.6	2,216.9	162.599	CC, ES
Skurich-Roth 14-06 - Original Drilling - Original Drilling -	9,600.0	6,648.6	4,457.0	4,394.9	71.843	SF
Skurich-Roth 22-06 - Original Drilling - Original Drilling -	8,969.7	6,636.3	1,667.3	1,607.4	27.850	CC, ES
Skurich-Roth 22-06 - Original Drilling - Original Drilling -	9,200.0	6,634.1	1,683.1	1,621.9	27.466	SF
Skurich-Roth 31-06 - Original Drilling - Original Drilling -	10,197.4	6,598.3	141.1	70.7	2.004	CC, ES, SF
Skurich-Roth 34-06 - Original Drilling - Original Drilling -	0.0	13.4	3,695.6			
Skurich-Roth 34-06 - Original Drilling - Original Drilling -	2,002.3	2,019.8	3,696.7	3,682.9	267.451	ES
Skurich-Roth 34-06 - Original Drilling - Original Drilling -	11,600.0	6,569.4	4,259.1	4,176.6	51.566	SF
Skurich-Roth 41-06 - Original Drilling - Original Drilling -	11,551.4	6,620.9	121.9	35.9	1.417	Level 3, CC, ES, SF
Skurich-Roth 43-06 - Original Drilling - Original Drilling -	11,440.3	6,579.7	2,641.9	2,557.2	31.207	CC, ES
Skurich-Roth 43-06 - Original Drilling - Original Drilling -	11,900.0	6,588.2	2,681.6	2,593.3	30.342	SF
Skurich-Roth 44-06 - Original Drilling - Original Drilling -	11,582.6	6,663.0	3,939.2	3,852.4	45.374	CC
Skurich-Roth 44-06 - Original Drilling - Original Drilling -	11,600.0	6,663.1	3,939.3	3,852.3	45.282	ES
Skurich-Roth 44-06 - Original Drilling - Original Drilling -	12,588.5	6,663.5	4,066.0	3,970.8	42.685	SF
Skurich-Roth 6A - Original Drilling - Original Drilling - As	10,988.4	6,607.7	3,344.0	3,264.2	41.876	CC
Skurich-Roth 6A - Original Drilling - Original Drilling - As	11,000.0	6,607.6	3,344.0	3,264.1	41.817	ES
Skurich-Roth 6A - Original Drilling - Original Drilling - As	11,800.0	6,604.9	3,441.4	3,355.0	39.831	SF
Skurich-Roth 32-06 - Original Drilling - Original Drilling -	10,237.0	6,613.0	1,400.3	1,219.1	7.729	CC, ES
Skurich-Roth 32-06 - Original Drilling - Original Drilling -	10,300.0	6,613.0	1,401.7	1,220.1	7.718	SF
SLW Ranch State BB06-619 - Original Drilling - Prelim -	2,000.0	2,000.0	138.4	124.6	9.979	CC, ES
SLW Ranch State BB06-619 - Original Drilling - Prelim -	2,100.0	2,095.5	141.7	127.1	9.738	SF
SLW Ranch State BB06-631 - Original Drilling - Plan 1	2,000.0	2,000.0	112.9	99.1	8.141	CC, ES
SLW Ranch State BB06-631 - Original Drilling - Plan 1	2,200.0	2,199.8	119.5	104.2	7.811	SF
SLW Ranch State BB06-642 - Original Drilling - Plan 1	2,000.0	2,000.0	91.1	77.2	6.565	CC, ES
SLW Ranch State BB06-642 - Original Drilling - Plan 1	2,100.0	2,100.0	92.7	78.1	6.356	SF
SLW Ranch State BB06-652 - Original Drilling - Plan 1	2,000.0	2,000.0	69.2	55.3	4.990	CC, ES
SLW Ranch State BB06-652 - Original Drilling - Plan 1	2,100.0	2,100.0	70.9	56.3	4.858	SF
SLW Ranch State BB06-662 - Original Drilling - Plan 1	2,000.0	2,000.0	47.4	33.5	3.414	CC, ES
SLW Ranch State BB06-662 - Original Drilling - Plan 1	2,100.0	2,100.0	49.0	34.4	3.359	SF
SLW Ranch State BB06-672 - Original Drilling - Plan 1	2,000.0	2,001.0	25.5	11.6	1.838	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

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB06-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Reference Site:	BB Section 06	MD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB06-682	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	SLW Ranch State BB06-682	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	2,044.7	2,070.7	3,546.2	3,532.1	250.560	CC, ES
Skurich 11-07 - Original Drilling - Original Drilling - As Dri	10,800.0	6,345.0	6,222.3	6,153.3	90.213	SF
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	1,553.9	1,524.0	6,376.0	6,365.5	607.135	CC
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	2,000.0	1,922.0	6,377.4	6,363.9	472.976	ES
Skurich 13-07 - Original Drilling - Original Drilling - As Dri	12,588.5	6,610.2	9,595.7	9,508.5	109.990	SF
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	849.4	836.4	3,880.1	3,874.5	697.945	CC
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	1,700.0	1,659.3	3,882.9	3,871.5	338.256	ES
Skurich 21-07 - Original Drilling - Original Drilling - As Dri	11,600.0	6,679.7	6,014.5	5,934.6	75.242	SF
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	2,000.0	1,998.0	6,453.6	6,406.7	137.614	CC
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	2,100.0	2,098.0	6,455.4	6,406.1	131.062	ES
Skurich 23-07 - Original Drilling - Original Drilling - As Dri	12,000.0	6,600.0	8,640.0	8,444.9	44.277	SF
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	2,019.7	2,085.4	6,825.1	6,811.0	483.316	CC, ES
Skurich 33-07 - Original Drilling - Original Drilling - As Dri	12,588.5	6,559.9	8,295.2	8,201.1	88.227	SF
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	0.0	37.0	7,678.3			
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	2,009.3	2,070.5	7,681.4	7,667.3	547.584	ES
Skurich 43-07 - Original Drilling - Original Drilling - As Drill	12,588.5	6,400.0	8,315.4	8,219.4	86.578	SF
Skurich-SLW 7B - Original Drilling - Original Drilling - As	1,606.7	1,607.7	7,005.8	6,994.8	638.832	CC
Skurich-SLW 7B - Original Drilling - Original Drilling - As	2,000.0	1,953.5	7,007.2	6,993.6	515.879	ES
Skurich-SLW 7B - Original Drilling - Original Drilling - As	12,588.5	6,566.8	9,828.8	9,737.3	107.366	SF
Skurich-SLW 7D - Original Drilling - Original Drilling - As	2,000.0	2,001.0	4,422.6	4,375.6	94.184	CC
Skurich-SLW 7D - Original Drilling - Original Drilling - As	2,100.0	2,101.0	4,424.3	4,375.0	89.717	ES
Skurich-SLW 7D - Original Drilling - Original Drilling - As	10,200.0	6,603.0	6,357.2	6,178.9	35.667	SF
Skurich-SLW Ranch 7A - Original Drilling - Original Drilling	2,005.0	2,049.6	7,921.9	7,907.9	567.808	CC, ES
Skurich-SLW Ranch 7A - Original Drilling - Original Drilling	12,588.5	6,663.8	9,067.8	8,971.5	94.159	SF
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	2,007.8	2,021.9	4,957.7	4,943.8	357.375	CC, ES
SLW Ranch 12-07 - Original Drilling - Original Drilling - A	12,200.0	6,648.0	8,228.0	8,147.0	101.507	SF
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	0.0	0.0	7,683.1			
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	2,000.0	1,972.3	7,687.0	7,673.3	562.902	ES
SLW Ranch 14-07 - Original Drilling - Original Drilling - A	10,700.0	6,726.1	9,999.4	9,808.2	52.301	SF
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	0.0	2.6	5,110.4			
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	2,001.5	2,007.2	5,116.9	5,103.1	371.237	ES
SLW Ranch 22-07 - Original Drilling - Original Drilling - A	12,588.5	12,588.5	7,688.0	7,579.4	70.733	SF
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	1,753.6	1,738.6	7,969.0	7,957.0	666.412	CC
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	2,000.0	1,934.6	7,969.9	7,956.4	589.409	ES
SLW Ranch 24-07 - Original Drilling - Original Drilling - A	11,300.0	6,630.8	9,983.9	9,902.2	122.136	SF
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	2,026.3	2,078.5	4,557.4	4,543.3	322.887	CC, ES
SLW Ranch 31-07 - Original Drilling - Original Drilling - A	12,400.0	6,563.0	5,855.4	5,766.2	65.669	SF
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	0.0	11.3	5,510.5			
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	2,015.2	2,059.0	5,512.5	5,498.4	393.618	ES
SLW Ranch 32-07 - Original Drilling - Original Drilling - A	12,588.5	6,614.8	7,102.3	7,010.4	77.255	SF
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	1,694.7	1,712.1	8,404.5	8,392.9	721.397	CC
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	1,800.0	1,778.6	8,404.8	8,392.5	685.575	ES
SLW Ranch 34-07 - Original Drilling - Original Drilling - A	12,588.5	6,674.1	9,923.3	9,827.7	103.757	SF
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,541.6	6,600.0	5,373.3	5,287.3	62.468	CC
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	11,600.0	6,600.0	5,373.7	5,287.0	62.031	ES
SLW Ranch 41-07 - Original Drilling - Original Drilling - A	12,588.5	6,600.0	5,474.8	5,378.8	57.034	SF
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	314.6	339.6	6,464.3	6,462.4	3,383.923	CC
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	2,004.5	2,039.2	6,474.0	6,460.1	465.533	ES
SLW Ranch 42-07 - Original Drilling - Original Drilling - A	12,588.5	6,686.3	6,827.3	6,730.4	70.457	SF
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	1,788.2	1,836.3	8,904.3	8,891.8	716.555	CC
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	2,000.0	1,981.0	8,905.1	8,891.5	650.581	ES
SLW Ranch 44-07 - Original Drilling - Original Drilling - A	12,588.5	6,634.6	9,787.7	9,690.4	100.544	SF
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	6,999.5	16,548.9	107.5	90.4	6.273	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 BB06-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Reference Site:	BB Section 06	MD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB06-682	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	SLW Ranch State BB06-682	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 BB07-79HNL - Original Drilling - APD - Rev	7,000.0	16,549.0	107.5	90.3	6.251	ES
SLW Ranch BB07-79HNL - Original Drilling - APD - Rev	7,050.0	16,561.8	119.7	97.2	5.332	SF
SLW Ranch State BB06-690 - Original Drilling - Plan 1	3,037.8	4,623.8	4,141.9	4,114.5	151.626	CC, ES
SLW Ranch State BB06-690 - Original Drilling - Plan 1	12,588.5	12,849.2	4,670.4	4,517.1	30.467	SF
SLW Ranch State BB07-615 - Original Drilling - Plan 1	2,000.0	2,008.0	6,729.5	6,715.6	484.086	CC, ES
SLW Ranch State BB07-615 - Original Drilling - Plan 1	12,588.5	12,742.2	9,915.7	9,762.7	64.815	SF
SLW Ranch State BB07-621 - Original Drilling - Plan 1	2,000.0	2,008.0	6,707.7	6,693.8	482.514	CC, ES
SLW Ranch State BB07-621 - Original Drilling - Plan 1	12,588.5	12,586.7	9,578.5	9,425.9	62.756	SF
SLW Ranch State BB07-627 - Original Drilling - Plan 1	2,000.0	2,008.0	6,682.2	6,668.3	480.681	CC, ES
SLW Ranch State BB07-627 - Original Drilling - Plan 1	12,588.5	12,629.8	9,148.9	8,996.4	60.015	SF
SLW Ranch State BB07-633 - Original Drilling - Plan 1	2,000.0	2,007.0	6,660.4	6,646.5	479.233	CC, ES
SLW Ranch State BB07-633 - Original Drilling - Plan 1	12,588.5	12,451.3	8,727.6	8,575.4	57.361	SF
SLW Ranch State BB07-639 - Original Drilling - Plan 1	2,000.0	2,007.0	6,638.4	6,624.5	477.654	CC, ES
SLW Ranch State BB07-639 - Original Drilling - Plan 1	12,588.5	12,606.0	8,367.1	8,214.6	54.840	SF
SLW Ranch State BB07-646 - Original Drilling - Plan 1	2,366.7	3,164.8	6,579.1	6,559.8	341.108	CC
SLW Ranch State BB07-646 - Original Drilling - Plan 1	2,400.0	3,202.0	6,579.3	6,559.7	336.641	ES
SLW Ranch State BB07-646 - Original Drilling - Plan 1	12,588.5	12,463.4	7,910.1	7,757.9	51.983	SF
SLW Ranch State BB07-650 - Original Drilling - Plan 1	2,676.0	4,121.7	6,443.6	6,419.8	270.191	CC
SLW Ranch State BB07-650 - Original Drilling - Plan 1	2,700.0	4,145.7	6,443.7	6,419.7	268.176	ES
SLW Ranch State BB07-650 - Original Drilling - Plan 1	12,588.5	12,532.6	7,487.9	7,335.9	49.263	SF
SLW Ranch State BB07-653 - Original Drilling - Plan 1	2,000.0	2,021.0	4,513.0	4,499.0	323.555	CC, ES
SLW Ranch State BB07-653 - Original Drilling - Plan 1	12,588.5	12,663.8	7,096.5	6,944.0	46.558	SF
SLW Ranch State BB07-660 - Original Drilling - Plan 1	2,000.0	2,022.0	4,491.3	4,477.3	321.916	CC, ES
SLW Ranch State BB07-660 - Original Drilling - Plan 1	12,588.5	12,738.1	6,652.8	6,499.4	43.355	SF
SLW Ranch State BB07-668 - Original Drilling - Plan 1	2,000.0	2,022.0	4,469.6	4,455.6	320.361	CC, ES
SLW Ranch State BB07-668 - Original Drilling - Plan 1	12,588.5	12,627.7	6,137.1	5,984.1	40.092	SF
SLW Ranch State BB07-673 - Original Drilling - Plan 1	2,000.0	2,022.0	4,447.9	4,433.9	318.806	CC, ES
SLW Ranch State BB07-673 - Original Drilling - Plan 1	12,588.5	12,683.0	5,757.2	5,604.1	37.610	SF
SLW Ranch State BB07-678 - Original Drilling - Plan 1	2,000.0	2,023.0	4,426.5	4,412.6	317.193	CC, ES
SLW Ranch State BB07-678 - Original Drilling - Plan 1	12,588.5	12,671.7	5,471.2	5,318.3	35.771	SF
SLW Ranch State BB07-685 - Original Drilling - Plan 1	2,852.8	4,174.4	4,306.2	4,281.7	175.475	CC, ES
SLW Ranch State BB07-685 - Original Drilling - Plan 1	12,588.5	12,696.6	5,067.4	4,915.4	33.328	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB06-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Reference Site:	BB Section 06	MD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB06-682	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	SLW Ranch State BB06-682	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	12,588.5	6,645.0	5,329.6	5,121.3	25.593	CC, ES, SF
State 5519 08-34 - Original Drilling - Original Drilling - As	12,588.5	6,713.3	9,954.0	9,857.1	102.701	CC, ES, SF
State 5519 08-43 - Original Drilling - Original Drilling - As	12,588.5	6,448.7	9,397.3	9,305.0	101.846	CC, ES, SF
State 5519 12-08 - Original Drilling - Original Drilling - As	12,588.5	6,666.7	6,846.9	6,748.4	69.525	CC, ES, SF
State 5519 13-08 - Original Drilling - Original Drilling - As	12,588.5	6,640.0	8,158.6	7,950.5	39.209	CC, ES, SF
State 5519 14-08 - Original Drilling - Original Drilling - As	305.3	356.3	9,618.3	9,616.4	4,901.297	CC
State 5519 14-08 - Original Drilling - Original Drilling - As	2,100.0	2,441.4	9,624.2	9,608.5	610.050	ES
State 5519 14-08 - Original Drilling - Original Drilling - As	12,588.5	6,680.2	9,852.8	9,753.2	98.974	SF
State 5519 21-08 - Original Drilling - Original Drilling - As	12,588.5	6,675.3	5,875.4	5,777.9	60.307	CC, ES, SF
State 5519 23-08 - Original Drilling - Original Drilling - As	12,588.5	6,700.0	8,370.3	8,272.2	85.289	CC, ES, SF
State 5519 24-08 - Original Drilling - Original Drilling - As	12,588.5	6,200.0	9,937.7	9,841.7	103.429	CC, ES, SF
State 5519 31-08 - Original Drilling - Original Drilling - As	12,588.5	6,054.7	6,576.1	6,486.4	73.302	CC, ES, SF
State 5519 32-08 - Original Drilling - Original Drilling - As	12,588.5	6,735.4	7,482.3	7,386.9	78.462	CC, ES, SF
State 5519 33-08 - Original Drilling - Original Drilling - As	12,588.5	6,549.4	8,742.9	8,647.3	91.474	CC, ES, SF
State 5519 41-08 - Original Drilling - Original Drilling - As	12,588.5	6,773.7	6,748.9	6,661.2	76.979	CC, ES, SF
State 5519 42-08 - Original Drilling - Original Drilling - As	12,588.5	6,783.0	8,013.0	7,921.6	87.731	CC, ES, SF
State 5519 44-08 - Original Drilling - Original Drilling - As						Out of range
State 5519 8A - Original Drilling - Original Drilling - As Dr	12,588.5	7,012.0	9,518.7	9,421.5	97.952	CC, ES, SF
State 5519 8D - Original Drilling - Original Drilling - As Dr	12,588.5	6,480.6	6,164.4	6,067.1	63.365	CC, ES, SF
State Lease 5519 22-08 - Original Drilling - Original Drillin	12,588.5	7,046.0	6,677.5	6,578.3	67.250	CC, ES, SF

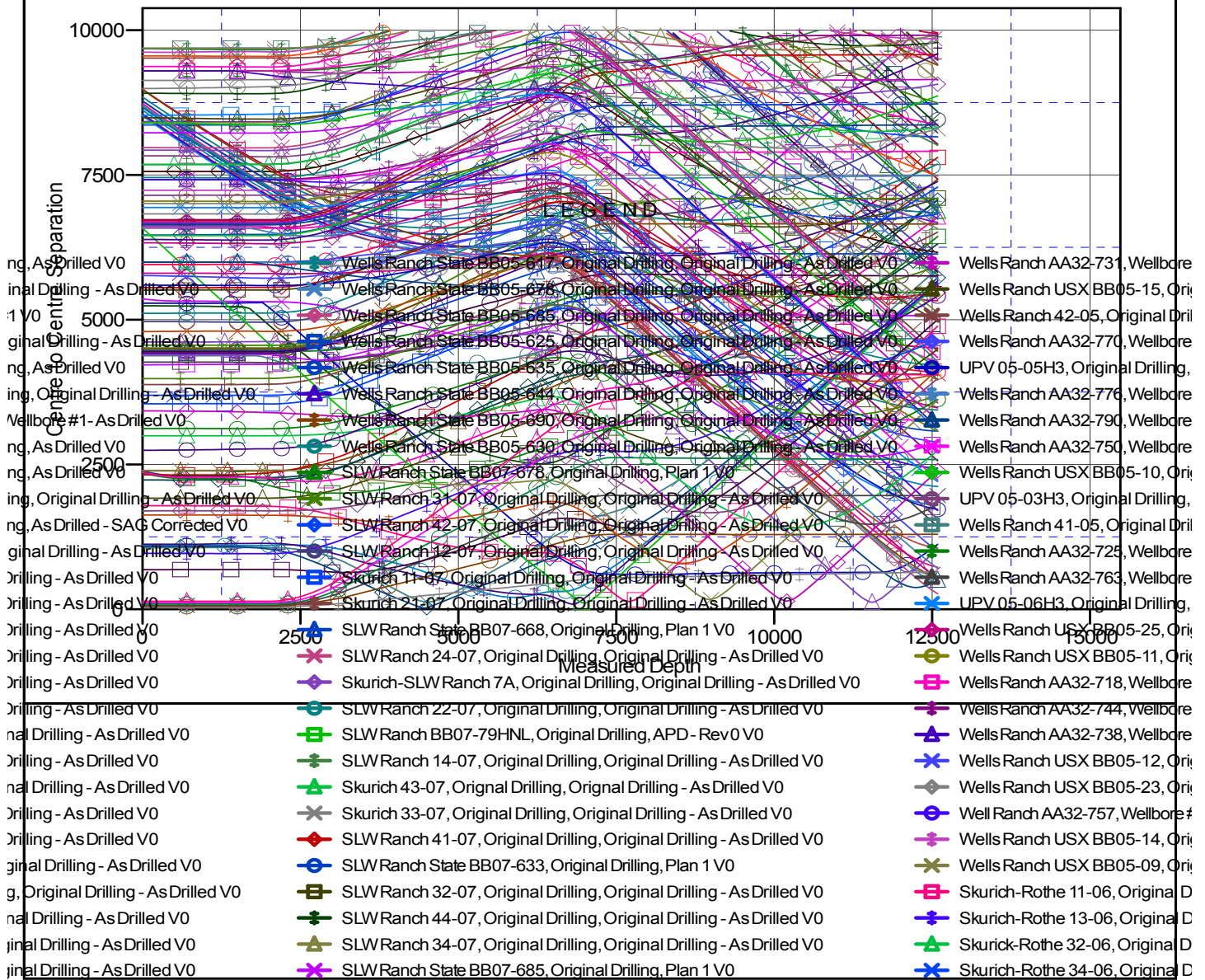
Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB06-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Reference Site:	BB Section 06	MD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB06-682	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	SLW Ranch State BB06-682	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4639.0ft (Original Well Elev.)
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: SLW Ranch State BB06-682
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.65°

Ladder Plot



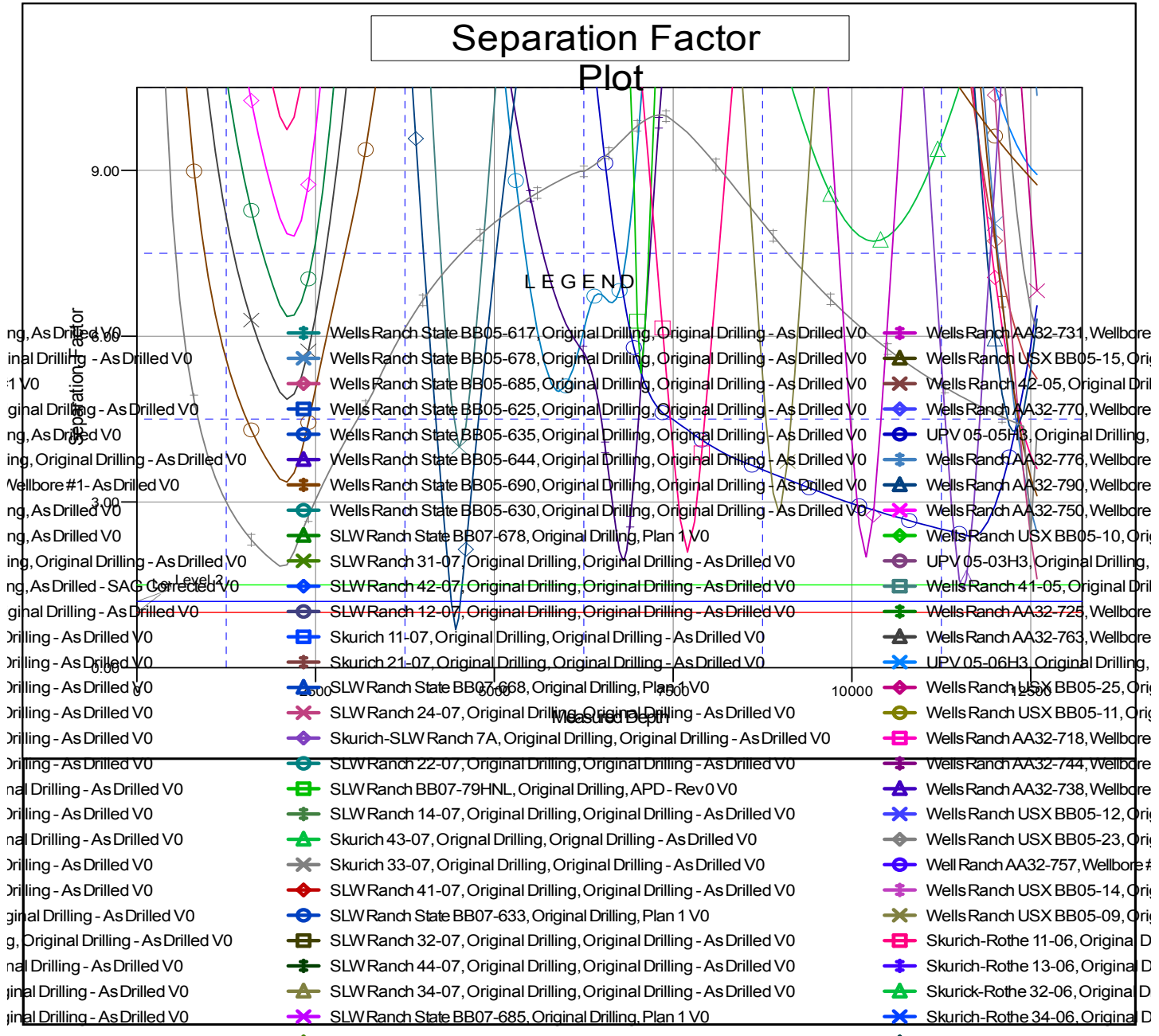
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well SLW Ranch State BB06-682
Project:	Wells Ranch	TVD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Reference Site:	BB Section 06	MD Reference:	WELL @ 4639.0ft (Original Well Elev.)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	SLW Ranch State BB06-682	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	SLW Ranch State BB06-682	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4639.0ft (Original Well Elev.)
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: SLW Ranch State BB06-682
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