

Project: Wells Ranch
 Site: AE Section 32
 Well: Wells Ranch State AA36-622
 Wellbore: Wells Ranch State AA36-622
 Design: Plan 1

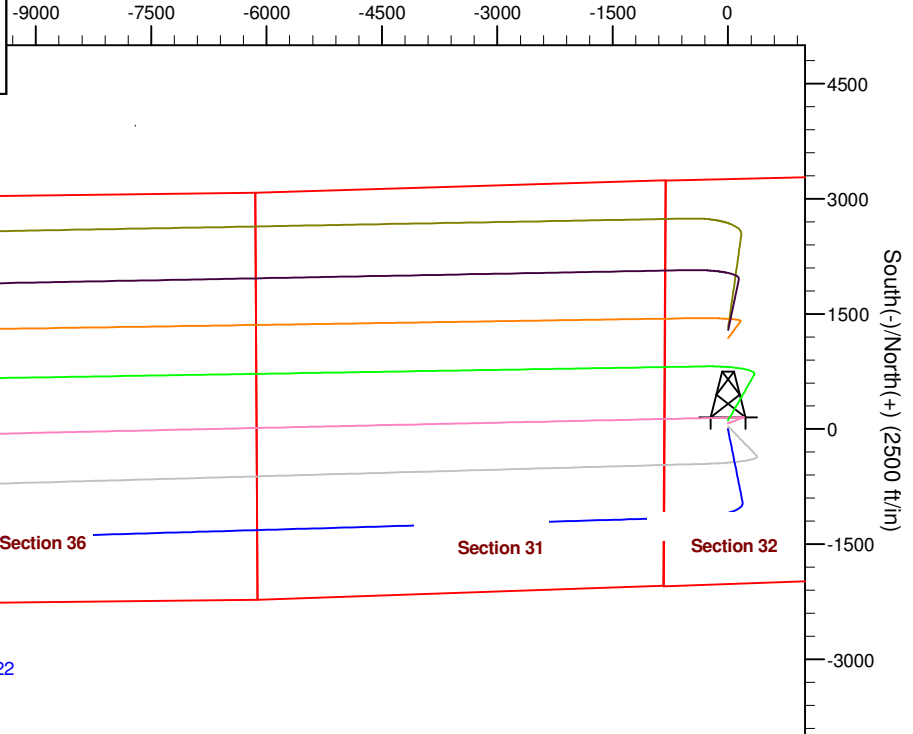
Northern Region - DJ Basin

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	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	2777.38	15.55	168.72	2767.87	-102.80	20.50	2.00	168.72	-7.60	
4	6021.80	15.55	168.72	5893.58	-955.64	190.60	0.00	0.00	-70.68	
5	7050.31	90.00	268.33	6535.00	-1150.00	-440.00	9.00	99.27	579.15	
6	18522.25	90.00	268.34	6535.00	-1482.95	-11907.11	0.00	90.00	11999.10	Wells Ranch State AA36-622 BHL

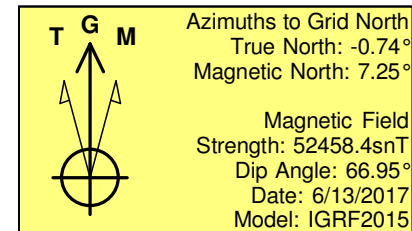
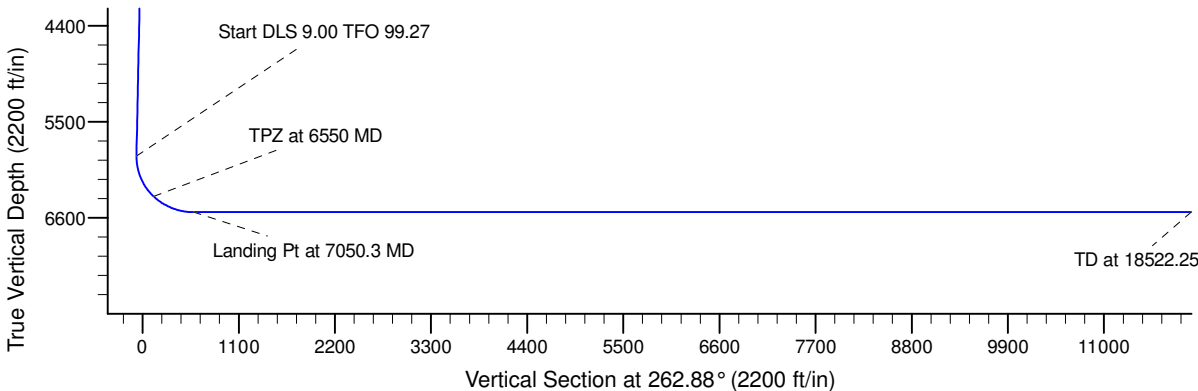
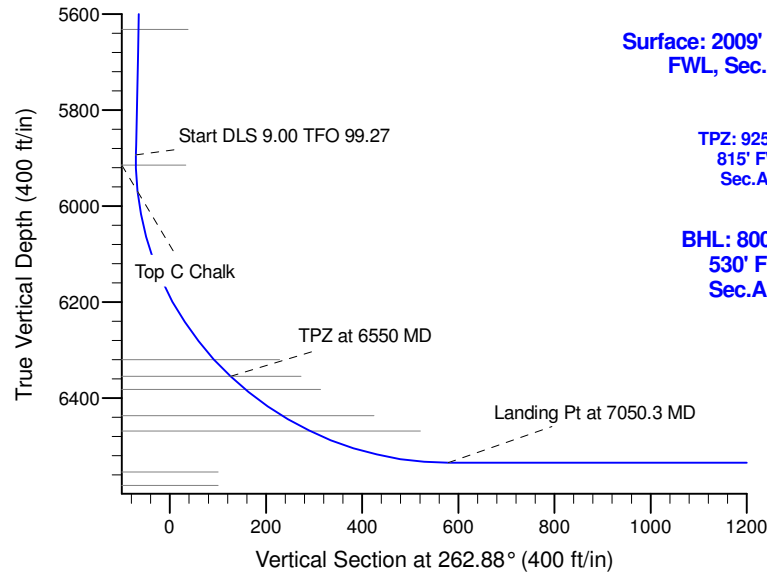
West(-)/East(+) (2500 ft/in)



Surface: 2009' FSL, 817' FWL, Sec.AE32

TPZ: 925' FSL, 815' FWL, Sec.AE32

BHL: 800' FSL, 530' FEL, Sec.AA35



WELL DETAILS: Wells Ranch State AA36-622

North	East	Lat	Long
0.00	0.00	4725.00	40.4414784
1405732.76	3319023.48	40.4414784	-104.3538032

Plan: Plan 1 (Wells Ranch State AA36-622/Wells Ranch State AA36-622)

Created By: Colby Baxter Date: 14:38, January 04 2018

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region - DJ Basin

Wells Ranch

AE Section 32

Wells Ranch State AA36-622

Wells Ranch State AA36-622

Plan: Plan 1

Standard Survey Report

04 January, 2018

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Well:	Wells Ranch State AA36-622	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-622	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 AA36-622, NEI					
Well Position	+N/-S	0.00 ft	Northing:	1,405,732.76 usft	Latitude:	40.4414784
	+E/-W	0.00 ft	Easting:	3,319,023.48 usft	Longitude:	-104.3538032
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,725.00 ft

Wellbore	Wells Ranch State AA36-622				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/13/2017	7.99	66.95	52,458.36430690

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	262.88	

Survey Tool Program	Date	1/4/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	18,522.25	Plan 1 (Wells Ranch State AA36-622)	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	

Noble Energy, Inc.

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Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Well:	Wells Ranch State AA36-622	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-622	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	168.72	2,099.98	-1.71	0.34	-0.13	2.00	2.00	0.00
2,200.00	4.00	168.72	2,199.84	-6.84	1.36	-0.51	2.00	2.00	0.00
2,300.00	6.00	168.72	2,299.45	-15.39	3.07	-1.14	2.00	2.00	0.00
2,400.00	8.00	168.72	2,398.70	-27.34	5.45	-2.02	2.00	2.00	0.00
2,500.00	10.00	168.72	2,497.47	-42.68	8.51	-3.16	2.00	2.00	0.00
2,600.00	12.00	168.72	2,595.62	-61.39	12.24	-4.54	2.00	2.00	0.00
2,700.00	14.00	168.72	2,693.06	-83.45	16.64	-6.17	2.00	2.00	0.00
2,777.38	15.55	168.72	2,767.87	-102.80	20.50	-7.60	2.00	2.00	0.00
2,800.00	15.55	168.72	2,789.67	-108.75	21.69	-8.04	0.00	0.00	0.00
2,900.00	15.55	168.72	2,886.01	-135.04	26.93	-9.99	0.00	0.00	0.00
3,000.00	15.55	168.72	2,982.35	-161.32	32.17	-11.93	0.00	0.00	0.00
3,100.00	15.55	168.72	3,078.69	-187.61	37.42	-13.88	0.00	0.00	0.00
3,200.00	15.55	168.72	3,175.03	-213.89	42.66	-15.82	0.00	0.00	0.00
3,300.00	15.55	168.72	3,271.37	-240.18	47.90	-17.76	0.00	0.00	0.00
3,400.00	15.55	168.72	3,367.71	-266.47	53.15	-19.71	0.00	0.00	0.00
3,500.00	15.55	168.72	3,464.05	-292.75	58.39	-21.65	0.00	0.00	0.00
3,600.00	15.55	168.72	3,560.39	-319.04	63.63	-23.60	0.00	0.00	0.00
3,700.00	15.55	168.72	3,656.73	-345.32	68.87	-25.54	0.00	0.00	0.00
3,800.00	15.55	168.72	3,753.08	-371.61	74.12	-27.48	0.00	0.00	0.00
3,900.00	15.55	168.72	3,849.42	-397.90	79.36	-29.43	0.00	0.00	0.00
4,000.00	15.55	168.72	3,945.76	-424.18	84.60	-31.37	0.00	0.00	0.00
4,100.00	15.55	168.72	4,042.10	-450.47	89.84	-33.32	0.00	0.00	0.00
4,200.00	15.55	168.72	4,138.44	-476.76	95.09	-35.26	0.00	0.00	0.00
4,300.00	15.55	168.72	4,234.78	-503.04	100.33	-37.20	0.00	0.00	0.00
4,400.00	15.55	168.72	4,331.12	-529.33	105.57	-39.15	0.00	0.00	0.00
4,500.00	15.55	168.72	4,427.46	-555.61	110.82	-41.09	0.00	0.00	0.00
4,600.00	15.55	168.72	4,523.80	-581.90	116.06	-43.04	0.00	0.00	0.00
4,700.00	15.55	168.72	4,620.14	-608.19	121.30	-44.98	0.00	0.00	0.00
4,800.00	15.55	168.72	4,716.48	-634.47	126.54	-46.92	0.00	0.00	0.00
4,900.00	15.55	168.72	4,812.82	-660.76	131.79	-48.87	0.00	0.00	0.00
5,000.00	15.55	168.72	4,909.17	-687.04	137.03	-50.81	0.00	0.00	0.00
5,100.00	15.55	168.72	5,005.51	-713.33	142.27	-52.76	0.00	0.00	0.00
5,200.00	15.55	168.72	5,101.85	-739.62	147.51	-54.70	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

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Well:	Wells Ranch State AA36-622	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-622	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	15.55	168.72	5,198.19	-765.90	152.76	-56.65	0.00	0.00	0.00
5,400.00	15.55	168.72	5,294.53	-792.19	158.00	-58.59	0.00	0.00	0.00
5,500.00	15.55	168.72	5,390.87	-818.48	163.24	-60.53	0.00	0.00	0.00
5,600.00	15.55	168.72	5,487.21	-844.76	168.48	-62.48	0.00	0.00	0.00
5,700.00	15.55	168.72	5,583.55	-871.05	173.73	-64.42	0.00	0.00	0.00
5,800.00	15.55	168.72	5,679.89	-897.33	178.97	-66.37	0.00	0.00	0.00
5,900.00	15.55	168.72	5,776.23	-923.62	184.21	-68.31	0.00	0.00	0.00
6,000.00	15.55	168.72	5,872.57	-949.91	189.46	-70.25	0.00	0.00	0.00
6,021.80	15.55	168.72	5,893.58	-955.64	190.60	-70.68	0.00	0.00	0.00
6,100.00	15.96	194.80	5,968.93	-976.34	189.90	-67.42	9.00	0.53	33.36
6,200.00	20.31	220.50	6,064.09	-1,002.88	175.09	-49.43	9.00	4.35	25.69
6,300.00	26.98	235.73	6,155.73	-1,028.90	145.01	-16.36	9.00	6.67	15.24
6,400.00	34.66	244.96	6,241.59	-1,053.76	100.40	30.99	9.00	7.68	9.23
6,500.00	42.81	251.11	6,319.56	-1,076.85	42.37	91.43	9.00	8.15	6.15
6,600.00	51.20	255.59	6,387.71	-1,097.59	-27.66	163.49	9.00	8.39	4.48
6,700.00	59.72	259.12	6,444.37	-1,115.47	-107.97	245.40	9.00	8.52	3.53
6,800.00	68.32	262.07	6,488.15	-1,130.06	-196.57	335.12	9.00	8.60	2.96
6,900.00	76.96	264.69	6,517.97	-1,141.00	-291.28	430.46	9.00	8.65	2.62
7,000.00	85.63	267.13	6,533.08	-1,148.01	-389.78	529.07	9.00	8.67	2.44
7,050.31	90.00	268.33	6,535.00	-1,150.00	-440.00	579.15	9.00	8.68	2.39
7,100.00	90.00	268.33	6,535.00	-1,151.44	-489.67	628.61	0.00	0.00	0.00
7,200.00	90.00	268.33	6,535.00	-1,154.35	-589.63	728.16	0.00	0.00	0.00
7,300.00	90.00	268.33	6,535.00	-1,157.26	-689.59	827.71	0.00	0.00	0.00
7,400.00	90.00	268.33	6,535.00	-1,160.16	-789.54	927.26	0.00	0.00	0.00
7,500.00	90.00	268.33	6,535.00	-1,163.07	-889.50	1,026.80	0.00	0.00	0.00
7,600.00	90.00	268.33	6,535.00	-1,165.98	-989.46	1,126.35	0.00	0.00	0.00
7,700.00	90.00	268.33	6,535.00	-1,168.88	-1,089.42	1,225.90	0.00	0.00	0.00
7,800.00	90.00	268.33	6,535.00	-1,171.79	-1,189.37	1,325.44	0.00	0.00	0.00
7,900.00	90.00	268.33	6,535.00	-1,174.70	-1,289.33	1,424.99	0.00	0.00	0.00
8,000.00	90.00	268.33	6,535.00	-1,177.60	-1,389.29	1,524.54	0.00	0.00	0.00
8,100.00	90.00	268.33	6,535.00	-1,180.51	-1,489.25	1,624.09	0.00	0.00	0.00
8,200.00	90.00	268.33	6,535.00	-1,183.41	-1,589.20	1,723.63	0.00	0.00	0.00
8,300.00	90.00	268.33	6,535.00	-1,186.32	-1,689.16	1,823.18	0.00	0.00	0.00
8,400.00	90.00	268.33	6,535.00	-1,189.23	-1,789.12	1,922.73	0.00	0.00	0.00
8,500.00	90.00	268.33	6,535.00	-1,192.13	-1,889.08	2,022.27	0.00	0.00	0.00
8,600.00	90.00	268.33	6,535.00	-1,195.04	-1,989.04	2,121.82	0.00	0.00	0.00
8,700.00	90.00	268.34	6,535.00	-1,197.94	-2,088.99	2,221.37	0.00	0.00	0.00
8,800.00	90.00	268.34	6,535.00	-1,200.85	-2,188.95	2,320.92	0.00	0.00	0.00
8,900.00	90.00	268.34	6,535.00	-1,203.75	-2,288.91	2,420.46	0.00	0.00	0.00
9,000.00	90.00	268.34	6,535.00	-1,206.66	-2,388.87	2,520.01	0.00	0.00	0.00
9,100.00	90.00	268.34	6,535.00	-1,209.57	-2,488.82	2,619.56	0.00	0.00	0.00
9,200.00	90.00	268.34	6,535.00	-1,212.47	-2,588.78	2,719.10	0.00	0.00	0.00
9,300.00	90.00	268.34	6,535.00	-1,215.38	-2,688.74	2,818.65	0.00	0.00	0.00

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9,400.00	90.00	268.34	6,535.00	-1,218.28	-2,788.70	2,918.20	0.00	0.00	0.00
9,500.00	90.00	268.34	6,535.00	-1,221.19	-2,888.66	3,017.75	0.00	0.00	0.00
9,600.00	90.00	268.34	6,535.00	-1,224.09	-2,988.61	3,117.29	0.00	0.00	0.00
9,700.00	90.00	268.34	6,535.00	-1,227.00	-3,088.57	3,216.84	0.00	0.00	0.00
9,800.00	90.00	268.34	6,535.00	-1,229.90	-3,188.53	3,316.39	0.00	0.00	0.00
9,900.00	90.00	268.34	6,535.00	-1,232.80	-3,288.49	3,415.93	0.00	0.00	0.00
10,000.00	90.00	268.34	6,535.00	-1,235.71	-3,388.45	3,515.48	0.00	0.00	0.00
10,100.00	90.00	268.34	6,535.00	-1,238.61	-3,488.40	3,615.03	0.00	0.00	0.00
10,200.00	90.00	268.34	6,535.00	-1,241.52	-3,588.36	3,714.57	0.00	0.00	0.00
10,300.00	90.00	268.34	6,535.00	-1,244.42	-3,688.32	3,814.12	0.00	0.00	0.00
10,400.00	90.00	268.34	6,535.00	-1,247.33	-3,788.28	3,913.67	0.00	0.00	0.00
10,500.00	90.00	268.34	6,535.00	-1,250.23	-3,888.23	4,013.22	0.00	0.00	0.00
10,600.00	90.00	268.34	6,535.00	-1,253.13	-3,988.19	4,112.76	0.00	0.00	0.00
10,700.00	90.00	268.34	6,535.00	-1,256.04	-4,088.15	4,212.31	0.00	0.00	0.00
10,800.00	90.00	268.34	6,535.00	-1,258.94	-4,188.11	4,311.86	0.00	0.00	0.00
10,900.00	90.00	268.34	6,535.00	-1,261.85	-4,288.07	4,411.40	0.00	0.00	0.00
11,000.00	90.00	268.34	6,535.00	-1,264.75	-4,388.02	4,510.95	0.00	0.00	0.00
11,100.00	90.00	268.34	6,535.00	-1,267.65	-4,487.98	4,610.50	0.00	0.00	0.00
11,200.00	90.00	268.34	6,535.00	-1,270.56	-4,587.94	4,710.04	0.00	0.00	0.00
11,300.00	90.00	268.34	6,535.00	-1,273.46	-4,687.90	4,809.59	0.00	0.00	0.00
11,400.00	90.00	268.34	6,535.00	-1,276.36	-4,787.85	4,909.14	0.00	0.00	0.00
11,500.00	90.00	268.34	6,535.00	-1,279.27	-4,887.81	5,008.68	0.00	0.00	0.00
11,600.00	90.00	268.34	6,535.00	-1,282.17	-4,987.77	5,108.23	0.00	0.00	0.00
11,700.00	90.00	268.34	6,535.00	-1,285.07	-5,087.73	5,207.78	0.00	0.00	0.00
11,800.00	90.00	268.34	6,535.00	-1,287.98	-5,187.69	5,307.33	0.00	0.00	0.00
11,900.00	90.00	268.34	6,535.00	-1,290.88	-5,287.64	5,406.87	0.00	0.00	0.00
12,000.00	90.00	268.34	6,535.00	-1,293.78	-5,387.60	5,506.42	0.00	0.00	0.00
12,100.00	90.00	268.34	6,535.00	-1,296.69	-5,487.56	5,605.97	0.00	0.00	0.00
12,200.00	90.00	268.34	6,535.00	-1,299.59	-5,587.52	5,705.51	0.00	0.00	0.00
12,300.00	90.00	268.34	6,535.00	-1,302.49	-5,687.48	5,805.06	0.00	0.00	0.00
12,400.00	90.00	268.34	6,535.00	-1,305.39	-5,787.43	5,904.61	0.00	0.00	0.00
12,500.00	90.00	268.34	6,535.00	-1,308.30	-5,887.39	6,004.15	0.00	0.00	0.00
12,600.00	90.00	268.34	6,535.00	-1,311.20	-5,987.35	6,103.70	0.00	0.00	0.00
12,700.00	90.00	268.34	6,535.00	-1,314.10	-6,087.31	6,203.25	0.00	0.00	0.00
12,800.00	90.00	268.34	6,535.00	-1,317.00	-6,187.26	6,302.79	0.00	0.00	0.00
12,900.00	90.00	268.34	6,535.00	-1,319.91	-6,287.22	6,402.34	0.00	0.00	0.00
13,000.00	90.00	268.34	6,535.00	-1,322.81	-6,387.18	6,501.89	0.00	0.00	0.00
13,100.00	90.00	268.34	6,535.00	-1,325.71	-6,487.14	6,601.43	0.00	0.00	0.00
13,200.00	90.00	268.34	6,535.00	-1,328.61	-6,587.10	6,700.98	0.00	0.00	0.00
13,300.00	90.00	268.34	6,535.00	-1,331.52	-6,687.05	6,800.53	0.00	0.00	0.00
13,400.00	90.00	268.34	6,535.00	-1,334.42	-6,787.01	6,900.07	0.00	0.00	0.00
13,500.00	90.00	268.34	6,535.00	-1,337.32	-6,886.97	6,999.62	0.00	0.00	0.00
13,600.00	90.00	268.34	6,535.00	-1,340.22	-6,986.93	7,099.17	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Well:	Wells Ranch State AA36-622	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-622	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	90.00	268.34	6,535.00	-1,343.12	-7,086.89	7,198.71	0.00	0.00	0.00
13,800.00	90.00	268.34	6,535.00	-1,346.02	-7,186.84	7,298.26	0.00	0.00	0.00
13,900.00	90.00	268.34	6,535.00	-1,348.93	-7,286.80	7,397.81	0.00	0.00	0.00
14,000.00	90.00	268.34	6,535.00	-1,351.83	-7,386.76	7,497.35	0.00	0.00	0.00
14,100.00	90.00	268.34	6,535.00	-1,354.73	-7,486.72	7,596.90	0.00	0.00	0.00
14,200.00	90.00	268.34	6,535.00	-1,357.63	-7,586.68	7,696.45	0.00	0.00	0.00
14,300.00	90.00	268.34	6,535.00	-1,360.53	-7,686.63	7,795.99	0.00	0.00	0.00
14,400.00	90.00	268.34	6,535.00	-1,363.43	-7,786.59	7,895.54	0.00	0.00	0.00
14,500.00	90.00	268.34	6,535.00	-1,366.33	-7,886.55	7,995.09	0.00	0.00	0.00
14,600.00	90.00	268.34	6,535.00	-1,369.23	-7,986.51	8,094.63	0.00	0.00	0.00
14,700.00	90.00	268.34	6,535.00	-1,372.13	-8,086.46	8,194.18	0.00	0.00	0.00
14,800.00	90.00	268.34	6,535.00	-1,375.03	-8,186.42	8,293.73	0.00	0.00	0.00
14,900.00	90.00	268.34	6,535.00	-1,377.94	-8,286.38	8,393.27	0.00	0.00	0.00
15,000.00	90.00	268.34	6,535.00	-1,380.84	-8,386.34	8,492.82	0.00	0.00	0.00
15,100.00	90.00	268.34	6,535.00	-1,383.74	-8,486.30	8,592.37	0.00	0.00	0.00
15,200.00	90.00	268.34	6,535.00	-1,386.64	-8,586.25	8,691.91	0.00	0.00	0.00
15,300.00	90.00	268.34	6,535.00	-1,389.54	-8,686.21	8,791.46	0.00	0.00	0.00
15,400.00	90.00	268.34	6,535.00	-1,392.44	-8,786.17	8,891.01	0.00	0.00	0.00
15,500.00	90.00	268.34	6,535.00	-1,395.34	-8,886.13	8,990.55	0.00	0.00	0.00
15,600.00	90.00	268.34	6,535.00	-1,398.24	-8,986.09	9,090.10	0.00	0.00	0.00
15,700.00	90.00	268.34	6,535.00	-1,401.14	-9,086.04	9,189.65	0.00	0.00	0.00
15,800.00	90.00	268.34	6,535.00	-1,404.04	-9,186.00	9,289.19	0.00	0.00	0.00
15,900.00	90.00	268.34	6,535.00	-1,406.94	-9,285.96	9,388.74	0.00	0.00	0.00
16,000.00	90.00	268.34	6,535.00	-1,409.84	-9,385.92	9,488.29	0.00	0.00	0.00
16,100.00	90.00	268.34	6,535.00	-1,412.74	-9,485.88	9,587.83	0.00	0.00	0.00
16,200.00	90.00	268.34	6,535.00	-1,415.64	-9,585.83	9,687.38	0.00	0.00	0.00
16,300.00	90.00	268.34	6,535.00	-1,418.54	-9,685.79	9,786.93	0.00	0.00	0.00
16,400.00	90.00	268.34	6,535.00	-1,421.44	-9,785.75	9,886.47	0.00	0.00	0.00
16,500.00	90.00	268.34	6,535.00	-1,424.34	-9,885.71	9,986.02	0.00	0.00	0.00
16,600.00	90.00	268.34	6,535.00	-1,427.23	-9,985.67	10,085.57	0.00	0.00	0.00
16,700.00	90.00	268.34	6,535.00	-1,430.13	-10,085.62	10,185.11	0.00	0.00	0.00
16,800.00	90.00	268.34	6,535.00	-1,433.03	-10,185.58	10,284.66	0.00	0.00	0.00
16,900.00	90.00	268.34	6,535.00	-1,435.93	-10,285.54	10,384.21	0.00	0.00	0.00
17,000.00	90.00	268.34	6,535.00	-1,438.83	-10,385.50	10,483.75	0.00	0.00	0.00
17,100.00	90.00	268.34	6,535.00	-1,441.73	-10,485.46	10,583.30	0.00	0.00	0.00
17,200.00	90.00	268.34	6,535.00	-1,444.63	-10,585.41	10,682.85	0.00	0.00	0.00
17,300.00	90.00	268.34	6,535.00	-1,447.53	-10,685.37	10,782.39	0.00	0.00	0.00
17,400.00	90.00	268.34	6,535.00	-1,450.43	-10,785.33	10,881.94	0.00	0.00	0.00
17,500.00	90.00	268.34	6,535.00	-1,453.32	-10,885.29	10,981.48	0.00	0.00	0.00
17,600.00	90.00	268.34	6,535.00	-1,456.22	-10,985.25	11,081.03	0.00	0.00	0.00
17,700.00	90.00	268.34	6,535.00	-1,459.12	-11,085.20	11,180.58	0.00	0.00	0.00
17,800.00	90.00	268.34	6,535.00	-1,462.02	-11,185.16	11,280.12	0.00	0.00	0.00
17,900.00	90.00	268.34	6,535.00	-1,464.92	-11,285.12	11,379.67	0.00	0.00	0.00
18,000.00	90.00	268.34	6,535.00	-1,467.82	-11,385.08	11,479.22	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Well:	Wells Ranch State AA36-622	North Reference:	Grid
Wellbore:	Wells Ranch State AA36-622	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)
18,100.00	90.00	268.34	6,535.00	-1,470.71	-11,485.04	11,578.76	0.00	0.00	0.00
18,200.00	90.00	268.34	6,535.00	-1,473.61	-11,584.99	11,678.31	0.00	0.00	0.00
18,300.00	90.00	268.34	6,535.00	-1,476.51	-11,684.95	11,777.86	0.00	0.00	0.00
18,400.00	90.00	268.34	6,535.00	-1,479.41	-11,784.91	11,877.40	0.00	0.00	0.00
18,500.00	90.00	268.34	6,535.00	-1,482.31	-11,884.87	11,976.95	0.00	0.00	0.00
18,522.25	90.00	268.34	6,535.00	-1,482.95	-11,907.11	11,999.10	0.00	0.00	0.00

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	6,535.00	-1,482.95	-11,907.11	1,404,249.81	3,307,116.40	40.4378226	-104.3966451
- plan hits target center									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
501.00	501.00	Pierre			
576.00	576.00	Upper Pierre Aquifer Top			
1,491.00	1,491.00	Upper Pierre Aquifer Base			
3,481.26	3,446.00	Parkman			
4,240.03	4,177.00	Sussex			
4,859.70	4,774.00	Shannon			
5,750.29	5,632.00	Teepee Buttes			
6,044.03	5,915.00	Top C Chalk			
6,500.61	6,320.00	Sharon Springs			
6,550.04	6,355.00	Top A Chalk			
6,590.96	6,382.00	Top A Marl			
6,685.64	6,437.00	Top B Chalk			
6,752.41	6,469.00	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
	6022	5894	-956	191	Start DLS 9.00 TFO 99.27
	6550	6355	-1088	9	TPZ at 6550 MD
	7050	6535	-1150	-440	Landing Pt at 7050.3 MD
	18,522	6535	-1483	-11,907	TD at 18522.25

Checked By: _____ Approved By: _____ Date: _____

Northern Region - DJ Basin

Wells Ranch

AE Section 32

Wells Ranch State AA36-622

Wells Ranch State AA36-622

Plan 1

Anticollision Summary Report

04 January, 2018

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-622	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-622	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	1/4/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	18,522.25	Plan 1 (Wells Ranch State AA36-622)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AA Section 35						
Wells Ranch USX AA35-65HN - Plan A - Original Drilling	18,492.14	10,987.02	1,907.91	1,643.13	7.206	CC
Wells Ranch USX AA35-65HN - Plan A - Original Drilling	18,500.00	10,987.02	1,907.92	1,643.06	7.203	ES
Wells Ranch USX AA35-65HN - Plan A - Original Drilling	18,522.25	10,987.02	1,908.15	1,643.06	7.198	SF
AA Section 36						
Wells Ranch 11-36 - Wells Ranch 11-36 - Wells Ranch 1	17,182.50	6,565.15	3,824.94	3,668.17	24.398	CC
Wells Ranch 11-36 - Wells Ranch 11-36 - Wells Ranch 1	17,200.00	6,565.06	3,824.98	3,668.01	24.368	ES
Wells Ranch 11-36 - Wells Ranch 11-36 - Wells Ranch 1	17,700.00	6,562.60	3,859.78	3,698.46	23.926	SF
Wells Ranch 12-36 - Wells Ranch 12-36 - Wells Ranch 1	17,218.07	6,576.47	2,411.36	2,254.07	15.330	CC, ES
Wells Ranch 12-36 - Wells Ranch 12-36 - Wells Ranch 1	17,400.00	6,576.52	2,418.22	2,259.38	15.224	SF
Wells Ranch 13-36 - Wells Ranch 13-36 - Wells Ranch 1	17,288.21	6,550.17	1,187.35	1,029.33	7.514	CC
Wells Ranch 13-36 - Wells Ranch 13-36 - Wells Ranch 1	17,300.00	6,550.06	1,187.41	1,029.29	7.510	ES, SF
Wells Ranch 14-36 - Wells Ranch 14-36 - Wells Ranch 1	17,534.20	6,520.41	279.45	118.48	1.736	CC, ES, SF
Wells Ranch 21-36 - Wells Ranch 21-36 - Wells Ranch 2	15,801.36	6,549.31	3,833.24	3,693.31	27.394	CC, ES
Wells Ranch 21-36 - Wells Ranch 21-36 - Wells Ranch 2	16,400.00	6,550.52	3,879.70	3,734.52	26.724	SF
Wells Ranch 22-36 - Wells Ranch 22-36 - Wells Ranch 2	15,760.26	6,520.46	2,566.47	2,427.20	18.428	CC
Wells Ranch 22-36 - Wells Ranch 22-36 - Wells Ranch 2	15,800.00	6,520.08	2,566.78	2,427.10	18.376	ES
Wells Ranch 22-36 - Wells Ranch 22-36 - Wells Ranch 2	16,000.00	6,518.10	2,577.64	2,436.33	18.241	SF
Wells Ranch 23-36 - Wells Ranch 23-36 - Wells Ranch 2	16,062.44	6,548.12	1,200.92	1,057.86	8.395	CC, ES
Wells Ranch 23-36 - Wells Ranch 23-36 - Wells Ranch 2	16,100.00	6,548.14	1,201.51	1,058.18	8.383	SF
Wells Ranch 24-36 - Wells Ranch 24-36 - Wells Ranch 2	15,886.34	6,522.08	406.22	265.38	2.884	CC
Wells Ranch 24-36 - Wells Ranch 24-36 - Wells Ranch 2	15,900.00	6,522.19	406.45	265.37	2.881	ES, SF
Wells Ranch 31-36 - Wells Ranch 31-36 - Wells Ranch 3	14,472.71	6,533.56	3,806.47	3,682.67	30.748	CC
Wells Ranch 31-36 - Wells Ranch 31-36 - Wells Ranch 3	14,500.00	6,533.40	3,806.57	3,682.47	30.675	ES
Wells Ranch 31-36 - Wells Ranch 31-36 - Wells Ranch 3	15,200.00	6,529.75	3,875.32	3,745.34	29.815	SF
Wells Ranch 32-36 - Wells Ranch 32-36 - Wells Ranch 3	14,415.37	6,535.05	2,418.41	2,295.27	19.639	CC, ES
Wells Ranch 32-36 - Wells Ranch 32-36 - Wells Ranch 3	14,700.00	6,534.41	2,435.10	2,309.67	19.414	SF
Wells Ranch 33-36 - Wells Ranch 33-36 - Wells Ranch 3	14,686.53	6,499.75	1,121.23	995.02	8.883	CC
Wells Ranch 33-36 - Wells Ranch 33-36 - Wells Ranch 3	14,700.00	6,499.58	1,121.32	994.99	8.877	ES, SF
Wells Ranch 34-36 - Original Drilling - Original Drilling - A	14,630.02	6,501.70	250.04	124.52	1.992	CC, ES, SF
Wells Ranch 36A - Wells Ranch 36A - Wells Ranch 36A	16,779.06	6,538.51	3,146.06	2,994.33	20.735	CC
Wells Ranch 36A - Wells Ranch 36A - Wells Ranch 36A	16,800.00	6,538.31	3,146.13	2,994.17	20.704	ES
Wells Ranch 36A - Wells Ranch 36A - Wells Ranch 36A	17,200.00	6,534.39	3,174.09	3,018.92	20.455	SF
Wells Ranch 36B - Wells Ranch 36B - Wells Ranch 36B	16,682.59	6,548.45	491.08	340.48	3.261	CC, ES, SF
Wells Ranch 36C - Wells Ranch 36C - Wells Ranch 36C	13,987.05	6,470.66	3,077.19	2,959.55	26.158	CC
Wells Ranch 36C - Wells Ranch 36C - Wells Ranch 36C	14,000.00	6,470.41	3,077.22	2,959.44	26.128	ES
Wells Ranch 36C - Wells Ranch 36C - Wells Ranch 36C	14,500.00	6,460.46	3,119.64	2,997.82	25.609	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 AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-622	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-622	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 36D - Wells Ranch 36D - Wells Ranch 36D	13,925.60	6,486.00	545.31	428.35	4.662	CC, ES, SF
Wells Ranch 36F - Wells Ranch 36F - Wells Ranch 36F	17,834.17	6,602.31	3,096.24	2,931.32	18.774	CC, ES
Wells Ranch 36F - Wells Ranch 36F - Wells Ranch 36F	18,200.00	6,601.16	3,117.78	2,949.83	18.564	SF
Wells Ranch 36H - Wells Ranch 36H - Wells Ranch 36H	17,829.54	6,532.62	394.11	229.50	2.394	CC, ES, SF
Wells Ranch 36J - Original Drilling - As Drilled	16,518.42	6,471.06	4,303.03	4,155.61	29.189	CC
Wells Ranch 36J - Original Drilling - As Drilled	16,600.00	6,470.49	4,303.80	4,155.49	29.018	ES
Wells Ranch 36J - Original Drilling - As Drilled	17,300.00	6,465.65	4,373.43	4,219.30	28.374	SF
Wells Ranch 36K - Wells Ranch 36K - Wells Ranch 36K	16,497.45	6,556.81	1,831.92	1,684.25	12.406	CC
Wells Ranch 36K - Wells Ranch 36K - Wells Ranch 36K	16,500.00	6,556.77	1,831.92	1,684.23	12.404	ES
Wells Ranch 36K - Wells Ranch 36K - Wells Ranch 36K	16,600.00	6,554.99	1,834.79	1,686.29	12.356	SF
Wells Ranch 36L - Wells Ranch 36L - Wells Ranch 36L	16,708.20	6,526.32	663.51	513.46	4.422	CC, ES, SF
Wells Ranch 36N - Wells Ranch 36N - Wells Ranch 36N	15,261.03	6,475.67	3,079.12	2,897.41	16.946	CC
Wells Ranch 36N - Wells Ranch 36N - Wells Ranch 36N	15,300.00	6,475.83	3,079.36	2,897.24	16.909	ES
Wells Ranch 36N - Wells Ranch 36N - Wells Ranch 36N	15,600.00	6,477.07	3,097.72	2,912.97	16.767	SF
Wells Ranch 36O - Wells Ranch 36O - Wells Ranch 36O	15,199.01	6,502.09	1,928.80	1,797.17	14.653	CC
Wells Ranch 36O - Wells Ranch 36O - Wells Ranch 36O	15,200.00	6,502.08	1,928.80	1,797.16	14.652	ES
Wells Ranch 36O - Wells Ranch 36O - Wells Ranch 36O	15,400.00	6,500.53	1,939.25	1,806.20	14.575	SF
Wells Ranch 36P - Wells Ranch 36P - Wells Ranch 36P	15,086.53	6,523.02	417.41	286.97	3.200	CC, ES, SF
Wells Ranch 36R - Wells Ranch 36R - Wells Ranch 36R	13,800.00	6,557.89	4,251.38	4,135.57	36.712	CC, ES
Wells Ranch 36R - Wells Ranch 36R - Wells Ranch 36R	14,700.00	6,561.48	4,345.69	4,221.97	35.127	SF
Wells Ranch 36S - Wells Ranch 36S - Wells Ranch 36S	14,011.66	6,469.21	1,752.57	1,635.47	14.966	CC, ES
Wells Ranch 36S - Wells Ranch 36S - Wells Ranch 36S	14,200.00	6,468.32	1,762.66	1,644.24	14.884	SF
Wells Ranch 36T - Wells Ranch 36T - Wells Ranch 36T	13,963.58	6,501.57	746.63	629.99	6.401	CC, ES
Wells Ranch 36T - Wells Ranch 36T - Wells Ranch 36T	14,000.00	6,501.68	747.52	630.35	6.380	SF
Wells Ranch 36V - Wells Ranch 36V - Wells Ranch 36V	12,817.80	6,480.43	3,033.95	2,931.19	29.524	CC, ES
Wells Ranch 36V - Wells Ranch 36V - Wells Ranch 36V	13,400.00	6,475.00	3,089.30	2,981.82	28.743	SF
Wells Ranch 41-36 - Wells Ranch 41-36 - Wells Ranch 4	13,267.95	6,511.77	3,735.59	3,626.35	34.194	CC
Wells Ranch 41-36 - Wells Ranch 41-36 - Wells Ranch 4	13,300.00	6,511.74	3,735.73	3,626.14	34.088	ES
Wells Ranch 41-36 - Wells Ranch 41-36 - Wells Ranch 4	14,000.00	6,511.07	3,806.64	3,691.04	32.929	SF
Wells Ranch 42-36 - Wells Ranch 42-36 - Wells Ranch 4	13,318.07	6,472.17	2,481.51	2,371.82	22.623	CC, ES
Wells Ranch 42-36 - Wells Ranch 42-36 - Wells Ranch 4	13,600.00	6,472.34	2,497.48	2,385.39	22.283	SF
Wells Ranch 43-36 - Wells Ranch 43-36 - Wells Ranch 4	13,353.63	6,471.73	1,159.50	1,049.39	10.530	CC, ES
Wells Ranch 43-36 - Wells Ranch 43-36 - Wells Ranch 4	13,400.00	6,471.76	1,160.43	1,049.98	10.507	SF
Wells Ranch 44-36 - Wells Ranch 44-36 - Wells Ranch 4	13,198.90	6,493.11	394.71	286.43	3.645	CC
Wells Ranch 44-36 - Wells Ranch 44-36 - Wells Ranch 4	13,200.00	6,493.11	394.71	286.41	3.645	ES, SF
Wells Ranch AA35-62-1AHNC - Original Drilling - Origina	18,414.11	6,768.27	309.98	136.86	1.791	CC
Wells Ranch AA35-62-1AHNC - Original Drilling - Origina	18,522.25	6,887.49	310.01	135.53	1.777	ES, SF
Wells Ranch AA35-62-1BHNC - Original Drilling - Origina	18,522.25	7,052.01	615.28	442.12	3.553	CC, ES, SF
Wells Ranch AA35-62-1HNA - Original Drilling - Original	18,509.43	6,750.00	464.55	290.04	2.662	CC
Wells Ranch AA35-62-1HNA - Original Drilling - Original	18,522.25	6,760.09	464.60	289.68	2.656	ES, SF
Wells Ranch AA35-63-1AHNA - Original Drilling - Origina	18,522.25	6,924.35	369.01	198.42	2.163	CC, ES, SF
Wells Ranch AA35-63-1BHNA - Original Drilling - Origina	18,522.25	6,886.59	137.49	7.62	1.059	Level 2, CC, ES, SF
Wells Ranch AA35-63-1HNC - Original Drilling - Original	18,403.40	6,923.72	175.22	3.67	1.021	Level 2, CC, ES, SF
Wells Ranch AA35-64-1AHNA - Original Drilling - Origina	18,440.44	6,782.72	925.63	755.23	5.432	CC
Wells Ranch AA35-64-1AHNA - Original Drilling - Origina	18,500.00	6,827.09	926.18	754.90	5.407	ES
Wells Ranch AA35-64-1AHNA - Original Drilling - Origina	18,522.25	6,845.24	926.61	755.00	5.400	SF
Wells Ranch AA35-64-1BHNC - Original Drilling - Origina	18,493.54	6,953.36	745.39	572.99	4.324	CC
Wells Ranch AA35-64-1BHNC - Original Drilling - Origina	18,522.25	6,972.16	745.65	572.93	4.317	ES, SF
Wells Ranch AA35-65-1AHNA - Original Drilling - Origina	18,277.55	6,637.05	1,581.30	1,412.00	9.340	CC
Wells Ranch AA35-65-1AHNA - Original Drilling - Origina	18,447.95	6,808.44	1,581.35	1,409.26	9.189	ES
Wells Ranch AA35-65-1AHNA - Original Drilling - Origina	18,522.25	6,851.00	1,582.76	1,409.79	9.150	SF
Wells Ranch AA35-65-1BHNC - Original Drilling - Origina	18,077.03	6,472.00	1,415.75	1,251.33	8.611	CC
Wells Ranch AA35-65-1BHNC - Original Drilling - Origina	18,300.00	6,712.00	1,419.39	1,250.54	8.406	ES

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 AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-622	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-622	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						
AA Section 36						
Wells Ranch AA35-65-1BHNC - Original Drilling - Origina	18,522.25	6,910.01	1,425.60	1,253.36	8.277	SF
Wells Ranch AA35-66-1AHNC - Original Drilling - Origina	18,112.97	6,603.53	2,340.88	2,174.96	14.108	CC, ES
Wells Ranch AA35-66-1AHNC - Original Drilling - Origina	18,522.25	7,002.50	2,353.85	2,181.34	13.644	SF
Wells Ranch AA35-67-1AHNA - Original Drilling - Origina	18,522.25	6,954.00	3,065.90	2,893.18	17.751	CC, ES, SF
Wells Ranch AA35-67-1BHNA - Original Drilling - Origina	18,222.37	6,587.00	2,666.73	2,499.62	15.958	CC
Wells Ranch AA35-67-1BHNA - Original Drilling - Origina	18,500.00	6,838.68	2,669.00	2,497.41	15.554	ES
Wells Ranch AA35-67-1BHNA - Original Drilling - Origina	18,522.25	6,851.35	2,669.35	2,497.46	15.530	SF
Wells Ranch AA35-67-1HNC - Original Drilling - Original	18,054.02	6,521.57	2,831.02	2,665.91	17.146	CC
Wells Ranch AA35-67-1HNC - Original Drilling - Original	18,100.00	6,540.00	2,831.34	2,665.62	17.086	ES
Wells Ranch AA35-67-1HNC - Original Drilling - Original	18,522.25	6,847.89	2,847.57	2,675.87	16.585	SF
Wells Ranch AA35-68-1AHNA - Original Drilling - Origina	17,300.00	17,300.00	3,643.51	3,453.47	19.173	SF
Wells Ranch AA35-68-1AHNA - Original Drilling - Origina	18,045.25	6,504.31	3,575.81	3,411.20	21.723	CC
Wells Ranch AA35-68-1AHNA - Original Drilling - Origina	18,100.00	6,527.00	3,576.33	3,410.99	21.631	ES
Wells Ranch AA35-68-1BHNC - Original Drilling - Origina	17,900.00	6,415.11	3,401.72	3,239.28	20.941	CC
Wells Ranch AA35-68-1BHNC - Original Drilling - Origina	17,916.08	6,432.00	3,401.84	3,239.10	20.904	ES
Wells Ranch AA35-68-1BHNC - Original Drilling - Origina	18,522.25	7,030.61	3,423.45	3,250.84	19.833	SF
Wells Ranch AA35-69-1AHNC - Original Drilling - Origina	17,970.88	6,527.00	4,310.67	4,146.40	26.241	CC
Wells Ranch AA35-69-1AHNC - Original Drilling - Origina	18,000.00	6,527.00	4,310.77	4,146.18	26.190	ES
Wells Ranch AA35-69-1AHNC - Original Drilling - Origina	18,522.25	6,970.28	4,329.77	4,157.29	25.103	SF
Wells Ranch AA35-69-1BHNC - Original Drilling - Origina	18,011.53	6,623.00	3,988.57	3,823.55	24.171	CC
Wells Ranch AA35-69-1BHNC - Original Drilling - Origina	18,100.00	6,645.49	3,989.33	3,823.23	24.018	ES
Wells Ranch AA35-69-1BHNC - Original Drilling - Origina	18,522.25	6,997.47	4,002.95	3,830.54	23.218	SF
Wells Ranch AA35-69-1HNB - Original Drilling - Original	16,900.00	16,900.00	4,272.44	4,083.01	22.554	SF
Wells Ranch AA35-69-1HNB - Original Drilling - Original	17,922.51	6,407.24	4,156.37	3,993.47	25.515	CC
Wells Ranch AA35-69-1HNB - Original Drilling - Original	18,400.00	6,907.00	4,163.30	3,992.47	24.372	ES
Wells Ranch USX AA35-14 - Wellbore #1 - Wellbore #1 -	18,522.25	6,538.01	2,758.88	2,716.99	65.854	CC, ES, SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-622	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-622	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 31						
UPRR-Wells 1 - UPRR-Wells 1 - UPRR-Wells 1 - As Drill	12,048.70	6,466.00	218.11	89.49	1.696	CC, ES, SF
Wells Ranch USX AE31-01P - Wells Ranch USX AE31-0	1,838.01	1,810.05	2,748.32	2,735.79	219.413	CC
Wells Ranch USX AE31-01P - Wells Ranch USX AE31-0	1,900.00	1,860.93	2,748.44	2,735.52	212.654	ES
Wells Ranch USX AE31-01P - Wells Ranch USX AE31-0	9,400.00	6,521.26	3,927.12	3,865.37	63.598	SF
Wells Ranch USX AE31-02P - Wells Ranch USX AE31-0	9,286.15	6,540.23	3,663.79	3,599.66	57.127	CC
Wells Ranch USX AE31-02P - Wells Ranch USX AE31-0	9,300.00	6,540.22	3,663.82	3,599.56	57.014	ES
Wells Ranch USX AE31-02P - Wells Ranch USX AE31-0	10,500.00	6,538.87	3,859.63	3,785.80	52.274	SF
Wells Ranch USX AE31-03P - Wells Ranch USX AE31-0	10,625.00	6,628.27	3,709.33	3,630.31	46.945	CC, ES
Wells Ranch USX AE31-03P - Wells Ranch USX AE31-0	11,700.00	6,625.40	3,861.95	3,774.05	43.935	SF
Wells Ranch USX AE31-04 - Wells Ranch USX AE31-04	11,967.38	6,375.69	3,711.40	3,618.22	39.827	CC
Wells Ranch USX AE31-04 - Wells Ranch USX AE31-04	12,000.00	6,374.64	3,711.55	3,618.02	39.684	ES
Wells Ranch USX AE31-04 - Wells Ranch USX AE31-04	12,800.00	6,350.13	3,803.54	3,703.29	37.940	SF
Wells Ranch USX AE31-05P - Wells Ranch USX AE31-0	12,070.40	6,468.00	2,407.74	2,278.85	18.680	CC
Wells Ranch USX AE31-05P - Wells Ranch USX AE31-0	12,100.00	6,468.00	2,407.93	2,278.74	18.639	ES
Wells Ranch USX AE31-05P - Wells Ranch USX AE31-0	12,400.00	6,468.00	2,430.20	2,298.58	18.464	SF
Wells Ranch USX AE31-06 - Wells Ranch USX AE31-06	10,569.34	6,359.42	2,370.63	2,293.78	30.846	CC
Wells Ranch USX AE31-06 - Wells Ranch USX AE31-06	10,600.00	6,358.98	2,370.83	2,293.69	30.732	ES
Wells Ranch USX AE31-06 - Wells Ranch USX AE31-06	11,000.00	6,353.23	2,409.42	2,329.20	30.033	SF
Wells Ranch USX AE31-07P - Wells Ranch USX AE31-0	9,297.22	6,476.13	2,493.87	2,429.97	39.032	CC
Wells Ranch USX AE31-07P - Wells Ranch USX AE31-0	9,300.00	6,476.15	2,493.87	2,429.95	39.017	ES
Wells Ranch USX AE31-07P - Wells Ranch USX AE31-0	9,900.00	6,478.77	2,565.68	2,497.23	37.485	SF
Wells Ranch USX AE31-09P - Wells Ranch USX AE31-0	8,101.86	6,517.91	1,234.39	1,181.26	23.235	CC, ES
Wells Ranch USX AE31-09P - Wells Ranch USX AE31-0	8,200.00	6,517.72	1,238.28	1,184.61	23.072	SF
Wells Ranch USX AE31-10P - Wells Ranch USX AE31-1	9,284.71	6,471.40	1,127.40	1,063.65	17.684	CC
Wells Ranch USX AE31-10P - Wells Ranch USX AE31-1	9,300.00	6,471.27	1,127.50	1,063.64	17.656	ES
Wells Ranch USX AE31-10P - Wells Ranch USX AE31-1	9,400.00	6,470.47	1,133.28	1,068.84	17.586	SF
Wells Ranch USX AE31-11P - Wells Ranch USX AE31-1	10,915.19	6,445.70	1,045.37	964.05	12.856	CC, ES
Wells Ranch USX AE31-11P - Wells Ranch USX AE31-1	11,000.00	6,444.04	1,048.80	967.00	12.821	SF
Wells Ranch USX AE31-12 - Wells Ranch USX AE31-12	12,080.16	6,445.89	1,101.38	1,006.55	11.614	CC, ES
Wells Ranch USX AE31-12 - Wells Ranch USX AE31-12	12,100.00	6,445.96	1,101.56	1,006.57	11.597	SF
Wells Ranch USX AE31-14 - Wells Ranch USX AE31-14	10,706.34	6,451.64	225.74	146.57	2.851	CC, ES, SF
Wells Ranch USX AE31-15 - Wells Ranch USX AE31-15	9,413.86	6,459.99	232.78	167.62	3.573	CC, ES, SF
Wells Ranch USX AE31-16P - Wells Ranch USX AE31-1	8,031.71	6,480.24	76.32	23.85	1.454	Level 3, CC, ES, SF
Wells Ranch USX AE31-98HZ - Wellbore #1 - Original D	8,148.48	6,280.02	574.01	528.64	12.652	CC, ES
Wells Ranch USX AE31-98HZ - Wellbore #1 - Original D	8,200.00	6,297.01	576.05	529.89	12.479	SF
Wells Ranch USX AE31-99HZ - Wellbore #1 - Original D	8,935.37	10,352.37	57.11	0.40	1.007	Level 2, CC
Wells Ranch USX AE31-99HZ - Wellbore #1 - Original D	9,000.00	10,304.95	71.79	-19.96	0.782	Level 1, ES, SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-622	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-622	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 AE32-615 - Original Drilling - Original Drilling	6,750.00	6,663.49	544.44	497.69	11.646	SF
Wells Ranch AE32-615 - Original Drilling - Original Drilling	6,788.23	6,632.58	543.62	496.95	11.648	CC, ES
Wells Ranch AE32-620 - Original Drilling - Original Drilling	6,894.17	6,626.21	202.11	156.32	4.414	CC
Wells Ranch AE32-620 - Original Drilling - Original Drilling	6,900.00	6,622.66	202.17	156.30	4.407	ES, SF
Wells Ranch AE32-625 - Original Drilling - Original Drilling	6,647.56	6,663.41	67.94	21.83	1.474	Level 3, CC
Wells Ranch AE32-625 - Original Drilling - Original Drilling	6,650.00	6,661.96	67.96	21.78	1.472	Level 3, ES, SF
Wells Ranch AE32-630 - Original Drilling - Original Drilling	6,700.00	6,527.02	410.87	366.75	9.313	SF
Wells Ranch AE32-630 - Original Drilling - Original Drilling	6,750.00	6,506.86	408.99	365.60	9.426	ES
Wells Ranch AE32-630 - Original Drilling - Original Drilling	6,755.47	6,504.72	408.97	365.67	9.446	CC
Wells Ranch AE32-635 - Original Drilling - Original Drilling	100.00	90.92	166.16	165.88	588.029	CC
Wells Ranch AE32-635 - Original Drilling - Original Drilling	1,400.00	1,389.65	171.25	162.68	19.979	ES
Wells Ranch AE32-635 - Original Drilling - Original Drilling	6,458.03	6,744.70	743.36	695.78	15.625	SF
Wells Ranch AE32-640 - Original Drilling - Original Drilling	100.00	90.90	169.46	169.18	599.626	CC
Wells Ranch AE32-640 - Original Drilling - Original Drilling	1,500.00	1,489.77	175.22	165.93	18.861	ES
Wells Ranch AE32-640 - Original Drilling - Original Drilling	2,100.00	2,072.41	198.71	185.26	14.772	SF
Wells Ranch AE32-645 - Original Drilling - Original Drilling	1,061.45	1,053.46	180.88	174.74	29.438	CC
Wells Ranch AE32-645 - Original Drilling - Original Drilling	1,500.00	1,491.59	181.65	172.36	19.565	ES
Wells Ranch AE32-645 - Original Drilling - Original Drilling	1,800.00	1,770.21	203.60	192.32	18.047	SF
Wells Ranch AE32-650 - Original Drilling - Original Drilling	966.30	957.32	195.62	190.16	35.807	CC
Wells Ranch AE32-650 - Original Drilling - Original Drilling	2,000.00	1,990.76	198.78	186.01	15.566	ES
Wells Ranch AE32-650 - Original Drilling - Original Drilling	2,400.00	2,388.63	220.75	205.25	14.241	SF
Wells Ranch AE32-655 - Original Drilling - Original Drilling	2,133.42	2,193.13	1,215.13	1,201.28	87.746	CC, ES
Wells Ranch AE32-655 - Original Drilling - Original Drilling	6,300.00	6,831.45	1,968.74	1,920.88	41.136	SF
Wells Ranch AE32-665 - Original Drilling - Original Drilling	1,493.09	1,497.45	1,260.42	1,251.63	143.371	CC, ES
Wells Ranch AE32-665 - Original Drilling - Original Drilling	6,450.00	6,668.00	2,664.99	2,619.02	57.962	SF
Wells Ranch AE32-670 - Original Drilling - Original Drilling	2,017.26	2,029.09	1,294.51	1,281.65	100.663	CC, ES
Wells Ranch AE32-670 - Original Drilling - Original Drilling	8,100.00	5,863.00	3,136.62	3,089.08	65.984	SF
Wells Ranch AE32-675 - Original Drilling - Original Drilling	1,489.29	1,505.32	2,648.63	2,639.45	288.497	CC
Wells Ranch AE32-675 - Original Drilling - Original Drilling	2,234.80	2,476.12	2,652.42	2,637.06	172.593	ES
Wells Ranch AE32-675 - Original Drilling - Original Drilling	6,400.00	6,748.00	3,304.28	3,257.54	70.694	SF
Wells Ranch AE32-685 - Original Drilling - Original Drilling	0.00	16.57	2,688.11			
Wells Ranch AE32-685 - Original Drilling - Original Drilling	900.00	900.88	2,691.66	2,686.69	541.749	ES
Wells Ranch AE32-685 - Original Drilling - Original Drilling	9,200.00	6,087.00	4,639.98	4,583.11	81.595	SF
Wells Ranch AE32-690 - Original Drilling - Original Drilling	1,424.64	1,441.65	2,722.95	2,714.31	315.180	CC
Wells Ranch AE32-690 - Original Drilling - Original Drilling	1,500.00	1,483.00	2,723.27	2,714.22	300.911	ES
Wells Ranch AE32-690 - Original Drilling - Original Drilling	12,000.00	12,000.00	6,484.29	6,381.26	62.937	SF
Wells Ranch AF05-690 - Original Drilling - Original Drilling	6,900.00	6,425.34	854.99	809.84	18.934	SF
Wells Ranch AF05-690 - Original Drilling - Original Drilling	7,057.43	6,221.30	851.40	807.72	19.490	CC, ES
Wells Ranch State AA36-633 - Wells Ranch State AA36-	2,000.00	2,001.00	37.46	23.58	2.699	CC, ES
Wells Ranch State AA36-633 - Wells Ranch State AA36-	18,000.00	17,957.07	715.98	429.98	2.503	SF
Wells Ranch State AA36-643 - Wells Ranch State AA36-	2,000.00	2,001.00	74.92	61.04	5.399	CC, ES
Wells Ranch State AA36-643 - Wells Ranch State AA36-	18,100.00	18,006.20	1,366.95	1,075.82	4.695	SF
Wells Ranch State AA36-654 - Wells Ranch State AA36-	2,000.00	2,002.00	112.37	98.49	8.096	CC, ES
Wells Ranch State AA36-654 - Wells Ranch State AA36-	18,400.00	18,359.02	2,110.11	1,810.88	7.052	SF
Wells Ranch State AA36-664 - Wells Ranch State AA36-	2,000.00	2,006.00	1,186.56	1,172.67	85.399	CC, ES
Wells Ranch State AA36-664 - Wells Ranch State AA36-	18,200.00	17,934.37	2,748.86	2,457.48	9.434	SF
Wells Ranch State AA36-673 - Wells Ranch State AA36-	2,000.00	2,006.00	1,291.50	1,277.60	92.951	CC, ES
Wells Ranch State AA36-673 - Wells Ranch State AA36-	18,100.00	17,738.38	3,339.87	3,051.63	11.587	SF
Wells Ranch State AA36-683 - Wells Ranch State AA36-	2,000.00	2,007.00	1,329.13	1,315.23	95.635	CC, ES
Wells Ranch State AA36-683 - Wells Ranch State AA36-	18,200.00	17,992.81	4,024.67	3,734.79	13.884	SF

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

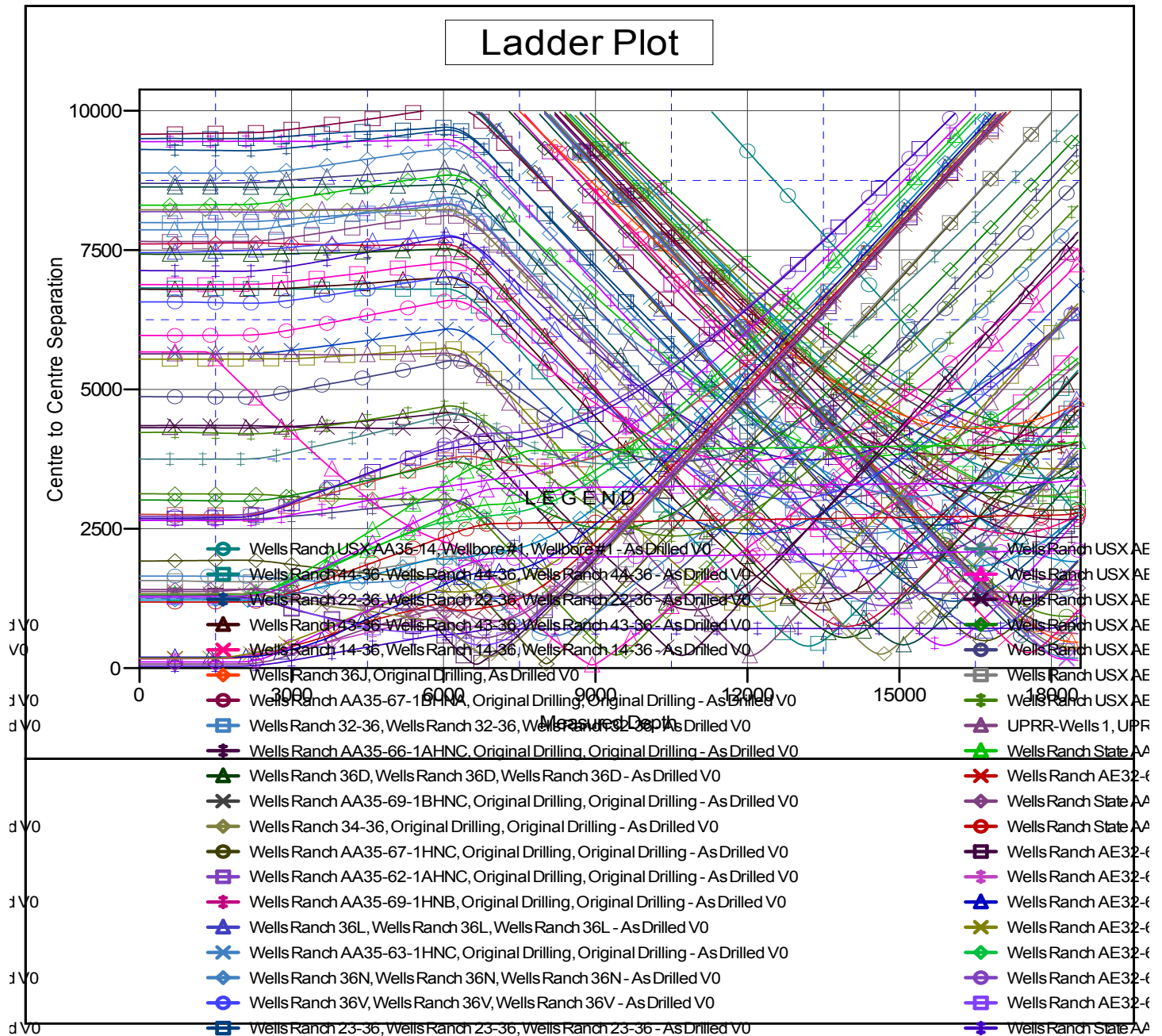
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-622	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-622	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Wells Ranch State AA36-622

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.74°



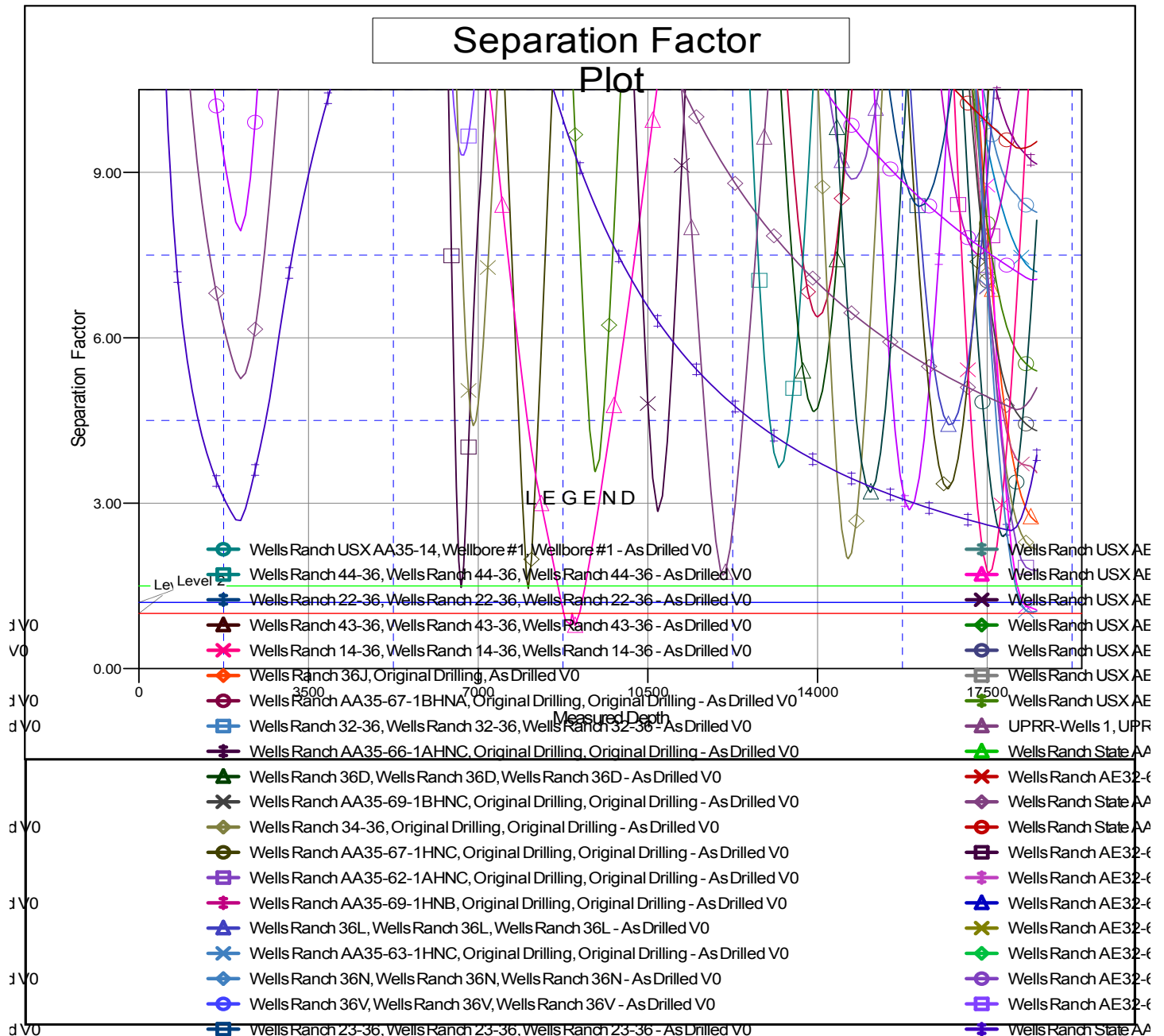
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch State AA36-622
Project:	Wells Ranch	TVD Reference:	Well @ 4755.00ft
Reference Site:	AE Section 32	MD Reference:	Well @ 4755.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA36-622	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch State AA36-622	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4755.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Wells Ranch State AA36-622
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