

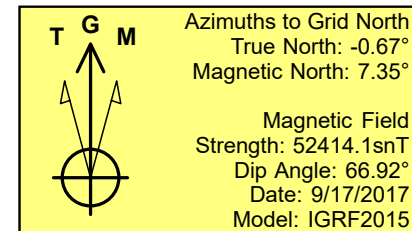
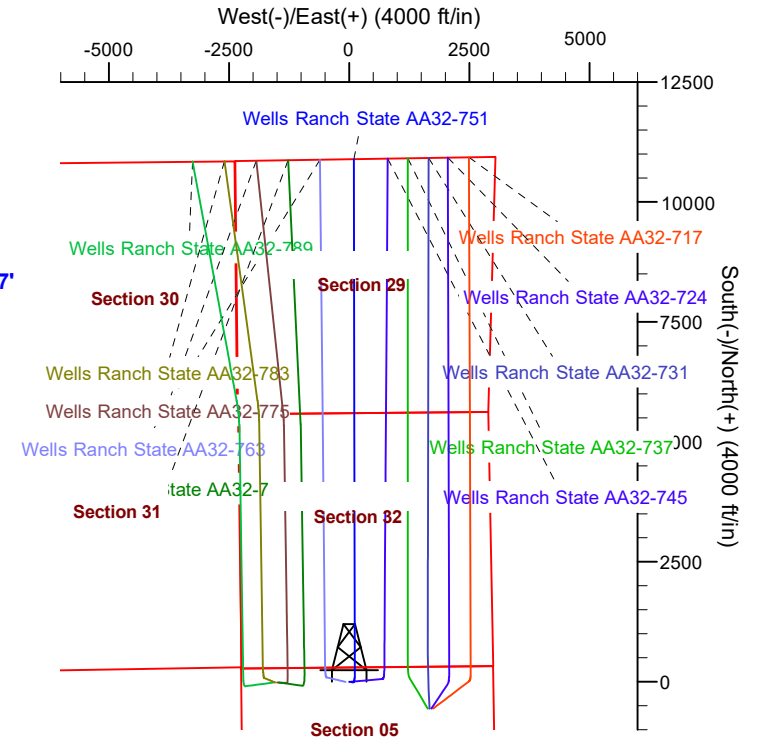
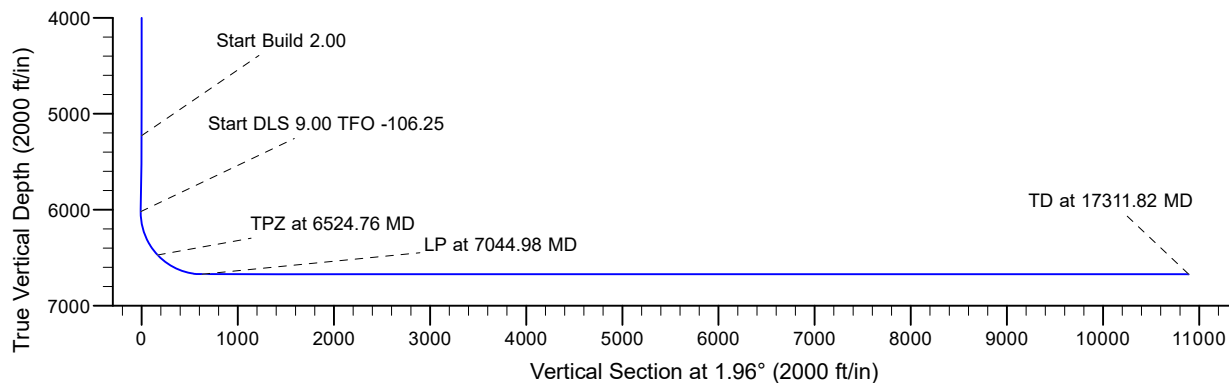
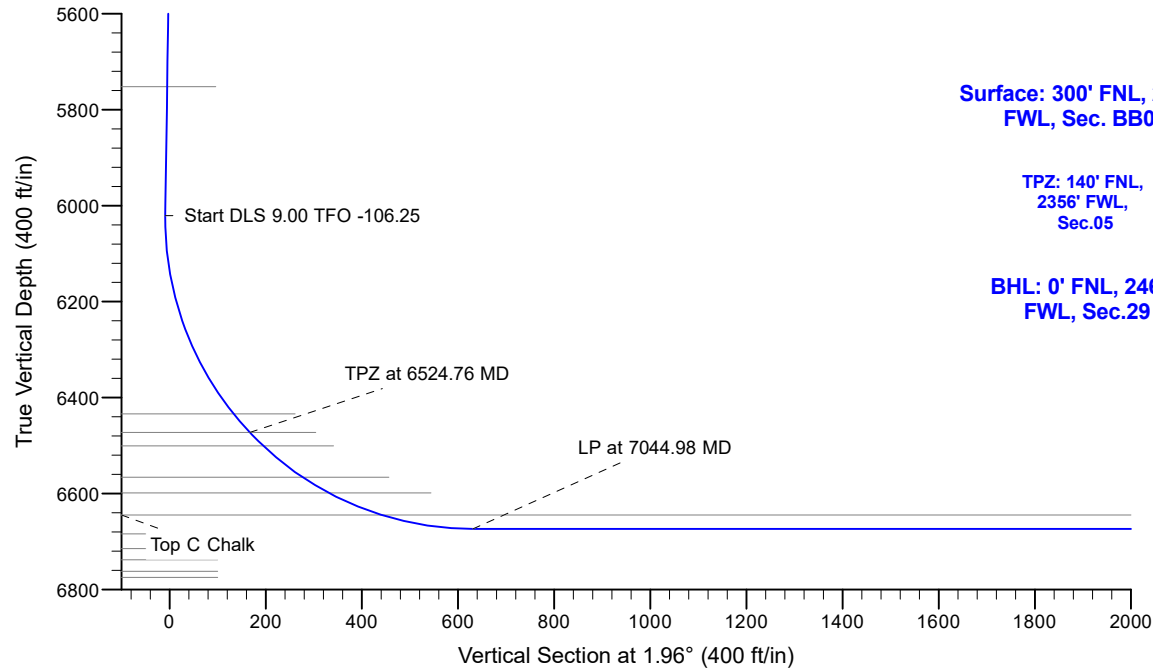
Project: Wells Ranch  
Site: BB Section 05  
Well: Wells Ranch State AA32-751  
Wellbore: Wellbore #1  
Design: Plan #2

# Northern Region - DJ Basin

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5228.50	0.00	0.00	5228.50	0.00	0.00	0.00	0.00	0.00	
3	5628.52	8.00	98.04	5627.22	-3.90	27.61	2.00	98.04	-2.95	
4	6026.13	8.00	98.04	6020.96	-11.63	82.40	0.00	0.00	-8.81	
5	6524.76	43.18	359.90	6473.00	163.15	118.31	9.00	-106.25	167.10	Wells Ranch State AA32-751 TPZ P2
6	7044.98	90.00	359.90	6673.99	627.37	117.47	9.00	0.00	631.03	
7	17311.82	90.00	359.90	6674.00	10894.20	98.88	0.00	0.00	10891.20	Wells Ranch State AA32-751 BHL P2



## WELL DETAILS: Wells Ranch State AA32-751

North	East	Ground Level: 4684.00	Latitude	Longitude
1402959.29	3288890.99	40.4348844	-104.4621703	

Plan: Plan #2 (Wells Ranch State AA32-751/Wellbore #1)

Created By: Shelly Peterkin Date: 13:56, April 23 2018

Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

Approved: \_\_\_\_\_ Date: \_\_\_\_\_

# **Northern Region - DJ Basin**

**Wells Ranch**

**BB Section 05**

**Wells Ranch State AA32-751**

**Wellbore #1**

**Plan: Plan #2**

## **Standard Planning Report**

**23 April, 2018**

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site:</b>	BB Section 05	<b>North Reference:</b>	Grid
<b>Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

<b>Project</b>	Wells Ranch, Weld County Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		BB Section 05			
Site Position:		Northing:	1,398,574.18 usft	Latitude:	40.4229000
From:	Map	Easting:	3,287,271.79 usft	Longitude:	-104.4681700
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.67 °

Well	Wells Ranch State AA32-751					
Well Position	+N/-S	4,385.12 ft	Northing:	1,402,959.29 usft	Latitude:	40.4348844
	+E/-W	1,619.21 ft	Easting:	3,288,890.99 usft	Longitude:	-104.4621703
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,684.00 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	9/17/2017	8.03	66.92	52,414.09780574

<b>Design</b>	Plan #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	1.96

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,228.50	0.00	0.00	5,228.50	0.00	0.00	0.00	0.00	0.00	0.00	
5,628.52	8.00	98.04	5,627.22	-3.90	27.61	2.00	2.00	0.00	98.04	
6,026.13	8.00	98.04	6,020.96	-11.63	82.40	0.00	0.00	0.00	0.00	
6,524.76	43.18	359.90	6,473.00	163.15	118.31	9.00	7.06	-19.68	-106.25	Wells Ranch State AA
7,044.98	90.00	359.90	6,673.99	627.37	117.47	9.00	9.00	0.00	0.00	
17,311.82	90.00	359.90	6,674.00	10,894.20	98.88	0.00	0.00	0.00	0.00	Wells Ranch State AA

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site:</b>	BB Section 05	<b>North Reference:</b>	Grid
<b>Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
174.00	0.00	0.00	174.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
485.00	0.00	0.00	485.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,546.00	0.00	0.00	1,546.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,275.00	0.00	0.00	4,275.00	0.00	0.00	0.00	0.00	0.00	0.00
Sussex									
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site:</b>	BB Section 05	<b>North Reference:</b>	Grid
<b>Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,697.00	0.00	0.00	4,697.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Parkman</b>									
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,732.00	0.00	0.00	4,732.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Shannon</b>									
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,228.50	0.00	0.00	5,228.50	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
5,300.00	1.43	98.04	5,299.99	-0.12	0.88	-0.09	2.00	2.00	0.00
5,400.00	3.43	98.04	5,399.90	-0.72	5.08	-0.54	2.00	2.00	0.00
5,500.00	5.43	98.04	5,499.59	-1.80	12.73	-1.36	2.00	2.00	0.00
5,600.00	7.43	98.04	5,598.96	-3.36	23.82	-2.55	2.00	2.00	0.00
5,628.52	8.00	98.04	5,627.22	-3.90	27.61	-2.95	2.00	2.00	0.00
5,700.00	8.00	98.04	5,698.01	-5.29	37.46	-4.00	0.00	0.00	0.00
5,754.53	8.00	98.04	5,752.00	-6.35	44.97	-4.81	0.00	0.00	0.00
<b>Teepee Buttes</b>									
5,800.00	8.00	98.04	5,797.03	-7.23	51.24	-5.48	0.00	0.00	0.00
5,900.00	8.00	98.04	5,896.06	-9.18	65.02	-6.95	0.00	0.00	0.00
6,000.00	8.00	98.04	5,995.09	-11.13	78.80	-8.42	0.00	0.00	0.00
6,026.13	8.00	98.04	6,020.96	-11.63	82.40	-8.81	0.00	0.00	0.00
<b>Start DLS 9.00 TFO -106.25</b>									
6,050.00	7.68	82.41	6,044.61	-11.66	85.63	-8.72	9.00	-1.34	-65.46
6,100.00	8.84	51.72	6,094.12	-8.83	91.96	-5.68	9.00	2.32	-61.38
6,150.00	11.73	32.12	6,143.32	-2.14	97.68	1.20	9.00	5.78	-39.20
6,200.00	15.41	20.93	6,191.93	8.37	102.76	11.88	9.00	7.35	-22.38
6,250.00	19.42	14.11	6,239.63	22.64	107.16	26.30	9.00	8.04	-13.63
6,300.00	23.61	9.60	6,286.14	40.59	110.86	44.36	9.00	8.37	-9.03
6,350.00	27.89	6.39	6,331.16	62.10	113.84	65.96	9.00	8.56	-6.41
6,400.00	32.23	3.98	6,374.43	87.03	116.07	90.95	9.00	8.67	-4.82
6,450.00	36.60	2.10	6,415.67	115.24	117.54	119.20	9.00	8.74	-3.78
6,473.14	38.63	1.35	6,434.00	129.36	117.96	133.32	9.00	8.78	-3.23
<b>Sharon Springs</b>									
6,500.00	41.00	0.56	6,454.63	146.55	118.24	150.52	9.00	8.80	-2.94
6,524.76	43.18	359.90	6,473.00	163.15	118.31	167.10	9.00	8.82	-2.68
<b>TPZ at 6524.76 MD - Top A Chalk</b>									
6,550.00	45.45	359.90	6,491.06	180.78	118.28	184.72	9.00	9.00	0.00
6,564.34	46.74	359.90	6,501.00	191.11	118.26	195.05	9.00	9.00	0.00
<b>Top A Marl</b>									
6,600.00	49.95	359.90	6,524.70	217.75	118.21	221.67	9.00	9.00	0.00
6,650.00	54.45	359.90	6,555.34	257.25	118.14	261.15	9.00	9.00	0.00
6,668.73	56.14	359.90	6,566.00	272.65	118.11	276.53	9.00	9.00	0.00
<b>Top B Chalk</b>									
6,700.00	58.95	359.90	6,582.78	299.03	118.06	302.90	9.00	9.00	0.00
6,732.87	61.91	359.90	6,599.00	327.62	118.01	331.47	9.00	9.00	0.00
<b>Top B Marl</b>									
6,750.00	63.45	359.90	6,606.86	342.84	117.98	346.67	9.00	9.00	0.00
6,800.00	67.95	359.90	6,627.43	388.40	117.90	392.20	9.00	9.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site:</b>	BB Section 05	<b>North Reference:</b>	Grid
<b>Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,850.00	72.45	359.90	6,644.36	435.43	117.82	439.21	9.00	9.00	0.00
6,852.14	72.64	359.90	6,645.00	437.47	117.81	441.24	9.00	9.00	0.00
<b>Top C Chalk</b>									
6,900.00	76.95	359.90	6,657.55	483.64	117.73	487.39	9.00	9.00	0.00
6,950.00	81.45	359.90	6,666.91	532.75	117.64	536.46	9.00	9.00	0.00
7,000.00	85.95	359.90	6,672.40	582.43	117.55	586.11	9.00	9.00	0.00
7,044.98	90.00	359.90	6,673.99	627.37	117.47	631.03	9.00	9.00	0.00
<b>LP at 7044.98 MD</b>									
7,100.00	90.00	359.90	6,673.99	682.39	117.37	686.01	0.00	0.00	0.00
7,200.00	90.00	359.90	6,673.99	782.39	117.19	785.95	0.00	0.00	0.00
7,300.00	90.00	359.90	6,673.99	882.39	117.01	885.88	0.00	0.00	0.00
7,400.00	90.00	359.90	6,673.99	982.39	116.83	985.82	0.00	0.00	0.00
7,500.00	90.00	359.90	6,673.99	1,082.39	116.64	1,085.75	0.00	0.00	0.00
7,600.00	90.00	359.90	6,673.99	1,182.39	116.46	1,185.69	0.00	0.00	0.00
7,700.00	90.00	359.90	6,673.99	1,282.39	116.28	1,285.62	0.00	0.00	0.00
7,800.00	90.00	359.90	6,673.99	1,382.39	116.10	1,385.56	0.00	0.00	0.00
7,900.00	90.00	359.90	6,673.99	1,482.39	115.92	1,485.49	0.00	0.00	0.00
8,000.00	90.00	359.90	6,673.99	1,582.39	115.74	1,585.43	0.00	0.00	0.00
8,100.00	90.00	359.90	6,673.99	1,682.39	115.56	1,685.36	0.00	0.00	0.00
8,200.00	90.00	359.90	6,673.99	1,782.39	115.38	1,785.30	0.00	0.00	0.00
8,300.00	90.00	359.90	6,673.99	1,882.39	115.20	1,885.23	0.00	0.00	0.00
8,400.00	90.00	359.90	6,673.99	1,982.39	115.02	1,985.17	0.00	0.00	0.00
8,500.00	90.00	359.90	6,673.99	2,082.39	114.83	2,085.10	0.00	0.00	0.00
8,600.00	90.00	359.90	6,673.99	2,182.39	114.65	2,185.04	0.00	0.00	0.00
8,700.00	90.00	359.90	6,673.99	2,282.39	114.47	2,284.97	0.00	0.00	0.00
8,800.00	90.00	359.90	6,673.99	2,382.39	114.29	2,384.91	0.00	0.00	0.00
8,900.00	90.00	359.90	6,673.99	2,482.39	114.11	2,484.84	0.00	0.00	0.00
9,000.00	90.00	359.90	6,673.99	2,582.39	113.93	2,584.78	0.00	0.00	0.00
9,100.00	90.00	359.90	6,673.99	2,682.39	113.75	2,684.71	0.00	0.00	0.00
9,200.00	90.00	359.90	6,673.99	2,782.39	113.57	2,784.65	0.00	0.00	0.00
9,300.00	90.00	359.90	6,673.99	2,882.39	113.39	2,884.58	0.00	0.00	0.00
9,400.00	90.00	359.90	6,673.99	2,982.39	113.21	2,984.52	0.00	0.00	0.00
9,500.00	90.00	359.90	6,673.99	3,082.39	113.02	3,084.45	0.00	0.00	0.00
9,600.00	90.00	359.90	6,673.99	3,182.39	112.84	3,184.39	0.00	0.00	0.00
9,700.00	90.00	359.90	6,673.99	3,282.39	112.66	3,284.32	0.00	0.00	0.00
9,800.00	90.00	359.90	6,673.99	3,382.39	112.48	3,384.26	0.00	0.00	0.00
9,900.00	90.00	359.90	6,673.99	3,482.39	112.30	3,484.19	0.00	0.00	0.00
10,000.00	90.00	359.90	6,673.99	3,582.39	112.12	3,584.13	0.00	0.00	0.00
10,100.00	90.00	359.90	6,673.99	3,682.39	111.94	3,684.06	0.00	0.00	0.00
10,200.00	90.00	359.90	6,673.99	3,782.39	111.76	3,784.00	0.00	0.00	0.00
10,300.00	90.00	359.90	6,673.99	3,882.39	111.58	3,883.93	0.00	0.00	0.00
10,400.00	90.00	359.90	6,673.99	3,982.39	111.39	3,983.87	0.00	0.00	0.00
10,500.00	90.00	359.90	6,673.99	4,082.39	111.21	4,083.80	0.00	0.00	0.00
10,600.00	90.00	359.90	6,673.99	4,182.39	111.03	4,183.74	0.00	0.00	0.00
10,700.00	90.00	359.90	6,673.99	4,282.39	110.85	4,283.67	0.00	0.00	0.00
10,800.00	90.00	359.90	6,673.99	4,382.39	110.67	4,383.61	0.00	0.00	0.00
10,900.00	90.00	359.90	6,673.99	4,482.39	110.49	4,483.54	0.00	0.00	0.00
11,000.00	90.00	359.90	6,673.99	4,582.39	110.31	4,583.48	0.00	0.00	0.00
11,100.00	90.00	359.90	6,673.99	4,682.39	110.13	4,683.41	0.00	0.00	0.00
11,200.00	90.00	359.90	6,673.99	4,782.39	109.95	4,783.35	0.00	0.00	0.00
11,300.00	90.00	359.90	6,673.99	4,882.39	109.77	4,883.28	0.00	0.00	0.00
11,400.00	90.00	359.90	6,673.99	4,982.39	109.58	4,983.22	0.00	0.00	0.00
11,500.00	90.00	359.90	6,673.99	5,082.39	109.40	5,083.15	0.00	0.00	0.00
11,600.00	90.00	359.90	6,673.99	5,182.39	109.22	5,183.09	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site:</b>	BB Section 05	<b>North Reference:</b>	Grid
<b>Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,700.00	90.00	359.90	6,673.99	5,282.39	109.04	5,283.02	0.00	0.00	0.00
11,800.00	90.00	359.90	6,673.99	5,382.39	108.86	5,382.96	0.00	0.00	0.00
11,900.00	90.00	359.90	6,673.99	5,482.39	108.68	5,482.89	0.00	0.00	0.00
12,000.00	90.00	359.90	6,673.99	5,582.39	108.50	5,582.83	0.00	0.00	0.00
12,100.00	90.00	359.90	6,673.99	5,682.39	108.32	5,682.76	0.00	0.00	0.00
12,200.00	90.00	359.90	6,673.99	5,782.39	108.14	5,782.70	0.00	0.00	0.00
12,300.00	90.00	359.90	6,673.99	5,882.39	107.96	5,882.63	0.00	0.00	0.00
12,400.00	90.00	359.90	6,673.99	5,982.39	107.77	5,982.57	0.00	0.00	0.00
12,500.00	90.00	359.90	6,673.99	6,082.39	107.59	6,082.50	0.00	0.00	0.00
12,600.00	90.00	359.90	6,673.99	6,182.39	107.41	6,182.44	0.00	0.00	0.00
12,700.00	90.00	359.90	6,673.99	6,282.39	107.23	6,282.37	0.00	0.00	0.00
12,800.00	90.00	359.90	6,673.99	6,382.39	107.05	6,382.31	0.00	0.00	0.00
12,900.00	90.00	359.90	6,673.99	6,482.39	106.87	6,482.24	0.00	0.00	0.00
13,000.00	90.00	359.90	6,673.99	6,582.39	106.69	6,582.18	0.00	0.00	0.00
13,100.00	90.00	359.90	6,673.99	6,682.38	106.51	6,682.11	0.00	0.00	0.00
13,200.00	90.00	359.90	6,673.99	6,782.38	106.33	6,782.05	0.00	0.00	0.00
13,300.00	90.00	359.90	6,673.99	6,882.38	106.15	6,881.99	0.00	0.00	0.00
13,400.00	90.00	359.90	6,673.99	6,982.38	105.96	6,981.92	0.00	0.00	0.00
13,500.00	90.00	359.90	6,673.99	7,082.38	105.78	7,081.86	0.00	0.00	0.00
13,600.00	90.00	359.90	6,673.99	7,182.38	105.60	7,181.79	0.00	0.00	0.00
13,700.00	90.00	359.90	6,674.00	7,282.38	105.42	7,281.73	0.00	0.00	0.00
13,800.00	90.00	359.90	6,674.00	7,382.38	105.24	7,381.66	0.00	0.00	0.00
13,900.00	90.00	359.90	6,674.00	7,482.38	105.06	7,481.60	0.00	0.00	0.00
14,000.00	90.00	359.90	6,674.00	7,582.38	104.88	7,581.53	0.00	0.00	0.00
14,100.00	90.00	359.90	6,674.00	7,682.38	104.70	7,681.47	0.00	0.00	0.00
14,200.00	90.00	359.90	6,674.00	7,782.38	104.52	7,781.40	0.00	0.00	0.00
14,300.00	90.00	359.90	6,674.00	7,882.38	104.34	7,881.34	0.00	0.00	0.00
14,400.00	90.00	359.90	6,674.00	7,982.38	104.15	7,981.27	0.00	0.00	0.00
14,500.00	90.00	359.90	6,674.00	8,082.38	103.97	8,081.21	0.00	0.00	0.00
14,600.00	90.00	359.90	6,674.00	8,182.38	103.79	8,181.14	0.00	0.00	0.00
14,700.00	90.00	359.90	6,674.00	8,282.38	103.61	8,281.08	0.00	0.00	0.00
14,800.00	90.00	359.90	6,674.00	8,382.38	103.43	8,381.01	0.00	0.00	0.00
14,900.00	90.00	359.90	6,674.00	8,482.38	103.25	8,480.95	0.00	0.00	0.00
15,000.00	90.00	359.90	6,674.00	8,582.38	103.07	8,580.88	0.00	0.00	0.00
15,100.00	90.00	359.90	6,674.00	8,682.38	102.89	8,680.82	0.00	0.00	0.00
15,200.00	90.00	359.90	6,674.00	8,782.38	102.71	8,780.75	0.00	0.00	0.00
15,300.00	90.00	359.90	6,674.00	8,882.38	102.52	8,880.69	0.00	0.00	0.00
15,400.00	90.00	359.90	6,674.00	8,982.38	102.34	8,980.62	0.00	0.00	0.00
15,500.00	90.00	359.90	6,674.00	9,082.38	102.16	9,080.56	0.00	0.00	0.00
15,600.00	90.00	359.90	6,674.00	9,182.38	101.98	9,180.49	0.00	0.00	0.00
15,700.00	90.00	359.90	6,674.00	9,282.38	101.80	9,280.43	0.00	0.00	0.00
15,800.00	90.00	359.90	6,674.00	9,382.38	101.62	9,380.36	0.00	0.00	0.00
15,900.00	90.00	359.90	6,674.00	9,482.38	101.44	9,480.30	0.00	0.00	0.00
16,000.00	90.00	359.90	6,674.00	9,582.38	101.26	9,580.23	0.00	0.00	0.00
16,100.00	90.00	359.90	6,674.00	9,682.38	101.08	9,680.17	0.00	0.00	0.00
16,200.00	90.00	359.90	6,674.00	9,782.38	100.90	9,780.10	0.00	0.00	0.00
16,300.00	90.00	359.90	6,674.00	9,882.38	100.71	9,880.04	0.00	0.00	0.00
16,400.00	90.00	359.90	6,674.00	9,982.38	100.53	9,979.97	0.00	0.00	0.00
16,500.00	90.00	359.90	6,674.00	10,082.38	100.35	10,079.91	0.00	0.00	0.00
16,600.00	90.00	359.90	6,674.00	10,182.38	100.17	10,179.84	0.00	0.00	0.00
16,700.00	90.00	359.90	6,674.00	10,282.38	99.99	10,279.78	0.00	0.00	0.00
16,800.00	90.00	359.90	6,674.00	10,382.38	99.81	10,379.71	0.00	0.00	0.00
16,900.00	90.00	359.90	6,674.00	10,482.38	99.63	10,479.65	0.00	0.00	0.00
17,000.00	90.00	359.90	6,674.00	10,582.38	99.45	10,579.58	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site:</b>	BB Section 05	<b>North Reference:</b>	Grid
<b>Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,100.00	90.00	359.90	6,674.00	10,682.38	99.27	10,679.52	0.00	0.00	0.00
17,200.00	90.00	359.90	6,674.00	10,782.38	99.09	10,779.45	0.00	0.00	0.00
17,300.00	90.00	359.90	6,674.00	10,882.38	98.90	10,879.39	0.00	0.00	0.00
17,311.82	90.00	359.90	6,674.00	10,894.20	98.88	10,891.20	0.00	0.00	0.00
TD at 17311.82 MD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Wells Ranch State AA32	0.00	0.00	6,473.00	163.15	118.31	1,403,122.44	3,289,009.30	40.4353284	-104.4617384
- plan hits target center									
- Point									
Wells Ranch State AA32	0.00	0.00	6,674.00	10,894.20	98.88	1,413,853.47	3,288,989.88	40.4647835	-104.4613567
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
174.00	174.00	Pierre				
485.00	485.00	Upper Pierre Aquifer Top				
1,546.00	1,546.00	Upper Pierre Aquifer Base				
4,275.00	4,275.00	Sussex				
4,697.00	4,697.00	Parkman				
4,732.00	4,732.00	Shannon				
5,754.53	5,752.00	Teepee Buttes				
6,473.14	6,434.00	Sharon Springs				
6,524.76	6,473.00	Top A Chalk				
6,564.34	6,501.00	Top A Marl				
6,668.73	6,566.00	Top B Chalk				
6,732.87	6,599.00	Top B Marl				
6,852.14	6,645.00	Top C Chalk				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,228.50	5,228.50	0.00	0.00	Start Build 2.00
6,026.13	6,020.96	-11.63	82.40	Start DLS 9.00 TFO -106.25
6,524.76	6,473.00	163.15	118.31	TPZ at 6524.76 MD
7,044.98	6,673.99	627.37	117.47	LP at 7044.98 MD
17,311.82	6,674.00	10,894.20	98.88	TD at 17311.82 MD



# **Northern Region - DJ Basin**

**Wells Ranch**

**BB Section 05**

**Wells Ranch State AA32-751**

**Wellbore #1**

**Plan #2**

## **Anticollision Summary Report**

**23 April, 2018**

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2		
<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 10,000.00 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>	4/23/2018		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	17,311.82	Plan #2 (Wellbore #1)	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						
AA Section 28						
State 6524 11-28 - Original Drilling - Original Drilling - As	16,497.08	6,594.81	3,486.81	3,323.60	21.364	CC
State 6524 11-28 - Original Drilling - Original Drilling - As	16,500.00	6,594.71	3,486.81	3,323.58	21.361	ES
State 6524 11-28 - Original Drilling - Original Drilling - As	16,800.00	6,584.41	3,499.92	3,334.96	21.216	SF
State 6524 12-28 - Original Drilling - Original Drilling - As	15,455.33	6,625.58	3,357.91	3,257.80	33.542	CC
State 6524 12-28 - Original Drilling - Original Drilling - As	15,500.00	6,625.24	3,358.20	3,257.75	33.428	ES
State 6524 12-28 - Original Drilling - Original Drilling - As	16,000.00	6,621.61	3,401.79	3,298.27	32.861	SF
State 6524 13-28 (SI) - Original Drilling - Original Drilling	14,072.52	6,683.72	3,478.78	3,389.26	38.860	CC
State 6524 13-28 (SI) - Original Drilling - Original Drilling	14,100.00	6,684.82	3,478.89	3,389.15	38.767	ES
State 6524 13-28 (SI) - Original Drilling - Original Drilling	14,700.00	6,710.21	3,534.85	3,441.28	37.777	SF
State 6524 21-28 - Original Drilling - Original Drilling - As	16,854.31	6,713.89	4,993.25	4,881.77	44.788	CC
State 6524 21-28 - Original Drilling - Original Drilling - As	16,900.00	6,714.20	4,993.46	4,881.61	44.644	ES
State 6524 21-28 - Original Drilling - Original Drilling - As	17,312.61	6,717.07	5,014.24	4,899.41	43.665	SF
State 6524 22-28 (SI) - Original Drilling - Original Drilling	15,372.47	6,611.06	4,895.03	4,795.65	49.257	CC
State 6524 22-28 (SI) - Original Drilling - Original Drilling	15,400.00	6,610.47	4,895.11	4,795.52	49.151	ES
State 6524 22-28 (SI) - Original Drilling - Original Drilling	16,500.00	6,587.22	5,023.16	4,916.82	47.236	SF
State 6524 24-28 - Original Drilling - Original Drilling - As	12,814.31	6,542.06	4,857.77	4,755.02	47.276	CC, ES
State 6524 24-28 - Original Drilling - Original Drilling - As	14,000.00	6,575.81	5,000.27	4,889.38	45.094	SF
State Lease 14-28 (SI) - Original Drilling - Original Drilling	12,735.38	6,656.23	3,532.00	3,451.25	43.740	CC, ES
State Lease 14-28 (SI) - Original Drilling - Original Drilling	13,500.00	6,655.12	3,613.82	3,528.37	42.292	SF
State Lease 23-28 - Original Drilling - Original Drilling - A	14,038.97	6,643.65	4,969.45	4,880.31	55.753	CC
State Lease 23-28 - Original Drilling - Original Drilling - A	14,100.00	6,643.73	4,969.82	4,880.22	55.464	ES
State Lease 23-28 - Original Drilling - Original Drilling - A	15,300.00	6,645.47	5,126.95	5,029.94	52.853	SF
State Lease 32-28 (PA) - Original Drilling - Original Drilling	15,354.44	6,716.00	6,026.00	5,815.37	28.609	CC
State Lease 32-28 (PA) - Original Drilling - Original Drilling	15,400.00	6,716.00	6,026.18	5,815.18	28.561	ES
State Lease 32-28 (PA) - Original Drilling - Original Drilling	16,400.00	6,716.00	6,116.04	5,898.20	28.076	SF
State Lease 6524 41-28 (PA) - Original Drilling - Original	16,693.25	6,738.00	7,451.62	7,229.98	33.621	CC
State Lease 6524 41-28 (PA) - Original Drilling - Original	16,800.00	6,738.00	7,452.38	7,229.90	33.497	ES
State Lease 6524 41-28 (PA) - Original Drilling - Original	17,312.61	6,738.00	7,477.31	7,251.00	33.040	SF
Wells Ranch State 28C - Original Drilling - Original Drilling	16,180.64	6,745.95	6,782.81	6,677.30	64.287	CC
Wells Ranch State 28C - Original Drilling - Original Drilling	16,200.00	6,746.21	6,782.84	6,677.17	64.193	ES
Wells Ranch State 28C - Original Drilling - Original Drilling	17,312.61	6,761.56	6,876.60	6,763.11	60.593	SF
Wells Ranch State 28D - Original Drilling - Original Drilling	13,473.32	6,957.00	6,623.92	6,538.82	77.841	CC
Wells Ranch State 28D - Original Drilling - Original Drilling	13,500.00	6,957.00	6,623.97	6,538.67	77.655	ES
Wells Ranch State 28D - Original Drilling - Original Drilling	15,700.00	6,957.00	6,988.16	6,889.32	70.699	SF
Wells Ranch State 28R - Original Drilling - Original Drilling	17,312.61	6,704.93	6,975.12	6,860.02	60.602	CC, ES, SF
Wells Ranch State 28S - Original Drilling - Original Drilling	14,685.64	6,977.87	6,710.00	6,615.59	71.072	CC
Wells Ranch State 28S - Original Drilling - Original Drilling	14,700.00	6,977.91	6,710.02	6,615.49	70.987	ES

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 Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<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						
AA Section 28						
Wells Ranch State 28S - Original Drilling - Original Drillin	16,800.00	6,961.00	7,035.28	6,927.76	65.435	SF
Wells Ranch State 31-28 - Original Drilling - Original Drill	16,797.72	6,760.20	6,226.84	6,116.51	56.436	CC
Wells Ranch State 31-28 - Original Drilling - Original Drill	16,800.00	6,760.18	6,226.84	6,116.49	56.427	ES
Wells Ranch State 31-28 - Original Drilling - Original Drill	17,312.61	6,755.56	6,248.09	6,133.92	54.727	SF
Wells Ranch State 32-28 - Original Drilling - Original Drill	15,531.38	6,799.42	5,956.01	5,855.51	59.264	CC
Wells Ranch State 32-28 - Original Drilling - Original Drill	15,600.00	6,799.97	5,956.41	5,855.37	58.952	ES
Wells Ranch State 32-28 - Original Drilling - Original Drill	17,100.00	6,811.21	6,159.10	6,048.75	55.816	SF
Wells Ranch State 33-28 - Original Drilling - Original Drill	14,053.30	6,663.33	5,990.70	5,902.09	67.609	CC
Wells Ranch State 33-28 - Original Drilling - Original Drill	14,100.00	6,662.38	5,990.88	5,901.91	67.338	ES
Wells Ranch State 33-28 - Original Drilling - Original Drill	15,800.00	6,626.72	6,240.01	6,140.54	62.733	SF
Wells Ranch State 34-28 - Original Drilling - Original Drill	12,806.32	6,947.00	6,113.19	6,033.04	76.266	CC, ES
Wells Ranch State 34-28 - Original Drilling - Original Drill	14,800.00	6,947.00	6,430.08	6,337.62	69.544	SF
Wells Ranch State 41-28 - Original Drilling - Original Drill	16,703.80	6,790.27	7,418.22	7,308.50	67.611	CC
Wells Ranch State 41-28 - Original Drilling - Original Drill	16,800.00	6,788.68	7,418.84	7,308.37	67.152	ES
Wells Ranch State 41-28 - Original Drilling - Original Drill	17,312.61	6,779.86	7,443.15	7,328.86	65.124	SF
Wells Ranch State 42-28 - Original Drilling - Original Drill	15,471.69	6,670.80	7,230.50	7,130.87	72.573	CC
Wells Ranch State 42-28 - Original Drilling - Original Drill	15,500.00	6,671.54	7,230.55	7,130.70	72.410	ES
Wells Ranch State 42-28 - Original Drilling - Original Drill	17,312.61	6,712.59	7,461.01	7,349.12	66.681	SF
Wells Ranch State 43-28 - Original Drilling - Original Drill	14,163.11	6,785.39	7,301.51	7,211.63	81.234	CC
Wells Ranch State 43-28 - Original Drilling - Original Drill	14,200.00	6,787.73	7,301.60	7,211.43	80.970	ES
Wells Ranch State 43-28 - Original Drilling - Original Drill	16,800.00	6,948.55	7,761.15	7,654.46	72.745	SF
Wells Ranch State 44-28 - Original Drilling - Original Drill	12,879.07	6,947.00	7,322.04	7,241.51	90.922	CC
Wells Ranch State 44-28 - Original Drilling - Original Drill	12,900.00	6,947.00	7,322.07	7,241.38	90.745	ES
Wells Ranch State 44-28 - Original Drilling - Original Drill	15,700.00	6,947.00	7,846.65	7,748.87	80.246	SF

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<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						
AA Section 29						
J&L Farms 29B PR - Wellbore #1 - Gyro Surveys	13,141.04	6,620.19	1,075.99	993.81	13.093	CC, ES
J&L Farms 29B PR - Wellbore #1 - Gyro Surveys	13,200.00	6,620.41	1,077.61	995.07	13.057	SF
J&L Farms 11-29 PA - Wellbore #1 - Gyro Surveys	16,623.13	6,569.16	1,731.29	1,622.24	15.876	CC, ES
J&L Farms 11-29 PA - Wellbore #1 - Gyro Surveys	16,700.00	6,568.52	1,733.00	1,623.44	15.817	SF
J&L Farms 12-29 PR - Wellbore #1 - Gyro Surveys	15,313.58	6,638.78	1,845.19	1,746.15	18.631	CC, ES
J&L Farms 12-29 PR - Wellbore #1 - Gyro Surveys	15,500.00	6,642.18	1,854.58	1,754.46	18.522	SF
J&L Farms 21-29 PA - Wellbore #1 - Gyro Surveys	13,863.56	6,636.36	1,770.89	1,683.14	20.181	CC, ES
J&L Farms 13-29 SI - Wellbore #1 - Gyro Surveys	14,000.00	6,635.57	1,776.14	1,687.54	20.047	SF
J&L Farms 14-29 SI - Wellbore #1 - Gyro Surveys	12,668.50	6,621.01	1,767.14	1,688.51	22.474	CC, ES
J&L Farms 14-29 SI - Wellbore #1 - Gyro Surveys	12,900.00	6,622.99	1,782.24	1,702.31	22.297	SF
J&L Farms 21-29 PA - Wellbore #1 - Gyro Surveys	16,623.73	5,825.00	1,114.06	1,016.06	11.368	CC, ES
J&L Farms 21-29 PA - Wellbore #1 - Gyro Surveys	16,700.00	5,825.00	1,116.67	1,018.28	11.350	SF
J&L Farms 22-29 PR - Wellbore #1 - Gyro Surveys	15,194.34	6,631.83	199.65	101.54	2.035	CC, ES, SF
J&L Farms 23-29 PR - Wellbore #1 - Gyro Surveys	14,036.72	6,642.74	26.92	-62.27	0.302	Level 1, CC, ES, SF
J&L Farms 24-29 SI - Wellbore #1 - No Surveys	12,671.55	6,635.99	489.32	422.03	7.272	CC, ES
J&L Farms 24-29 SI - Wellbore #1 - No Surveys	12,700.00	6,635.99	490.15	422.74	7.272	SF
J&L Farms 29-34 SI - Wellbore #1 - Gyro Surveys	12,727.10	6,655.16	1,113.83	1,034.58	14.055	CC, ES
J&L Farms 29-34 SI - Wellbore #1 - Gyro Surveys	12,800.00	6,657.12	1,116.21	1,036.48	14.001	SF
J&L Farms 31-29 SI - Wellbore #1 - Gyro Surveys	16,450.54	6,639.52	986.60	878.63	9.138	CC, ES
J&L Farms 31-29 SI - Wellbore #1 - Gyro Surveys	16,500.00	6,639.98	987.84	879.55	9.122	SF
J&L Farms 32-29D PR - Wellbore #1 - No Surveys	15,350.01	6,650.00	1,418.26	1,283.95	10.559	CC, ES
J&L Farms 32-29D PR - Wellbore #1 - No Surveys	15,400.00	6,650.00	1,419.15	1,284.47	10.537	SF
J&L Farms 33-29 SI - Wellbore #1 - Gyro Surveys	14,201.01	6,661.52	1,110.18	1,019.75	12.276	CC, ES
J&L Farms 33-29 SI - Wellbore #1 - Gyro Surveys	14,300.00	6,661.56	1,114.59	1,023.58	12.247	SF
J&L Farms 41-29 SI - Wellbore #1 - No Surveys	16,695.49	6,650.00	2,261.92	2,117.00	15.607	CC
J&L Farms 41-29 SI - Wellbore #1 - No Surveys	16,700.00	6,650.00	2,261.93	2,116.96	15.604	ES
J&L Farms 41-29 SI - Wellbore #1 - No Surveys	16,900.00	6,650.00	2,271.15	2,124.88	15.528	SF
J&L Farms 42-29 PA - Wellbore #1 - Gyro Surveys	15,167.78	6,550.00	2,359.94	2,262.28	24.165	CC
J&L Farms 42-29 PA - Wellbore #1 - Gyro Surveys	15,200.00	6,550.00	2,360.16	2,262.25	24.105	ES
J&L Farms 42-29 PA - Wellbore #1 - Gyro Surveys	15,400.00	6,550.00	2,371.34	2,272.15	23.906	SF
J&L Farms 43-29 PA - Wellbore #1 - Gyro Surveys	13,989.73	6,616.13	2,400.30	2,311.62	27.068	CC
J&L Farms 43-29 PA - Wellbore #1 - Gyro Surveys	14,000.00	6,616.38	2,400.32	2,311.56	27.043	ES
J&L Farms 43-29 PA - Wellbore #1 - Gyro Surveys	14,300.00	6,620.07	2,420.27	2,329.62	26.697	SF
J&L Farms 44-29 SI - Wellbore #1 - No Surveys	12,688.97	6,673.99	2,363.19	2,249.12	20.716	CC
J&L Farms 44-29 SI - Wellbore #1 - No Surveys	12,700.00	6,673.99	2,363.22	2,249.06	20.701	ES
J&L Farms 44-29 SI - Wellbore #1 - No Surveys	13,000.00	6,673.99	2,383.57	2,267.51	20.537	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 Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
AA Section 30						
Fairmeadows 01-30 - Original Drilling - Original Drilling -	12,584.82	7,122.38	6,854.91	6,772.99	83.679	CC
Fairmeadows 01-30 - Original Drilling - Original Drilling -	12,600.00	7,121.86	6,854.93	6,772.90	83.568	ES
Fairmeadows 01-30 - Original Drilling - Original Drilling -	15,000.00	7,038.33	7,267.45	7,171.32	75.596	SF
Fairmeadows 03-30 - Original Drilling - Original Drilling -	13,927.65	6,630.02	6,937.83	6,849.62	78.652	CC
Fairmeadows 03-30 - Original Drilling - Original Drilling -	14,000.00	6,630.88	6,938.21	6,849.45	78.168	ES
Fairmeadows 03-30 - Original Drilling - Original Drilling -	16,300.00	6,668.53	7,332.16	7,229.42	71.364	SF
Fairmeadows 04-30 - Original Drilling - Original Drilling -	13,941.37	6,687.81	4,408.87	4,303.04	41.659	CC
Fairmeadows 04-30 - Original Drilling - Original Drilling -	14,000.00	6,687.51	4,409.26	4,302.99	41.492	ES
Fairmeadows 04-30 - Original Drilling - Original Drilling -	14,800.00	6,683.55	4,491.70	4,380.50	40.393	SF
J&L Farms 31-30 - Original Drilling - Original Drilling - As	16,565.51	6,789.51	4,293.54	4,184.02	39.205	CC
J&L Farms 31-30 - Original Drilling - Original Drilling - As	16,600.00	6,789.39	4,293.68	4,183.89	39.111	ES
J&L Farms 31-30 - Original Drilling - Original Drilling - As	17,312.61	6,787.07	4,358.05	4,243.91	38.180	SF
J&L Farms 32-30 - Original Drilling - Original Drilling - As	15,249.81	6,626.36	4,347.29	4,248.78	44.130	CC
J&L Farms 32-30 - Original Drilling - Original Drilling - As	15,300.00	6,625.05	4,347.58	4,248.69	43.964	ES
J&L Farms 32-30 - Original Drilling - Original Drilling - As	16,100.00	6,600.01	4,429.57	4,325.92	42.734	SF
Larsen Fairmeadows 02-30 - Original Drilling - Original D	12,650.88	6,589.91	4,415.37	4,336.98	56.327	CC
Larsen Fairmeadows 02-30 - Original Drilling - Original D	12,700.00	6,590.29	4,415.64	4,336.89	56.072	ES
Larsen Fairmeadows 02-30 - Original Drilling - Original D	13,800.00	6,599.08	4,562.44	4,477.15	53.493	SF
Larsen Fairmeadows 05-30 - Original Drilling - Original D	12,562.13	6,600.00	5,642.53	5,564.77	72.555	CC
Larsen Fairmeadows 05-30 - Original Drilling - Original D	12,600.00	6,600.00	5,642.66	5,564.61	72.298	ES
Larsen Fairmeadows 05-30 - Original Drilling - Original D	14,300.00	6,600.00	5,904.10	5,815.80	66.861	SF
Larson Fairmeadows 06-30 - Original Drilling - Original D	13,940.75	6,437.64	5,713.38	5,625.76	65.203	CC
Larson Fairmeadows 06-30 - Original Drilling - Original D	14,000.00	6,435.87	5,713.69	5,625.63	64.880	ES
Larson Fairmeadows 06-30 - Original Drilling - Original D	15,500.00	6,388.53	5,922.12	5,825.07	61.021	SF
Shadow A26-622 - Original Drilling - Original Drilling - As	12,768.51	6,146.00	3,817.49	3,745.13	52.760	CC
Shadow A26-622 - Original Drilling - Original Drilling - As	12,800.00	6,146.00	3,817.62	3,745.03	52.595	ES
Shadow A26-622 - Original Drilling - Original Drilling - As	13,600.00	6,146.00	3,906.99	3,829.64	50.512	SF
Shadow A26-627 - Original Drilling - Original Drilling - As	13,047.88	6,051.00	3,833.19	3,758.80	51.531	CC
Shadow A26-627 - Original Drilling - Original Drilling - As	13,100.00	6,051.00	3,833.54	3,758.78	51.274	ES
Shadow A26-627 - Original Drilling - Original Drilling - As	13,900.00	6,095.38	3,924.70	3,845.03	49.261	SF
Shadow A26-632 - Original Drilling - Original Drilling - As	13,517.69	6,235.00	3,810.14	3,731.01	48.150	CC, ES
Shadow A26-632 - Original Drilling - Original Drilling - As	14,300.00	6,235.00	3,889.63	3,805.66	46.326	SF
Shadow A26-637 - Original Drilling - Original Drilling - As	13,739.05	6,095.23	3,830.09	3,752.30	49.233	CC, ES
Shadow A26-637 - Original Drilling - Original Drilling - As	14,500.00	6,087.08	3,904.90	3,822.43	47.350	SF
Shadow A26-646 - Original Drilling - Original Drilling - As	14,338.52	6,086.61	3,819.42	3,735.27	45.389	CC, ES
Shadow A26-646 - Original Drilling - Original Drilling - As	15,200.00	6,142.00	3,916.10	3,826.66	43.784	SF
Shadow A26-656 - Original Drilling - Original Drilling - As	15,115.46	6,186.00	3,862.69	3,771.42	42.319	CC, ES
Shadow A26-656 - Original Drilling - Original Drilling - As	16,000.00	6,186.00	3,962.68	3,866.52	41.211	SF
Shadow A26-663 - Original Drilling - Original Drilling - As	15,428.53	6,147.00	3,858.64	3,765.33	41.353	CC, ES
Shadow A26-663 - Original Drilling - Original Drilling - As	16,100.00	6,197.85	3,914.42	3,816.77	40.087	SF
Shadow A26-672 - Original Drilling - Original Drilling - As	16,051.24	6,144.00	3,880.75	3,782.44	39.474	CC
Shadow A26-672 - Original Drilling - Original Drilling - As	16,100.00	6,144.00	3,881.06	3,782.36	39.323	ES
Shadow A26-672 - Original Drilling - Original Drilling - As	16,700.00	6,144.00	3,934.61	3,832.13	38.394	SF
Shadow A26-676 - Original Drilling - Original Drilling - As	16,451.75	6,144.00	3,878.76	3,777.54	38.320	CC
Shadow A26-676 - Original Drilling - Original Drilling - As	16,500.00	6,144.00	3,879.06	3,777.47	38.182	ES
Shadow A26-676 - Original Drilling - Original Drilling - As	17,100.00	6,144.00	3,932.56	3,827.30	37.363	SF
Shadow A26-685 - Original Drilling - Original Drilling - As	16,940.41	6,236.00	3,869.39	3,763.82	36.652	CC, ES
Shadow A26-685 - Original Drilling - Original Drilling - As	17,312.61	6,250.00	3,887.18	3,779.07	35.957	SF
Shadow A26-690 - Original Drilling - Original Drilling - As	17,234.78	6,235.00	3,891.67	3,783.58	36.005	CC, ES
Shadow A26-690 - Original Drilling - Original Drilling - As	17,312.61	6,235.00	3,892.45	3,783.79	35.824	SF
Shadow State A26-614 - Original Drilling - Original Drillin	12,231.44	6,147.00	3,802.26	3,733.68	55.448	CC, ES
Shadow State A26-614 - Original Drilling - Original Drillin	13,200.00	6,147.00	3,923.68	3,849.32	52.768	SF
Shadow State A26-618 - Original Drilling - Original Drillin	12,451.17	6,091.00	3,818.93	3,749.38	54.914	CC

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 Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<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						
AA Section 30						
Shadow State A26-618 - Original Drilling - Original Drilling	12,500.00	6,091.00	3,819.24	3,749.34	54.641	ES
Shadow State A26-618 - Original Drilling - Original Drilling	13,400.00	6,091.00	3,935.03	3,859.92	52.390	SF
Wells Ranch 41-30 - Original Drilling - Original Drilling - A	16,609.52	6,615.00	3,116.10	2,897.59	14.261	CC, ES
Wells Ranch 41-30 - Original Drilling - Original Drilling - A	16,900.00	6,615.00	3,129.61	2,909.18	14.198	SF
Wells Ranch 42-30 - Original Drilling - Original Drilling - A	15,274.25	6,610.00	3,306.20	3,098.31	15.904	CC
Wells Ranch 42-30 - Original Drilling - Original Drilling - A	15,300.00	6,610.00	3,306.30	3,098.21	15.889	ES
Wells Ranch 42-30 - Original Drilling - Original Drilling - A	15,600.00	6,610.00	3,322.20	3,112.13	15.815	SF
Wells Ranch 43-30 - Original Drilling - Original Drilling - A	14,059.28	6,610.00	3,116.22	2,917.77	15.703	CC
Wells Ranch 43-30 - Original Drilling - Original Drilling - A	14,100.00	6,610.00	3,116.48	2,917.73	15.680	ES
Wells Ranch 43-30 - Original Drilling - Original Drilling - A	14,300.00	6,610.00	3,125.50	2,925.40	15.620	SF
Wells Ranch 44-30 - Original Drilling - Original Drilling - A	12,625.06	6,629.99	2,993.66	2,805.70	15.927	CC, ES
Wells Ranch 44-30 - Original Drilling - Original Drilling - A	12,900.00	6,629.99	3,006.26	2,816.47	15.840	SF
Wolfe 02-30G - Original Drilling - Original Drilling - As Dri	15,232.44	6,640.38	6,984.89	6,886.50	70.987	CC
Wolfe 02-30G - Original Drilling - Original Drilling - As Dri	15,300.00	6,640.00	6,985.22	6,886.30	70.616	ES
Wolfe 02-30G - Original Drilling - Original Drilling - As Dri	17,312.61	6,630.39	7,288.06	7,176.81	65.514	SF



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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<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
AA Section 31						
Devries USX AA31-11 - Wellbore #1 - Wellbore #1 - As D	8,779.14	6,863.46	5,609.23	5,554.52	102.533	CC
Devries USX AA31-11 - Wellbore #1 - Wellbore #1 - As D	8,800.00	6,863.93	5,609.27	5,554.45	102.332	ES
Devries USX AA31-11 - Wellbore #1 - Wellbore #1 - As D	11,300.00	6,919.79	6,149.39	6,081.37	90.406	SF
Devries USX AA31-19 - Wellbore #1 - Wellbore #1 - As	10,658.84	6,746.09	6,292.54	6,222.10	89.342	CC
Devries USX AA31-19 - Wellbore #1 - Wellbore #1 - As	10,700.00	6,747.42	6,292.67	6,222.01	89.052	ES
Devries USX AA31-19 - Wellbore #1 - Wellbore #1 - As	12,700.00	6,806.15	6,615.09	6,534.57	82.161	SF
UPV 31-10G3 - Wellbore #1 - Wellbore #1 - As Drilled	8,929.25	6,638.83	4,302.25	4,248.60	80.182	CC, ES
UPV 31-10G3 - Wellbore #1 - Wellbore #1 - As Drilled	10,400.00	6,622.31	4,546.68	4,485.61	74.456	SF
UPV 31-12G3 - Wellbore #1 - Wellbore #1 - As Drilled	8,446.05	6,520.98	7,006.14	6,955.30	137.824	CC
UPV 31-12G3 - Wellbore #1 - Wellbore #1 - As Drilled	8,500.00	6,520.48	7,006.34	6,955.27	137.171	ES
UPV 31-12G3 - Wellbore #1 - Wellbore #1 - As Drilled	13,600.00	13,600.00	8,697.19	8,597.23	87.009	SF
UPV 31-13G3 - Wellbore #1 - Wellbore #1 - As Drilled	431.92	349.92	6,847.36	6,845.00	2,897.879	CC
UPV 31-13G3 - Wellbore #1 - Wellbore #1 - As Drilled	1,100.00	970.53	6,849.35	6,842.42	988.812	ES
UPV 31-13G3 - Wellbore #1 - Wellbore #1 - As Drilled	11,300.00	6,700.00	8,246.89	8,182.76	128.591	SF
UPV 31-14G3 - Wellbore #1 - Wellbore #1 - As Drilled	4,069.95	3,980.91	5,311.30	5,283.22	189.117	CC
UPV 31-14G3 - Wellbore #1 - Wellbore #1 - As Drilled	4,200.00	4,075.53	5,311.69	5,282.81	183.917	ES
UPV 31-14G3 - Wellbore #1 - Wellbore #1 - As Drilled	9,800.00	9,800.00	6,143.02	6,068.34	82.259	SF
UPV 31-15G3 - Wellbore #1 - Wellbore #1 - As Drilled	0.00	0.00	4,261.37			
UPV 31-15G3 - Wellbore #1 - Wellbore #1 - As Drilled	7,372.44	6,725.67	4,278.21	4,230.39	89.470	ES
UPV 31-15G3 - Wellbore #1 - Wellbore #1 - As Drilled	9,000.00	6,799.09	4,576.75	4,523.03	85.199	SF
UPV 31-16G3 - Wellbore #1 - Wellbore #1 - As Drilled	100.00	40.68	3,044.09	3,043.89	10,000.000	CC
UPV 31-16G3 - Wellbore #1 - Wellbore #1 - As Drilled	5,000.00	4,917.55	3,069.78	3,035.05	88.398	ES
UPV 31-16G3 - Wellbore #1 - Wellbore #1 - As Drilled	8,200.00	6,515.78	3,181.68	3,132.15	64.227	SF
UPV 31-9G3 - Wellbore #1 - Wellbore #1 - As Drilled	8,891.61	6,648.65	3,187.72	3,133.76	59.074	CC
UPV 31-9G3 - Wellbore #1 - Wellbore #1 - As Drilled	8,900.00	6,648.71	3,187.73	3,133.73	59.027	ES
UPV 31-9G3 - Wellbore #1 - Wellbore #1 - As Drilled	9,700.00	6,654.23	3,288.62	3,230.65	56.728	SF
Wells Ranch AA30-717 - Wellbore #1 - Rev 2	17,268.34	11,785.39	2,904.16	2,745.50	18.304	CC
Wells Ranch AA30-717 - Wellbore #1 - Rev 2	17,300.00	11,777.66	2,904.30	2,745.46	18.285	ES
Wells Ranch AA30-717 - Wellbore #1 - Rev 2	17,312.61	11,777.66	2,904.45	2,745.52	18.275	SF
Wells Ranch AA30-725 - Wellbore #1 - Rev 4	17,268.64	12,202.11	3,354.10	3,195.27	21.117	CC
Wells Ranch AA30-725 - Wellbore #1 - Rev 4	17,300.00	12,202.11	3,354.25	3,195.15	21.083	ES
Wells Ranch AA30-725 - Wellbore #1 - Rev 4	17,312.61	12,202.11	3,354.39	3,195.19	21.070	SF
Wells Ranch State A36-625 - Original Drilling - Original D	7,896.92	6,291.34	2,422.47	2,376.60	52.812	CC
Wells Ranch State A36-625 - Original Drilling - Original D	7,900.00	6,291.04	2,422.47	2,376.59	52.802	ES
Wells Ranch State A36-625 - Original Drilling - Original D	8,300.00	6,269.00	2,454.43	2,407.18	51.945	SF
Wells Ranch State A36-635 - Original Drilling - Original D	8,356.95	6,176.00	2,506.82	2,459.88	53.406	CC, ES
Wells Ranch State A36-635 - Original Drilling - Original D	8,900.00	6,176.00	2,564.97	2,515.70	52.062	SF
Wells Ranch State A36-649 - Original Drilling - Original D	9,333.79	6,162.00	2,515.82	2,464.19	48.725	CC, ES
Wells Ranch State A36-649 - Original Drilling - Original D	9,800.00	6,162.00	2,558.65	2,504.88	47.581	SF
Wells Ranch State A36-655 - Original Drilling - Original D	9,667.88	6,162.00	2,544.36	2,488.93	45.905	CC, ES
Wells Ranch State A36-655 - Original Drilling - Original D	10,100.00	6,162.00	2,580.79	2,523.48	45.032	SF
Wells Ranch State A36-665 - Original Drilling - Original D	10,717.30	6,119.66	2,560.19	2,498.52	41.517	CC, ES
Wells Ranch State A36-665 - Original Drilling - Original D	11,200.00	6,120.36	2,605.29	2,540.58	40.259	SF
Wells Ranch State A36-675 - Original Drilling - Original D	10,908.70	6,168.00	2,542.85	2,480.30	40.653	CC, ES
Wells Ranch State A36-675 - Original Drilling - Original D	11,400.00	6,168.00	2,589.87	2,524.32	39.510	SF
Wells Ranch State A36-686 - Original Drilling - Original D	11,747.94	6,296.05	2,543.25	2,472.61	36.004	CC, ES
Wells Ranch State A36-686 - Original Drilling - Original D	12,300.00	6,354.00	2,604.52	2,530.85	35.352	SF
Wells Ranch USX AA31-01 - Wellbore #1 - Wellbore #1 -	11,320.79	6,726.54	3,285.07	3,215.88	47.484	CC, ES
Wells Ranch USX AA31-01 - Wellbore #1 - Wellbore #1 -	12,000.00	6,719.26	3,354.54	3,281.38	45.852	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 Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
AA Section 32						
State 14-32 PR - Wellbore #1 - Gyro Surveys	7,435.02	6,630.14	1,697.49	1,649.87	35.651	CC, ES
State 14-32 PR - Wellbore #1 - Gyro Surveys	7,600.00	6,634.81	1,705.48	1,657.43	35.498	SF
State 23-32 PR - Wellbore #1 - Gyro Surveys	8,699.35	6,647.57	274.97	222.45	5.236	CC
State 23-32 PR - Wellbore #1 - Gyro Surveys	8,700.00	6,647.58	274.97	222.45	5.236	ES, SF
State 24-32 PA - Wellbore #1 - No Surveys	7,378.98	6,642.99	389.70	75.36	1.240	Level 3, CC, ES, SF
State 32-32 PA - Wellbore #1 - No Surveys	10,033.13	6,653.99	906.19	810.98	9.517	CC, ES
State 32-32 PA - Wellbore #1 - No Surveys	10,100.00	6,653.99	908.65	813.05	9.504	SF
State 6525 11-32 PA - Wellbore #1 - No Surveys	11,327.40	6,629.99	1,578.21	1,474.45	15.210	CC, ES
State 6525 11-32 PA - Wellbore #1 - No Surveys	11,500.00	6,629.99	1,587.62	1,482.87	15.157	SF
State 6525 12-32 PA - Wellbore #1 - No Surveys	10,109.00	6,624.99	1,738.79	1,643.35	18.218	CC, ES
State 6525 12-32 PA - Wellbore #1 - No Surveys	10,300.00	6,624.99	1,749.25	1,652.74	18.125	SF
State 6525 13-32 SI - Wellbore #1 - Gyro Surveys	8,722.41	6,315.00	1,491.47	1,441.03	29.564	CC, ES
State 6525 13-32 SI - Wellbore #1 - Gyro Surveys	8,900.00	6,315.00	1,502.01	1,450.78	29.317	SF
State 6525 21-32 PA - Wellbore #1 - Gyro Surveys	11,273.17	6,650.00	508.33	439.70	7.406	CC, ES
State 6525 21-32 PA - Wellbore #1 - Gyro Surveys	11,300.00	6,650.00	509.04	440.28	7.403	SF
State 6525 22-32 PR - Wellbore #1 - No Surveys	10,060.24	6,649.99	402.28	306.93	4.219	CC, ES, SF
State 6525 31-32 PA - Wellbore #1 - Gyro Surveys	11,392.98	6,663.84	852.63	783.17	12.276	CC
State 6525 31-32 PA - Wellbore #1 - Gyro Surveys	11,400.00	6,663.74	852.65	783.15	12.267	ES, SF
State 6525 33-32 PA - Wellbore #1 - Gyro Surveys	8,635.50	6,625.94	959.46	907.32	18.404	CC, ES
State 6525 33-32 PA - Wellbore #1 - Gyro Surveys	8,700.00	6,624.74	961.62	909.19	18.340	SF
State 6525 34-32 PR - Wellbore #1 - Gyro Surveys	7,396.36	6,625.33	995.59	948.06	20.947	CC
State 6525 34-32 PR - Wellbore #1 - Gyro Surveys	7,400.00	6,625.05	995.59	948.06	20.944	ES, SF
State 6525 42-32 PR - Wellbore #1 - No Surveys	9,892.53	6,684.99	2,151.78	2,057.18	22.748	CC
State 6525 42-32 PR - Wellbore #1 - No Surveys	9,900.00	6,684.99	2,151.79	2,057.15	22.736	ES
State 6525 42-32 PR - Wellbore #1 - No Surveys	10,200.00	6,684.99	2,173.63	2,077.26	22.555	SF
State 6525 43-32 PR - Wellbore #1 - Gyro Surveys	8,594.85	8,594.85	2,265.16	2,206.38	38.538	CC
State 6525 43-32 PR - Wellbore #1 - Gyro Surveys	8,600.00	8,600.00	2,265.17	2,206.35	38.510	ES
State 6525 43-32 PR - Wellbore #1 - Gyro Surveys	9,200.00	9,200.00	2,344.51	2,280.88	36.844	SF
State 6525 44-32 PR - Wellbore #1 - No Surveys	7,423.25	6,697.99	2,232.11	2,149.07	26.879	CC, ES
State 6525 44-32 PR - Wellbore #1 - No Surveys	7,600.00	6,697.99	2,239.10	2,155.59	26.813	SF
State Lease 41-32 PA - Wellbore #1 - Gyro Surveys	11,299.06	6,644.14	2,143.48	2,074.75	31.184	CC
State Lease 41-32 PA - Wellbore #1 - Gyro Surveys	11,300.00	6,644.14	2,143.48	2,074.74	31.181	ES
State Lease 41-32 PA - Wellbore #1 - Gyro Surveys	11,600.00	6,644.66	2,164.51	2,093.91	30.661	SF
State Wells 32D PR - Wellbore #1 - Gyro Surveys	10,699.58	6,615.32	1,050.69	986.21	16.295	CC
State Wells 32D PR - Wellbore #1 - Gyro Surveys	10,700.00	6,615.34	1,050.69	986.21	16.294	ES
State Wells 32D PR - Wellbore #1 - Gyro Surveys	10,800.00	6,620.47	1,055.47	990.43	16.228	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 Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<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 03						
UPRR Pan Am 1 (PA) - Original Drilling - Original Drilling	6,444.61	6,456.33	8,831.30	8,679.60	58.217	CC
UPRR Pan Am 1 (PA) - Original Drilling - Original Drilling	6,500.00	6,499.63	8,831.91	8,679.19	57.831	ES
UPRR Pan Am 1 (PA) - Original Drilling - Original Drilling	7,044.98	6,718.99	8,866.71	8,708.48	56.036	SF
Wells 43-3 PA - Wellbore #1 - No Surveys						Out of range
Wells 34-3 - Wellbore #1 - Gyro 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	6,275.08	6,235.49	9,041.90	8,998.21	206.985	CC, ES
Wells Ranch 12-03 - Original Drilling - Original Drilling - A	9,300.00	6,614.92	9,968.10	9,913.96	184.121	SF
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 BB03-627 - Wellbore #1 - Plan 1	6,158.86	6,100.00	9,205.37	9,162.08	212.640	CC, ES
WELLS RANCH BB03-627 - Wellbore #1 - Plan 1	6,650.00	6,100.00	9,313.76	9,269.21	209.053	SF
WELLS RANCH BB03-651 - Wellbore #1 - Plan 3	6,213.10	6,250.00	8,789.30	8,745.22	199.392	CC, ES
WELLS RANCH BB03-651 - Wellbore #1 - Plan 3	9,300.00	6,300.00	9,961.40	9,908.60	188.650	SF
WELLS RANCH STATE BB03-612 - Wellbore #1 - Plan #	6,133.53	6,050.00	9,672.54	9,629.60	225.306	CC, ES
WELLS RANCH STATE BB03-612 - Wellbore #1 - Plan #	6,650.00	6,100.00	9,804.15	9,759.63	220.232	SF
WELLS RANCH STATE BB03-620 - Wellbore #1 - Plan 1	6,151.25	6,050.00	9,397.05	9,353.87	217.616	CC, ES
WELLS RANCH STATE BB03-620 - Wellbore #1 - Plan 1	6,650.00	6,050.00	9,513.30	9,468.80	213.796	SF
WELLS RANCH STATE BB03-636 - Wellbore #1 - Plan 1	6,158.97	5,925.42	9,046.12	9,003.52	212.347	CC, ES
WELLS RANCH STATE BB03-636 - Wellbore #1 - Plan 1	8,500.00	5,950.00	9,981.94	9,933.70	206.907	SF
WELLS RANCH STATE BB03-643 - Wellbore #1 - Plan 1	6,181.63	6,050.00	8,834.70	8,791.51	204.556	CC, ES
WELLS RANCH STATE BB03-643 - Wellbore #1 - Plan 1	9,100.00	6,150.00	9,987.00	9,935.68	194.615	SF
WELLS RANCH STATE BB03-659 - Wellbore #1 - Plan 1	6,218.52	6,123.57	8,494.77	8,450.84	193.367	CC, ES
WELLS RANCH STATE BB03-659 - Wellbore #1 - Plan 1	10,200.00	6,100.00	9,951.90	9,894.90	174.601	SF
WELLS RANCH STATE BB03-668 - Wellbore #1 - Plan 1	6,275.23	6,150.00	8,383.28	8,339.40	191.076	CC, ES
WELLS RANCH STATE BB03-668 - Wellbore #1 - Plan 1	10,900.00	6,150.00	9,970.02	9,909.58	164.965	SF
WELLS RANCH STATE BB03-676 - Wellbore #1 - Plan 1	6,317.07	6,150.00	8,328.08	8,283.97	188.803	CC, ES
WELLS RANCH STATE BB03-676 - Wellbore #1 - Plan 1	11,500.00	6,200.00	9,992.73	9,928.93	156.620	SF
WELLS RANCH STATE BB03-684 - Wellbore #1 - Plan 1	6,358.74	6,300.00	8,150.29	8,105.22	180.825	CC, ES
WELLS RANCH STATE BB03-684 - Wellbore #1 - Plan 1	11,900.00	6,500.00	9,962.68	9,895.69	148.711	SF
Wells Ranch State BB05-613 - Original Drilling - Original	6,115.55	15,239.86	4,773.01	4,644.37	37.103	CC, ES
Wells Ranch State BB05-613 - Original Drilling - Original	6,200.00	15,235.49	4,779.27	4,650.20	37.028	SF
Wells Ranch State BB05-613 - Original Drilling - Original	6,111.21	15,216.00	4,469.14	4,339.54	34.483	CC, ES
Wells Ranch State BB05-617 - Original Drilling - Original	6,200.00	15,216.00	4,476.12	4,346.03	34.409	SF
Wells Ranch State BB05-625 - Original Drilling - Original	6,122.81	15,104.52	3,947.49	3,818.40	30.579	CC, ES
Wells Ranch State BB05-625 - Original Drilling - Original	6,200.00	15,098.97	3,952.84	3,823.38	30.535	SF
Wells Ranch State BB05-630 - Original Drilling - Original	6,125.98	15,168.93	3,681.48	3,553.31	28.723	CC, ES
Wells Ranch State BB05-630 - Original Drilling - Original	6,200.00	15,165.92	3,686.48	3,557.86	28.661	SF
Wells Ranch State BB05-635 - Original Drilling - Original	6,145.22	15,212.00	3,329.71	3,201.85	26.043	CC
Wells Ranch State BB05-635 - Original Drilling - Original	6,150.00	15,212.00	3,329.73	3,201.84	26.036	ES
Wells Ranch State BB05-635 - Original Drilling - Original	6,250.00	15,212.00	3,339.85	3,211.26	25.974	SF
Wells Ranch State BB05-644 - Original Drilling - Original	6,148.78	15,223.65	2,695.90	2,566.12	20.773	CC
Wells Ranch State BB05-644 - Original Drilling - Original	6,150.00	15,223.55	2,695.90	2,566.11	20.772	ES
Wells Ranch State BB05-644 - Original Drilling - Original	6,200.00	15,220.05	2,698.41	2,568.29	20.739	SF
Wells Ranch State BB05-650 - Original Drilling - Original	6,178.64	15,306.00	2,361.63	2,231.66	18.170	CC, ES
Wells Ranch State BB05-650 - Original Drilling - Original	6,250.00	15,306.00	2,366.61	2,236.03	18.124	SF
Wells Ranch State BB05-656 - Original Drilling - Original	6,174.80	14,885.66	2,060.68	1,935.67	16.484	CC, ES
Wells Ranch State BB05-656 - Original Drilling - Original	6,250.00	14,880.20	2,066.38	1,940.56	16.423	SF
Wells Ranch State BB05-665 - Original Drilling - Original	6,227.38	15,148.27	1,345.49	1,219.30	10.662	CC, ES
Wells Ranch State BB05-665 - Original Drilling - Original	6,300.00	15,141.73	1,351.51	1,224.14	10.611	SF
Wells Ranch State BB05-669 - Original Drilling - Original	6,328.97	15,196.77	1,065.26	942.61	8.685	CC
Wells Ranch State BB05-669 - Original Drilling - Original	6,350.00	15,195.28	1,065.80	942.50	8.644	ES

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<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 03						
Wells Ranch State BB05-669 - Original Drilling - Original	6,400.00	15,192.12	1,071.51	946.77	8.590	SF
Wells Ranch State BB05-678 - Original Drilling - Original	6,358.15	15,284.43	732.09	611.71	6.081	CC, ES
Wells Ranch State BB05-678 - Original Drilling - Original	6,450.00	15,278.93	744.27	619.68	5.974	SF
Wells Ranch State BB05-685 - Original Drilling - Original	6,500.34	14,910.35	254.51	143.48	2.292	CC
Wells Ranch State BB05-685 - Original Drilling - Original	6,524.76	14,911.63	256.12	140.83	2.221	ES
Wells Ranch State BB05-685 - Original Drilling - Original	6,550.00	14,913.11	261.14	142.03	2.192	SF
Wells Ranch State BB05-690 - Original Drilling - Original	6,816.77	15,256.04	144.83	55.09	1.614	CC
Wells Ranch State BB05-690 - Original Drilling - Original	6,850.00	15,257.09	149.43	48.42	1.479	Level 3, 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 Surveys						Out of range
Wells Ranch USX BB 3-16 SI - Wellbore #1 - Gyro Surveys						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	6,462.14	6,491.35	8,745.79	8,666.52	110.332	CC
Wells Ranch USX BB 3-4 - Wellbore #1 - No Surveys	6,500.00	6,520.63	8,746.07	8,666.44	109.835	ES
Wells Ranch USX BB 3-4 - Wellbore #1 - No Surveys	11,000.00	6,739.99	9,940.64	9,841.59	100.360	SF
Wells Ranch USX BB 3-6 SI - Wellbore #1 - Gyro Surveys						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	6,447.57	6,397.43	8,761.42	8,716.67	195.785	CC
Wells Ranch USX BB03-04 - Original Drilling - Original D	6,450.00	6,399.03	8,761.42	8,716.66	195.729	ES
Wells Ranch USX BB03-04 - Original Drilling - Original D	11,100.00	6,629.97	9,991.10	9,927.37	156.766	SF
Wells Ranch USX BB03-12 - Original Drilling - Original D	6,184.91	5,963.59	9,171.15	9,128.76	216.338	CC
Wells Ranch USX BB03-12 - Original Drilling - Original D	6,200.00	5,978.06	9,171.23	9,128.74	215.820	ES
Wells Ranch USX BB03-12 - Original Drilling - Original D	8,400.00	6,480.57	9,965.53	9,915.96	201.019	SF
Wells Ranch USX BB03-13 - Original Drilling - Original D	6,148.48	5,861.75	9,797.04	9,755.13	233.776	CC
Wells Ranch USX BB03-13 - Original Drilling - Original D	6,150.00	5,863.23	9,797.04	9,755.12	233.718	ES
Wells Ranch USX BB03-13 - Original Drilling - Original D	6,850.00	6,283.92	9,986.27	9,941.05	220.854	SF
Wells Ranch USX BB03-25 PA - Original Drilling - Gyro S						Out of range

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<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 05						
UPV 05-03H3 - Original Drilling - Original Drilling - As Dri	1,645.29	1,609.40	391.68	380.56	35.225	CC
UPV 05-03H3 - Original Drilling - Original Drilling - As Dri	4,800.00	4,761.87	394.92	361.49	11.811	ES
UPV 05-03H3 - Original Drilling - Original Drilling - As Dri	5,600.00	5,563.50	413.67	374.64	10.597	SF
UPV 05-04H3 - Original Drilling - Original Drilling - As Dri	5,569.86	5,710.81	1,641.60	1,602.05	41.514	CC, ES
UPV 05-04H3 - Original Drilling - Original Drilling - As Dri	6,450.00	6,503.69	1,725.20	1,679.54	37.785	SF
UPV 05-05H3 - Original Drilling - Original Drilling - As Dri	443.72	407.51	2,438.35	2,435.75	935.309	CC
UPV 05-05H3 - Original Drilling - Original Drilling - As Dri	5,400.00	5,417.02	2,458.32	2,420.46	64.931	ES
UPV 05-05H3 - Original Drilling - Original Drilling - As Dri	6,300.00	6,313.22	2,540.27	2,496.20	57.647	SF
UPV 05-06H3 - Original Drilling - Original Drilling - As Dri	0.00	0.00	1,702.87			
UPV 05-06H3 - Original Drilling - Original Drilling - As Dri	6,026.13	5,993.19	1,718.93	1,676.92	40.917	ES
UPV 05-06H3 - Original Drilling - Original Drilling - As Dri	6,200.00	6,178.67	1,741.84	1,698.57	40.255	SF
Wells Ranch 31-05 - Original Drilling - Original Drilling - A	6,114.27	6,002.31	1,160.02	1,117.79	27.466	CC
Wells Ranch 31-05 - Original Drilling - Original Drilling - A	6,150.00	6,052.46	1,160.18	1,117.61	27.253	ES
Wells Ranch 31-05 - Original Drilling - Original Drilling - A	6,450.00	6,401.30	1,184.21	1,139.39	26.421	SF
Wells Ranch 32-05 - Original Drilling - Original Drilling - A	6,092.01	6,086.82	1,892.08	1,849.53	44.460	CC
Wells Ranch 32-05 - Original Drilling - Original Drilling - A	6,100.00	6,094.57	1,892.13	1,849.52	44.404	ES
Wells Ranch 32-05 - Original Drilling - Original Drilling - A	6,300.00	6,295.88	1,922.55	1,878.55	43.695	SF
Wells Ranch 41-05 - Original Drilling - Original Drilling - A	6,292.58	6,290.00	2,344.35	2,300.46	53.408	CC
Wells Ranch 41-05 - Original Drilling - Original Drilling - A	6,300.00	6,296.82	2,344.37	2,300.42	53.350	ES
Wells Ranch 41-05 - Original Drilling - Original Drilling - A	6,650.00	6,558.81	2,383.59	2,337.76	52.009	SF
Wells Ranch 42-05 - Original Drilling - Original Drilling - A	6,135.23	6,111.53	2,792.85	2,750.06	65.268	CC, ES
Wells Ranch 42-05 - Original Drilling - Original Drilling - A	6,450.00	6,380.85	2,848.26	2,803.53	63.669	SF
Wells Ranch BB01-611 - Original Drilling - Original Drillin						Out of range
Wells Ranch BB01-615 - Original Drilling - Original Drillin						Out of range
Wells Ranch BB01-624 - Original Drilling - Original Drillin						Out of range
Wells Ranch BB01-624 - Original Drilling - ST01 - ST01 -						Out of range
Wells Ranch BB01-638 - Original Drilling - Original Drillin						Out of range
Wells Ranch BB01-649 - Original Drilling - Original Drillin						Out of range
Wells Ranch BB01-655 - Original Drilling - Original Drillin						Out of range
Wells Ranch BB01-669 - Original Drilling - Original Drillin						Out of range
Wells Ranch BB01-675 - Original Drilling - Original Drillin						Out of range
Wells Ranch State AA32-717 - Wellbore #1 - Plan #2	1,908.85	1,927.85	1,835.64	1,822.35	138.148	CC
Wells Ranch State AA32-717 - Wellbore #1 - Plan #2	2,000.00	2,013.89	1,835.67	1,821.74	131.853	ES
Wells Ranch State AA32-717 - Wellbore #1 - Plan #2	17,312.61	17,438.29	2,395.86	2,208.38	12.779	SF
Wells Ranch State AA32-724 - Wellbore #1 - Plan #2	2,209.35	2,227.35	1,800.03	1,784.59	116.595	CC
Wells Ranch State AA32-724 - Wellbore #1 - Plan #2	17,312.61	17,349.35	1,956.81	1,769.25	10.433	ES, SF
Wells Ranch State AA32-731 - Wellbore #1 - Plan #2	7,211.66	6,997.10	1,519.92	1,470.33	30.650	CC
Wells Ranch State AA32-731 - Wellbore #1 - Plan #2	17,312.61	17,094.39	1,555.21	1,368.06	8.310	ES, SF
Wells Ranch State AA32-737 - Wellbore #1 - Plan #2	7,119.94	7,039.93	1,108.50	1,059.49	22.618	CC
Wells Ranch State AA32-737 - Wellbore #1 - Plan #2	17,312.61	17,230.56	1,127.17	939.96	6.021	ES, SF
Wells Ranch State AA32-745 - Wellbore #1 - Plan #2	2,000.00	2,001.00	37.50	23.62	2.702	CC, ES
Wells Ranch State AA32-745 - Wellbore #1 - Plan #2	2,100.00	2,099.66	39.25	24.67	2.693	SF
Wells Ranch State AA32-763 - Wellbore #1 - Plan 1	2,000.00	1,999.00	74.96	61.10	5.405	CC, ES
Wells Ranch State AA32-763 - Wellbore #1 - Plan 1	17,311.82	17,246.78	705.45	493.15	3.323	SF
Wells Ranch State AA32-770 - Wellbore #1 - Plan #2	5,605.13	5,756.87	1,034.59	994.59	25.861	CC
Wells Ranch State AA32-770 - Wellbore #1 - Plan #2	5,628.52	5,780.26	1,034.69	994.52	25.757	ES
Wells Ranch State AA32-770 - Wellbore #1 - Plan #2	17,312.61	17,296.14	1,367.41	1,153.44	6.391	SF
Wells Ranch State AA32-775 - Wellbore #1 - Plan #2	5,397.67	5,470.31	1,332.64	1,294.44	34.888	CC
Wells Ranch State AA32-775 - Wellbore #1 - Plan #2	5,400.00	5,472.64	1,332.64	1,294.42	34.873	ES
Wells Ranch State AA32-775 - Wellbore #1 - Plan #2	17,312.61	17,143.79	2,021.54	1,838.46	11.042	SF
Wells Ranch State AA32-783 - Wellbore #1 - Plan #2	2,200.00	2,189.00	1,537.04	1,521.77	100.675	CC, ES
Wells Ranch State AA32-783 - Wellbore #1 - Plan #2	17,312.61	16,843.55	2,672.40	2,460.19	12.594	SF
Wells Ranch State AA32-789 - Wellbore #1 - Plan #2	2,000.00	1,988.00	1,574.53	1,560.70	113.851	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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<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 05						
Wells Ranch State AA32-789 - Wellbore #1 - Plan #2	17,312.61	16,932.68	3,307.81	3,127.23	18.319	SF
Wells Ranch State BB01-690 - Original Drilling - Original D						Out of range
Wells Ranch USX BB05-09 - Original Drilling - Original D	1,977.32	1,983.57	3,732.52	3,718.89	273.808	CC
Wells Ranch USX BB05-09 - Original Drilling - Original D	6,100.98	6,070.45	3,745.52	3,703.00	88.094	ES
Wells Ranch USX BB05-09 - Original Drilling - Original D	6,450.00	6,399.11	3,823.77	3,778.98	85.367	SF
Wells Ranch USX BB05-10 - Original Drilling - Original D	6,059.00	6,010.54	3,221.75	3,179.56	76.367	CC, ES
Wells Ranch USX BB05-10 - Original Drilling - Original D	6,400.00	6,313.44	3,311.02	3,266.65	74.613	SF
Wells Ranch USX BB05-11 - Original Drilling - Original D	6,030.51	6,008.32	2,798.31	2,756.24	66.502	CC, ES
Wells Ranch USX BB05-11 - Original Drilling - Original D	6,300.00	6,265.43	2,852.92	2,809.01	64.977	SF
Wells Ranch USX BB05-12 - Original Drilling - Original D	0.00	0.00	3,367.09			
Wells Ranch USX BB05-12 - Original Drilling - Original D	300.00	250.18	3,368.23	3,366.67	2,158.014	ES
Wells Ranch USX BB05-12 - Original Drilling - Original D	6,500.00	6,501.54	3,624.83	3,579.50	79.964	SF
Wells Ranch USX BB05-13 - Original Drilling - Original D	5,461.64	5,540.88	4,644.15	4,605.66	120.646	CC
Wells Ranch USX BB05-13 - Original Drilling - Original D	5,500.00	5,572.87	4,644.24	4,605.50	119.891	ES
Wells Ranch USX BB05-13 - Original Drilling - Original D	6,600.00	6,495.63	4,890.62	4,845.11	107.466	SF
Wells Ranch USX BB05-14 - Original Drilling - Original D	0.00	22.35	4,152.71			
Wells Ranch USX BB05-14 - Original Drilling - Original D	6,026.13	5,977.10	4,173.35	4,131.38	99.439	ES
Wells Ranch USX BB05-14 - Original Drilling - Original D	6,400.00	6,412.01	4,279.32	4,234.57	95.641	SF
Wells Ranch USX BB05-15 - Original Drilling - Original D	6,049.73	5,994.88	4,333.42	4,291.33	102.952	CC
Wells Ranch USX BB05-15 - Original Drilling - Original D	6,050.00	5,995.13	4,333.42	4,291.33	102.948	ES
Wells Ranch USX BB05-15 - Original Drilling - Original D	6,400.00	6,296.57	4,428.21	4,383.90	99.935	SF
Wells Ranch USX BB05-16 - Original Drilling - Original D	2,025.71	2,053.92	4,699.62	4,685.57	334.477	CC
Wells Ranch USX BB05-16 - Original Drilling - Original D	2,200.00	2,200.00	4,700.05	4,684.86	309.561	ES
Wells Ranch USX BB05-16 - Original Drilling - Original D	6,500.00	6,453.18	4,863.34	4,818.21	107.765	SF
Wells Ranch USX BB05-23 - Original Drilling - Original D	395.67	416.67	3,968.84	3,966.37	1,607.004	CC
Wells Ranch USX BB05-23 - Original Drilling - Original D	6,076.20	6,057.12	4,001.99	3,959.54	94.275	ES
Wells Ranch USX BB05-23 - Original Drilling - Original D	6,500.00	6,446.59	4,130.86	4,085.71	91.490	SF
Wells Ranch USX BB05-25 - Original Drilling - Original D	1,750.90	1,732.00	3,707.24	3,695.31	310.802	CC
Wells Ranch USX BB05-25 - Original Drilling - Original D	1,800.00	1,766.03	3,707.33	3,695.11	303.325	ES
Wells Ranch USX BB05-25 - Original Drilling - Original D	6,400.00	6,312.18	3,873.78	3,829.41	87.296	SF

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<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 06						
Skurich-Roth 21-06 - Original Drilling - Original Drilling - A	4,452.19	4,349.83	5,482.66	5,451.91	178.276	CC
Skurich-Roth 21-06 - Original Drilling - Original Drilling - A	5,228.50	5,100.00	5,483.17	5,447.02	151.655	ES
Skurich-Roth 21-06 - Original Drilling - Original Drilling - A	8,500.00	6,558.39	6,126.66	6,076.29	121.629	SF
Skurich-Roth 23-06 - Original Drilling - Original Drilling - A	5,219.68	5,140.52	6,189.48	6,153.22	170.718	CC
Skurich-Roth 23-06 - Original Drilling - Original Drilling - A	5,228.50	5,146.60	6,189.48	6,153.17	170.470	ES
Skurich-Roth 23-06 - Original Drilling - Original Drilling - A	6,750.00	6,664.66	6,449.31	6,402.90	138.939	SF
Skurich-Roth 33-06 - Original Drilling - Original Drilling - A	393.42	323.43	6,883.47	6,881.33	3,220.479	CC
Skurich-Roth 24-06 - Original Drilling - Original Drilling - A	4,900.00	4,800.00	6,908.38	6,874.45	203.604	ES
Skurich-Roth 24-06 - Original Drilling - Original Drilling - A	6,700.00	6,576.24	7,203.55	7,157.55	156.582	SF
Skurich-Roth 33-06 - Original Drilling - Original Drilling - A	5,067.59	5,000.00	5,130.20	5,094.98	145.678	CC
Skurich-Roth 33-06 - Original Drilling - Original Drilling - A	5,100.00	5,019.82	5,130.23	5,094.83	144.917	ES
Skurich-Roth 33-06 - Original Drilling - Original Drilling - A	6,600.00	6,400.00	5,367.67	5,322.51	118.872	SF
Skurich-Roth 42-06 - Original Drilling - Original Drilling - A	403.76	356.76	3,355.50	3,353.21	1,467.095	CC
Skurich-Roth 42-06 - Original Drilling - Original Drilling - A	5,228.50	5,175.83	3,367.90	3,331.49	92.503	ES
Skurich-Roth 42-06 - Original Drilling - Original Drilling - A	6,550.00	6,487.16	3,566.56	3,521.20	78.634	SF
Skurich-Roth 6D - Original Drilling - Original Drilling - As	5,248.98	5,189.63	6,010.48	5,973.92	164.433	CC, ES
Skurich-Roth 6D - Original Drilling - Original Drilling - As	8,000.00	6,770.58	6,586.39	6,537.01	133.368	SF
Skurich-Roth 11-06 - Original Drilling - Original Drilling -	971.22	870.23	6,731.58	6,725.46	1,100.483	CC
Skurich-Roth 11-06 - Original Drilling - Original Drilling -	5,241.70	5,171.37	6,748.12	6,711.68	185.192	ES
Skurich-Roth 11-06 - Original Drilling - Original Drilling -	9,600.00	6,552.79	7,747.39	7,680.90	116.523	SF
Skurich-Roth 12-06 - Original Drilling - Original Drilling -	2,155.93	2,056.95	6,840.45	6,825.93	471.173	CC
Skurich-Roth 12-06 - Original Drilling - Original Drilling -	4,700.00	4,554.74	6,845.30	6,812.96	211.645	ES
Skurich-Roth 12-06 - Original Drilling - Original Drilling -	6,950.00	6,618.29	7,115.11	7,068.50	152.639	SF
Skurich-Roth 13-06 - Original Drilling - Original Drilling -	100.00	0.00	7,368.13	7,368.00	10,000.000	CC
Skurich-Roth 13-06 - Original Drilling - Original Drilling -	4,400.00	4,251.63	7,373.86	7,343.65	244.053	ES
Skurich-Roth 13-06 - Original Drilling - Original Drilling -	6,950.00	6,527.06	7,725.24	7,677.12	160.544	SF
Skurich-Roth 14-06 - Original Drilling - Original Drilling -	5,253.94	5,217.75	7,958.81	7,922.16	217.149	CC
Skurich-Roth 14-06 - Original Drilling - Original Drilling -	5,300.00	5,258.75	7,959.11	7,922.15	215.374	ES
Skurich-Roth 14-06 - Original Drilling - Original Drilling -	6,800.00	6,836.72	8,255.06	8,207.96	175.246	SF
Skurich-Roth 22-06 - Original Drilling - Original Drilling -	1,262.36	1,190.37	5,783.58	5,775.31	698.935	CC
Skurich-Roth 22-06 - Original Drilling - Original Drilling -	5,231.37	5,164.81	5,791.27	5,754.89	159.175	ES
Skurich-Roth 22-06 - Original Drilling - Original Drilling -	11,200.00	11,200.00	8,742.10	8,669.10	119.755	SF
Skurich-Roth 31-06 - Original Drilling - Original Drilling -	100.00	27.85	4,220.73	4,220.56	10,000.000	CC
Skurich-Roth 31-06 - Original Drilling - Original Drilling -	600.00	506.60	4,223.12	4,219.60	1,200.843	ES
Skurich-Roth 31-06 - Original Drilling - Original Drilling -	6,850.00	6,500.00	4,437.94	4,391.88	96.354	SF
Skurich-Roth 34-06 - Original Drilling - Original Drilling -	1,115.61	1,055.61	5,942.69	5,935.41	816.549	CC
Skurich-Roth 34-06 - Original Drilling - Original Drilling -	4,000.00	3,921.69	5,944.45	5,916.82	215.127	ES
Skurich-Roth 34-06 - Original Drilling - Original Drilling -	6,650.00	6,427.27	6,238.45	6,193.08	137.515	SF
Skurich-Roth 41-06 - Original Drilling - Original Drilling -	2,410.46	2,355.50	2,899.47	2,883.01	176.150	CC
Skurich-Roth 41-06 - Original Drilling - Original Drilling -	2,700.00	2,628.53	2,900.47	2,882.02	157.209	ES
Skurich-Roth 41-06 - Original Drilling - Original Drilling -	6,850.00	6,727.24	3,111.42	3,064.57	66.410	SF
Skurich-Roth 43-06 - Original Drilling - Original Drilling -	960.98	912.00	4,146.54	4,140.31	666.044	CC
Skurich-Roth 43-06 - Original Drilling - Original Drilling -	4,300.00	4,222.97	4,157.19	4,127.43	139.693	ES
Skurich-Roth 43-06 - Original Drilling - Original Drilling -	6,524.76	6,416.79	4,350.02	4,304.96	96.549	SF
Skurich-Roth 44-06 - Original Drilling - Original Drilling -	4,121.42	4,077.73	5,062.72	5,034.12	176.987	CC
Skurich-Roth 44-06 - Original Drilling - Original Drilling -	5,300.00	5,302.07	5,065.88	5,028.79	136.568	ES
Skurich-Roth 44-06 - Original Drilling - Original Drilling -	6,524.76	6,476.26	5,255.82	5,210.56	116.129	SF
Skurich-Roth 6A - Original Drilling - Original Drilling - As	5,249.94	5,217.92	4,968.63	4,931.97	135.547	CC, ES
Skurich-Roth 6A - Original Drilling - Original Drilling - As	6,550.00	6,417.31	5,180.20	5,135.07	114.789	SF
Skurich-Roth 32-06 - Original Drilling - Original Drilling -	5,228.50	5,164.50	4,508.56	4,386.76	37.016	CC
Skurich-Roth 32-06 - Original Drilling - Original Drilling -	5,300.00	5,235.99	4,509.33	4,385.85	36.519	ES
Skurich-Roth 32-06 - Original Drilling - Original Drilling -	6,700.00	6,518.78	4,735.53	4,581.93	30.832	SF

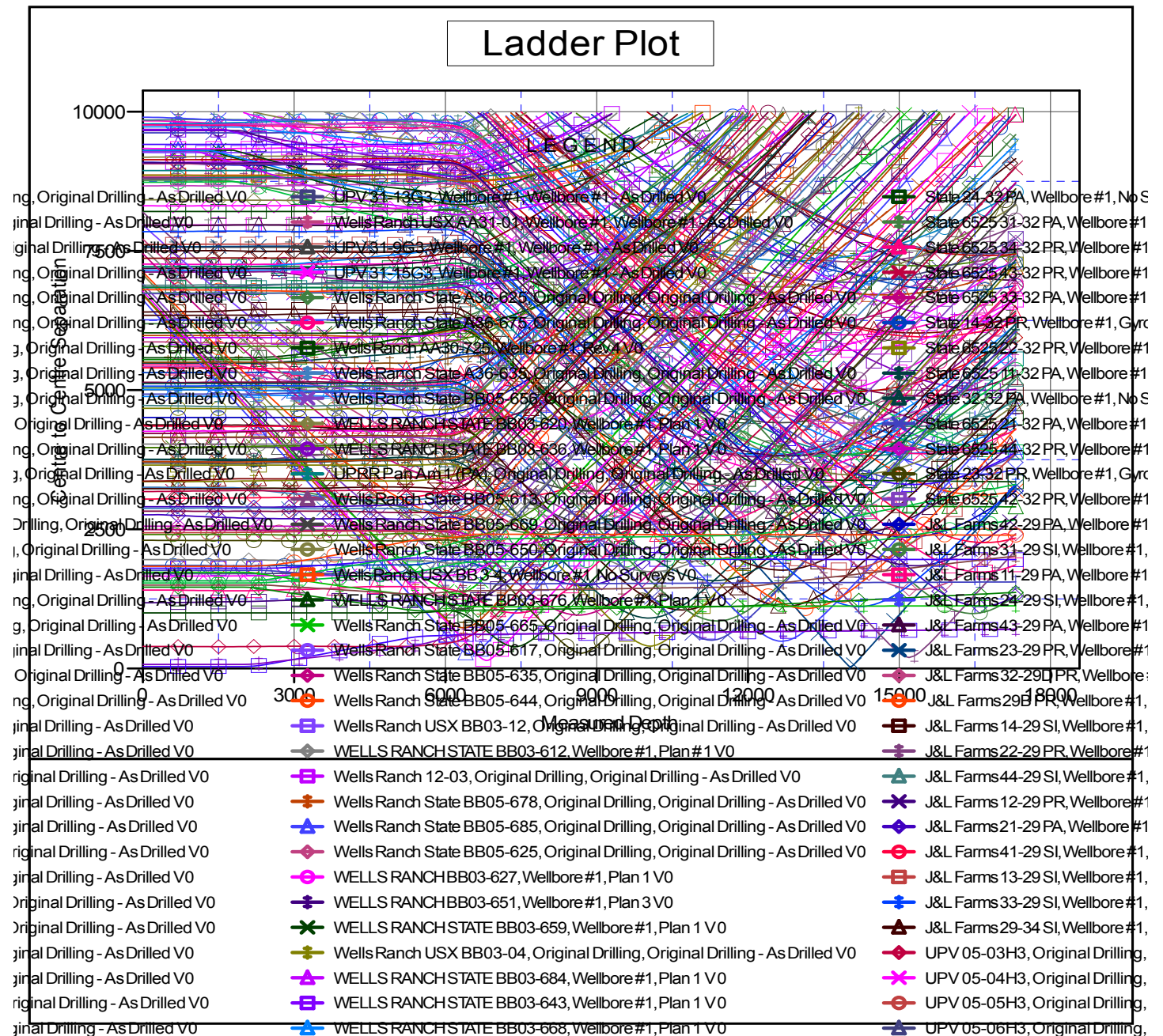
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Grid Convergence at Surface is: 0.67°



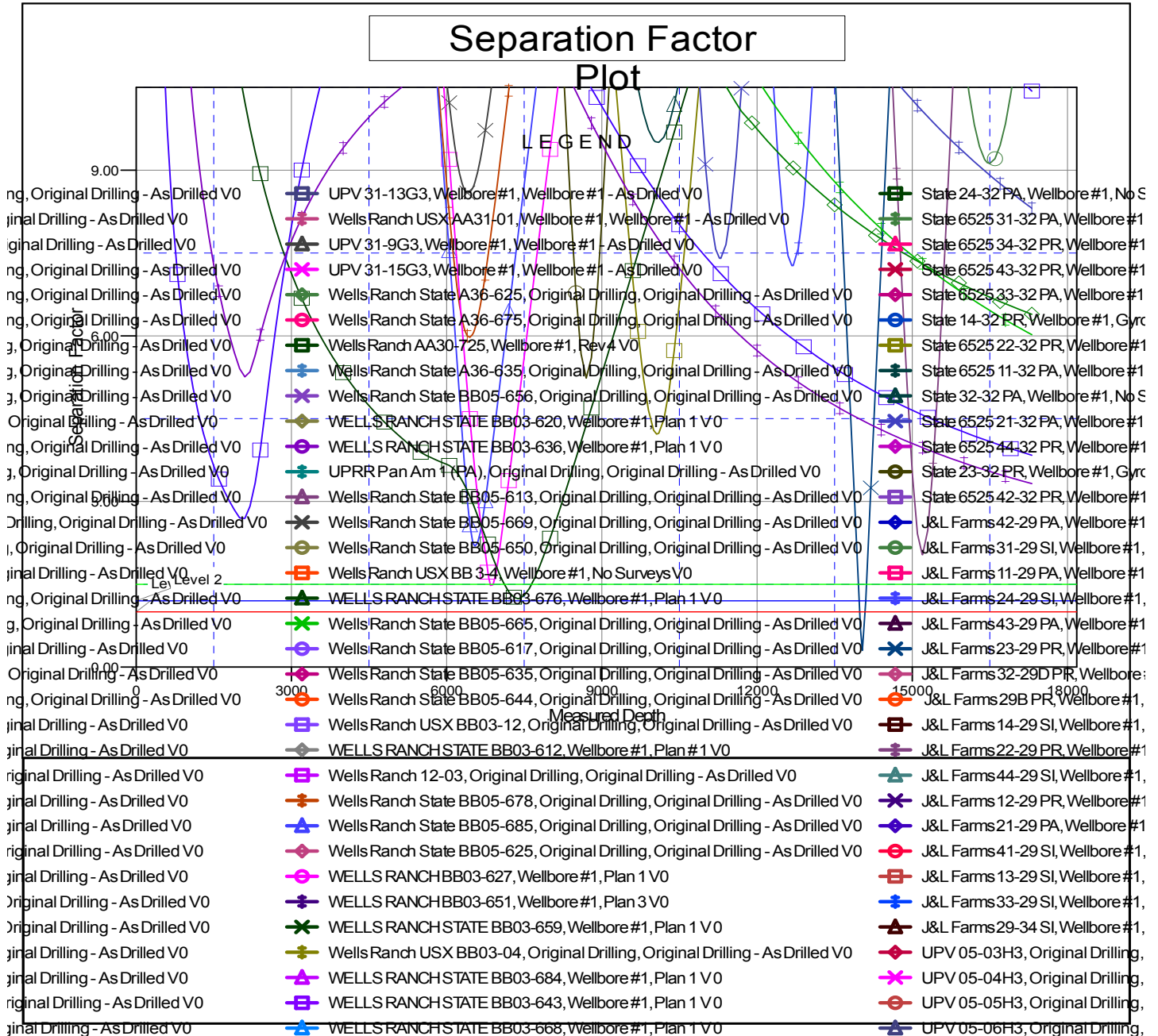
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-751
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4714.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4714.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-751	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to Well @ 4714.00ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: Wells Ranch State AA32-751  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.67°



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