

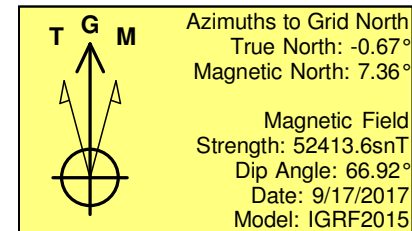
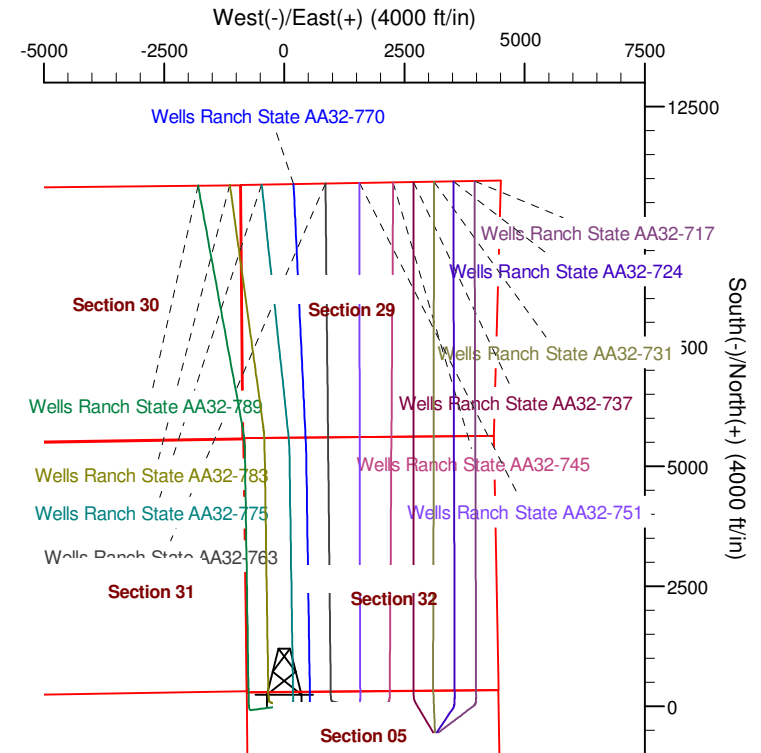
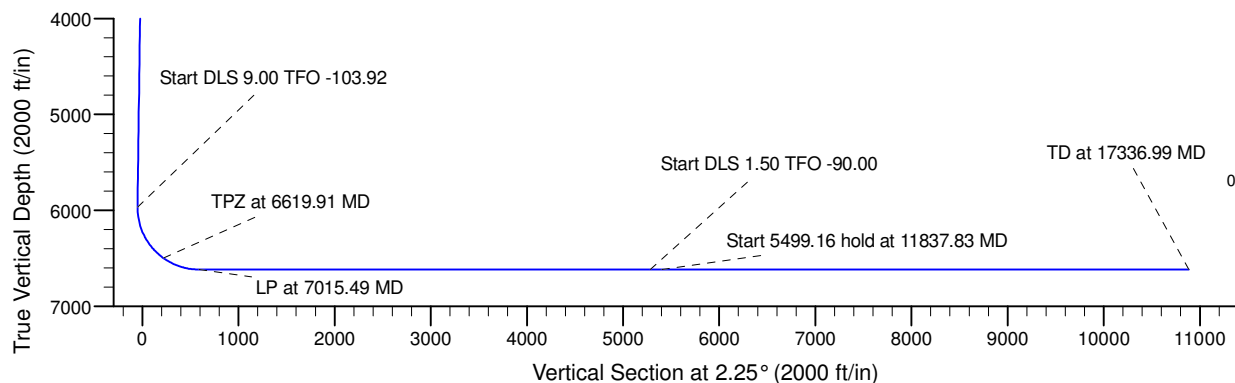
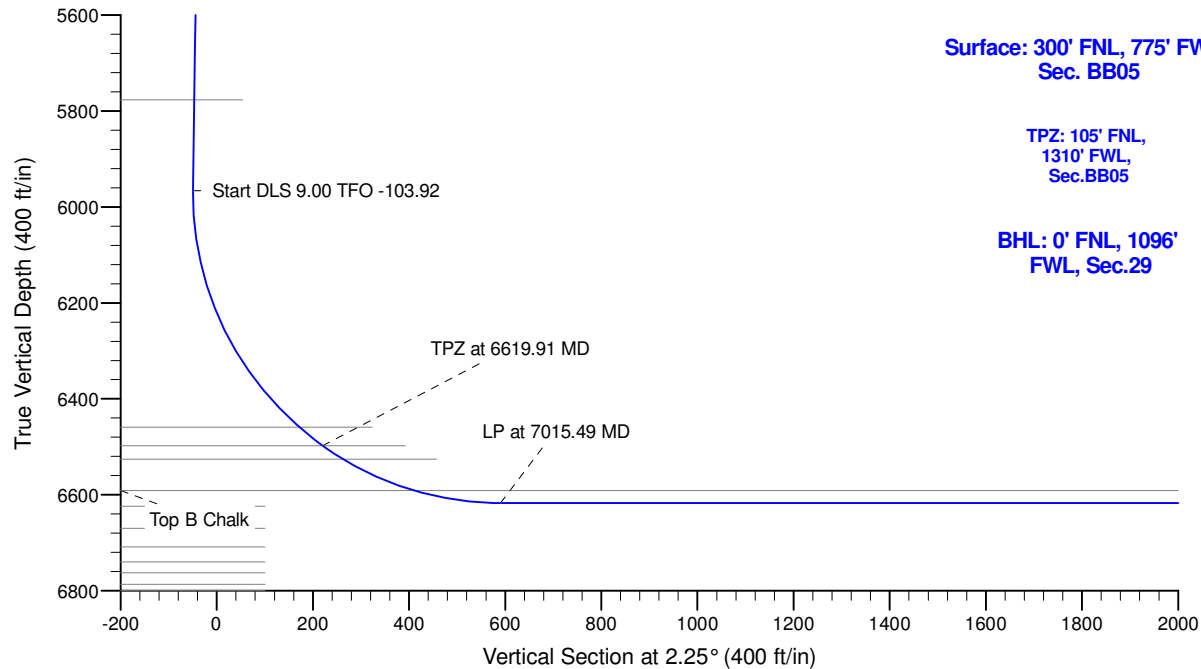
Project: Wells Ranch  
Site: BB Section 05  
Well: Wells Ranch State AA32-770  
Wellbore: Wellbore #1  
Design: Plan #2

# 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	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	
3	2376.44	7.53	97.90	2375.36	-3.40	24.46	2.00	97.90	-2.43	
4	5998.99	7.53	97.90	5966.68	-68.65	494.60	0.00	0.00	-49.19	
5	6619.91	54.40	359.13	6498.00	199.79	534.25	9.00	-103.92	220.60	Wells Ranch State AA32-770 TPZ
6	7015.49	90.00	359.13	6617.00	570.35	528.62	9.00	0.00	590.66	
7	11715.49	90.00	359.13	6617.00	5269.81	457.26	0.00	0.00	5283.69	
8	11837.83	90.00	357.29	6617.00	5392.09	453.44	1.50	-90.00	5405.73	
9	17336.99	90.00	357.29	6617.00	10885.12	193.91	0.00	0.00	10884.34	Wells Ranch State AA32-770 BHL P2



## WELL DETAILS: Wells Ranch State AA32-770

	Northing	Easting	Latitude	Longitude
0.00	1402945.46	3287428.96	40.4348933	-104.4674227

Plan: Plan #2 (Wells Ranch State AA32-770/Wellbore #1)

Created By: Colby Baxter Date: 9:57, April 23 2018

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

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

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

# **Northern Region - DJ Basin**

**Wells Ranch**

**BB Section 05**

**Wells Ranch State AA32-770**

**Wellbore #1**

**Plan: Plan #2**

## **Standard Survey Report**

**23 April, 2018**

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Well:</b>	Wells Ranch State AA32-770	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #2	<b>Database:</b>	EDMP

<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 AA32-770					
Well Position	+N/-S	0.00 ft	Northing:	1,402,945.46 usft	Latitude:	40.4348933
	+E/-W	0.00 ft	Easting:	3,287,428.96 usft	Longitude:	-104.4674227
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,674.00 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	52,413.64278914

<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	2.25	

<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	17,336.99	Plan #2 (Wellbore #1)	2_MWD+IFR1	A005Mb: IFR declination correction only	

<b>Planned Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
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	
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	
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	

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Well:</b>	Wells Ranch State AA32-770	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #2	<b>Database:</b>	EDMP

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)	
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	
1,600.00	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	2.00	97.90	2,099.98	-0.24	1.73	-0.17	2.00	2.00	0.00	
2,200.00	4.00	97.90	2,199.84	-0.96	6.91	-0.69	2.00	2.00	0.00	
2,300.00	6.00	97.90	2,299.45	-2.16	15.54	-1.55	2.00	2.00	0.00	
2,376.44	7.53	97.90	2,375.36	-3.40	24.46	-2.43	2.00	2.00	0.00	
2,400.00	7.53	97.90	2,398.71	-3.82	27.52	-2.74	0.00	0.00	0.00	
2,500.00	7.53	97.90	2,497.85	-5.62	40.50	-4.03	0.00	0.00	0.00	
2,600.00	7.53	97.90	2,596.99	-7.42	53.48	-5.32	0.00	0.00	0.00	
2,700.00	7.53	97.90	2,696.13	-9.22	66.45	-6.61	0.00	0.00	0.00	
2,800.00	7.53	97.90	2,795.27	-11.02	79.43	-7.90	0.00	0.00	0.00	
2,900.00	7.53	97.90	2,894.40	-12.83	92.41	-9.19	0.00	0.00	0.00	
3,000.00	7.53	97.90	2,993.54	-14.63	105.39	-10.48	0.00	0.00	0.00	
3,100.00	7.53	97.90	3,092.68	-16.43	118.37	-11.77	0.00	0.00	0.00	
3,200.00	7.53	97.90	3,191.82	-18.23	131.34	-13.06	0.00	0.00	0.00	
3,300.00	7.53	97.90	3,290.96	-20.03	144.32	-14.35	0.00	0.00	0.00	
3,400.00	7.53	97.90	3,390.09	-21.83	157.30	-15.64	0.00	0.00	0.00	
3,500.00	7.53	97.90	3,489.23	-23.63	170.28	-16.93	0.00	0.00	0.00	
3,600.00	7.53	97.90	3,588.37	-25.43	183.26	-18.22	0.00	0.00	0.00	
3,700.00	7.53	97.90	3,687.51	-27.24	196.23	-19.52	0.00	0.00	0.00	
3,800.00	7.53	97.90	3,786.65	-29.04	209.21	-20.81	0.00	0.00	0.00	
3,900.00	7.53	97.90	3,885.78	-30.84	222.19	-22.10	0.00	0.00	0.00	
4,000.00	7.53	97.90	3,984.92	-32.64	235.17	-23.39	0.00	0.00	0.00	
4,100.00	7.53	97.90	4,084.06	-34.44	248.15	-24.68	0.00	0.00	0.00	
4,200.00	7.53	97.90	4,183.20	-36.24	261.12	-25.97	0.00	0.00	0.00	
4,300.00	7.53	97.90	4,282.34	-38.04	274.10	-27.26	0.00	0.00	0.00	
4,400.00	7.53	97.90	4,381.47	-39.84	287.08	-28.55	0.00	0.00	0.00	
4,500.00	7.53	97.90	4,480.61	-41.65	300.06	-29.84	0.00	0.00	0.00	
4,600.00	7.53	97.90	4,579.75	-43.45	313.04	-31.13	0.00	0.00	0.00	
4,700.00	7.53	97.90	4,678.89	-45.25	326.01	-32.42	0.00	0.00	0.00	
4,800.00	7.53	97.90	4,778.02	-47.05	338.99	-33.71	0.00	0.00	0.00	
4,900.00	7.53	97.90	4,877.16	-48.85	351.97	-35.00	0.00	0.00	0.00	
5,000.00	7.53	97.90	4,976.30	-50.65	364.95	-36.29	0.00	0.00	0.00	
5,100.00	7.53	97.90	5,075.44	-52.45	377.93	-37.58	0.00	0.00	0.00	
5,200.00	7.53	97.90	5,174.58	-54.25	390.90	-38.87	0.00	0.00	0.00	

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Well:</b>	Wells Ranch State AA32-770	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #2	<b>Database:</b>	EDMP

### 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)
5,300.00	7.53	97.90	5,273.71	-56.06	403.88	-40.17	0.00	0.00	0.00
5,400.00	7.53	97.90	5,372.85	-57.86	416.86	-41.46	0.00	0.00	0.00
5,500.00	7.53	97.90	5,471.99	-59.66	429.84	-42.75	0.00	0.00	0.00
5,600.00	7.53	97.90	5,571.13	-61.46	442.82	-44.04	0.00	0.00	0.00
5,700.00	7.53	97.90	5,670.27	-63.26	455.79	-45.33	0.00	0.00	0.00
5,800.00	7.53	97.90	5,769.40	-65.06	468.77	-46.62	0.00	0.00	0.00
5,900.00	7.53	97.90	5,868.54	-66.86	481.75	-47.91	0.00	0.00	0.00
5,998.99	7.53	97.90	5,966.68	-68.65	494.60	-49.19	0.00	0.00	0.00
6,000.00	7.51	97.23	5,967.68	-68.66	494.73	-49.20	9.00	-2.11	-66.86
6,100.00	10.29	38.78	6,066.65	-62.51	506.83	-42.57	9.00	2.79	-58.45
6,200.00	17.79	17.41	6,163.65	-40.92	517.02	-20.60	9.00	7.50	-21.37
6,300.00	26.24	8.94	6,256.30	-4.43	525.04	16.18	9.00	8.44	-8.47
6,400.00	34.95	4.44	6,342.31	46.07	530.70	66.86	9.00	8.71	-4.51
6,500.00	43.76	1.56	6,419.56	109.32	533.86	130.19	9.00	8.82	-2.88
6,600.00	52.63	359.48	6,486.16	183.78	534.44	204.61	9.00	8.87	-2.07
6,619.91	54.40	359.13	6,498.00	199.79	534.25	220.60	9.00	8.89	-1.77
6,700.00	61.61	359.13	6,540.41	267.66	533.22	288.37	9.00	9.00	0.00
6,800.00	70.61	359.13	6,580.87	358.98	531.83	379.57	9.00	9.00	0.00
6,900.00	79.61	359.13	6,606.55	455.51	530.37	475.97	9.00	9.00	0.00
7,000.00	88.61	359.13	6,616.81	554.87	528.86	575.19	9.00	9.00	0.00
7,015.49	90.00	359.13	6,617.00	570.35	528.62	590.66	9.00	9.00	0.00
7,100.00	90.00	359.13	6,617.00	654.86	527.34	675.04	0.00	0.00	0.00
7,200.00	90.00	359.13	6,617.00	754.84	525.82	774.89	0.00	0.00	0.00
7,300.00	90.00	359.13	6,617.00	854.83	524.30	874.75	0.00	0.00	0.00
7,400.00	90.00	359.13	6,617.00	954.82	522.78	974.60	0.00	0.00	0.00
7,500.00	90.00	359.13	6,617.00	1,054.81	521.27	1,074.45	0.00	0.00	0.00
7,600.00	90.00	359.13	6,617.00	1,154.80	519.75	1,174.30	0.00	0.00	0.00
7,700.00	90.00	359.13	6,617.00	1,254.79	518.23	1,274.15	0.00	0.00	0.00
7,800.00	90.00	359.13	6,617.00	1,354.78	516.71	1,374.01	0.00	0.00	0.00
7,900.00	90.00	359.13	6,617.00	1,454.76	515.19	1,473.86	0.00	0.00	0.00
8,000.00	90.00	359.13	6,617.00	1,554.75	513.67	1,573.71	0.00	0.00	0.00
8,100.00	90.00	359.13	6,617.00	1,654.74	512.15	1,673.56	0.00	0.00	0.00
8,200.00	90.00	359.13	6,617.00	1,754.73	510.64	1,773.41	0.00	0.00	0.00
8,300.00	90.00	359.13	6,617.00	1,854.72	509.12	1,873.27	0.00	0.00	0.00
8,400.00	90.00	359.13	6,617.00	1,954.71	507.60	1,973.12	0.00	0.00	0.00
8,500.00	90.00	359.13	6,617.00	2,054.69	506.08	2,072.97	0.00	0.00	0.00
8,600.00	90.00	359.13	6,617.00	2,154.68	504.56	2,172.82	0.00	0.00	0.00
8,700.00	90.00	359.13	6,617.00	2,254.67	503.04	2,272.67	0.00	0.00	0.00
8,800.00	90.00	359.13	6,617.00	2,354.66	501.53	2,372.52	0.00	0.00	0.00
8,900.00	90.00	359.13	6,617.00	2,454.65	500.01	2,472.38	0.00	0.00	0.00
9,000.00	90.00	359.13	6,617.00	2,554.64	498.49	2,572.23	0.00	0.00	0.00
9,100.00	90.00	359.13	6,617.00	2,654.63	496.97	2,672.08	0.00	0.00	0.00
9,200.00	90.00	359.13	6,617.00	2,754.61	495.45	2,771.93	0.00	0.00	0.00

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Well:</b>	Wells Ranch State AA32-770	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #2	<b>Database:</b>	EDMP

### 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)
9,300.00	90.00	359.13	6,617.00	2,854.60	493.93	2,871.78	0.00	0.00	0.00
9,400.00	90.00	359.13	6,617.00	2,954.59	492.42	2,971.64	0.00	0.00	0.00
9,500.00	90.00	359.13	6,617.00	3,054.58	490.90	3,071.49	0.00	0.00	0.00
9,600.00	90.00	359.13	6,617.00	3,154.57	489.38	3,171.34	0.00	0.00	0.00
9,700.00	90.00	359.13	6,617.00	3,254.56	487.86	3,271.19	0.00	0.00	0.00
9,800.00	90.00	359.13	6,617.00	3,354.54	486.34	3,371.04	0.00	0.00	0.00
9,900.00	90.00	359.13	6,617.00	3,454.53	484.82	3,470.90	0.00	0.00	0.00
10,000.00	90.00	359.13	6,617.00	3,554.52	483.31	3,570.75	0.00	0.00	0.00
10,100.00	90.00	359.13	6,617.00	3,654.51	481.79	3,670.60	0.00	0.00	0.00
10,200.00	90.00	359.13	6,617.00	3,754.50	480.27	3,770.45	0.00	0.00	0.00
10,300.00	90.00	359.13	6,617.00	3,854.49	478.75	3,870.30	0.00	0.00	0.00
10,400.00	90.00	359.13	6,617.00	3,954.48	477.23	3,970.16	0.00	0.00	0.00
10,500.00	90.00	359.13	6,617.00	4,054.46	475.71	4,070.01	0.00	0.00	0.00
10,600.00	90.00	359.13	6,617.00	4,154.45	474.20	4,169.86	0.00	0.00	0.00
10,700.00	90.00	359.13	6,617.00	4,254.44	472.68	4,269.71	0.00	0.00	0.00
10,800.00	90.00	359.13	6,617.00	4,354.43	471.16	4,369.56	0.00	0.00	0.00
10,900.00	90.00	359.13	6,617.00	4,454.42	469.64	4,469.41	0.00	0.00	0.00
11,000.00	90.00	359.13	6,617.00	4,554.41	468.12	4,569.27	0.00	0.00	0.00
11,100.00	90.00	359.13	6,617.00	4,654.40	466.60	4,669.12	0.00	0.00	0.00
11,200.00	90.00	359.13	6,617.00	4,754.38	465.09	4,768.97	0.00	0.00	0.00
11,300.00	90.00	359.13	6,617.00	4,854.37	463.57	4,868.82	0.00	0.00	0.00
11,400.00	90.00	359.13	6,617.00	4,954.36	462.05	4,968.67	0.00	0.00	0.00
11,500.00	90.00	359.13	6,617.00	5,054.35	460.53	5,068.53	0.00	0.00	0.00
11,600.00	90.00	359.13	6,617.00	5,154.34	459.01	5,168.38	0.00	0.00	0.00
11,700.00	90.00	359.13	6,617.00	5,254.33	457.49	5,268.23	0.00	0.00	0.00
11,715.49	90.00	359.13	6,617.00	5,269.81	457.26	5,283.70	0.00	0.00	0.00
11,800.00	90.00	357.86	6,617.00	5,354.29	455.04	5,368.02	1.50	0.00	-1.50
11,837.83	90.00	357.29	6,617.00	5,392.09	453.44	5,405.73	1.50	0.00	-1.50
11,900.00	90.00	357.29	6,617.00	5,454.19	450.51	5,467.67	0.00	0.00	0.00
12,000.00	90.00	357.29	6,617.00	5,554.08	445.79	5,567.29	0.00	0.00	0.00
12,100.00	90.00	357.29	6,617.00	5,653.97	441.07	5,666.92	0.00	0.00	0.00
12,200.00	90.00	357.29	6,617.00	5,753.86	436.35	5,766.55	0.00	0.00	0.00
12,300.00	90.00	357.29	6,617.00	5,853.74	431.63	5,866.17	0.00	0.00	0.00
12,400.00	90.00	357.29	6,617.00	5,953.63	426.91	5,965.80	0.00	0.00	0.00
12,500.00	90.00	357.29	6,617.00	6,053.52	422.19	6,065.43	0.00	0.00	0.00
12,600.00	90.00	357.29	6,617.00	6,153.41	417.47	6,165.05	0.00	0.00	0.00
12,700.00	90.00	357.29	6,617.00	6,253.30	412.75	6,264.68	0.00	0.00	0.00
12,800.00	90.00	357.29	6,617.00	6,353.19	408.03	6,364.30	0.00	0.00	0.00
12,900.00	90.00	357.29	6,617.00	6,453.08	403.31	6,463.93	0.00	0.00	0.00
13,000.00	90.00	357.29	6,617.00	6,552.96	398.59	6,563.56	0.00	0.00	0.00
13,100.00	90.00	357.29	6,617.00	6,652.85	393.87	6,663.18	0.00	0.00	0.00
13,200.00	90.00	357.29	6,617.00	6,752.74	389.15	6,762.81	0.00	0.00	0.00
13,300.00	90.00	357.29	6,617.00	6,852.63	384.43	6,862.44	0.00	0.00	0.00

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Well:</b>	Wells Ranch State AA32-770	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #2	<b>Database:</b>	EDMP

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)
13,400.00	90.00	357.29	6,617.00	6,952.52	379.71	6,962.06	0.00	0.00	0.00
13,500.00	90.00	357.29	6,617.00	7,052.41	375.00	7,061.69	0.00	0.00	0.00
13,600.00	90.00	357.29	6,617.00	7,152.30	370.28	7,161.32	0.00	0.00	0.00
13,700.00	90.00	357.29	6,617.00	7,252.18	365.56	7,260.94	0.00	0.00	0.00
13,800.00	90.00	357.29	6,617.00	7,352.07	360.84	7,360.57	0.00	0.00	0.00
13,900.00	90.00	357.29	6,617.00	7,451.96	356.12	7,460.20	0.00	0.00	0.00
14,000.00	90.00	357.29	6,617.00	7,551.85	351.40	7,559.82	0.00	0.00	0.00
14,100.00	90.00	357.29	6,617.00	7,651.74	346.68	7,659.45	0.00	0.00	0.00
14,200.00	90.00	357.29	6,617.00	7,751.63	341.96	7,759.08	0.00	0.00	0.00
14,300.00	90.00	357.29	6,617.00	7,851.52	337.24	7,858.70	0.00	0.00	0.00
14,400.00	90.00	357.29	6,617.00	7,951.40	332.52	7,958.33	0.00	0.00	0.00
14,500.00	90.00	357.29	6,617.00	8,051.29	327.80	8,057.95	0.00	0.00	0.00
14,600.00	90.00	357.29	6,617.00	8,151.18	323.08	8,157.58	0.00	0.00	0.00
14,700.00	90.00	357.29	6,617.00	8,251.07	318.36	8,257.21	0.00	0.00	0.00
14,800.00	90.00	357.29	6,617.00	8,350.96	313.64	8,356.83	0.00	0.00	0.00
14,900.00	90.00	357.29	6,617.00	8,450.85	308.92	8,456.46	0.00	0.00	0.00
15,000.00	90.00	357.29	6,617.00	8,550.74	304.20	8,556.09	0.00	0.00	0.00
15,100.00	90.00	357.29	6,617.00	8,650.62	299.48	8,655.71	0.00	0.00	0.00
15,200.00	90.00	357.29	6,617.00	8,750.51	294.76	8,755.34	0.00	0.00	0.00
15,300.00	90.00	357.29	6,617.00	8,850.40	290.04	8,854.97	0.00	0.00	0.00
15,400.00	90.00	357.29	6,617.00	8,950.29	285.32	8,954.59	0.00	0.00	0.00
15,500.00	90.00	357.29	6,617.00	9,050.18	280.60	9,054.22	0.00	0.00	0.00
15,600.00	90.00	357.29	6,617.00	9,150.07	275.88	9,153.85	0.00	0.00	0.00
15,700.00	90.00	357.29	6,617.00	9,249.96	271.17	9,253.47	0.00	0.00	0.00
15,800.00	90.00	357.29	6,617.00	9,349.84	266.45	9,353.10	0.00	0.00	0.00
15,900.00	90.00	357.29	6,617.00	9,449.73	261.73	9,452.73	0.00	0.00	0.00
16,000.00	90.00	357.29	6,617.00	9,549.62	257.01	9,552.35	0.00	0.00	0.00
16,100.00	90.00	357.29	6,617.00	9,649.51	252.29	9,651.98	0.00	0.00	0.00
16,200.00	90.00	357.29	6,617.00	9,749.40	247.57	9,751.60	0.00	0.00	0.00
16,300.00	90.00	357.29	6,617.00	9,849.29	242.85	9,851.23	0.00	0.00	0.00
16,400.00	90.00	357.29	6,617.00	9,949.18	238.13	9,950.86	0.00	0.00	0.00
16,500.00	90.00	357.29	6,617.00	10,049.06	233.41	10,050.48	0.00	0.00	0.00
16,600.00	90.00	357.29	6,617.00	10,148.95	228.69	10,150.11	0.00	0.00	0.00
16,700.00	90.00	357.29	6,617.00	10,248.84	223.97	10,249.74	0.00	0.00	0.00
16,800.00	90.00	357.29	6,617.00	10,348.73	219.25	10,349.36	0.00	0.00	0.00
16,900.00	90.00	357.29	6,617.00	10,448.62	214.53	10,448.99	0.00	0.00	0.00
17,000.00	90.00	357.29	6,617.00	10,548.51	209.81	10,548.62	0.00	0.00	0.00
17,100.00	90.00	357.29	6,617.00	10,648.40	205.09	10,648.24	0.00	0.00	0.00
17,200.00	90.00	357.29	6,617.00	10,748.28	200.37	10,747.87	0.00	0.00	0.00
17,300.00	90.00	357.29	6,617.00	10,848.17	195.65	10,847.50	0.00	0.00	0.00
17,336.99	90.00	357.29	6,617.00	10,885.12	193.91	10,884.34	0.00	0.00	0.00

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Well:</b>	Wells Ranch State AA32-770	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #2	<b>Database:</b>	EDMP

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
Wells Ranch State AA32	0.00	0.00	6,498.00	199.79	534.25	1,403,145.25	3,287,963.21	40.4354246	-104.4654952
- plan hits target center									
- Point									
Wells Ranch State AA32	0.00	0.00	6,617.00	10,885.12	193.91	1,413,830.56	3,287,622.87	40.4647645	-104.4662703
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
199.00	199.00	Pierre				
475.00	475.00	Upper Pierre Aquifer Top				
1,536.00	1,536.00	Upper Pierre Aquifer Base				
4,317.82	4,300.00	Sussex				
4,743.49	4,722.00	Parkman				
4,778.79	4,757.00	Shannon				
5,807.66	5,777.00	Teepee Buttes				
6,557.09	6,459.00	Sharon Springs				
6,619.91	6,498.00	Top A Chalk				
6,670.91	6,526.00	Top A Marl				
6,832.93	6,591.00	Top B Chalk				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
2000	2000	0	0	Start Build 2.00	
5999	5967	-3	24	Start DLS 9.00 TFO -103.92	
6620	6498	-69	495	TPZ at 6619.91 MD	
7015	6617	200	534	LP at 7015.49 MD	
11,715	6617	570	529	Start DLS 1.50 TFO -90.00	
11,838	6617	5270	457	Start 5499.16 hold at 11837.83 MD	
17,337	6617	5392	453	TD at 17336.99 MD	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

# **Northern Region - DJ Basin**

**Wells Ranch**

**BB Section 05**

**Wells Ranch State AA32-770**

**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 AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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	17,336.99	Plan #2 (Wellbore #1)	2_MWD+IFR1	A005Mb: IFR declination correction only

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	16,325.73	6,524.45	4,811.46	4,624.10	25.680	CC
State 6524 11-28 - Original Drilling - Original Drilling - As	16,400.00	6,521.82	4,812.04	4,623.92	25.580	ES
State 6524 11-28 - Original Drilling - Original Drilling - As	17,100.00	6,497.06	4,873.29	4,679.36	25.129	SF
State 6524 12-28 - Original Drilling - Original Drilling - As	15,288.14	6,388.73	4,635.26	4,512.52	37.764	CC
State 6524 12-28 - Original Drilling - Original Drilling - As	15,300.00	6,388.87	4,635.28	4,512.40	37.722	ES
State 6524 12-28 - Original Drilling - Original Drilling - As	16,400.00	6,425.47	4,766.72	4,633.91	35.892	SF
State 6524 13-28 (SI) - Original Drilling - Original Drilling	13,899.42	6,613.85	4,694.67	4,586.29	43.316	CC
State 6524 13-28 (SI) - Original Drilling - Original Drilling	14,000.00	6,617.65	4,695.75	4,586.23	42.875	ES
State 6524 13-28 (SI) - Original Drilling - Original Drilling	15,200.00	6,668.74	4,871.29	4,751.20	40.562	SF
State 6524 21-28 - Original Drilling - Original Drilling - As	16,611.98	6,641.97	6,333.95	6,195.91	45.883	CC
State 6524 21-28 - Original Drilling - Original Drilling - As	16,700.00	6,641.37	6,334.56	6,195.52	45.558	ES
State 6524 21-28 - Original Drilling - Original Drilling - As	17,336.99	6,637.04	6,375.31	6,229.72	43.789	SF
State 6524 22-28 (SI) - Original Drilling - Original Drilling	15,137.14	6,543.13	6,167.87	6,046.31	50.741	CC
State 6524 22-28 (SI) - Original Drilling - Original Drilling	15,200.00	6,541.74	6,168.19	6,045.93	50.451	ES
State 6524 22-28 (SI) - Original Drilling - Original Drilling	17,000.00	6,502.95	6,442.94	6,305.04	46.722	SF
State 6524 24-28 - Original Drilling - Original Drilling - As	12,579.62	6,449.22	6,012.91	5,896.95	51.854	CC
State 6524 24-28 - Original Drilling - Original Drilling - As	12,600.00	6,449.77	6,012.95	5,896.75	51.749	ES
State 6524 24-28 - Original Drilling - Original Drilling - As	14,700.00	6,506.34	6,375.57	6,239.82	46.964	SF
State Lease 14-28 (SI) - Original Drilling - Original Drilling	12,563.43	6,600.66	4,686.83	4,591.47	49.148	CC
State Lease 14-28 (SI) - Original Drilling - Original Drilling	12,600.00	6,600.60	4,686.97	4,591.20	48.940	ES
State Lease 14-28 (SI) - Original Drilling - Original Drilling	14,000.00	6,598.08	4,902.05	4,793.93	45.338	SF
State Lease 23-28 - Original Drilling - Original Drilling - A	13,800.40	6,580.62	6,181.96	6,074.74	57.659	CC
State Lease 23-28 - Original Drilling - Original Drilling - A	13,900.00	6,580.31	6,182.76	6,074.44	57.076	ES
State Lease 23-28 - Original Drilling - Original Drilling - A	15,900.00	6,573.11	6,528.77	6,403.13	51.962	SF
State Lease 32-28 (PA) - Original Drilling - Original Drilling	15,066.48	6,669.00	7,297.52	7,066.07	31.529	CC
State Lease 32-28 (PA) - Original Drilling - Original Drilling	15,100.00	6,669.00	7,297.60	7,065.77	31.478	ES
State Lease 32-28 (PA) - Original Drilling - Original Drilling	16,800.00	6,669.00	7,500.60	7,252.46	30.228	SF
State Lease 6524 41-28 (PA) - Original Drilling - Original	16,339.21	6,691.00	8,782.43	8,536.64	35.731	CC
State Lease 6524 41-28 (PA) - Original Drilling - Original	16,400.00	6,691.00	8,782.64	8,536.16	35.632	ES
State Lease 6524 41-28 (PA) - Original Drilling - Original	17,336.99	6,691.00	8,838.93	8,582.57	34.479	SF
Wells Ranch State 28C - Original Drilling - Original Drilling	15,856.86	6,705.07	8,091.11	7,961.88	62.607	CC
Wells Ranch State 28C - Original Drilling - Original Drilling	15,900.00	6,705.57	8,091.23	7,961.50	62.372	ES
Wells Ranch State 28C - Original Drilling - Original Drilling	17,336.99	6,723.06	8,225.36	8,081.17	57.045	SF
Wells Ranch State 28D - Original Drilling - Original Drilling	13,160.36	6,957.00	7,810.38	7,709.62	77.520	CC
Wells Ranch State 28D - Original Drilling - Original Drilling	13,200.00	6,957.00	7,810.48	7,709.29	77.187	ES
Wells Ranch State 28D - Original Drilling - Original Drilling	16,400.00	6,957.00	8,455.60	8,326.67	65.580	SF
Wells Ranch State 28R - Original Drilling - Original Drilling	17,023.16	6,652.41	8,336.28	8,193.68	58.457	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 AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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)		Separation Factor	Warning
Offset Well - Wellbore - Design				Between Ellipses (ft)		
AA Section 28						
Wells Ranch State 28R - Original Drilling - Original Drilling	17,100.00	6,653.09	8,336.64	8,193.16	58.105	ES
Wells Ranch State 28R - Original Drilling - Original Drilling	17,336.99	6,655.17	8,342.19	8,196.09	57.100	SF
Wells Ranch State 28S - Original Drilling - Original Drilling	14,367.52	6,975.13	7,951.35	7,837.66	69.937	CC
Wells Ranch State 28S - Original Drilling - Original Drilling	14,500.00	6,975.67	7,952.46	7,837.29	69.052	ES
Wells Ranch State 28S - Original Drilling - Original Drilling	17,336.99	6,961.00	8,487.78	8,347.92	60.691	SF
Wells Ranch State 31-28 - Original Drilling - Original Drill	16,499.46	6,732.19	7,563.97	7,427.73	55.519	CC
Wells Ranch State 31-28 - Original Drilling - Original Drill	16,600.00	6,731.36	7,564.64	7,427.26	55.066	ES
Wells Ranch State 31-28 - Original Drilling - Original Drill	17,336.99	6,725.41	7,610.19	7,465.14	52.464	SF
Wells Ranch State 32-28 - Original Drilling - Original Drill	15,246.17	6,772.33	7,236.18	7,113.48	58.974	CC
Wells Ranch State 32-28 - Original Drilling - Original Drill	15,300.00	6,772.83	7,236.38	7,113.08	58.686	ES
Wells Ranch State 32-28 - Original Drilling - Original Drill	17,336.99	6,790.46	7,532.16	7,390.26	53.081	SF
Wells Ranch State 33-28 - Original Drilling - Original Drill	13,768.58	6,654.15	7,203.95	7,097.61	67.748	CC
Wells Ranch State 33-28 - Original Drilling - Original Drill	13,800.00	6,653.56	7,204.02	7,097.33	67.527	ES
Wells Ranch State 33-28 - Original Drilling - Original Drill	16,500.00	6,600.83	7,704.14	7,574.03	59.213	SF
Wells Ranch State 34-28 - Original Drilling - Original Drill	12,517.25	6,947.00	7,269.93	7,175.91	77.321	CC
Wells Ranch State 34-28 - Original Drilling - Original Drill	12,600.00	6,947.00	7,270.40	7,175.48	76.592	ES
Wells Ranch State 34-28 - Original Drilling - Original Drill	15,600.00	6,947.00	7,896.53	7,775.84	65.429	SF
Wells Ranch State 41-28 - Original Drilling - Original Drill	16,351.63	6,779.27	8,749.93	8,615.13	64.912	CC
Wells Ranch State 41-28 - Original Drilling - Original Drill	16,400.00	6,778.53	8,750.06	8,614.72	64.652	ES
Wells Ranch State 41-28 - Original Drilling - Original Drill	17,336.99	6,763.42	8,805.20	8,660.01	60.644	SF
Wells Ranch State 42-28 - Original Drilling - Original Drill	15,126.90	6,608.54	8,505.45	8,384.51	70.332	CC
Wells Ranch State 42-28 - Original Drilling - Original Drill	15,200.00	6,610.78	8,505.76	8,384.00	69.858	ES
Wells Ranch State 42-28 - Original Drilling - Original Drill	17,336.99	6,666.19	8,787.63	8,645.27	61.728	SF
Wells Ranch State 43-28 - Original Drilling - Original Drill	13,814.23	6,724.18	8,517.75	8,410.62	79.514	CC
Wells Ranch State 43-28 - Original Drilling - Original Drill	13,900.00	6,729.66	8,518.18	8,410.09	78.806	ES
Wells Ranch State 43-28 - Original Drilling - Original Drill	17,336.99	6,940.84	9,214.57	9,075.88	66.439	SF
Wells Ranch State 44-28 - Original Drilling - Original Drill	12,534.98	6,947.00	8,480.77	8,386.70	90.160	CC
Wells Ranch State 44-28 - Original Drilling - Original Drill	12,600.00	6,947.00	8,481.02	8,386.25	89.490	ES
Wells Ranch State 44-28 - Original Drilling - Original Drill	16,500.00	6,947.00	9,361.88	9,233.74	73.060	SF

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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	13,177.54	6,573.69	102.41	1.93	1.019	Level 2, CC, ES, SF
J&L Farms 11-29 PA - Wellbore #1 - Gyro Surveys	16,686.00	6,558.63	393.41	255.02	2.843	CC, ES, SF
J&L Farms 12-29 PR - Wellbore #1 - Gyro Surveys	15,381.95	6,579.09	567.95	443.59	4.567	CC, ES, SF
J&L Farms 13-29 SI - Wellbore #1 - Gyro Surveys	13,931.29	6,577.48	559.44	450.84	5.151	CC, ES, SF
J&L Farms 14-29 SI - Wellbore #1 - Gyro Surveys	12,736.69	6,579.11	609.35	513.54	6.360	CC, ES, SF
J&L Farms 21-29 PA - Wellbore #1 - Gyro Surveys	16,643.51	5,825.00	928.21	817.98	8.420	CC, ES
J&L Farms 23-29 PR - Wellbore #1 - Gyro Surveys	16,700.00	5,825.00	929.93	819.19	8.398	SF
J&L Farms 22-29 PR - Wellbore #1 - Gyro Surveys	15,188.66	6,532.15	1,068.08	945.91	8.743	CC
J&L Farms 22-29 PR - Wellbore #1 - Gyro Surveys	15,200.00	6,532.15	1,068.14	945.82	8.733	ES
J&L Farms 22-29 PR - Wellbore #1 - Gyro Surveys	15,300.00	6,532.18	1,073.87	950.68	8.717	SF
J&L Farms 23-29 PR - Wellbore #1 - Gyro Surveys	14,026.25	6,582.22	1,190.38	1,080.65	10.848	CC, ES
J&L Farms 23-29 PR - Wellbore #1 - Gyro Surveys	14,100.00	6,580.81	1,192.66	1,082.11	10.788	SF
J&L Farms 24-29 SI - Wellbore #1 - No Surveys	12,682.07	6,589.00	667.15	583.22	7.949	CC
J&L Farms 24-29 SI - Wellbore #1 - No Surveys	12,700.00	6,589.00	667.39	583.21	7.929	ES, SF
J&L Farms 29-34 SI - Wellbore #1 - Gyro Surveys	12,663.72	6,613.80	2,271.44	2,176.23	23.858	CC
J&L Farms 29-34 SI - Wellbore #1 - Gyro Surveys	12,700.00	6,614.74	2,271.73	2,176.10	23.755	ES
J&L Farms 29-34 SI - Wellbore #1 - Gyro Surveys	13,000.00	6,622.58	2,296.18	2,197.69	23.314	SF
J&L Farms 31-29 SI - Wellbore #1 - Gyro Surveys	16,389.61	6,585.56	2,312.92	2,177.55	17.086	CC
J&L Farms 31-29 SI - Wellbore #1 - Gyro Surveys	16,400.00	6,585.68	2,312.94	2,177.45	17.070	ES
J&L Farms 31-29 SI - Wellbore #1 - Gyro Surveys	16,700.00	6,588.97	2,333.65	2,195.43	16.884	SF
J&L Farms 32-29D PR - Wellbore #1 - No Surveys	15,271.19	6,603.00	2,694.33	2,536.41	17.061	CC
J&L Farms 32-29D PR - Wellbore #1 - No Surveys	15,300.00	6,603.00	2,694.49	2,536.22	17.025	ES
J&L Farms 32-29D PR - Wellbore #1 - No Surveys	15,600.00	6,603.00	2,714.32	2,553.15	16.842	SF
J&L Farms 33-29 SI - Wellbore #1 - Gyro Surveys	14,137.38	6,615.93	2,334.39	2,223.45	21.042	CC, ES
J&L Farms 33-29 SI - Wellbore #1 - Gyro Surveys	14,500.00	6,615.44	2,362.39	2,248.07	20.664	SF
J&L Farms 41-29 SI - Wellbore #1 - No Surveys	16,576.99	6,603.00	3,598.19	3,425.98	20.895	CC
J&L Farms 41-29 SI - Wellbore #1 - No Surveys	16,600.00	6,603.00	3,598.26	3,425.79	20.863	ES
J&L Farms 41-29 SI - Wellbore #1 - No Surveys	17,100.00	6,603.00	3,636.00	3,458.79	20.518	SF
J&L Farms 42-29 PA - Wellbore #1 - Gyro Surveys	15,046.55	6,550.00	3,624.34	3,503.64	30.029	CC
J&L Farms 42-29 PA - Wellbore #1 - Gyro Surveys	15,100.00	6,550.00	3,624.73	3,503.42	29.879	ES
J&L Farms 42-29 PA - Wellbore #1 - Gyro Surveys	15,700.00	6,550.00	3,682.77	3,555.97	29.044	SF
J&L Farms 43-29 PA - Wellbore #1 - Gyro Surveys	13,865.57	6,517.57	3,611.97	3,504.21	33.520	CC
J&L Farms 43-29 PA - Wellbore #1 - Gyro Surveys	13,900.00	6,518.67	3,612.13	3,503.98	33.398	ES
J&L Farms 43-29 PA - Wellbore #1 - Gyro Surveys	14,700.00	6,542.70	3,707.03	3,591.72	32.149	SF
J&L Farms 44-29 SI - Wellbore #1 - No Surveys	12,570.01	6,627.00	3,517.51	3,388.44	27.252	CC
J&L Farms 44-29 SI - Wellbore #1 - No Surveys	12,600.00	6,627.00	3,517.64	3,388.22	27.181	ES
J&L Farms 44-29 SI - Wellbore #1 - No Surveys	13,300.00	6,627.00	3,592.46	3,456.49	26.422	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 AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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						
Fairmeadows 01-30 - Original Drilling - Original Drilling -	12,888.93	6,979.51	5,702.35	5,601.81	56.717	CC
Fairmeadows 01-30 - Original Drilling - Original Drilling -	12,900.00	6,979.09	5,702.36	5,601.72	56.656	ES
Fairmeadows 01-30 - Original Drilling - Original Drilling -	14,600.00	6,914.23	5,953.18	5,839.15	52.208	SF
Fairmeadows 03-30 - Original Drilling - Original Drilling -	14,229.40	6,505.42	5,717.76	5,606.25	51.279	CC
Fairmeadows 03-30 - Original Drilling - Original Drilling -	14,300.00	6,502.85	5,718.19	5,605.98	50.959	ES
Fairmeadows 03-30 - Original Drilling - Original Drilling -	15,800.00	6,488.24	5,929.52	5,805.35	47.751	SF
Fairmeadows 04-30 - Original Drilling - Original Drilling -	14,128.86	6,617.66	3,191.79	3,064.34	25.045	CC, ES
Fairmeadows 04-30 - Original Drilling - Original Drilling -	14,600.00	6,614.94	3,226.37	3,095.22	24.601	SF
J&L Farms 31-30 - Original Drilling - Original Drilling - As	16,744.07	6,682.21	2,958.96	2,819.21	21.174	CC
J&L Farms 31-30 - Original Drilling - Original Drilling - As	16,800.00	6,682.52	2,959.49	2,819.20	21.096	ES
J&L Farms 31-30 - Original Drilling - Original Drilling - As	17,100.00	6,684.23	2,980.29	2,837.80	20.916	SF
J&L Farms 32-30 - Original Drilling - Original Drilling - As	15,434.24	6,583.52	3,070.00	2,945.04	24.568	CC, ES
J&L Farms 32-30 - Original Drilling - Original Drilling - As	15,800.00	6,574.91	3,091.70	2,963.84	24.181	SF
Larsen Fairmeadows 02-30 - Original Drilling - Original D	12,839.30	6,543.11	3,255.68	3,158.92	33.646	CC
Larsen Fairmeadows 02-30 - Original Drilling - Original D	12,900.00	6,543.52	3,256.25	3,158.90	33.451	ES
Larsen Fairmeadows 02-30 - Original Drilling - Original D	13,500.00	6,547.70	3,322.04	3,220.25	32.636	SF
Larsen Fairmeadows 05-30 - Original Drilling - Original D	12,806.65	6,600.00	4,485.95	4,389.29	46.408	CC, ES
Larsen Fairmeadows 05-30 - Original Drilling - Original D	14,000.00	6,600.00	4,641.97	4,535.93	43.778	SF
Larson Fairmeadows 06-30 - Original Drilling - Original D	14,187.51	6,420.18	4,493.07	4,382.38	40.592	CC
Larson Fairmeadows 06-30 - Original Drilling - Original D	14,200.00	6,419.81	4,493.08	4,382.27	40.547	ES
Larson Fairmeadows 06-30 - Original Drilling - Original D	15,200.00	6,388.76	4,605.62	4,487.01	38.830	SF
Shadow A26-622 - Original Drilling - Original Drilling - As	12,928.53	6,146.00	2,659.03	2,569.05	29.550	CC, ES
Shadow A26-622 - Original Drilling - Original Drilling - As	13,300.00	6,146.00	2,684.86	2,592.02	28.921	SF
Shadow A26-627 - Original Drilling - Original Drilling - As	13,217.92	6,102.69	2,664.79	2,571.84	28.670	CC, ES
Shadow A26-627 - Original Drilling - Original Drilling - As	13,600.00	6,146.00	2,692.95	2,596.73	27.989	SF
Shadow A26-632 - Original Drilling - Original Drilling - As	13,676.62	6,235.00	2,618.06	2,519.04	26.438	CC
Shadow A26-632 - Original Drilling - Original Drilling - As	13,700.00	6,235.00	2,618.17	2,518.92	26.379	ES
Shadow A26-632 - Original Drilling - Original Drilling - As	14,100.00	6,235.00	2,652.08	2,549.91	25.959	SF
Shadow A26-637 - Original Drilling - Original Drilling - As	13,895.82	6,142.00	2,632.18	2,533.90	26.781	CC
Shadow A26-637 - Original Drilling - Original Drilling - As	13,900.00	6,142.00	2,632.18	2,533.86	26.770	ES
Shadow A26-637 - Original Drilling - Original Drilling - As	14,300.00	6,142.00	2,663.03	2,561.76	26.296	SF
Shadow A26-646 - Original Drilling - Original Drilling - As	14,504.97	6,142.00	2,593.93	2,487.24	24.314	CC, ES
Shadow A26-646 - Original Drilling - Original Drilling - As	14,800.00	6,142.00	2,610.65	2,501.66	23.954	SF
Shadow A26-656 - Original Drilling - Original Drilling - As	15,275.91	6,219.35	2,603.52	2,488.15	22.566	CC
Shadow A26-656 - Original Drilling - Original Drilling - As	15,300.00	6,219.68	2,603.63	2,488.07	22.530	ES
Shadow A26-656 - Original Drilling - Original Drilling - As	15,600.00	6,223.87	2,623.60	2,505.89	22.289	SF
Shadow A26-663 - Original Drilling - Original Drilling - As	15,602.77	6,242.00	2,585.75	2,466.76	21.731	CC, ES
Shadow A26-663 - Original Drilling - Original Drilling - As	15,900.00	6,242.00	2,602.77	2,481.57	21.475	SF
Shadow A26-672 - Original Drilling - Original Drilling - As	16,209.16	6,238.00	2,581.06	2,455.40	20.541	CC, ES
Shadow A26-672 - Original Drilling - Original Drilling - As	16,500.00	6,238.00	2,597.39	2,469.45	20.301	SF
Shadow A26-676 - Original Drilling - Original Drilling - As	16,611.45	6,189.64	2,563.19	2,433.94	19.832	CC, ES
Shadow A26-676 - Original Drilling - Original Drilling - As	16,900.00	6,193.35	2,579.37	2,447.92	19.622	SF
Shadow A26-685 - Original Drilling - Original Drilling - As	17,103.57	6,286.96	2,527.60	2,392.29	18.681	CC, ES
Shadow A26-685 - Original Drilling - Original Drilling - As	17,336.99	6,300.00	2,538.36	2,401.20	18.506	SF
Shadow A26-690 - Original Drilling - Original Drilling - As	17,336.99	6,282.44	2,541.32	2,403.55	18.447	CC, ES, SF
Shadow State A26-614 - Original Drilling - Original Drillin	12,391.34	6,147.00	2,667.73	2,583.13	31.534	CC
Shadow State A26-614 - Original Drilling - Original Drillin	12,400.00	6,147.00	2,667.75	2,583.07	31.503	ES
Shadow State A26-614 - Original Drilling - Original Drillin	12,900.00	6,147.00	2,715.79	2,627.42	30.730	SF
Shadow State A26-618 - Original Drilling - Original Drillin	12,611.27	6,091.00	2,676.75	2,590.71	31.109	CC, ES
Shadow State A26-618 - Original Drilling - Original Drillin	13,100.00	6,091.00	2,721.00	2,631.40	30.368	SF
Wells Ranch 41-30 - Original Drilling - Original Drilling - A	16,735.20	6,568.00	1,778.20	1,530.52	7.179	CC, ES
Wells Ranch 41-30 - Original Drilling - Original Drilling - A	16,800.00	6,568.00	1,779.38	1,531.17	7.169	SF
Wells Ranch 42-30 - Original Drilling - Original Drilling - A	15,409.94	6,563.00	2,028.70	1,795.62	8.704	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 AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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
AA Section 30						
Wells Ranch 42-30 - Original Drilling - Original Drilling - A	15,500.00	6,563.00	2,030.70	1,796.86	8.684	SF
Wells Ranch 43-30 - Original Drilling - Original Drilling - A	14,187.60	6,563.00	1,894.06	1,674.25	8.617	CC
Wells Ranch 43-30 - Original Drilling - Original Drilling - A	14,200.00	6,563.00	1,894.10	1,674.18	8.613	ES
Wells Ranch 43-30 - Original Drilling - Original Drilling - A	14,300.00	6,563.00	1,897.39	1,676.69	8.597	SF
Wells Ranch 44-30 - Original Drilling - Original Drilling - A	12,749.29	6,583.00	1,836.72	1,631.92	8.968	CC, ES
Wells Ranch 44-30 - Original Drilling - Original Drilling - A	12,900.00	6,583.00	1,842.89	1,636.95	8.949	SF
Wolfe 02-30G - Original Drilling - Original Drilling - As Dri	15,535.32	6,586.24	5,705.74	5,579.70	45.267	CC
Wolfe 02-30G - Original Drilling - Original Drilling - As Dri	15,600.00	6,586.13	5,706.11	5,579.40	45.033	ES
Wolfe 02-30G - Original Drilling - Original Drilling - As Dri	17,000.00	6,583.69	5,890.74	5,752.94	42.749	SF

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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 31						
Devries USX AA31-11 - Wellbore #1 - Wellbore #1 - As D	8,877.16	6,764.85	4,537.36	4,477.71	76.071	CC
Devries USX AA31-11 - Wellbore #1 - Wellbore #1 - As D	8,900.00	6,765.34	4,537.41	4,477.58	75.833	ES
Devries USX AA31-11 - Wellbore #1 - Wellbore #1 - As D	10,800.00	6,806.56	4,927.79	4,853.80	66.597	SF
Devries USX AA31-19 - Wellbore #1 - Wellbore #1 - As	10,766.39	6,696.10	5,191.93	5,110.16	63.491	CC
Devries USX AA31-19 - Wellbore #1 - Wellbore #1 - As	10,800.00	6,697.15	5,192.04	5,109.99	63.277	ES
Devries USX AA31-19 - Wellbore #1 - Wellbore #1 - As	12,600.00	6,751.25	5,480.87	5,386.72	58.211	SF
UPV 31-10G3 - Wellbore #1 - Wellbore #1 - As Drilled	9,012.49	6,579.23	3,225.13	3,165.75	54.312	CC, ES
UPV 31-10G3 - Wellbore #1 - Wellbore #1 - As Drilled	10,000.00	6,571.29	3,372.91	3,306.38	50.696	SF
UPV 31-12G3 - Wellbore #1 - Wellbore #1 - As Drilled	100.00	16.58	5,836.17	5,836.02	10,000.000	CC
UPV 31-12G3 - Wellbore #1 - Wellbore #1 - As Drilled	2,000.00	1,907.80	5,839.26	5,825.86	435.847	ES
UPV 31-12G3 - Wellbore #1 - Wellbore #1 - As Drilled	12,200.00	12,200.00	6,947.07	6,846.22	68.884	SF
UPV 31-13G3 - Wellbore #1 - Wellbore #1 - As Drilled	421.31	349.33	5,396.65	5,394.33	2,323.345	CC
UPV 31-13G3 - Wellbore #1 - Wellbore #1 - As Drilled	1,200.00	1,093.65	5,399.38	5,391.66	699.744	ES
UPV 31-13G3 - Wellbore #1 - Wellbore #1 - As Drilled	10,900.00	6,652.40	7,079.92	7,009.71	100.836	SF
UPV 31-14G3 - Wellbore #1 - Wellbore #1 - As Drilled	100.00	11.78	3,872.93	3,872.79	10,000.000	CC
UPV 31-14G3 - Wellbore #1 - Wellbore #1 - As Drilled	2,012.54	1,944.47	3,877.29	3,863.69	285.059	ES
UPV 31-14G3 - Wellbore #1 - Wellbore #1 - As Drilled	9,200.00	9,200.00	4,902.19	4,828.36	66.401	SF
UPV 31-15G3 - Wellbore #1 - Wellbore #1 - As Drilled	0.00	0.00	2,857.01			
UPV 31-15G3 - Wellbore #1 - Wellbore #1 - As Drilled	2,000.00	1,986.60	2,862.44	2,848.74	208.814	ES
UPV 31-15G3 - Wellbore #1 - Wellbore #1 - As Drilled	8,600.00	6,715.95	3,420.39	3,364.92	61.662	SF
UPV 31-16G3 - Wellbore #1 - Wellbore #1 - As Drilled	100.00	53.14	1,722.00	1,721.78	7,862.373	CC, ES
UPV 31-16G3 - Wellbore #1 - Wellbore #1 - As Drilled	8,000.00	6,507.83	2,090.08	2,039.01	40.928	SF
UPV 31-9G3 - Wellbore #1 - Wellbore #1 - As Drilled	8,959.06	6,587.33	2,111.64	2,052.34	35.608	CC, ES
UPV 31-9G3 - Wellbore #1 - Wellbore #1 - As Drilled	9,400.00	6,590.29	2,157.18	2,094.75	34.553	SF
Wells Ranch AA30-717 - Wellbore #1 - Rev 2	17,336.99	11,777.66	1,537.17	1,347.03	8.084	CC, ES, SF
Wells Ranch AA30-725 - Wellbore #1 - Rev 4	17,336.99	12,202.11	1,988.85	1,798.53	10.450	CC, ES, SF
Wells Ranch State A36-625 - Original Drilling - Original D	7,941.05	6,317.00	1,373.50	1,326.51	29.231	CC, ES
Wells Ranch State A36-625 - Original Drilling - Original D	8,100.00	6,317.00	1,382.66	1,334.73	28.847	SF
Wells Ranch State A36-635 - Original Drilling - Original D	8,418.63	6,223.00	1,456.88	1,407.42	29.458	CC, ES
Wells Ranch State A36-635 - Original Drilling - Original D	8,700.00	6,223.00	1,483.80	1,432.60	28.980	SF
Wells Ranch State A36-649 - Original Drilling - Original D	9,395.73	6,257.00	1,450.74	1,393.24	25.230	CC
Wells Ranch State A36-649 - Original Drilling - Original D	9,400.00	6,257.00	1,450.75	1,393.22	25.217	ES
Wells Ranch State A36-649 - Original Drilling - Original D	9,600.00	6,257.00	1,465.05	1,406.32	24.945	SF
Wells Ranch State A36-655 - Original Drilling - Original D	9,725.47	6,202.78	1,481.67	1,420.40	24.183	CC, ES
Wells Ranch State A36-655 - Original Drilling - Original D	9,900.00	6,201.83	1,491.92	1,429.71	23.983	SF
Wells Ranch State A36-665 - Original Drilling - Original D	10,776.46	6,166.00	1,485.27	1,414.72	21.054	CC
Wells Ranch State A36-665 - Original Drilling - Original D	10,800.00	6,166.00	1,485.46	1,414.67	20.987	ES
Wells Ranch State A36-665 - Original Drilling - Original D	11,000.00	6,166.80	1,502.00	1,429.61	20.750	SF
Wells Ranch State A36-675 - Original Drilling - Original D	10,965.43	6,213.53	1,459.76	1,387.38	20.169	CC, ES
Wells Ranch State A36-675 - Original Drilling - Original D	11,100.00	6,212.17	1,465.95	1,392.44	19.942	SF
Wells Ranch State A36-686 - Original Drilling - Original D	11,858.66	6,354.00	1,437.49	1,353.14	17.041	CC, ES
Wells Ranch State A36-686 - Original Drilling - Original D	12,000.00	6,354.00	1,444.42	1,359.34	16.977	SF
Wells Ranch USX AA31-01 - Wellbore #1 - Wellbore #1 -	11,390.62	6,644.63	2,177.76	2,095.58	26.500	CC
Wells Ranch USX AA31-01 - Wellbore #1 - Wellbore #1 -	11,400.00	6,644.52	2,177.78	2,095.51	26.471	ES
Wells Ranch USX AA31-01 - Wellbore #1 - Wellbore #1 -	11,715.49	6,641.04	2,201.85	2,117.14	25.993	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 AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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	7,481.61	6,585.83	640.30	591.46	13.108	CC, ES
State 14-32 PR - Wellbore #1 - Gyro Surveys	7,500.00	6,586.43	640.57	591.64	13.091	SF
State 23-32 PR - Wellbore #1 - Gyro Surveys	8,727.84	6,596.85	798.86	741.75	13.989	CC, ES
State 23-32 PR - Wellbore #1 - Gyro Surveys	8,800.00	6,597.51	802.11	744.43	13.907	SF
State 24-32 PA - Wellbore #1 - No Surveys	7,409.55	6,596.00	666.64	353.17	2.127	CC, ES, SF
State 32-32 PA - Wellbore #1 - No Surveys	10,046.14	6,607.00	1,997.91	1,894.38	19.298	CC, ES
State 32-32 PA - Wellbore #1 - No Surveys	10,300.00	6,607.00	2,013.97	1,908.18	19.038	SF
State 6525 11-32 PA - Wellbore #1 - No Surveys	11,373.51	6,583.00	468.96	352.61	4.031	CC, ES, SF
State 6525 12-32 PA - Wellbore #1 - No Surveys	10,157.37	6,578.00	645.82	541.49	6.190	CC, ES
State 6525 12-32 PA - Wellbore #1 - No Surveys	10,200.00	6,578.00	647.23	542.63	6.188	SF
State 6525 13-32 SI - Wellbore #1 - Gyro Surveys	8,767.12	6,315.00	470.52	423.45	9.997	CC, ES
State 6525 13-32 SI - Wellbore #1 - Gyro Surveys	8,800.00	6,315.00	471.67	424.44	9.987	SF
State 6525 21-32 PA - Wellbore #1 - Gyro Surveys	11,307.70	6,573.31	597.79	516.63	7.366	CC, ES, SF
State 6525 22-32 PR - Wellbore #1 - No Surveys	10,090.74	6,603.00	689.92	586.00	6.639	CC
State 6525 22-32 PR - Wellbore #1 - No Surveys	10,100.00	6,603.00	689.98	585.97	6.633	ES, SF
State 6525 31-32 PA - Wellbore #1 - Gyro Surveys	11,405.63	6,583.34	1,961.90	1,879.83	23.905	CC, ES
State 6525 31-32 PA - Wellbore #1 - Gyro Surveys	11,715.49	6,588.09	1,986.21	1,901.45	23.433	SF
State 6525 33-32 PA - Wellbore #1 - Gyro Surveys	8,649.52	6,544.25	2,030.12	1,973.75	36.009	CC, ES
State 6525 33-32 PA - Wellbore #1 - Gyro Surveys	9,100.00	6,534.70	2,079.48	2,019.78	34.833	SF
State 6525 34-32 PR - Wellbore #1 - Gyro Surveys	7,415.15	6,522.86	2,047.94	1,999.49	42.270	CC, ES
State 6525 34-32 PR - Wellbore #1 - Gyro Surveys	7,900.00	6,497.13	2,104.37	2,053.57	41.424	SF
State 6525 42-32 PR - Wellbore #1 - No Surveys	9,888.89	6,638.00	3,241.50	3,139.18	31.679	CC
State 6525 42-32 PR - Wellbore #1 - No Surveys	9,900.00	6,638.00	3,241.52	3,139.09	31.647	ES
State 6525 42-32 PR - Wellbore #1 - No Surveys	10,600.00	6,638.00	3,318.59	3,210.15	30.604	SF
State 6525 43-32 PR - Wellbore #1 - Gyro Surveys	8,582.17	6,541.51	3,334.96	3,279.11	59.719	CC
State 6525 43-32 PR - Wellbore #1 - Gyro Surveys	8,600.00	6,541.92	3,335.00	3,279.02	59.569	ES
State 6525 43-32 PR - Wellbore #1 - Gyro Surveys	10,200.00	10,200.00	3,706.24	3,626.57	46.520	SF
State 6525 44-32 PR - Wellbore #1 - No Surveys	7,418.75	6,651.00	3,288.81	3,205.05	39.268	CC, ES
State 6525 44-32 PR - Wellbore #1 - No Surveys	8,200.00	6,651.00	3,380.33	3,292.24	38.373	SF
State Lease 41-32 PA - Wellbore #1 - Gyro Surveys	11,295.29	6,593.36	3,251.64	3,170.66	40.152	CC
State Lease 41-32 PA - Wellbore #1 - Gyro Surveys	11,300.00	6,593.38	3,251.64	3,170.61	40.128	ES
State Lease 41-32 PA - Wellbore #1 - Gyro Surveys	12,100.00	6,595.62	3,359.75	3,271.91	38.248	SF
State Wells 32D PR - Wellbore #1 - Gyro Surveys	10,737.74	6,598.59	50.97	-24.40	0.676	Level 1, CC, ES, SF
B Section 03						
Annie B3-9 - Wellbore #1 - Wellbore #1- As Drilled						Out of range
Clemons 2-3 - Wellbore #1 - Wellbore #1- As Drilled						Out of range
Clemons 42-3 - Wellbore #1 - Wellbore #1- As Drilled						Out of range
Schoenleber 16-3 - Wellbore #1 - Wellbore #1- As Drilled						Out of range
Sitzman 03-01 - Wellbore #1 - Wellbore #1- As Drilled						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 AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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>						
B Section 05						
Ehrlich 1 (TA) - Wellbore #1 - Gyro Surveys						Out of range
Ehrlich 5E-323 (PR) - Wellbore #1 - Permitted-PDC						Out of range
Ehrlich 5E-423 (DG) - Wellbore #1 - Permitted-PDC						Out of range
Ehrlich 5J-203 (PR) - Wellbore #1 - Permitted-PDC						Out of range
Ehrlich 5J-223 (PR) - Wellbore #1 - Permitted-PDC						Out of range
Ehrlich 5J-243 (PR) - Wellbore #1 - Permitted-PDC						Out of range
Ehrlich 5J-303 (PR) - Wellbore #1 - Permitted-PDC						Out of range
Ehrlich 5J-323 (PR) - Wellbore #1 - Permitted-PDC						Out of range
Ehrlich 5M-243 (PR) - Wellbore #1 - Permitted-PDC						Out of range
Ehrlich 5M-343 (PR) - Wellbore #1 - Permitted-PDC						Out of range
Mininger Pfeif 41-5 (SI) - Wellbore #1 - Gyro Surveys						Out of range
Noffsinger 21-5 (TA) - Wellbore #1 - Gyro Surveys						Out of range
Noffsinger 31-5 (TA) - Wellbore #1 - Gyro Surveys						Out of range
Snowmass 10N (DG) - Wellbore #1 - Permitted-PDC						Out of range
Snowmass 1C (DG) - Wellbore #1 - Permitted-PDC						Out of range
Snowmass 2N (DG) - Wellbore #1 - Permitted-PDC						Out of range
Snowmass 3N (DG) - Wellbore #1 - Permitted-PDC						Out of range
Snowmass 4N (DG) - Wellbore #1 - Permitted-PDC						Out of range
Snowmass 5N (DG) - Wellbore #1 - Permitted-PDC						Out of range
Snowmass 6N (DG) - Wellbore #1 - Permitted-PDC						Out of range
Snowmass 7N (DG) - Wellbore #1 - Permitted-PDC						Out of range
Snowmass 8N (DG) - Wellbore #1 - Permitted-PDC						Out of range
Snowmass 9N (DG) - Wellbore #1 - Permitted-PDC						Out of range
B Section 06						
Webster B6-1 (SI) - Wellbore #1 - Gyro Surveys						Out of range
Webster B6-2 (SI) - Wellbore #1 - Gyro Surveys						Out of range
BB Section 05						
Wells Ranch State AA32-763 - Wellbore #1 - Plan 1	6,814.34	6,703.04	433.87	386.66	9.190	CC
Wells Ranch State AA32-763 - Wellbore #1 - Plan 1	11,800.00	11,704.81	465.01	340.71	3.741	ES
Wells Ranch State AA32-763 - Wellbore #1 - Plan 1	17,336.99	17,238.05	666.82	424.28	2.749	SF
Wells Ranch State AA32-775 - Wellbore #1 - Plan #2	2,000.00	2,000.00	37.47	23.60	2.701	CC, ES
Wells Ranch State AA32-775 - Wellbore #1 - Plan #2	2,100.00	2,100.02	39.20	24.62	2.688	SF
Wells Ranch State AA32-783 - Wellbore #1 - Plan #2	2,000.00	2,001.00	74.94	61.06	5.400	CC, ES
Wells Ranch State AA32-783 - Wellbore #1 - Plan #2	2,100.00	2,101.02	76.66	62.08	5.257	SF
Wells Ranch State AA32-789 - Wellbore #1 - Plan #2	2,000.00	1,998.00	112.43	98.57	8.109	CC, ES
Wells Ranch State AA32-789 - Wellbore #1 - Plan #2	2,100.00	2,094.22	115.76	101.22	7.960	SF

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

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<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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 @ 4704.00ft

Offset Depths are relative to Offset Datum

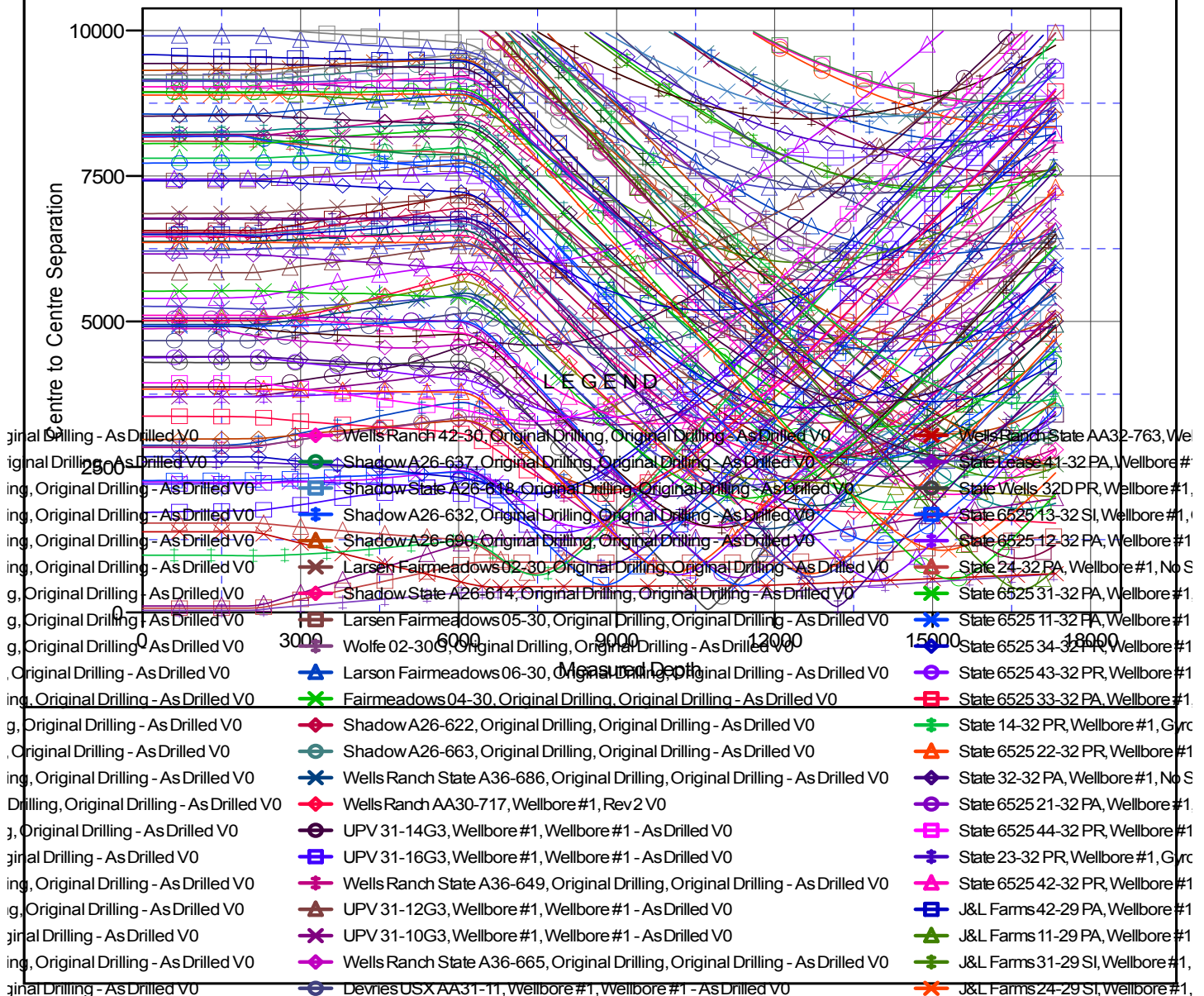
Central Meridian is -105.5000000

Coordinates are relative to: Wells Ranch State AA32-770

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.67°

## Ladder Plot



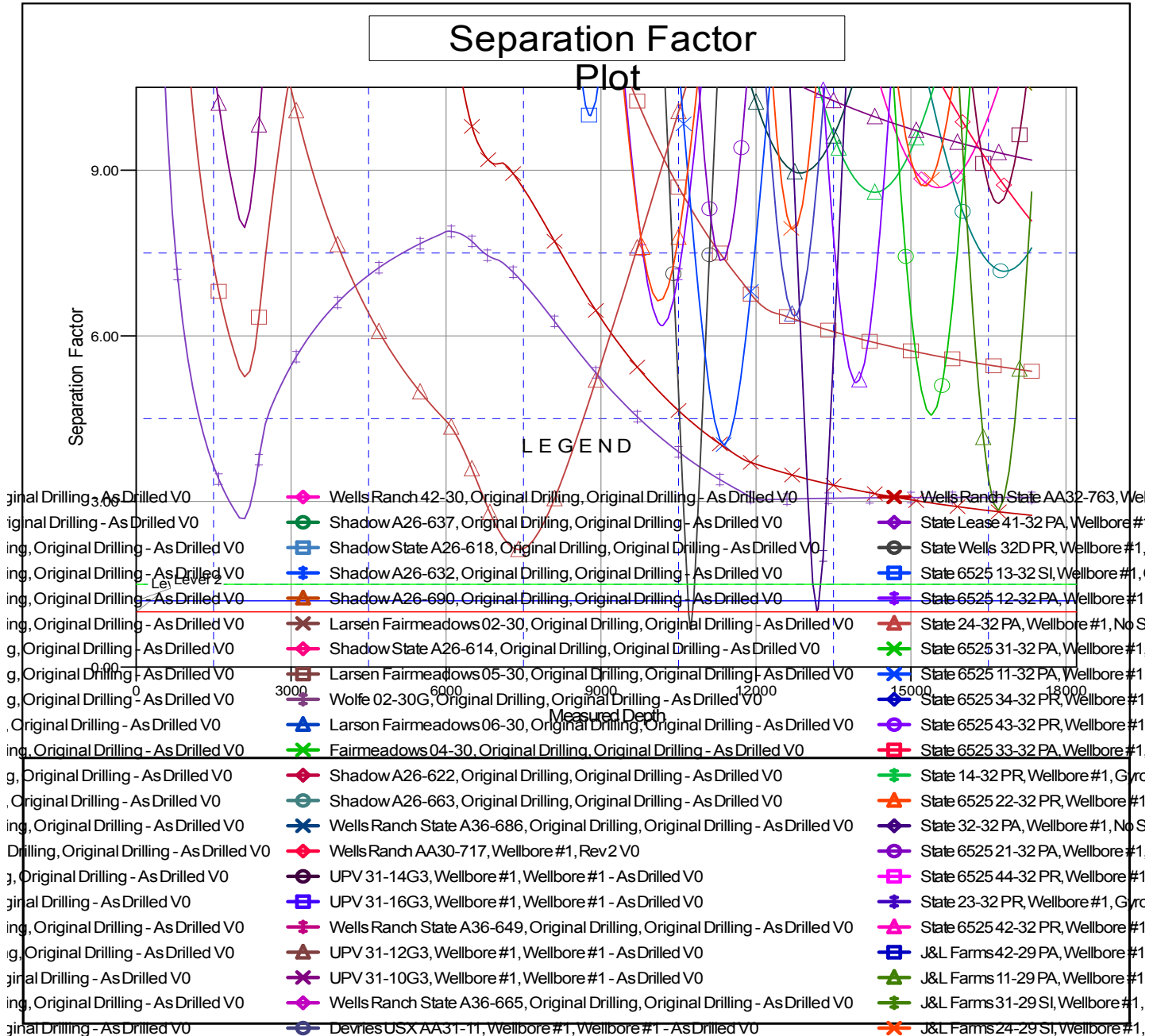
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch State AA32-770
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4704.00ft
<b>Reference Site:</b>	BB Section 05	<b>MD Reference:</b>	Well @ 4704.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Wells Ranch State AA32-770	<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 @ 4704.00ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: Wells Ranch State AA32-770  
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