

Project: Wells Ranch
Site: AE Section 29
Well: Wells Ranch AE29-669
Wellbore: Wells Ranch AE29-669
Design: Plan 1

Northern Region - DJ Basin

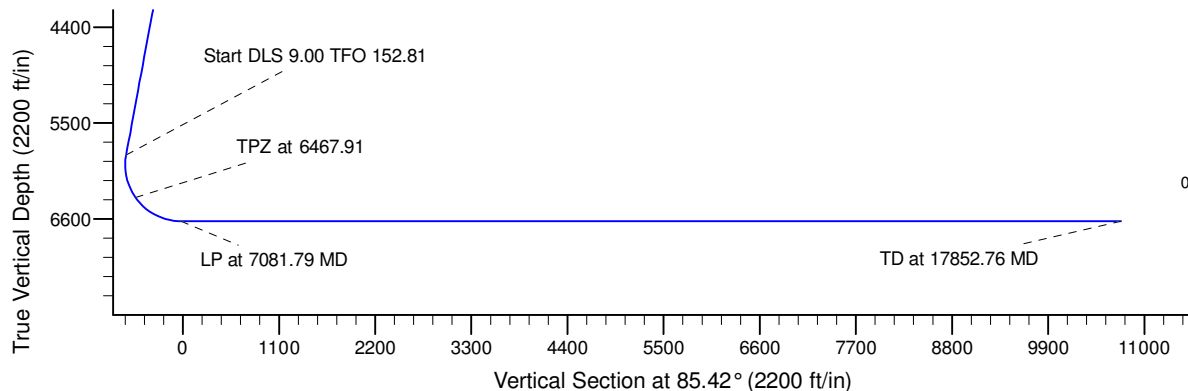
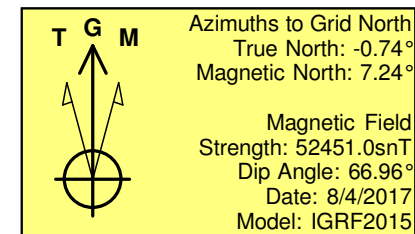
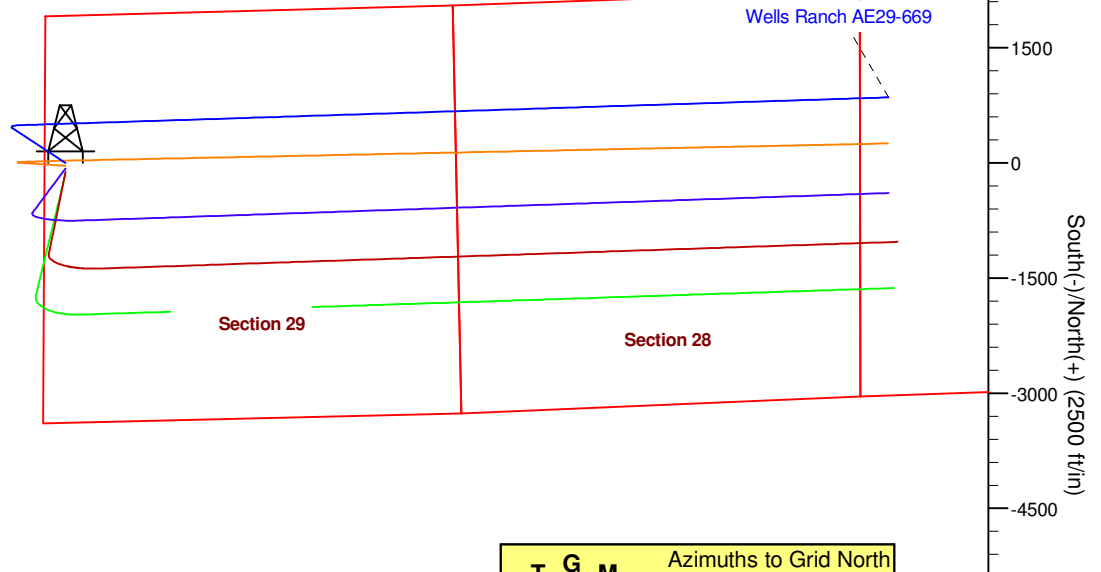
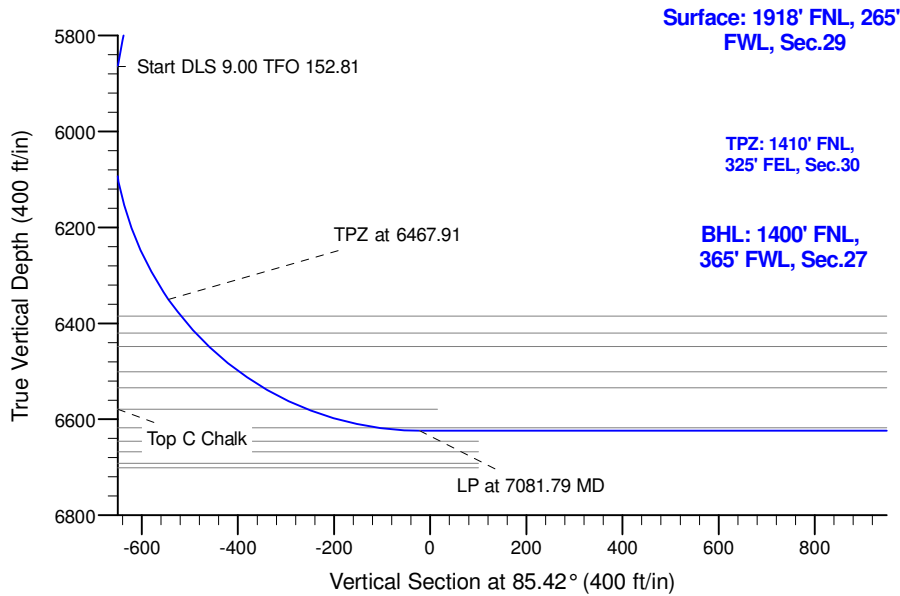
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

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	2656.53	13.13	303.40	2650.80	41.23	-62.53	2.00	303.40	-59.04	
4	5956.57	13.13	303.40	5864.56	453.89	-688.41	0.00	0.00	-650.00	
5	6467.91	34.75	88.16	6350.00	492.64	-585.66	9.00	152.81	-544.48	Wells Ranch AE29-669 TPZ
6	7081.79	90.00	88.16	6623.75	509.40	-62.86	9.00	0.00	-22.02	
7	17852.76	90.00	88.16	6624.00	854.59	10702.58	0.00	0.00	10736.65	Wells Ranch AE29-669 BHL

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

3000 4500 6000 7500 9000 10500 12000



WELL DETAILS: Wells Ranch AE29-669

	Northing	Easting	Latitude	Longitude
0.00	0.00	1412364.76	3318504.51	4768.00
			40.4597000	-104.3553600

Plan: Plan 1 (Wells Ranch AE29-669/Wells Ranch AE29-669)

Created By: Colby Baxter Date: 8:38, February 20 2018

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region - DJ Basin

Wells Ranch

AE Section 29

Wells Ranch AE29-669

Wells Ranch AE29-669

Plan: Plan 1

Standard Survey Report

20 February, 2018

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-669
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Well:	Wells Ranch AE29-669	North Reference:	Grid
Wellbore:	Wells Ranch AE29-669	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 29						
Site Position:		Northing:	1,408,619.24	usft	Latitude:	40.4497500		
From:	Map	Easting:	3,309,034.01	usft	Longitude:	-104.3895600		
Position Uncertainty:	0.00	ft	Slot Radius:	13.200	in	Grid Convergence:	0.72	°

Well	Wells Ranch AE29-669					
Well Position	+N/-S	0.00 ft	Northing:	1,412,364.76 usft	Latitude:	40.4597000
	+E/-W	0.00 ft	Easting:	3,318,504.52 usft	Longitude:	-104.3553600
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,768.00 ft

Wellbore	Wells Ranch AE29-669				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/4/2017	7.98	66.96	52,450.98749977

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	85.42	

Survey Tool Program	Date	2/20/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,852.76	Plan 1 (Wells Ranch AE29-669)	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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Wellbore:	Wells Ranch AE29-669	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	303.40	2,099.98	0.96	-1.46	-1.38	2.00	2.00	0.00
2,200.00	4.00	303.40	2,199.84	3.84	-5.83	-5.50	2.00	2.00	0.00
2,300.00	6.00	303.40	2,299.45	8.64	-13.10	-12.37	2.00	2.00	0.00
2,400.00	8.00	303.40	2,398.70	15.35	-23.28	-21.98	2.00	2.00	0.00
2,500.00	10.00	303.40	2,497.47	23.96	-36.34	-34.31	2.00	2.00	0.00
2,600.00	12.00	303.40	2,595.62	34.46	-52.26	-49.35	2.00	2.00	0.00
2,656.53	13.13	303.40	2,650.80	41.23	-62.53	-59.04	2.00	2.00	0.00
2,700.00	13.13	303.40	2,693.13	46.67	-70.78	-66.83	0.00	0.00	0.00
2,800.00	13.13	303.40	2,790.52	59.17	-89.74	-84.73	0.00	0.00	0.00
2,900.00	13.13	303.40	2,887.90	71.68	-108.71	-102.64	0.00	0.00	0.00
3,000.00	13.13	303.40	2,985.29	84.18	-127.67	-120.55	0.00	0.00	0.00
3,100.00	13.13	303.40	3,082.67	96.68	-146.64	-138.46	0.00	0.00	0.00
3,200.00	13.13	303.40	3,180.06	109.19	-165.60	-156.36	0.00	0.00	0.00
3,300.00	13.13	303.40	3,277.44	121.69	-184.57	-174.27	0.00	0.00	0.00
3,400.00	13.13	303.40	3,374.83	134.20	-203.54	-192.18	0.00	0.00	0.00
3,500.00	13.13	303.40	3,472.22	146.70	-222.50	-210.09	0.00	0.00	0.00
3,600.00	13.13	303.40	3,569.60	159.21	-241.47	-227.99	0.00	0.00	0.00
3,700.00	13.13	303.40	3,666.99	171.71	-260.43	-245.90	0.00	0.00	0.00
3,800.00	13.13	303.40	3,764.37	184.22	-279.40	-263.81	0.00	0.00	0.00
3,900.00	13.13	303.40	3,861.76	196.72	-298.36	-281.72	0.00	0.00	0.00
4,000.00	13.13	303.40	3,959.14	209.23	-317.33	-299.62	0.00	0.00	0.00
4,100.00	13.13	303.40	4,056.53	221.73	-336.30	-317.53	0.00	0.00	0.00
4,200.00	13.13	303.40	4,153.91	234.24	-355.26	-335.44	0.00	0.00	0.00
4,300.00	13.13	303.40	4,251.30	246.74	-374.23	-353.35	0.00	0.00	0.00
4,400.00	13.13	303.40	4,348.69	259.25	-393.19	-371.25	0.00	0.00	0.00
4,500.00	13.13	303.40	4,446.07	271.75	-412.16	-389.16	0.00	0.00	0.00
4,600.00	13.13	303.40	4,543.46	284.26	-431.12	-407.07	0.00	0.00	0.00
4,700.00	13.13	303.40	4,640.84	296.76	-450.09	-424.98	0.00	0.00	0.00
4,800.00	13.13	303.40	4,738.23	309.27	-469.05	-442.88	0.00	0.00	0.00
4,900.00	13.13	303.40	4,835.61	321.77	-488.02	-460.79	0.00	0.00	0.00
5,000.00	13.13	303.40	4,933.00	334.28	-506.99	-478.70	0.00	0.00	0.00
5,100.00	13.13	303.40	5,030.38	346.78	-525.95	-496.60	0.00	0.00	0.00
5,200.00	13.13	303.40	5,127.77	359.29	-544.92	-514.51	0.00	0.00	0.00

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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)
5,300.00	13.13	303.40	5,225.15	371.79	-563.88	-532.42	0.00	0.00	0.00
5,400.00	13.13	303.40	5,322.54	384.30	-582.85	-550.33	0.00	0.00	0.00
5,500.00	13.13	303.40	5,419.93	396.80	-601.81	-568.23	0.00	0.00	0.00
5,600.00	13.13	303.40	5,517.31	409.31	-620.78	-586.14	0.00	0.00	0.00
5,700.00	13.13	303.40	5,614.70	421.81	-639.75	-604.05	0.00	0.00	0.00
5,800.00	13.13	303.40	5,712.08	434.32	-658.71	-621.96	0.00	0.00	0.00
5,900.00	13.13	303.40	5,809.47	446.82	-677.68	-639.86	0.00	0.00	0.00
5,956.57	13.13	303.40	5,864.56	453.89	-688.41	-650.00	0.00	0.00	0.00
6,000.00	9.82	313.93	5,907.12	459.18	-695.19	-656.34	9.00	-7.63	24.24
6,100.00	6.08	18.10	6,006.31	470.15	-699.70	-659.95	9.00	-3.74	64.17
6,200.00	11.79	66.80	6,105.18	479.22	-688.64	-648.21	9.00	5.71	48.70
6,300.00	20.06	80.21	6,201.29	486.17	-662.30	-621.40	9.00	8.27	13.41
6,400.00	28.76	85.85	6,292.28	490.84	-621.33	-580.18	9.00	8.70	5.65
6,467.91	34.75	88.16	6,350.00	492.64	-585.66	-544.48	9.00	8.82	3.40
6,500.00	37.64	88.16	6,375.89	493.25	-566.72	-525.56	9.00	9.00	0.00
6,600.00	46.64	88.16	6,449.97	495.40	-499.73	-458.61	9.00	9.00	0.00
6,700.00	55.64	88.16	6,512.65	497.89	-421.98	-380.91	9.00	9.00	0.00
6,800.00	64.64	88.16	6,562.39	500.67	-335.40	-294.38	9.00	9.00	0.00
6,900.00	73.64	88.16	6,597.97	503.66	-242.10	-201.14	9.00	9.00	0.00
7,000.00	82.64	88.16	6,618.50	506.79	-144.38	-103.48	9.00	9.00	0.00
7,081.79	90.00	88.16	6,623.75	509.40	-62.86	-22.02	9.00	9.00	0.00
7,100.00	90.00	88.16	6,623.75	509.99	-44.66	-3.82	0.00	0.00	0.00
7,200.00	90.00	88.16	6,623.75	513.19	55.29	96.06	0.00	0.00	0.00
7,300.00	90.00	88.16	6,623.75	516.40	155.24	195.95	0.00	0.00	0.00
7,400.00	90.00	88.16	6,623.76	519.60	255.19	295.83	0.00	0.00	0.00
7,500.00	90.00	88.16	6,623.76	522.81	355.14	395.72	0.00	0.00	0.00
7,600.00	90.00	88.16	6,623.76	526.01	455.09	495.60	0.00	0.00	0.00
7,700.00	90.00	88.16	6,623.76	529.22	555.03	595.49	0.00	0.00	0.00
7,800.00	90.00	88.16	6,623.77	532.42	654.98	695.38	0.00	0.00	0.00
7,900.00	90.00	88.16	6,623.77	535.63	754.93	795.26	0.00	0.00	0.00
8,000.00	90.00	88.16	6,623.77	538.83	854.88	895.15	0.00	0.00	0.00
8,100.00	90.00	88.16	6,623.77	542.04	954.83	995.03	0.00	0.00	0.00
8,200.00	90.00	88.16	6,623.77	545.24	1,054.78	1,094.92	0.00	0.00	0.00
8,300.00	90.00	88.16	6,623.78	548.44	1,154.73	1,194.80	0.00	0.00	0.00
8,400.00	90.00	88.16	6,623.78	551.65	1,254.67	1,294.69	0.00	0.00	0.00
8,500.00	90.00	88.16	6,623.78	554.85	1,354.62	1,394.58	0.00	0.00	0.00
8,600.00	90.00	88.16	6,623.78	558.06	1,454.57	1,494.46	0.00	0.00	0.00
8,700.00	90.00	88.16	6,623.79	561.26	1,554.52	1,594.35	0.00	0.00	0.00
8,800.00	90.00	88.16	6,623.79	564.47	1,654.47	1,694.23	0.00	0.00	0.00
8,900.00	90.00	88.16	6,623.79	567.67	1,754.42	1,794.12	0.00	0.00	0.00
9,000.00	90.00	88.16	6,623.79	570.88	1,854.37	1,894.00	0.00	0.00	0.00
9,100.00	90.00	88.16	6,623.80	574.08	1,954.31	1,993.89	0.00	0.00	0.00
9,200.00	90.00	88.16	6,623.80	577.29	2,054.26	2,093.78	0.00	0.00	0.00

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9,300.00	90.00	88.16	6,623.80	580.49	2,154.21	2,193.66	0.00	0.00	0.00
9,400.00	90.00	88.16	6,623.80	583.70	2,254.16	2,293.55	0.00	0.00	0.00
9,500.00	90.00	88.16	6,623.81	586.90	2,354.11	2,393.43	0.00	0.00	0.00
9,600.00	90.00	88.16	6,623.81	590.11	2,454.06	2,493.32	0.00	0.00	0.00
9,700.00	90.00	88.16	6,623.81	593.31	2,554.01	2,593.20	0.00	0.00	0.00
9,800.00	90.00	88.16	6,623.81	596.52	2,653.96	2,693.09	0.00	0.00	0.00
9,900.00	90.00	88.16	6,623.81	599.72	2,753.90	2,792.98	0.00	0.00	0.00
10,000.00	90.00	88.16	6,623.82	602.93	2,853.85	2,892.86	0.00	0.00	0.00
10,100.00	90.00	88.16	6,623.82	606.13	2,953.80	2,992.75	0.00	0.00	0.00
10,200.00	90.00	88.16	6,623.82	609.33	3,053.75	3,092.63	0.00	0.00	0.00
10,300.00	90.00	88.16	6,623.82	612.54	3,153.70	3,192.52	0.00	0.00	0.00
10,400.00	90.00	88.16	6,623.83	615.74	3,253.65	3,292.40	0.00	0.00	0.00
10,500.00	90.00	88.16	6,623.83	618.95	3,353.60	3,392.29	0.00	0.00	0.00
10,600.00	90.00	88.16	6,623.83	622.15	3,453.54	3,492.17	0.00	0.00	0.00
10,700.00	90.00	88.16	6,623.83	625.36	3,553.49	3,592.06	0.00	0.00	0.00
10,800.00	90.00	88.16	6,623.84	628.56	3,653.44	3,691.95	0.00	0.00	0.00
10,900.00	90.00	88.16	6,623.84	631.77	3,753.39	3,791.83	0.00	0.00	0.00
11,000.00	90.00	88.16	6,623.84	634.97	3,853.34	3,891.72	0.00	0.00	0.00
11,100.00	90.00	88.16	6,623.84	638.18	3,953.29	3,991.60	0.00	0.00	0.00
11,200.00	90.00	88.16	6,623.84	641.38	4,053.24	4,091.49	0.00	0.00	0.00
11,300.00	90.00	88.16	6,623.85	644.59	4,153.18	4,191.37	0.00	0.00	0.00
11,400.00	90.00	88.16	6,623.85	647.79	4,253.13	4,291.26	0.00	0.00	0.00
11,500.00	90.00	88.16	6,623.85	651.00	4,353.08	4,391.15	0.00	0.00	0.00
11,600.00	90.00	88.16	6,623.85	654.20	4,453.03	4,491.03	0.00	0.00	0.00
11,700.00	90.00	88.16	6,623.86	657.41	4,552.98	4,590.92	0.00	0.00	0.00
11,800.00	90.00	88.16	6,623.86	660.61	4,652.93	4,690.80	0.00	0.00	0.00
11,900.00	90.00	88.16	6,623.86	663.82	4,752.88	4,790.69	0.00	0.00	0.00
12,000.00	90.00	88.16	6,623.86	667.02	4,852.83	4,890.57	0.00	0.00	0.00
12,100.00	90.00	88.16	6,623.87	670.23	4,952.77	4,990.46	0.00	0.00	0.00
12,200.00	90.00	88.16	6,623.87	673.43	5,052.72	5,090.35	0.00	0.00	0.00
12,300.00	90.00	88.16	6,623.87	676.63	5,152.67	5,190.23	0.00	0.00	0.00
12,400.00	90.00	88.16	6,623.87	679.84	5,252.62	5,290.12	0.00	0.00	0.00
12,500.00	90.00	88.16	6,623.88	683.04	5,352.57	5,390.00	0.00	0.00	0.00
12,600.00	90.00	88.16	6,623.88	686.25	5,452.52	5,489.89	0.00	0.00	0.00
12,700.00	90.00	88.16	6,623.88	689.45	5,552.47	5,589.77	0.00	0.00	0.00
12,800.00	90.00	88.16	6,623.88	692.66	5,652.41	5,689.66	0.00	0.00	0.00
12,900.00	90.00	88.16	6,623.88	695.86	5,752.36	5,789.55	0.00	0.00	0.00
13,000.00	90.00	88.16	6,623.89	699.07	5,852.31	5,889.43	0.00	0.00	0.00
13,100.00	90.00	88.16	6,623.89	702.27	5,952.26	5,989.32	0.00	0.00	0.00
13,200.00	90.00	88.16	6,623.89	705.48	6,052.21	6,089.20	0.00	0.00	0.00
13,300.00	90.00	88.16	6,623.89	708.68	6,152.16	6,189.09	0.00	0.00	0.00
13,400.00	90.00	88.16	6,623.90	711.89	6,252.11	6,288.97	0.00	0.00	0.00
13,500.00	90.00	88.16	6,623.90	715.09	6,352.05	6,388.86	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-669
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Well:	Wells Ranch AE29-669	North Reference:	Grid
Wellbore:	Wells Ranch AE29-669	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)
13,600.00	90.00	88.16	6,623.90	718.30	6,452.00	6,488.75	0.00	0.00	0.00
13,700.00	90.00	88.16	6,623.90	721.50	6,551.95	6,588.63	0.00	0.00	0.00
13,800.00	90.00	88.16	6,623.91	724.71	6,651.90	6,688.52	0.00	0.00	0.00
13,900.00	90.00	88.16	6,623.91	727.91	6,751.85	6,788.40	0.00	0.00	0.00
14,000.00	90.00	88.16	6,623.91	731.12	6,851.80	6,888.29	0.00	0.00	0.00
14,100.00	90.00	88.16	6,623.91	734.32	6,951.75	6,988.17	0.00	0.00	0.00
14,200.00	90.00	88.16	6,623.91	737.52	7,051.70	7,088.06	0.00	0.00	0.00
14,300.00	90.00	88.16	6,623.92	740.73	7,151.64	7,187.94	0.00	0.00	0.00
14,400.00	90.00	88.16	6,623.92	743.93	7,251.59	7,287.83	0.00	0.00	0.00
14,500.00	90.00	88.16	6,623.92	747.14	7,351.54	7,387.72	0.00	0.00	0.00
14,600.00	90.00	88.16	6,623.92	750.34	7,451.49	7,487.60	0.00	0.00	0.00
14,700.00	90.00	88.16	6,623.93	753.55	7,551.44	7,587.49	0.00	0.00	0.00
14,800.00	90.00	88.16	6,623.93	756.75	7,651.39	7,687.37	0.00	0.00	0.00
14,900.00	90.00	88.16	6,623.93	759.96	7,751.34	7,787.26	0.00	0.00	0.00
15,000.00	90.00	88.16	6,623.93	763.16	7,851.28	7,887.14	0.00	0.00	0.00
15,100.00	90.00	88.16	6,623.94	766.37	7,951.23	7,987.03	0.00	0.00	0.00
15,200.00	90.00	88.16	6,623.94	769.57	8,051.18	8,086.92	0.00	0.00	0.00
15,300.00	90.00	88.16	6,623.94	772.78	8,151.13	8,186.80	0.00	0.00	0.00
15,400.00	90.00	88.16	6,623.94	775.98	8,251.08	8,286.69	0.00	0.00	0.00
15,500.00	90.00	88.16	6,623.95	779.19	8,351.03	8,386.57	0.00	0.00	0.00
15,600.00	90.00	88.16	6,623.95	782.39	8,450.98	8,486.46	0.00	0.00	0.00
15,700.00	90.00	88.16	6,623.95	785.60	8,550.92	8,586.34	0.00	0.00	0.00
15,800.00	90.00	88.16	6,623.95	788.80	8,650.87	8,686.23	0.00	0.00	0.00
15,900.00	90.00	88.16	6,623.95	792.01	8,750.82	8,786.12	0.00	0.00	0.00
16,000.00	90.00	88.16	6,623.96	795.21	8,850.77	8,886.00	0.00	0.00	0.00
16,100.00	90.00	88.16	6,623.96	798.41	8,950.72	8,985.89	0.00	0.00	0.00
16,200.00	90.00	88.16	6,623.96	801.62	9,050.67	9,085.77	0.00	0.00	0.00
16,300.00	90.00	88.16	6,623.96	804.82	9,150.62	9,185.66	0.00	0.00	0.00
16,400.00	90.00	88.16	6,623.97	808.03	9,250.57	9,285.54	0.00	0.00	0.00
16,500.00	90.00	88.16	6,623.97	811.23	9,350.51	9,385.43	0.00	0.00	0.00
16,600.00	90.00	88.16	6,623.97	814.44	9,450.46	9,485.32	0.00	0.00	0.00
16,700.00	90.00	88.16	6,623.97	817.64	9,550.41	9,585.20	0.00	0.00	0.00
16,800.00	90.00	88.16	6,623.98	820.85	9,650.36	9,685.09	0.00	0.00	0.00
16,900.00	90.00	88.16	6,623.98	824.05	9,750.31	9,784.97	0.00	0.00	0.00
17,000.00	90.00	88.16	6,623.98	827.26	9,850.26	9,884.86	0.00	0.00	0.00
17,100.00	90.00	88.16	6,623.98	830.46	9,950.21	9,984.74	0.00	0.00	0.00
17,200.00	90.00	88.16	6,623.98	833.67	10,050.15	10,084.63	0.00	0.00	0.00
17,300.00	90.00	88.16	6,623.99	836.87	10,150.10	10,184.52	0.00	0.00	0.00
17,400.00	90.00	88.16	6,623.99	840.08	10,250.05	10,284.40	0.00	0.00	0.00
17,500.00	90.00	88.16	6,623.99	843.28	10,350.00	10,384.29	0.00	0.00	0.00
17,600.00	90.00	88.16	6,623.99	846.49	10,449.95	10,484.17	0.00	0.00	0.00
17,700.00	90.00	88.16	6,624.00	849.69	10,549.90	10,584.06	0.00	0.00	0.00
17,800.00	90.00	88.16	6,624.00	852.90	10,649.85	10,683.94	0.00	0.00	0.00
17,852.76	90.00	88.16	6,624.00	854.59	10,702.58	10,736.65	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-669
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Well:	Wells Ranch AE29-669	North Reference:	Grid
Wellbore:	Wells Ranch AE29-669	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)
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Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Wells Ranch AE29-669 - - plan hits target center - Point	0.00	0.00	6,350.00	492.64	-585.66	1,412,857.40	3,317,918.86	40.4610729	-104.3574417
Wells Ranch AE29-669 I - plan hits target center - Point	0.00	0.00	6,624.00	854.59	10,702.58	1,413,219.34	3,329,207.08	40.4616600	-104.3168607

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
456.00	456.00	Pierre		0.00	
604.00	604.00	Upper Pierre Aquifer Top			
1,530.00	1,530.00	Upper Pierre Aquifer Base			
3,569.60	3,540.00	Parkman		0.00	
4,350.01	4,300.00	Sussex		0.00	
4,901.42	4,837.00	Shannon		0.00	
5,785.54	5,698.00	Teepee Buttes		0.00	
6,511.58	6,385.00	Sharon Springs		0.00	
6,557.80	6,420.00	Top A Chalk		0.00	
6,597.14	6,448.00	Top A Marl		0.00	
6,679.82	6,501.00	Top B Chalk		0.00	
6,739.66	6,534.00	Top B Marl		0.00	
6,841.69	6,579.00	Top C Chalk		0.00	
6,996.18	6,618.00	Top C Marl		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2000	2000	0	0	Start Build 2.00
5957	5865	454	-688	Start DLS 9.00 TFO 152.81
6468	6350	493	-586	Start DLS 9.00 TFO 0.00
6468	6350	493	-586	TPZ at 6467.91
7082	6624	509	-63	LP at 7081.79 MD
17,853	6624	855	10,703	TD at 17852.76 MD

Checked By: _____ Approved By: _____ Date: _____

Northern Region - DJ Basin

Wells Ranch

AE Section 29

Wells Ranch AE29-669

Wells Ranch AE29-669

Plan 1

Anticollision Summary Report

12 February, 2018

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-669
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Reference Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch AE29-669	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch AE29-669	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	2/8/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,852.76	Plan 1 (Wells Ranch AE29-669)	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						
AE Section 29						
Wells Ranch 36J - Original Drilling - As Drilled	6,046.54	5,882.32	9,772.76	9,731.46	236.610	CC
Wells Ranch 36J - Original Drilling - As Drilled	6,050.00	5,887.02	9,772.77	9,731.44	236.446	ES
Wells Ranch 36J - Original Drilling - As Drilled	6,650.00	6,465.71	9,997.57	9,952.81	223.387	SF
Wells Ranch AE29-631 - Wells Ranch AE29-631 - Plan 1	2,000.00	2,000.00	149.41	135.53	10.770	CC, ES
Wells Ranch AE29-631 - Wells Ranch AE29-631 - Plan 1	17,852.76	17,911.21	2,485.10	2,204.96	8.871	SF
Wells Ranch AE29-640 - Wells Ranch AE29-640 - Plan 1	2,000.00	2,000.00	112.96	99.09	8.142	CC, ES
Wells Ranch AE29-640 - Wells Ranch AE29-640 - Plan 1	17,852.76	17,477.41	1,885.90	1,607.88	6.783	SF
Wells Ranch AE29-650 - Wells Ranch AE29-650 - Plan 1	2,000.00	2,000.00	72.87	59.00	5.253	CC, ES
Wells Ranch AE29-650 - Wells Ranch AE29-650 - Plan 1	17,852.76	17,540.63	1,246.52	967.17	4.462	SF
Wells Ranch AE29-660 - Wells Ranch AE29-660 - Plan 1	2,000.00	2,000.00	36.99	23.12	2.666	CC, ES
Wells Ranch AE29-660 - Wells Ranch AE29-660 - Plan 1	17,852.76	17,680.89	601.84	321.06	2.143	SF
Wells Ranch AE30-62-1AHNA - Original Drilling - Original	2,655.18	2,981.74	3,056.67	3,039.15	174.480	CC
Wells Ranch AE30-62-1AHNA - Original Drilling - Original	2,900.00	3,212.61	3,057.47	3,038.23	158.924	ES
Wells Ranch AE30-62-1AHNA - Original Drilling - Original	6,700.00	6,358.57	3,418.96	3,375.27	78.261	SF
Wells Ranch AE30-62HNC - Original Drilling - Original Dr	3,732.26	4,070.46	2,949.32	2,923.90	116.013	CC, ES
Wells Ranch AE30-62HNC - Original Drilling - Original Dr	6,750.00	6,568.00	3,227.38	3,182.63	72.122	SF
Wells Ranch AE30-63-1AHNA - Original Drilling - Original	2,633.04	2,853.53	2,301.16	2,283.78	132.361	CC
Wells Ranch AE30-63-1AHNA - Original Drilling - Original	2,656.53	2,865.24	2,301.27	2,283.75	131.347	ES
Wells Ranch AE30-63-1AHNA - Original Drilling - Original	6,600.00	6,472.05	2,741.68	2,696.22	60.308	SF
Wells Ranch AE30-63-1BHNA - Original Drilling - Original	3,877.67	4,218.32	2,849.71	2,822.92	106.371	CC
Wells Ranch AE30-63-1BHNA - Original Drilling - Original	3,900.00	4,231.38	2,849.75	2,822.82	105.836	ES
Wells Ranch AE30-63-1BHNA - Original Drilling - Original	6,650.00	6,405.62	3,063.20	3,019.00	69.291	SF
Wells Ranch AE30-63-1HNC - Original Drilling - Original	100.00	73.40	2,423.89	2,423.64	9,820.101	CC
Wells Ranch AE30-63-1HNC - Original Drilling - Original	2,000.00	1,961.03	2,430.19	2,418.36	205.537	ES
Wells Ranch AE30-63-1HNC - Original Drilling - Original	6,900.00	6,407.00	2,938.29	2,893.56	65.687	SF
Wells Ranch AE30-63HNC - Original Drilling - Original Dr	3,037.73	3,267.27	2,218.46	2,198.07	108.834	CC
Wells Ranch AE30-63HNC - Original Drilling - Original Dr	3,100.00	3,309.18	2,218.75	2,197.97	106.787	ES
Wells Ranch AE30-63HNC - Original Drilling - Original Dr	6,800.00	6,309.00	2,611.29	2,567.21	59.250	SF
Wells Ranch AE30-64-1AHNA - Original Drilling - Original	4,444.49	4,691.80	1,908.32	1,877.35	61.618	CC
Wells Ranch AE30-64-1AHNA - Original Drilling - Original	4,500.00	4,728.60	1,908.62	1,877.29	60.929	ES
Wells Ranch AE30-64-1AHNA - Original Drilling - Original	6,600.00	6,513.00	2,086.55	2,040.83	45.635	SF
Wells Ranch AE30-64-1BHNA - Original Drilling - Original	3,239.21	3,473.00	2,049.14	2,027.20	93.426	CC, ES
Wells Ranch AE30-64-1BHNA - Original Drilling - Original	6,550.00	6,409.46	2,405.77	2,361.31	54.120	SF
Wells Ranch AE30-64-1HNC - Original Drilling - Original	4,005.64	4,248.22	2,005.29	1,977.79	72.924	CC
Wells Ranch AE30-64-1HNC - Original Drilling - Original	4,100.00	4,320.11	2,005.84	1,977.71	71.313	ES
Wells Ranch AE30-64-1HNC - Original Drilling - Original	6,650.00	6,505.43	2,235.17	2,190.04	49.531	SF
Wells Ranch AE30-64HNC - Original Drilling - Original Dr	1,982.65	1,971.75	1,494.28	1,482.49	126.772	CC

CC - Min centre to center distance or covergent 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 AE29-669
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Reference Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch AE29-669	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch AE29-669	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 AE30-64HNC - Original Drilling - Original Dr	2,000.00	1,985.92	1,494.30	1,482.40	125.629	ES
Wells Ranch AE30-64HNC - Original Drilling - Original Dr	6,700.00	6,575.00	1,988.08	1,943.45	44.547	SF
Wells Ranch AE30-65-1AHNB - Original Drilling - Original	4,868.23	5,036.42	1,317.87	1,284.78	39.827	CC
Wells Ranch AE30-65-1AHNB - Original Drilling - Original	4,900.00	5,052.00	1,317.94	1,284.65	39.591	ES
Wells Ranch AE30-65-1AHNB - Original Drilling - Original	6,500.00	6,552.42	1,417.84	1,373.45	31.935	SF
Wells Ranch AE30-65-1BHNB - Original Drilling - Original	1,498.17	1,487.26	1,451.38	1,442.78	168.654	CC
Wells Ranch AE30-65-1BHNB - Original Drilling - Original	1,500.00	1,488.63	1,451.38	1,442.77	168.447	ES
Wells Ranch AE30-65-1BHNB - Original Drilling - Original	6,750.00	6,750.00	1,795.43	1,750.19	39.693	SF
Wells Ranch AE30-65-1HNC - Original Drilling - Original	1,525.74	1,514.81	1,420.75	1,411.96	161.525	CC
Wells Ranch AE30-65-1HNC - Original Drilling - Original	2,000.00	1,987.56	1,422.91	1,410.97	119.159	ES
Wells Ranch AE30-65-1HNC - Original Drilling - Original	6,600.00	6,515.13	1,581.85	1,537.35	35.550	SF
Wells Ranch AE30-65HNC - Original Drilling - Original Dr	6,541.79	6,538.09	1,256.20	1,211.35	28.011	CC, ES
Wells Ranch AE30-65HNC - Original Drilling - Original Dr	6,550.00	6,538.16	1,256.23	1,211.37	28.005	SF
Wells Ranch AE30-66-1AHNC - Original Drilling - Original	2,740.62	2,717.20	184.04	167.14	10.895	CC, ES
Wells Ranch AE30-66-1AHNC - Original Drilling - Original	2,900.00	2,866.59	190.31	172.36	10.599	SF
Wells Ranch AE30-66-1BHNB - Original Drilling - Original	6,522.77	6,608.94	1,087.14	1,042.33	24.260	CC, ES, SF
Wells Ranch AE30-66-1HNC - Original Drilling - APD - R	1,500.00	1,489.01	254.32	249.18	49.438	CC, ES
Wells Ranch AE30-66-1HNC - Original Drilling - APD - R	6,600.00	6,531.62	901.24	877.50	37.970	SF
Wells Ranch AE30-66HNC - Original Drilling - APD - Rev	2,858.81	2,837.80	178.77	168.78	17.892	CC, ES
Wells Ranch AE30-66HNC - Original Drilling - APD - Rev	3,100.00	3,072.68	186.98	176.09	17.176	SF
Wells Ranch AE30-67-1AHNC - Original Drilling - Original	3,423.96	3,398.94	70.49	48.74	3.241	CC
Wells Ranch AE30-67-1AHNC - Original Drilling - Original	6,624.59	6,582.30	90.94	46.57	2.050	ES, SF
Wells Ranch AE30-67-1BHNA - Original Drilling - Original	3,519.63	3,504.68	104.45	82.09	4.671	CC, ES
Wells Ranch AE30-67-1BHNA - Original Drilling - Original	3,600.00	3,583.61	105.57	82.63	4.602	SF
Wells Ranch AE30-67-1HNC - Original Drilling - APD - R	3,879.21	3,857.16	80.26	66.48	5.824	CC, ES
Wells Ranch AE30-67-1HNC - Original Drilling - APD - R	3,900.00	3,877.41	80.40	66.55	5.805	SF
Wells Ranch AE30-67HNC - Original Drilling - APD - Rev	6,662.48	6,749.00	127.66	104.43	5.497	CC, ES, SF
Wells Ranch AE30-68-1BHNA - Original Drilling - Original	6,400.00	6,454.39	234.52	190.20	5.292	SF
Wells Ranch AE30-68-1BHNA - Original Drilling - Original	6,403.25	6,455.17	234.50	190.19	5.292	CC, ES
Wells Ranch AE30-68-1HNC - Original Drilling - APD - R	6,393.50	6,397.75	425.55	402.34	18.333	CC, ES
Wells Ranch AE30-68-1HNC - Original Drilling - APD - R	6,400.00	6,400.59	425.60	402.36	18.314	SF
Wells Ranch AE30-68HNC - Original Drilling - Original Dril	6,501.24	6,466.60	819.08	773.30	17.894	CC, ES
Wells Ranch AE30-68HNC - Original Drilling - Original Dril	6,550.00	6,462.90	820.55	774.62	17.866	SF
Wells Ranch AE30-69-1AHNA - Original Drilling - APD - R	6,596.21	6,565.41	1,217.90	1,194.15	51.280	CC
Wells Ranch AE30-69-1AHNA - Original Drilling - APD - R	6,600.00	6,564.43	1,217.91	1,194.14	51.250	ES
Wells Ranch AE30-69-1AHNA - Original Drilling - APD - R	6,800.00	6,499.71	1,232.22	1,207.86	50.592	SF
Wells Ranch AE30-69-1HNC - Original Drilling - Original	6,649.99	6,661.66	1,103.40	1,058.81	24.747	CC
Wells Ranch AE30-69-1HNC - Original Drilling - Original	6,650.00	6,661.65	1,103.40	1,058.81	24.747	ES
Wells Ranch AE30-69-1HNC - Original Drilling - Original	6,700.00	6,646.00	1,104.50	1,059.75	24.683	SF
Wells Ranch AE30-69HNB - Original Drilling - Original Dr	6,601.35	6,638.14	1,413.98	1,369.45	31.753	CC, ES
Wells Ranch AE30-69HNB - Original Drilling - Original Dr	6,650.00	6,617.64	1,414.71	1,370.04	31.669	SF
Wells Ranch State AE30-62-1BHNA - Original Drilling - O	1,745.06	1,716.05	3,192.21	3,182.04	313.681	CC
Wells Ranch State AE30-62-1BHNA - Original Drilling - O	1,900.00	1,860.13	3,192.43	3,181.24	285.458	ES
Wells Ranch State AE30-62-1BHNA - Original Drilling - O	6,650.00	6,575.00	3,721.81	3,677.23	83.481	SF
Wells Ranch State AE30-62-1HNC - Original Drilling - AP	2,603.52	2,911.31	3,143.06	3,134.02	347.611	CC, ES
Wells Ranch State AE30-62-1HNC - Original Drilling - AP	9,400.00	6,003.94	4,468.23	4,432.11	123.701	SF
Wells Ranch State AE30-62-1HNC - Original Drilling - Or	2,480.37	2,717.03	3,153.43	3,137.45	197.253	CC
Wells Ranch State AE30-62-1HNC - Original Drilling - Or	2,500.00	2,729.60	3,153.49	3,137.39	195.850	ES
Wells Ranch State AE30-62-1HNC - Original Drilling - Or	7,000.00	6,479.00	3,592.61	3,547.56	79.742	SF
Wells Ranch State AE31-69HNC - Original Drilling - Orig	100.00	67.74	3,237.92	3,237.68	10,000.000	CC
Wells Ranch State AE31-69HNC - Original Drilling - Orig	1,605.58	1,576.66	3,241.38	3,232.24	354.689	ES
Wells Ranch State AE31-69HNC - Original Drilling - Orig	8,600.00	6,097.00	4,316.33	4,265.13	84.299	SF
Wells Ranch USX AE29 Test Well - Wellbore #1 - Design						Out of range

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 AE29-669
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Reference Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch AE29-669	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch AE29-669	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

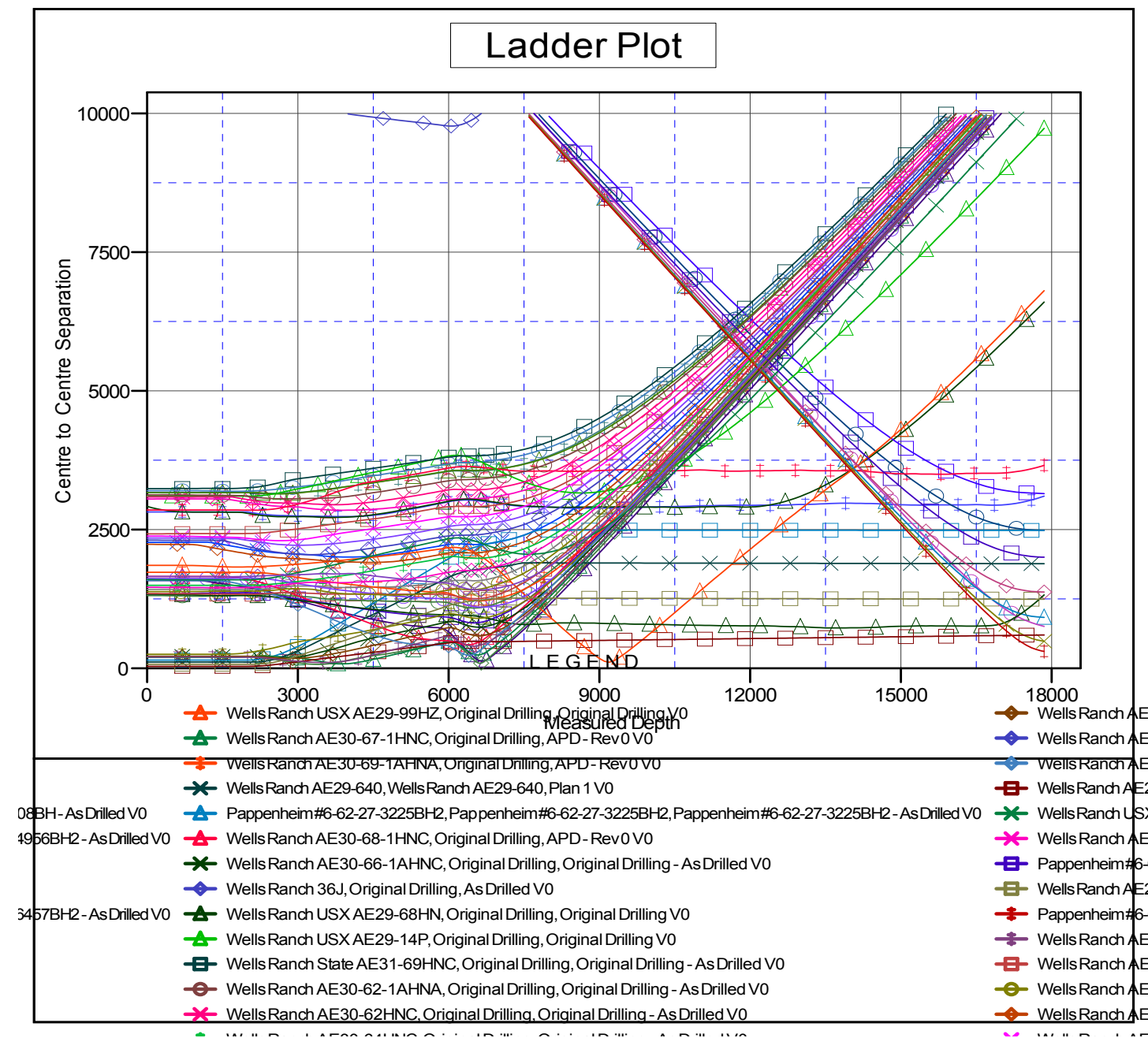
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AE Section 29						
Wells Ranch USX AE29-12 - Wells Ranch USX AE29-12	1,861.96	1,848.99	1,595.16	1,582.43	125.307	CC
Wells Ranch USX AE29-12 - Wells Ranch USX AE29-12	2,000.00	1,979.32	1,595.61	1,581.93	116.656	ES
Wells Ranch USX AE29-12 - Wells Ranch USX AE29-12	8,100.00	6,602.34	2,113.72	2,060.75	39.910	SF
Wells Ranch USX AE29-14P - Original Drilling - Original	1,300.17	1,285.21	3,103.56	3,094.75	352.064	CC
Wells Ranch USX AE29-14P - Original Drilling - Original	2,026.37	2,037.45	3,103.78	3,089.79	221.857	ES
Wells Ranch USX AE29-14P - Original Drilling - Original	9,700.00	6,600.01	3,331.15	3,264.75	50.166	SF
Wells Ranch USX AE29-62-1HN - Original Drilling - Original	2,084.23	2,131.71	2,850.47	2,837.10	213.243	CC
Wells Ranch USX AE29-62-1HN - Original Drilling - Original	2,100.00	2,150.89	2,850.48	2,836.99	211.285	ES
Wells Ranch USX AE29-62-1HN - Original Drilling - Original	17,000.00	15,756.03	3,518.90	3,142.04	9.337	SF
Wells Ranch USX AE29-63-1HN - Original Drilling - Original	3,714.74	4,145.40	2,720.59	2,695.36	107.838	CC
Wells Ranch USX AE29-63-1HN - Original Drilling - Original	3,800.00	4,198.85	2,721.11	2,695.33	105.569	ES
Wells Ranch USX AE29-63-1HN - Original Drilling - Original	12,200.00	10,800.02	2,919.67	2,733.35	15.670	SF
Wells Ranch USX AE29-63-1HN - Modeling - Original Dr	3,992.07	4,429.13	2,735.30	2,721.13	193.034	CC
Wells Ranch USX AE29-63-1HN - Modeling - Original Dr	4,000.00	4,429.13	2,735.32	2,721.11	192.579	ES
Wells Ranch USX AE29-63-1HN - Modeling - Original Dr	17,300.00	15,747.03	2,973.93	2,841.13	22.393	SF
Wells Ranch USX AE29-68HN - Original Drilling - Original	13,703.70	12,945.46	727.62	457.50	2.694	CC
Wells Ranch USX AE29-68HN - Original Drilling - Original	16,600.00	15,820.49	762.99	382.41	2.005	ES
Wells Ranch USX AE29-68HN - Original Drilling - Original	16,800.00	16,009.52	770.70	383.29	1.989	SF
Wells Ranch USX AE29-99HZ - Original Drilling - Original	9,184.07	7,221.97	111.27	76.05	3.159	CC, ES
Wells Ranch USX AE29-99HZ - Original Drilling - Original	9,300.00	7,295.00	142.11	93.78	2.941	SF
AE Section 30						
Pappenheim #6-62-27-0108BH - Pappenheim #6-62-27-0	17,852.76	6,637.91	755.64	596.50	4.748	CC, ES, SF
Pappenheim #6-62-27-1609BH - Pappenheim #6-62-27-1	17,852.76	6,623.43	487.92	331.11	3.112	CC, ES, SF
Pappenheim #6-62-27-1724BH - Pappenheim #6-62-27-1	17,852.76	6,600.00	306.92	170.37	2.248	CC, ES, SF
Pappenheim #6-62-27-3225BH2 - Pappenheim #6-62-27	17,852.76	6,588.04	918.79	758.31	5.725	CC, ES, SF
Pappenheim #6-62-27-3340BH2 - Pappenheim #6-62-27	17,852.76	6,583.97	1,376.78	1,214.42	8.480	CC, ES, SF
Pappenheim #6-62-27-4841BH2 - Pappenheim #6-62-27	17,852.76	6,543.16	2,002.65	1,839.84	12.301	CC, ES, SF
Pappenheim #6-62-27-4956BH2 - Pappenheim #6-62-27	17,852.76	6,576.49	2,488.21	2,324.60	15.208	CC, ES, SF
Pappenheim #6-62-27-6457BH2 - Pappenheim #6-62-27	17,852.76	6,711.74	3,149.54	2,984.20	19.049	CC, ES, 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 AE29-669
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Reference Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch AE29-669	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch AE29-669	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Grid Convergence at Surface is: 0.74°



COMPASS 5000.14 Build 85

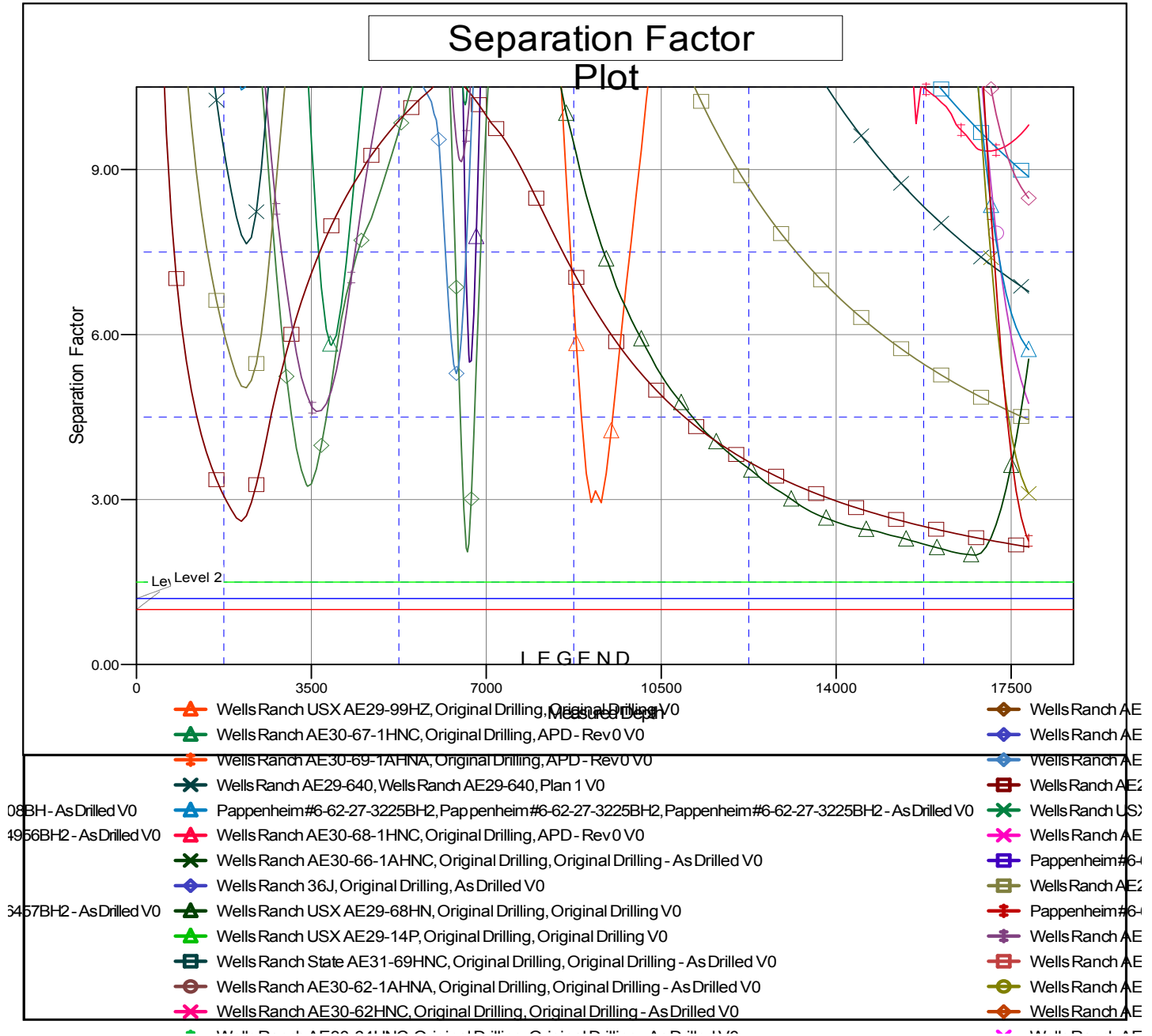
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-669
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Reference Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Wells Ranch AE29-669	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch AE29-669	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4798.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Wells Ranch AE29-669
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