

Project: Wells Ranch
Site: AE Section 32
Well: Wells Ranch State AA36-683
Wellbore: Wells Ranch State AA36-683
Design: Plan 1

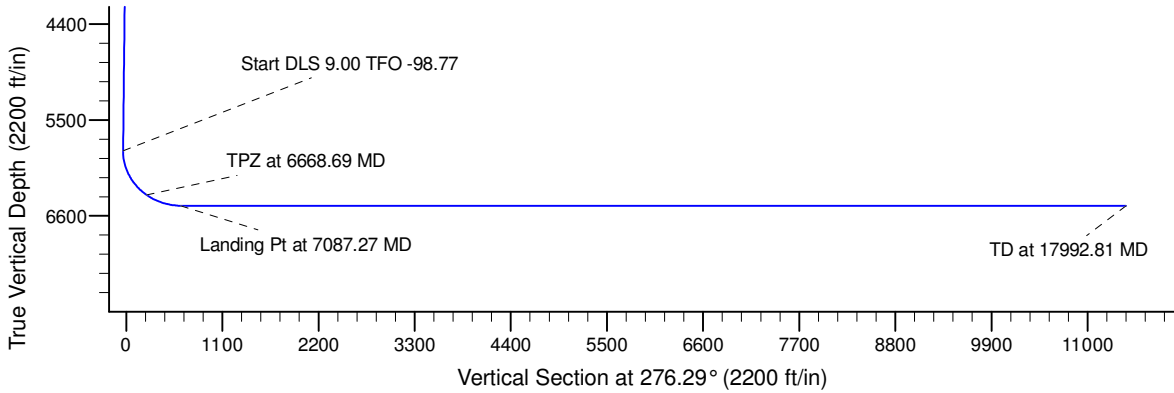
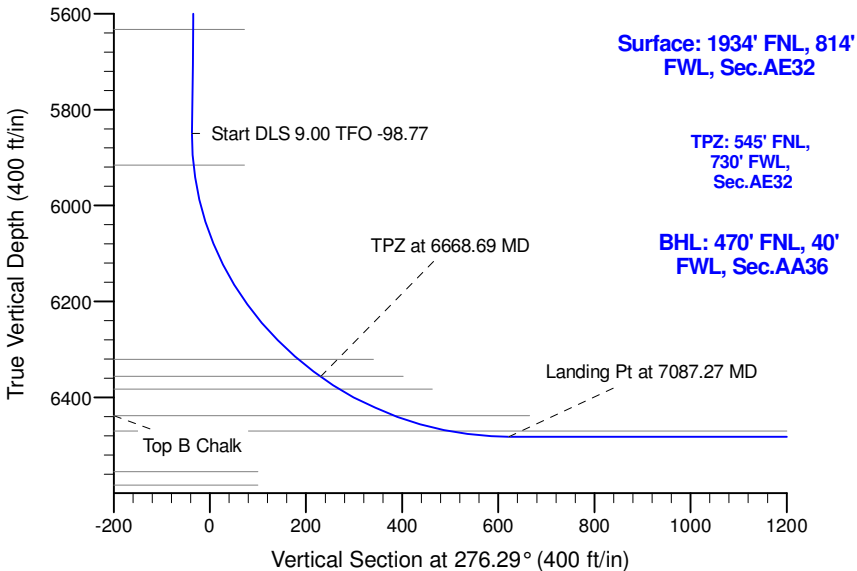
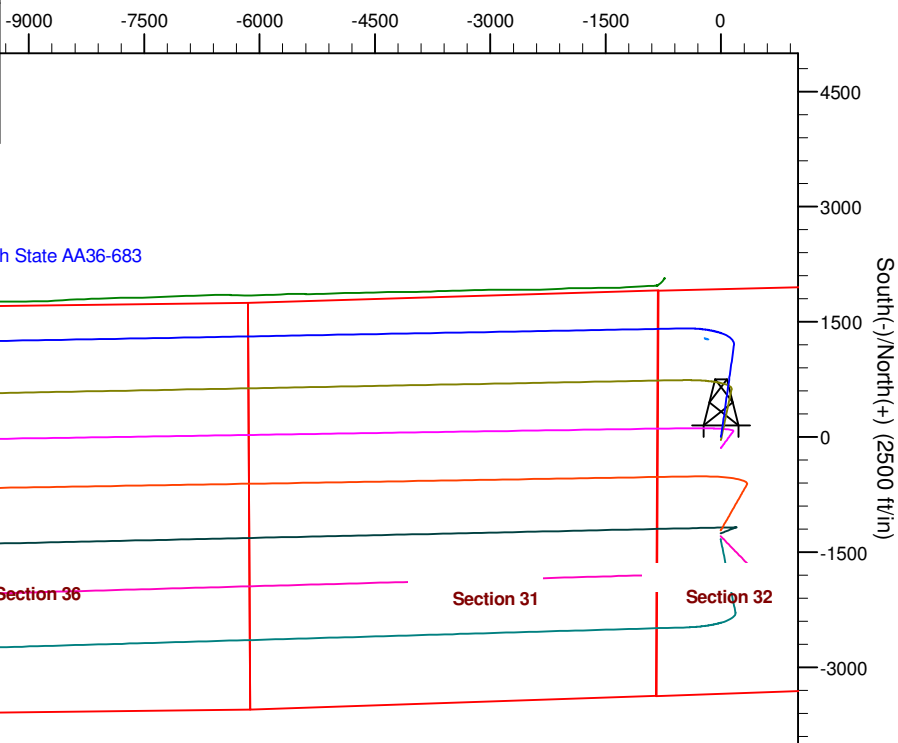
Northern Region - DJ Basin

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	Vsect	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	2995.68	19.91	8.04	2975.76	169.61	23.97	2.00	8.04	-5.24	
4	6053.05	19.91	8.04	5850.32	1200.71	169.66	0.00	0.00	-37.08	
5	7087.27	89.99	268.95	6482.00	1415.00	-470.00	9.00	-98.56	622.21	
6	17992.81	89.99	268.95	6483.00	1215.75	-11373.72	0.00	0.00	11438.45	Wells Ranch State AA36-683 BHL

West(-)/East(+) (2500 ft/in)



Azimuths to Grid North
True North: -0.74°
Magnetic North: 7.25°

Magnetic Field
Strength: 52460.5snT
Dip Angle: 66.95°
Date: 6/12/2017
Model: IGRF2015

WELL DETAILS: Wells Ranch State AA36-683				
0.00	0.00	Northing 1407061.88	Easting 3319027.20	4732.00 Latitude 40.4451264 Longitude -104.3537281
Plan: Plan 1 (Wells Ranch State AA36-683/Wells Ranch State AA36-683)				
Created By: Colby Baxter		Date: 11:01, January 08 2018		
Checked: _____		Date: _____		
Reviewed: _____		Date: _____		
Approved: _____		Date: _____		

Northern Region - DJ Basin

Wells Ranch

AE Section 32

Wells Ranch State AA36-683

Wells Ranch State AA36-683

Plan: Plan 1

Standard Survey Report

08 January, 2018

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Well:	Wells Ranch State AA36-683	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1	Database:	EDMP

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

Site		AE Section 32					
Site Position:		Northing:	1,404,332.08	usft	Latitude:	40.4376400	
From:	Map	Easting:	3,318,849.41	usft	Longitude:	-104.3544935	
Position Uncertainty:	0.00	ft	Slot Radius:	13.200	in	Grid Convergence:	0.74 °

Well	Wells Ranch State AA36-683, NEI					
Well Position	+N/-S	0.00 ft	Northing:	1,407,061.88 usft	Latitude:	40.4451264
	+E/-W	0.00 ft	Easting:	3,319,027.21 usft	Longitude:	-104.3537281
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,732.00 ft

Wellbore	Wells Ranch State AA36-683				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/12/2017	8.00	66.95	52,460.52273340

Design	Plan 1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	276.29	

Survey Tool Program	Date	1/8/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,992.81	Plan 1 (Wells Ranch State AA36-683)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

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	
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	

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Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Well:	Wells Ranch State AA36-683	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1	Database:	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	8.04	2,099.98	1.73	0.24	-0.05	2.00	2.00	0.00
2,200.00	4.00	8.04	2,199.84	6.91	0.98	-0.21	2.00	2.00	0.00
2,300.00	6.00	8.04	2,299.45	15.54	2.20	-0.48	2.00	2.00	0.00
2,400.00	8.00	8.04	2,398.70	27.61	3.90	-0.85	2.00	2.00	0.00
2,500.00	10.00	8.04	2,497.47	43.09	6.09	-1.33	2.00	2.00	0.00
2,600.00	12.00	8.04	2,595.62	61.99	8.76	-1.91	2.00	2.00	0.00
2,700.00	14.00	8.04	2,693.06	84.26	11.91	-2.60	2.00	2.00	0.00
2,800.00	16.00	8.04	2,789.64	109.89	15.53	-3.39	2.00	2.00	0.00
2,900.00	18.00	8.04	2,885.27	138.83	19.62	-4.29	2.00	2.00	0.00
2,995.68	19.91	8.04	2,975.76	169.61	23.97	-5.24	2.00	2.00	0.00
3,000.00	19.91	8.04	2,979.82	171.07	24.17	-5.28	0.00	0.00	0.00
3,100.00	19.91	8.04	3,073.84	204.79	28.94	-6.32	0.00	0.00	0.00
3,200.00	19.91	8.04	3,167.86	238.52	33.70	-7.37	0.00	0.00	0.00
3,300.00	19.91	8.04	3,261.88	272.24	38.47	-8.41	0.00	0.00	0.00
3,400.00	19.91	8.04	3,355.90	305.97	43.23	-9.45	0.00	0.00	0.00
3,500.00	19.91	8.04	3,449.92	339.69	48.00	-10.49	0.00	0.00	0.00
3,600.00	19.91	8.04	3,543.94	373.42	52.76	-11.53	0.00	0.00	0.00
3,700.00	19.91	8.04	3,637.96	407.14	57.53	-12.57	0.00	0.00	0.00
3,800.00	19.91	8.04	3,731.98	440.87	62.30	-13.61	0.00	0.00	0.00
3,900.00	19.91	8.04	3,826.00	474.59	67.06	-14.66	0.00	0.00	0.00
4,000.00	19.91	8.04	3,920.02	508.32	71.83	-15.70	0.00	0.00	0.00
4,100.00	19.91	8.04	4,014.04	542.04	76.59	-16.74	0.00	0.00	0.00
4,200.00	19.91	8.04	4,108.07	575.77	81.36	-17.78	0.00	0.00	0.00
4,300.00	19.91	8.04	4,202.09	609.49	86.12	-18.82	0.00	0.00	0.00
4,400.00	19.91	8.04	4,296.11	643.22	90.89	-19.86	0.00	0.00	0.00
4,500.00	19.91	8.04	4,390.13	676.94	95.65	-20.90	0.00	0.00	0.00
4,600.00	19.91	8.04	4,484.15	710.67	100.42	-21.95	0.00	0.00	0.00
4,700.00	19.91	8.04	4,578.17	744.40	105.19	-22.99	0.00	0.00	0.00
4,800.00	19.91	8.04	4,672.19	778.12	109.95	-24.03	0.00	0.00	0.00
4,900.00	19.91	8.04	4,766.21	811.85	114.72	-25.07	0.00	0.00	0.00
5,000.00	19.91	8.04	4,860.23	845.57	119.48	-26.11	0.00	0.00	0.00
5,100.00	19.91	8.04	4,954.25	879.30	124.25	-27.15	0.00	0.00	0.00
5,200.00	19.91	8.04	5,048.27	913.02	129.01	-28.20	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

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Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Well:	Wells Ranch State AA36-683	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1	Database:	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	19.91	8.04	5,142.29	946.75	133.78	-29.24	0.00	0.00	0.00
5,400.00	19.91	8.04	5,236.31	980.47	138.54	-30.28	0.00	0.00	0.00
5,500.00	19.91	8.04	5,330.33	1,014.20	143.31	-31.32	0.00	0.00	0.00
5,600.00	19.91	8.04	5,424.36	1,047.92	148.07	-32.36	0.00	0.00	0.00
5,700.00	19.91	8.04	5,518.38	1,081.65	152.84	-33.40	0.00	0.00	0.00
5,800.00	19.91	8.04	5,612.40	1,115.37	157.61	-34.44	0.00	0.00	0.00
5,900.00	19.91	8.04	5,706.42	1,149.10	162.37	-35.49	0.00	0.00	0.00
6,000.00	19.91	8.04	5,800.44	1,182.82	167.14	-36.53	0.00	0.00	0.00
6,053.05	19.91	8.04	5,850.32	1,200.71	169.66	-37.08	0.00	0.00	0.00
6,100.00	19.71	355.57	5,894.51	1,216.53	170.17	-35.85	9.00	-0.42	-26.57
6,200.00	22.05	330.98	5,988.11	1,249.83	159.74	-21.84	9.00	2.33	-24.59
6,300.00	27.19	313.09	6,079.12	1,281.92	133.90	7.37	9.00	5.14	-17.89
6,400.00	33.87	301.15	6,165.29	1,312.00	93.29	51.03	9.00	6.69	-11.94
6,500.00	41.36	292.93	6,244.49	1,339.35	38.89	108.09	9.00	7.49	-8.23
6,600.00	49.28	286.89	6,314.78	1,363.27	-27.93	177.14	9.00	7.92	-6.04
6,700.00	57.44	282.15	6,374.44	1,383.19	-105.55	256.47	9.00	8.16	-4.73
6,800.00	65.75	278.22	6,421.98	1,398.62	-192.04	344.13	9.00	8.31	-3.93
6,900.00	74.15	274.78	6,456.24	1,409.17	-285.29	437.97	9.00	8.40	-3.44
7,000.00	82.60	271.61	6,476.37	1,414.58	-382.98	535.68	9.00	8.45	-3.17
7,087.27	89.99	268.95	6,482.00	1,415.00	-470.00	622.21	9.00	8.47	-3.05
7,100.00	89.99	268.95	6,482.00	1,414.77	-482.73	634.84	0.00	0.00	0.00
7,200.00	89.99	268.95	6,482.01	1,412.94	-582.71	734.02	0.00	0.00	0.00
7,300.00	89.99	268.95	6,482.02	1,411.12	-682.70	833.20	0.00	0.00	0.00
7,400.00	89.99	268.95	6,482.03	1,409.29	-782.68	932.39	0.00	0.00	0.00
7,500.00	89.99	268.95	6,482.04	1,407.46	-882.66	1,031.57	0.00	0.00	0.00
7,600.00	89.99	268.95	6,482.05	1,405.64	-982.65	1,130.75	0.00	0.00	0.00
7,700.00	89.99	268.95	6,482.06	1,403.81	-1,082.63	1,229.93	0.00	0.00	0.00
7,800.00	89.99	268.95	6,482.07	1,401.98	-1,182.61	1,329.11	0.00	0.00	0.00
7,900.00	89.99	268.95	6,482.07	1,400.15	-1,282.60	1,428.29	0.00	0.00	0.00
8,000.00	89.99	268.95	6,482.08	1,398.33	-1,382.58	1,527.47	0.00	0.00	0.00
8,100.00	89.99	268.95	6,482.09	1,396.50	-1,482.56	1,626.65	0.00	0.00	0.00
8,200.00	89.99	268.95	6,482.10	1,394.67	-1,582.55	1,725.83	0.00	0.00	0.00
8,300.00	89.99	268.95	6,482.11	1,392.85	-1,682.53	1,825.02	0.00	0.00	0.00
8,400.00	89.99	268.95	6,482.12	1,391.02	-1,782.51	1,924.20	0.00	0.00	0.00
8,500.00	89.99	268.95	6,482.13	1,389.19	-1,882.50	2,023.38	0.00	0.00	0.00
8,600.00	89.99	268.95	6,482.14	1,387.37	-1,982.48	2,122.56	0.00	0.00	0.00
8,700.00	89.99	268.95	6,482.15	1,385.54	-2,082.46	2,221.74	0.00	0.00	0.00
8,800.00	89.99	268.95	6,482.16	1,383.71	-2,182.45	2,320.92	0.00	0.00	0.00
8,900.00	89.99	268.95	6,482.17	1,381.88	-2,282.43	2,420.10	0.00	0.00	0.00
9,000.00	89.99	268.95	6,482.18	1,380.06	-2,382.41	2,519.28	0.00	0.00	0.00
9,100.00	89.99	268.95	6,482.18	1,378.23	-2,482.40	2,618.46	0.00	0.00	0.00
9,200.00	89.99	268.95	6,482.19	1,376.40	-2,582.38	2,717.65	0.00	0.00	0.00
9,300.00	89.99	268.95	6,482.20	1,374.58	-2,682.36	2,816.83	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

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Design:	Plan 1	Database:	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)
9,400.00	89.99	268.95	6,482.21	1,372.75	-2,782.35	2,916.01	0.00	0.00	0.00
9,500.00	89.99	268.95	6,482.22	1,370.92	-2,882.33	3,015.19	0.00	0.00	0.00
9,600.00	89.99	268.95	6,482.23	1,369.09	-2,982.31	3,114.37	0.00	0.00	0.00
9,700.00	89.99	268.95	6,482.24	1,367.27	-3,082.30	3,213.55	0.00	0.00	0.00
9,800.00	89.99	268.95	6,482.25	1,365.44	-3,182.28	3,312.73	0.00	0.00	0.00
9,900.00	89.99	268.95	6,482.26	1,363.61	-3,282.26	3,411.91	0.00	0.00	0.00
10,000.00	89.99	268.95	6,482.27	1,361.79	-3,382.25	3,511.09	0.00	0.00	0.00
10,100.00	89.99	268.95	6,482.28	1,359.96	-3,482.23	3,610.28	0.00	0.00	0.00
10,200.00	89.99	268.95	6,482.29	1,358.13	-3,582.21	3,709.46	0.00	0.00	0.00
10,300.00	89.99	268.95	6,482.29	1,356.31	-3,682.20	3,808.64	0.00	0.00	0.00
10,400.00	89.99	268.95	6,482.30	1,354.48	-3,782.18	3,907.82	0.00	0.00	0.00
10,500.00	89.99	268.95	6,482.31	1,352.65	-3,882.16	4,007.00	0.00	0.00	0.00
10,600.00	89.99	268.95	6,482.32	1,350.82	-3,982.15	4,106.18	0.00	0.00	0.00
10,700.00	89.99	268.95	6,482.33	1,349.00	-4,082.13	4,205.36	0.00	0.00	0.00
10,800.00	89.99	268.95	6,482.34	1,347.17	-4,182.11	4,304.54	0.00	0.00	0.00
10,900.00	89.99	268.95	6,482.35	1,345.34	-4,282.10	4,403.72	0.00	0.00	0.00
11,000.00	89.99	268.95	6,482.36	1,343.52	-4,382.08	4,502.91	0.00	0.00	0.00
11,100.00	89.99	268.95	6,482.37	1,341.69	-4,482.06	4,602.09	0.00	0.00	0.00
11,200.00	89.99	268.95	6,482.38	1,339.86	-4,582.05	4,701.27	0.00	0.00	0.00
11,300.00	89.99	268.95	6,482.39	1,338.03	-4,682.03	4,800.45	0.00	0.00	0.00
11,400.00	89.99	268.95	6,482.40	1,336.21	-4,782.01	4,899.63	0.00	0.00	0.00
11,500.00	89.99	268.95	6,482.40	1,334.38	-4,882.00	4,998.81	0.00	0.00	0.00
11,600.00	89.99	268.95	6,482.41	1,332.55	-4,981.98	5,097.99	0.00	0.00	0.00
11,700.00	89.99	268.95	6,482.42	1,330.73	-5,081.96	5,197.17	0.00	0.00	0.00
11,800.00	89.99	268.95	6,482.43	1,328.90	-5,181.95	5,296.35	0.00	0.00	0.00
11,900.00	89.99	268.95	6,482.44	1,327.07	-5,281.93	5,395.54	0.00	0.00	0.00
12,000.00	89.99	268.95	6,482.45	1,325.25	-5,381.91	5,494.72	0.00	0.00	0.00
12,100.00	89.99	268.95	6,482.46	1,323.42	-5,481.90	5,593.90	0.00	0.00	0.00
12,200.00	89.99	268.95	6,482.47	1,321.59	-5,581.88	5,693.08	0.00	0.00	0.00
12,300.00	89.99	268.95	6,482.48	1,319.76	-5,681.86	5,792.26	0.00	0.00	0.00
12,400.00	89.99	268.95	6,482.49	1,317.94	-5,781.85	5,891.44	0.00	0.00	0.00
12,500.00	89.99	268.95	6,482.50	1,316.11	-5,881.83	5,990.62	0.00	0.00	0.00
12,600.00	89.99	268.95	6,482.51	1,314.28	-5,981.81	6,089.80	0.00	0.00	0.00
12,700.00	89.99	268.95	6,482.51	1,312.46	-6,081.80	6,188.98	0.00	0.00	0.00
12,800.00	89.99	268.95	6,482.52	1,310.63	-6,181.78	6,288.17	0.00	0.00	0.00
12,900.00	89.99	268.95	6,482.53	1,308.80	-6,281.76	6,387.35	0.00	0.00	0.00
13,000.00	89.99	268.95	6,482.54	1,306.97	-6,381.75	6,486.53	0.00	0.00	0.00
13,100.00	89.99	268.95	6,482.55	1,305.15	-6,481.73	6,585.71	0.00	0.00	0.00
13,200.00	89.99	268.95	6,482.56	1,303.32	-6,581.71	6,684.89	0.00	0.00	0.00
13,300.00	89.99	268.95	6,482.57	1,301.49	-6,681.70	6,784.07	0.00	0.00	0.00
13,400.00	89.99	268.95	6,482.58	1,299.67	-6,781.68	6,883.25	0.00	0.00	0.00
13,500.00	89.99	268.95	6,482.59	1,297.84	-6,881.66	6,982.43	0.00	0.00	0.00
13,600.00	89.99	268.95	6,482.60	1,296.01	-6,981.65	7,081.61	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Well:	Wells Ranch State AA36-683	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1	Database:	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)
13,700.00	89.99	268.95	6,482.61	1,294.19	-7,081.63	7,180.80	0.00	0.00	0.00
13,800.00	89.99	268.95	6,482.62	1,292.36	-7,181.61	7,279.98	0.00	0.00	0.00
13,900.00	89.99	268.95	6,482.62	1,290.53	-7,281.60	7,379.16	0.00	0.00	0.00
14,000.00	89.99	268.95	6,482.63	1,288.70	-7,381.58	7,478.34	0.00	0.00	0.00
14,100.00	89.99	268.95	6,482.64	1,286.88	-7,481.56	7,577.52	0.00	0.00	0.00
14,200.00	89.99	268.95	6,482.65	1,285.05	-7,581.55	7,676.70	0.00	0.00	0.00
14,300.00	89.99	268.95	6,482.66	1,283.22	-7,681.53	7,775.88	0.00	0.00	0.00
14,400.00	89.99	268.95	6,482.67	1,281.40	-7,781.51	7,875.06	0.00	0.00	0.00
14,500.00	89.99	268.95	6,482.68	1,279.57	-7,881.50	7,974.24	0.00	0.00	0.00
14,600.00	89.99	268.95	6,482.69	1,277.74	-7,981.48	8,073.43	0.00	0.00	0.00
14,700.00	89.99	268.95	6,482.70	1,275.91	-8,081.46	8,172.61	0.00	0.00	0.00
14,800.00	89.99	268.95	6,482.71	1,274.09	-8,181.45	8,271.79	0.00	0.00	0.00
14,900.00	89.99	268.95	6,482.72	1,272.26	-8,281.43	8,370.97	0.00	0.00	0.00
15,000.00	89.99	268.95	6,482.73	1,270.43	-8,381.41	8,470.15	0.00	0.00	0.00
15,100.00	89.99	268.95	6,482.73	1,268.61	-8,481.40	8,569.33	0.00	0.00	0.00
15,200.00	89.99	268.95	6,482.74	1,266.78	-8,581.38	8,668.51	0.00	0.00	0.00
15,300.00	89.99	268.95	6,482.75	1,264.95	-8,681.36	8,767.69	0.00	0.00	0.00
15,400.00	89.99	268.95	6,482.76	1,263.13	-8,781.35	8,866.87	0.00	0.00	0.00
15,500.00	89.99	268.95	6,482.77	1,261.30	-8,881.33	8,966.06	0.00	0.00	0.00
15,600.00	89.99	268.95	6,482.78	1,259.47	-8,981.31	9,065.24	0.00	0.00	0.00
15,700.00	89.99	268.95	6,482.79	1,257.64	-9,081.30	9,164.42	0.00	0.00	0.00
15,800.00	89.99	268.95	6,482.80	1,255.82	-9,181.28	9,263.60	0.00	0.00	0.00
15,900.00	89.99	268.95	6,482.81	1,253.99	-9,281.26	9,362.78	0.00	0.00	0.00
16,000.00	89.99	268.95	6,482.82	1,252.16	-9,381.25	9,461.96	0.00	0.00	0.00
16,100.00	89.99	268.95	6,482.83	1,250.34	-9,481.23	9,561.14	0.00	0.00	0.00
16,200.00	89.99	268.95	6,482.84	1,248.51	-9,581.21	9,660.32	0.00	0.00	0.00
16,300.00	89.99	268.95	6,482.84	1,246.68	-9,681.20	9,759.50	0.00	0.00	0.00
16,400.00	89.99	268.95	6,482.85	1,244.85	-9,781.18	9,858.69	0.00	0.00	0.00
16,500.00	89.99	268.95	6,482.86	1,243.03	-9,881.16	9,957.87	0.00	0.00	0.00
16,600.00	89.99	268.95	6,482.87	1,241.20	-9,981.15	10,057.05	0.00	0.00	0.00
16,700.00	89.99	268.95	6,482.88	1,239.37	-10,081.13	10,156.23	0.00	0.00	0.00
16,800.00	89.99	268.95	6,482.89	1,237.55	-10,181.11	10,255.41	0.00	0.00	0.00
16,900.00	89.99	268.95	6,482.90	1,235.72	-10,281.10	10,354.59	0.00	0.00	0.00
17,000.00	89.99	268.95	6,482.91	1,233.89	-10,381.08	10,453.77	0.00	0.00	0.00
17,100.00	89.99	268.95	6,482.92	1,232.07	-10,481.06	10,552.95	0.00	0.00	0.00
17,200.00	89.99	268.95	6,482.93	1,230.24	-10,581.05	10,652.13	0.00	0.00	0.00
17,300.00	89.99	268.95	6,482.94	1,228.41	-10,681.03	10,751.32	0.00	0.00	0.00
17,400.00	89.99	268.95	6,482.95	1,226.58	-10,781.01	10,850.50	0.00	0.00	0.00
17,500.00	89.99	268.95	6,482.95	1,224.76	-10,881.00	10,949.68	0.00	0.00	0.00
17,600.00	89.99	268.95	6,482.96	1,222.93	-10,980.98	11,048.86	0.00	0.00	0.00
17,700.00	89.99	268.95	6,482.97	1,221.10	-11,080.96	11,148.04	0.00	0.00	0.00
17,800.00	89.99	268.95	6,482.98	1,219.28	-11,180.95	11,247.22	0.00	0.00	0.00
17,900.00	89.99	268.95	6,482.99	1,217.45	-11,280.93	11,346.40	0.00	0.00	0.00
17,992.81	89.99	268.95	6,483.00	1,215.75	-11,373.72	11,438.45	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Well:	Wells Ranch State AA36-683	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1	Database:	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)

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 AA36	0.00	0.00	6,483.00	1,215.75	-11,373.72	1,408,277.63	3,307,653.50	40.4488597	-104.3945353
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
502.00	502.00	Pierre				
582.00	582.00	Upper Pierre Aquifer Top				
1,497.00	1,497.00	Upper Pierre Aquifer Base				
3,496.89	3,447.00	Parkman				
4,274.38	4,178.00	Sussex				
4,909.35	4,775.00	Shannon				
5,821.91	5,633.00	Teepee Buttes				
6,122.84	5,916.00	Top C Chalk				
6,609.60	6,321.00	Sharon Springs				
6,666.96	6,356.00	Top A Chalk				
6,716.21	6,383.00	Top A Marl				
6,841.89	6,438.00	Top B Chalk				
6,959.73	6,470.00	Top B Marl				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2000	2000	0	0	KOP - Start Build 2.00
6053	5850	1201	170	Start DLS 9.00 TFO -98.77
6669	6357	1377	-80	TPZ at 6668.69 MD
7087	6482	1415	-470	Landing Pt at 7087.27 MD
17,993	6483	1216	-11,374	TD at 17992.81 MD

Checked By: _____ Approved By: _____ Date: _____

Northern Region - DJ Basin

Wells Ranch

AE Section 32

Wells Ranch State AA36-683

Wells Ranch State AA36-683

Plan 1

Anticollision Summary Report

08 January, 2018

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-683	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference	Plan 1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	1/8/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	17,992.81	Plan 1 (Wells Ranch State AA36-683)	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
AA Section 35						
Wells Ranch USX AA35-65HN - Plan A - Original Drilling	17,992.81	10,987.02	2,194.98	1,943.57	8.731	CC, ES, SF
AA Section 36						
Wells Ranch 11-36 - Wells Ranch 11-36 - Wells Ranch 1	17,305.04	6,511.42	178.33	20.07	1.127	Level 2, CC, ES, SF
Wells Ranch 12-36 - Wells Ranch 12-36 - Wells Ranch 1	17,324.80	6,492.36	1,591.68	1,433.29	10.049	CC, ES
Wells Ranch 12-36 - Wells Ranch 12-36 - Wells Ranch 1	17,400.00	6,492.88	1,593.46	1,434.55	10.028	SF
Wells Ranch 13-36 - Wells Ranch 13-36 - Wells Ranch 1	17,382.61	6,496.51	2,816.91	2,657.74	17.697	CC
Wells Ranch 13-36 - Wells Ranch 13-36 - Wells Ranch 1	17,400.00	6,496.36	2,816.97	2,657.62	17.678	ES
Wells Ranch 13-36 - Wells Ranch 13-36 - Wells Ranch 1	17,700.00	6,493.68	2,834.73	2,673.18	17.546	SF
Wells Ranch 14-36 - Wells Ranch 14-36 - Wells Ranch 1	17,612.49	6,469.61	4,286.18	4,124.26	26.470	CC
Wells Ranch 14-36 - Wells Ranch 14-36 - Wells Ranch 1	17,700.00	6,469.55	4,287.08	4,124.23	26.325	ES
Wells Ranch 14-36 - Wells Ranch 14-36 - Wells Ranch 1	17,992.81	6,469.36	4,303.02	4,137.49	25.994	SF
Wells Ranch 21-36 - Wells Ranch 21-36 - Wells Ranch 2	15,923.57	6,460.25	154.47	13.29	1.094	Level 2, CC, ES, SF
Wells Ranch 22-36 - Wells Ranch 22-36 - Wells Ranch 2	15,869.70	6,476.84	1,421.61	1,280.94	10.106	CC, ES
Wells Ranch 22-36 - Wells Ranch 22-36 - Wells Ranch 2	15,900.00	6,476.39	1,421.93	1,281.04	10.092	SF
Wells Ranch 23-36 - Wells Ranch 23-36 - Wells Ranch 2	16,156.50	6,504.10	2,790.30	2,646.02	19.340	CC
Wells Ranch 23-36 - Wells Ranch 23-36 - Wells Ranch 2	16,200.00	6,504.40	2,790.64	2,645.93	19.285	ES
Wells Ranch 23-36 - Wells Ranch 23-36 - Wells Ranch 2	16,500.00	6,506.54	2,811.36	2,664.47	19.139	SF
Wells Ranch 24-36 - Wells Ranch 24-36 - Wells Ranch 2	15,962.92	6,475.25	4,395.47	4,253.64	30.992	CC
Wells Ranch 24-36 - Wells Ranch 24-36 - Wells Ranch 2	16,000.00	6,475.61	4,395.62	4,253.39	30.905	ES
Wells Ranch 24-36 - Wells Ranch 24-36 - Wells Ranch 2	16,800.00	6,483.33	4,474.46	4,325.62	30.063	SF
Wells Ranch 31-36 - Wells Ranch 31-36 - Wells Ranch 3	14,595.35	6,434.77	166.73	41.75	1.334	Level 3, CC, ES, SF
Wells Ranch 32-36 - Wells Ranch 32-36 - Wells Ranch 3	14,522.86	6,423.41	1,553.81	1,429.73	12.523	CC, ES
Wells Ranch 32-36 - Wells Ranch 32-36 - Wells Ranch 3	14,600.00	6,423.53	1,555.72	1,431.11	12.484	SF
Wells Ranch 33-36 - Wells Ranch 33-36 - Wells Ranch 3	14,780.50	6,451.88	2,855.17	2,727.76	22.408	CC
Wells Ranch 33-36 - Wells Ranch 33-36 - Wells Ranch 3	14,800.00	6,451.70	2,855.24	2,727.63	22.375	ES
Wells Ranch 33-36 - Wells Ranch 33-36 - Wells Ranch 3	15,100.00	6,449.05	2,872.99	2,742.98	22.099	SF
Wells Ranch 34-36 - Original Drilling - Original Drilling - A	14,708.87	6,458.06	4,225.84	4,099.26	33.386	CC, ES
Wells Ranch 34-36 - Original Drilling - Original Drilling - A	15,500.00	6,455.07	4,299.25	4,165.98	32.259	SF
Wells Ranch 36A - Wells Ranch 36A - Wells Ranch 36A	16,894.42	6,507.50	853.09	699.80	5.565	CC
Wells Ranch 36A - Wells Ranch 36A - Wells Ranch 36A	16,900.00	6,507.42	853.11	699.79	5.564	ES, SF
Wells Ranch 36B - Wells Ranch 36B - Wells Ranch 36B	16,769.02	6,506.57	3,506.77	3,355.03	23.111	CC
Wells Ranch 36B - Wells Ranch 36B - Wells Ranch 36B	16,800.00	6,506.65	3,506.91	3,354.85	23.062	ES
Wells Ranch 36B - Wells Ranch 36B - Wells Ranch 36B	17,200.00	6,507.72	3,533.15	3,377.79	22.742	SF
Wells Ranch 36C - Wells Ranch 36C - Wells Ranch 36C	14,102.14	6,438.68	892.01	772.79	7.482	CC, ES, SF
Wells Ranch 36D - Wells Ranch 36D - Wells Ranch 36D	14,013.05	6,456.27	3,423.10	3,304.88	28.955	CC, ES
Wells Ranch 36D - Wells Ranch 36D - Wells Ranch 36D	14,600.00	6,452.25	3,473.06	3,350.12	28.250	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-683	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
AA Section 36						
Wells Ranch 36F - Wells Ranch 36F - Wells Ranch 36F	17,948.63	6,517.00	913.49	747.37	5.499	CC, ES, SF
Wells Ranch 36H - Wells Ranch 36H - Wells Ranch 36H	17,915.75	6,453.07	3,615.55	3,450.05	21.847	CC, ES
Wells Ranch 36H - Wells Ranch 36H - Wells Ranch 36H	17,992.81	6,452.22	3,616.37	3,450.09	21.749	SF
Wells Ranch 36J - Original Drilling - As Drilled	16,646.15	6,425.40	306.73	157.68	2.058	CC, ES, SF
Wells Ranch 36K - Wells Ranch 36K - Wells Ranch 36K	16,599.02	6,518.81	2,164.06	2,015.05	14.522	CC
Wells Ranch 36K - Wells Ranch 36K - Wells Ranch 36K	16,600.00	6,518.80	2,164.06	2,015.04	14.521	ES
Wells Ranch 36K - Wells Ranch 36K - Wells Ranch 36K	16,800.00	6,515.68	2,173.37	2,022.98	14.452	SF
Wells Ranch 36L - Wells Ranch 36L - Wells Ranch 36L	16,782.26	6,496.05	4,661.70	4,510.58	30.847	CC
Wells Ranch 36L - Wells Ranch 36L - Wells Ranch 36L	16,800.00	6,496.11	4,661.74	4,510.42	30.808	ES
Wells Ranch 36L - Wells Ranch 36L - Wells Ranch 36L	17,600.00	6,498.60	4,732.88	4,574.72	29.925	SF
Wells Ranch 36N - Wells Ranch 36N - Wells Ranch 36N	15,375.41	6,469.38	903.87	720.54	4.930	CC, ES
Wells Ranch 36N - Wells Ranch 36N - Wells Ranch 36N	15,400.00	6,469.50	904.21	720.77	4.929	SF
Wells Ranch 36O - Wells Ranch 36O - Wells Ranch 36O	15,301.38	6,464.78	2,053.29	1,920.28	15.438	CC, ES
Wells Ranch 36O - Wells Ranch 36O - Wells Ranch 36O	15,500.00	6,463.15	2,062.87	1,928.48	15.350	SF
Wells Ranch 36P - Wells Ranch 36P - Wells Ranch 36P	15,173.01	6,432.74	3,562.26	3,431.02	27.143	CC
Wells Ranch 36P - Wells Ranch 36P - Wells Ranch 36P	15,200.00	6,432.60	3,562.36	3,430.84	27.086	ES
Wells Ranch 36P - Wells Ranch 36P - Wells Ranch 36P	15,700.00	6,430.08	3,601.03	3,465.42	26.554	SF
Wells Ranch 36R - Wells Ranch 36R - Wells Ranch 36R	13,926.17	6,431.84	286.02	169.16	2.448	CC, ES, SF
Wells Ranch 36S - Wells Ranch 36S - Wells Ranch 36S	14,111.98	6,456.15	2,216.91	2,098.28	18.687	CC, ES
Wells Ranch 36S - Wells Ranch 36S - Wells Ranch 36S	14,300.00	6,455.26	2,224.87	2,104.78	18.527	SF
Wells Ranch 36T - Wells Ranch 36T - Wells Ranch 36T	14,036.82	6,449.18	4,715.11	4,597.54	40.104	CC
Wells Ranch 36T - Wells Ranch 36T - Wells Ranch 36T	14,100.00	6,449.41	4,715.53	4,597.28	39.878	ES
Wells Ranch 36T - Wells Ranch 36T - Wells Ranch 36T	15,100.00	6,452.98	4,833.49	4,706.80	38.153	SF
Wells Ranch 36V - Wells Ranch 36V - Wells Ranch 36V	12,932.58	6,408.41	922.15	818.08	8.861	CC, ES, SF
Wells Ranch 41-36 - Wells Ranch 41-36 - Wells Ranch 4	13,389.52	6,420.11	225.04	114.54	2.036	CC, ES, SF
Wells Ranch 42-36 - Wells Ranch 42-36 - Wells Ranch 4	13,426.17	6,425.41	1,480.30	1,369.22	13.326	CC, ES
Wells Ranch 42-36 - Wells Ranch 42-36 - Wells Ranch 4	13,500.00	6,425.52	1,482.14	1,370.55	13.282	SF
Wells Ranch 43-36 - Wells Ranch 43-36 - Wells Ranch 4	13,447.52	6,424.03	2,802.62	2,691.29	25.174	CC
Wells Ranch 43-36 - Wells Ranch 43-36 - Wells Ranch 4	13,500.00	6,424.10	2,803.11	2,691.27	25.064	ES
Wells Ranch 43-36 - Wells Ranch 43-36 - Wells Ranch 4	13,800.00	6,424.56	2,824.70	2,710.51	24.737	SF
Wells Ranch 44-36 - Wells Ranch 44-36 - Wells Ranch 4	13,276.12	6,466.34	4,355.24	4,245.80	39.798	CC
Wells Ranch 44-36 - Wells Ranch 44-36 - Wells Ranch 4	13,300.00	6,466.38	4,355.30	4,245.62	39.707	ES
Wells Ranch 44-36 - Wells Ranch 44-36 - Wells Ranch 4	14,300.00	6,467.77	4,473.97	4,355.97	37.916	SF
Wells Ranch AA35-62-1AHNC - Original Drilling - Origina	17,992.81	6,512.00	4,336.80	4,171.18	26.185	CC, ES, SF
Wells Ranch AA35-62-1BHNC - Original Drilling - Origina	17,992.81	6,493.59	4,640.50	4,475.57	28.136	CC, ES, SF
Wells Ranch AA35-62-1HNA - Original Drilling - Original	17,992.81	6,514.00	4,490.23	4,324.39	27.075	CC, ES, SF
Wells Ranch AA35-63-1AHNA - Original Drilling - Origina	17,992.81	5,950.00	3,599.15	3,438.29	22.375	CC, ES, SF
Wells Ranch AA35-63-1BHNA - Original Drilling - Origina	17,992.81	6,136.00	4,020.84	3,858.35	24.746	CC, ES, SF
Wells Ranch AA35-63-1HNC - Original Drilling - Original	17,992.81	17,992.81	3,737.31	3,530.89	18.105	CC, ES, SF
Wells Ranch AA35-64-1AHNA - Original Drilling - Origina	17,992.81	6,376.00	3,108.79	2,945.08	18.989	CC, ES, SF
Wells Ranch AA35-64-1BHNC - Original Drilling - Origina	17,992.81	6,470.00	3,266.29	3,101.95	19.875	CC, ES, SF
Wells Ranch AA35-65-1AHNA - Original Drilling - Origina	17,992.81	6,432.82	2,450.66	2,285.88	14.871	CC, ES, SF
Wells Ranch AA35-65-1BHNC - Original Drilling - Origina	17,992.81	6,548.60	2,610.56	2,445.94	15.858	CC, ES, SF
Wells Ranch AA35-66-1AHNC - Original Drilling - Origina	17,992.81	6,486.14	1,681.80	1,517.96	10.265	CC, ES, SF
Wells Ranch AA35-67-1AHNA - Original Drilling - Origina	17,992.81	6,447.00	987.34	828.11	6.201	CC, ES, SF
Wells Ranch AA35-67-1BHNA - Original Drilling - Origina	17,992.81	6,398.00	1,376.53	1,215.13	8.529	CC, ES, SF
Wells Ranch AA35-67-1HNC - Original Drilling - Original	17,992.81	6,487.98	1,199.32	1,036.20	7.352	CC, ES, SF
Wells Ranch AA35-68-1AHNA - Original Drilling - Origina	17,992.81	6,467.08	490.68	338.53	3.225	CC, ES, SF
Wells Ranch AA35-68-1BHNC - Original Drilling - Origina	17,992.81	6,568.58	624.75	462.87	3.859	CC, ES, SF
Wells Ranch AA35-69-1AHNC - Original Drilling - Origina	17,992.81	6,527.00	328.20	173.98	2.128	CC, ES, SF
Wells Ranch AA35-69-1BHNC - Original Drilling - Origina	17,992.81	6,533.98	108.75	21.73	1.250	Level 3, CC, ES, SF
Wells Ranch AA35-69-1HNB - Original Drilling - Original	17,992.81	6,509.75	217.25	89.59	1.702	CC, ES, SF
Wells Ranch USX AA35-14 - Wellbore #1 - Wellbore #1 -	17,992.81	6,479.01	5,382.60	5,253.48	41.688	CC, ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-683	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AE Section 29						
Wells Ranch State AE31-69HNC - Original Drilling - Orig	15,714.05	14,553.80	521.60	311.82	2.486	CC
Wells Ranch State AE31-69HNC - Original Drilling - Orig	16,500.00	15,334.72	531.25	301.51	2.312	ES, SF
AE Section 31						
UPRR-Wells 1 - UPRR-Wells 1 - UPRR-Wells 1 - As Drill	12,127.90	6,406.46	4,165.95	4,036.65	32.220	CC
UPRR-Wells 1 - UPRR-Wells 1 - UPRR-Wells 1 - As Drill	12,200.00	6,406.47	4,166.57	4,036.53	32.041	ES
UPRR-Wells 1 - UPRR-Wells 1 - UPRR-Wells 1 - As Drill	13,000.00	6,406.54	4,256.25	4,119.38	31.097	SF
Wells Ranch USX AE31-01P - Wells Ranch USX AE31-0	8,000.00	6,448.52	280.67	227.76	5.305	SF
Wells Ranch USX AE31-01P - Wells Ranch USX AE31-0	8,004.14	6,448.52	280.64	227.74	5.306	CC, ES
Wells Ranch USX AE31-02P - Wells Ranch USX AE31-0	9,400.00	6,428.61	252.84	187.61	3.876	SF
Wells Ranch USX AE31-02P - Wells Ranch USX AE31-0	9,407.58	6,428.58	252.72	187.54	3.877	CC, ES
Wells Ranch USX AE31-03P - Wells Ranch USX AE31-0	10,745.33	6,423.40	219.87	140.23	2.761	CC, ES, SF
Wells Ranch USX AE31-04 - Wells Ranch USX AE31-04	12,086.82	6,425.72	235.81	140.36	2.471	CC, ES, SF
Wells Ranch USX AE31-05P - Wells Ranch USX AE31-0	12,177.86	6,408.47	1,540.48	1,410.58	11.859	CC
Wells Ranch USX AE31-05P - Wells Ranch USX AE31-0	12,200.00	6,408.47	1,540.64	1,410.56	11.844	ES
Wells Ranch USX AE31-05P - Wells Ranch USX AE31-0	12,300.00	6,408.48	1,545.31	1,414.61	11.823	SF
Wells Ranch USX AE31-06 - Wells Ranch USX AE31-06	10,673.73	6,490.25	1,559.60	1,480.08	19.612	CC, ES
Wells Ranch USX AE31-06 - Wells Ranch USX AE31-06	10,800.00	6,486.95	1,564.70	1,484.35	19.474	SF
Wells Ranch USX AE31-07P - Wells Ranch USX AE31-0	9,405.66	6,442.32	1,424.81	1,359.33	21.761	CC, ES
Wells Ranch USX AE31-07P - Wells Ranch USX AE31-0	9,600.00	6,443.26	1,438.00	1,371.43	21.603	SF
Wells Ranch USX AE31-09P - Wells Ranch USX AE31-0	2,038.38	1,996.41	2,010.54	1,996.64	144.706	CC
Wells Ranch USX AE31-09P - Wells Ranch USX AE31-0	2,100.00	2,062.25	2,010.96	1,996.62	140.186	ES
Wells Ranch USX AE31-09P - Wells Ranch USX AE31-0	8,900.00	6,417.95	2,761.92	2,703.34	47.147	SF
Wells Ranch USX AE31-10P - Wells Ranch USX AE31-1	9,378.85	6,434.18	2,791.02	2,725.86	42.834	CC
Wells Ranch USX AE31-10P - Wells Ranch USX AE31-1	9,400.00	6,434.03	2,791.10	2,725.76	42.718	ES
Wells Ranch USX AE31-10P - Wells Ranch USX AE31-1	10,100.00	6,429.17	2,882.68	2,812.39	41.012	SF
Wells Ranch USX AE31-11P - Wells Ranch USX AE31-1	11,007.90	6,454.04	2,890.78	2,807.81	34.840	CC, ES
Wells Ranch USX AE31-11P - Wells Ranch USX AE31-1	11,600.00	6,443.03	2,950.77	2,863.31	33.738	SF
Wells Ranch USX AE31-12 - Wells Ranch USX AE31-12	12,173.54	6,441.75	2,847.32	2,750.95	29.545	CC
Wells Ranch USX AE31-12 - Wells Ranch USX AE31-12	12,200.00	6,441.84	2,847.44	2,750.81	29.468	ES
Wells Ranch USX AE31-12 - Wells Ranch USX AE31-12	12,700.00	6,443.52	2,895.58	2,795.18	28.841	SF
Wells Ranch USX AE31-14 - Wells Ranch USX AE31-14	10,786.02	6,360.35	4,157.93	4,078.00	52.021	CC
Wells Ranch USX AE31-14 - Wells Ranch USX AE31-14	10,800.00	6,360.32	4,157.96	4,077.89	51.931	ES
Wells Ranch USX AE31-14 - Wells Ranch USX AE31-14	12,000.00	6,357.73	4,331.53	4,241.68	48.210	SF
Wells Ranch USX AE31-15 - Wells Ranch USX AE31-15	2,018.12	1,957.21	3,932.57	3,918.89	287.580	CC, ES
Wells Ranch USX AE31-15 - Wells Ranch USX AE31-15	11,000.00	6,354.26	4,416.29	4,338.64	56.876	SF
Wells Ranch USX AE31-16P - Wells Ranch USX AE31-1	100.00	33.36	2,977.21	2,977.02	10,000.000	CC
Wells Ranch USX AE31-16P - Wells Ranch USX AE31-1	2,000.00	1,932.75	2,989.55	2,976.03	221.050	ES
Wells Ranch USX AE31-16P - Wells Ranch USX AE31-1	9,800.00	6,401.79	4,323.46	4,258.61	66.672	SF
Wells Ranch USX AE31-98HZ - Wellbore #1 - Original D	11,500.00	11,091.28	165.86	12.90	1.084	Level 2, SF
Wells Ranch USX AE31-98HZ - Wellbore #1 - Original D	11,591.99	11,100.02	138.26	11.33	1.089	Level 2, CC, ES
Wells Ranch USX AE31-99HZ - Wellbore #1 - Original D	11,990.75	6,068.59	1,103.67	1,011.94	12.032	CC, ES
Wells Ranch USX AE31-99HZ - Wellbore #1 - Original D	12,000.00	6,066.44	1,103.71	1,011.98	12.032	SF

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Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-683	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AE Section 32						
Wells Ranch AE32-04 - Wells Ranch AE32-04 - Wells Ra	6,796.98	6,409.96	117.88	70.87	2.508	CC, ES, SF
Wells Ranch AE32-05 - Wells Ranch AE32-05 - Wells Ra	100.00	70.78	77.12	76.87	308.659	CC
Wells Ranch AE32-05 - Wells Ranch AE32-05 - Wells Ra	600.00	570.42	79.76	76.02	21.320	ES
Wells Ranch AE32-05 - Wells Ranch AE32-05 - Wells Ra	2,100.00	2,070.33	97.06	82.68	6.751	SF
Wells Ranch AE32-615 - Original Drilling - Original Drillin	100.00	79.49	2,699.22	2,698.97	10,000.000	CC
Wells Ranch AE32-615 - Original Drilling - Original Drillin	1,500.00	1,475.17	2,701.02	2,692.47	315.795	ES
Wells Ranch AE32-615 - Original Drilling - Original Drillin	9,600.00	6,057.00	5,037.10	4,977.64	84.720	SF
Wells Ranch AE32-620 - Original Drilling - Original Drillin	2,079.63	2,149.03	2,654.52	2,641.75	207.939	CC
Wells Ranch AE32-620 - Original Drilling - Original Drillin	2,100.00	2,154.74	2,654.58	2,641.72	206.390	ES
Wells Ranch AE32-620 - Original Drilling - Original Drillin	9,200.00	6,088.00	4,559.55	4,503.71	81.651	SF
Wells Ranch AE32-625 - Original Drilling - Original Drillin	2,224.33	2,415.16	2,573.12	2,558.86	180.393	CC, ES
Wells Ranch AE32-625 - Original Drilling - Original Drillin	6,400.00	6,881.00	3,685.18	3,636.71	76.031	SF
Wells Ranch AE32-630 - Original Drilling - Original Drillin	2,045.29	2,068.00	2,572.91	2,560.68	210.354	CC, ES
Wells Ranch AE32-630 - Original Drilling - Original Drillin	6,350.00	7,121.25	3,278.52	3,229.00	66.201	SF
Wells Ranch AE32-635 - Original Drilling - Original Drillin	100.00	82.81	1,345.14	1,344.87	5,011.074	CC
Wells Ranch AE32-635 - Original Drilling - Original Drillin	500.00	477.16	1,346.33	1,343.95	564.975	ES
Wells Ranch AE32-635 - Original Drilling - Original Drillin	6,500.00	7,006.66	3,011.64	2,961.13	59.625	SF
Wells Ranch AE32-640 - Original Drilling - Original Drillin	100.00	82.77	1,309.07	1,308.80	4,877.442	CC
Wells Ranch AE32-640 - Original Drilling - Original Drillin	500.00	476.91	1,310.34	1,307.96	549.930	ES
Wells Ranch AE32-640 - Original Drilling - Original Drillin	6,950.00	6,950.00	2,793.51	2,743.60	55.969	SF
Wells Ranch AE32-645 - Original Drilling - Original Drillin	2,061.59	2,077.55	1,238.24	1,224.80	92.164	CC, ES
Wells Ranch AE32-645 - Original Drilling - Original Drillin	6,350.00	6,922.83	2,343.68	2,293.99	47.163	SF
Wells Ranch AE32-650 - Original Drilling - Original Drillin	100.00	82.95	1,232.97	1,232.71	4,589.415	CC
Wells Ranch AE32-650 - Original Drilling - Original Drillin	2,001.71	1,986.49	1,238.58	1,225.82	97.077	ES
Wells Ranch AE32-650 - Original Drilling - Original Drillin	6,350.00	7,095.18	1,926.54	1,876.89	38.805	SF
Wells Ranch AE32-655 - Original Drilling - Original Drillin	1,778.93	1,774.71	191.33	180.11	17.047	CC
Wells Ranch AE32-655 - Original Drilling - Original Drillin	1,800.00	1,794.07	191.38	180.02	16.843	ES
Wells Ranch AE32-655 - Original Drilling - Original Drillin	2,100.00	2,075.19	207.56	194.24	15.584	SF
Wells Ranch AE32-665 - Original Drilling - Original Drillin	100.00	95.98	181.09	180.80	620.786	CC
Wells Ranch AE32-665 - Original Drilling - Original Drillin	1,600.00	1,595.40	181.49	171.99	19.088	ES
Wells Ranch AE32-665 - Original Drilling - Original Drillin	2,200.00	2,179.65	219.20	205.51	16.008	SF
Wells Ranch AE32-670 - Original Drilling - Original Drillin	2,011.75	2,009.07	157.25	144.48	12.311	CC, ES
Wells Ranch AE32-670 - Original Drilling - Original Drillin	2,400.00	2,395.99	169.47	153.97	10.933	SF
Wells Ranch AE32-675 - Original Drilling - Original Drillin	6,593.16	6,846.58	479.71	432.48	10.156	CC
Wells Ranch AE32-675 - Original Drilling - Original Drillin	6,600.00	6,842.70	479.74	432.39	10.131	ES
Wells Ranch AE32-675 - Original Drilling - Original Drillin	6,650.00	6,810.44	481.77	433.76	10.034	SF
Wells Ranch AE32-685 - Original Drilling - Original Drillin	6,873.84	6,576.59	174.40	126.12	3.612	CC, ES, SF
Wells Ranch AE32-690 - Original Drilling - Original Drillin	7,192.41	6,338.40	507.96	460.51	10.705	CC, ES, SF
Wells Ranch AF05-690 - Original Drilling - Original Drillin	1,043.06	1,021.08	2,734.94	2,729.23	478.411	CC
Wells Ranch AF05-690 - Original Drilling - Original Drillin	2,000.00	1,966.92	2,738.45	2,726.54	229.851	ES
Wells Ranch AF05-690 - Original Drilling - Original Drillin	9,800.00	5,774.00	5,219.78	5,161.19	89.099	SF
Wells Ranch State AA36-622 - Wells Ranch State AA36-	2,000.00	1,993.00	1,329.13	1,315.28	95.982	CC, ES
Wells Ranch State AA36-622 - Wells Ranch State AA36-	17,992.81	17,868.63	4,011.01	3,724.49	13.999	SF
Wells Ranch State AA36-633 - Wells Ranch State AA36-	2,000.00	2,006.00	1,291.68	1,277.78	92.964	CC, ES
Wells Ranch State AA36-633 - Wells Ranch State AA36-	17,992.81	17,851.33	3,306.32	3,018.03	11.469	SF
Wells Ranch State AA36-643 - Wells Ranch State AA36-	2,000.00	2,006.00	1,254.21	1,240.32	90.268	CC, ES
Wells Ranch State AA36-643 - Wells Ranch State AA36-	17,992.81	17,802.48	2,645.90	2,358.22	9.197	SF
Wells Ranch State AA36-654 - Wells Ranch State AA36-	2,490.34	2,708.29	1,206.00	1,188.03	67.113	CC, ES
Wells Ranch State AA36-654 - Wells Ranch State AA36-	17,992.81	17,908.10	1,911.32	1,622.54	6.619	SF
Wells Ranch State AA36-664 - Wells Ranch State AA36-	2,000.00	2,001.00	142.57	128.69	10.274	CC, ES
Wells Ranch State AA36-664 - Wells Ranch State AA36-	17,992.81	17,775.13	1,268.96	981.08	4.408	SF
Wells Ranch State AA36-673 - Wells Ranch State AA36-	2,000.00	2,001.00	37.63	23.76	2.712	CC, ES
Wells Ranch State AA36-673 - Wells Ranch State AA36-	17,992.81	17,721.04	683.02	397.70	2.394	SF

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Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-683	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-683	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4762.00ft

Offset Depths are relative to Offset Datum

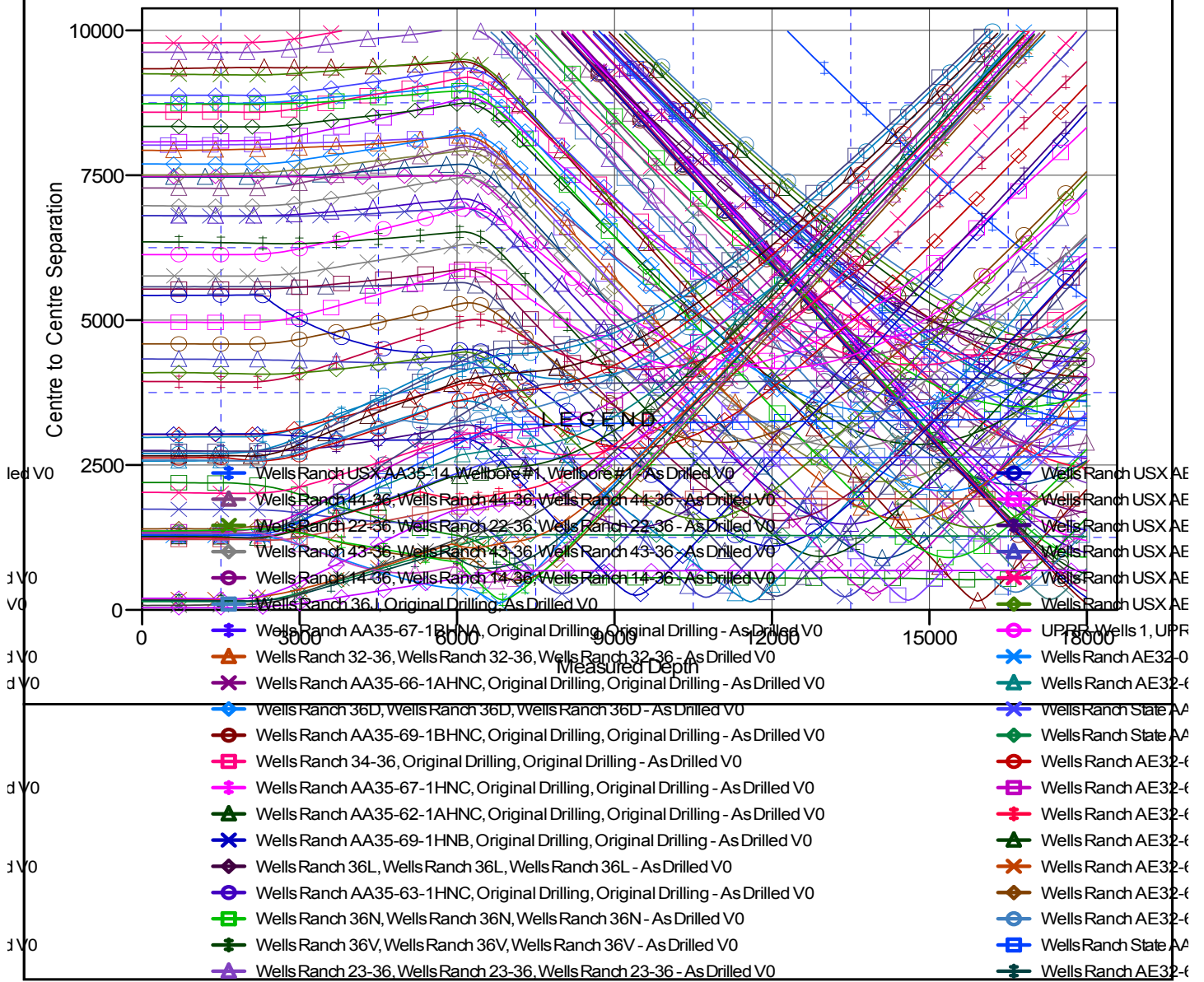
Central Meridian is -105.5000000

Coordinates are relative to: Wells Ranch State AA36-683

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.74°

Ladder Plot



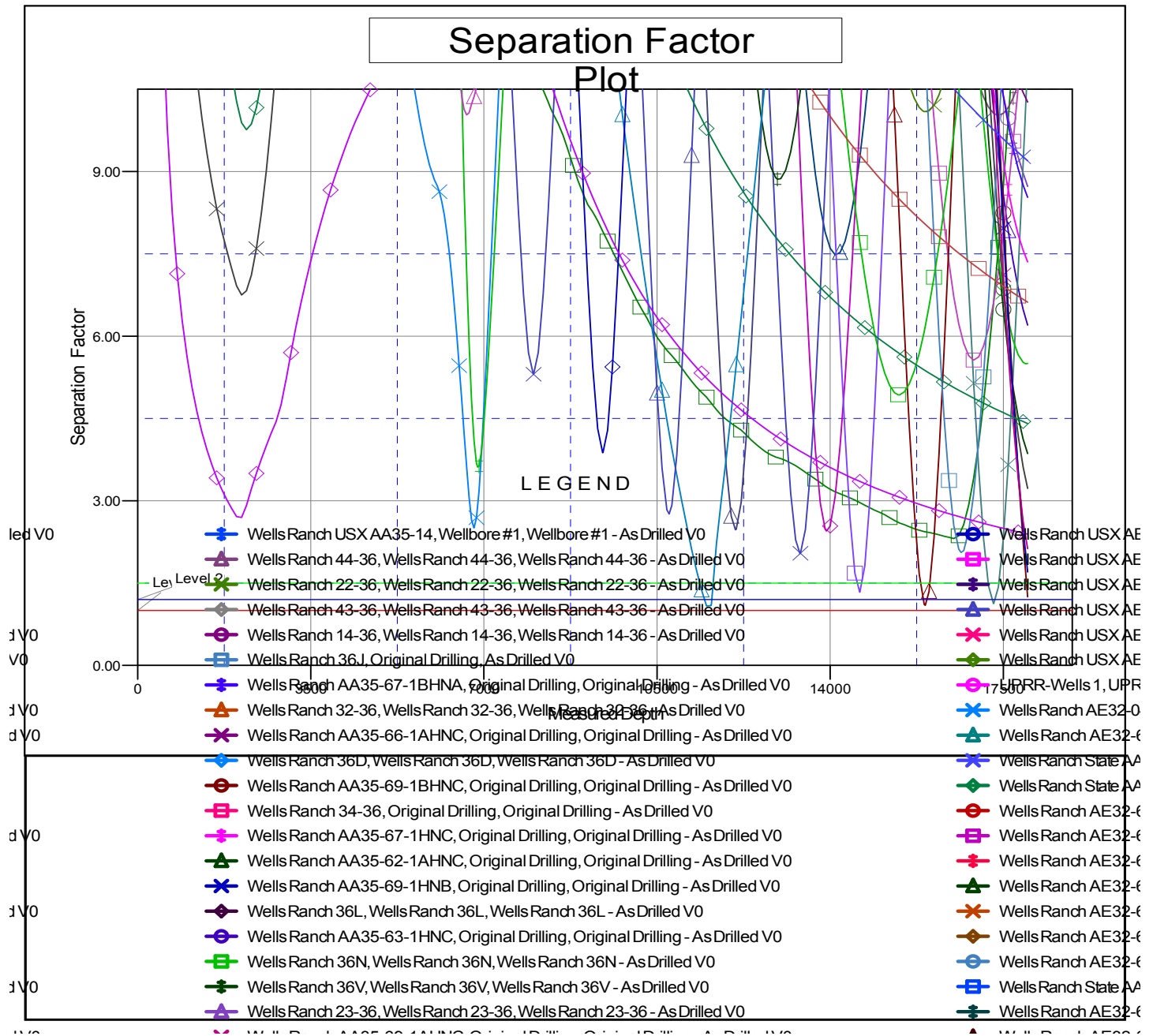
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Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-683
Project:	Wells Ranch	TVD Reference:	Well @ 4762.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4762.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-683	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-683	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4762.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Wells Ranch State AA36-683
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.74°



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