

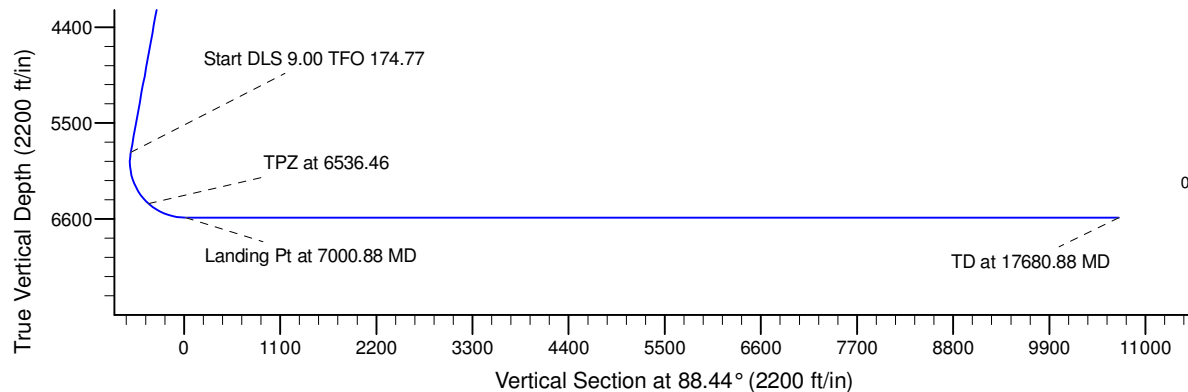
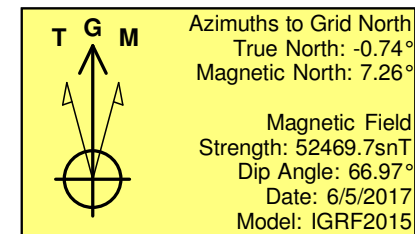
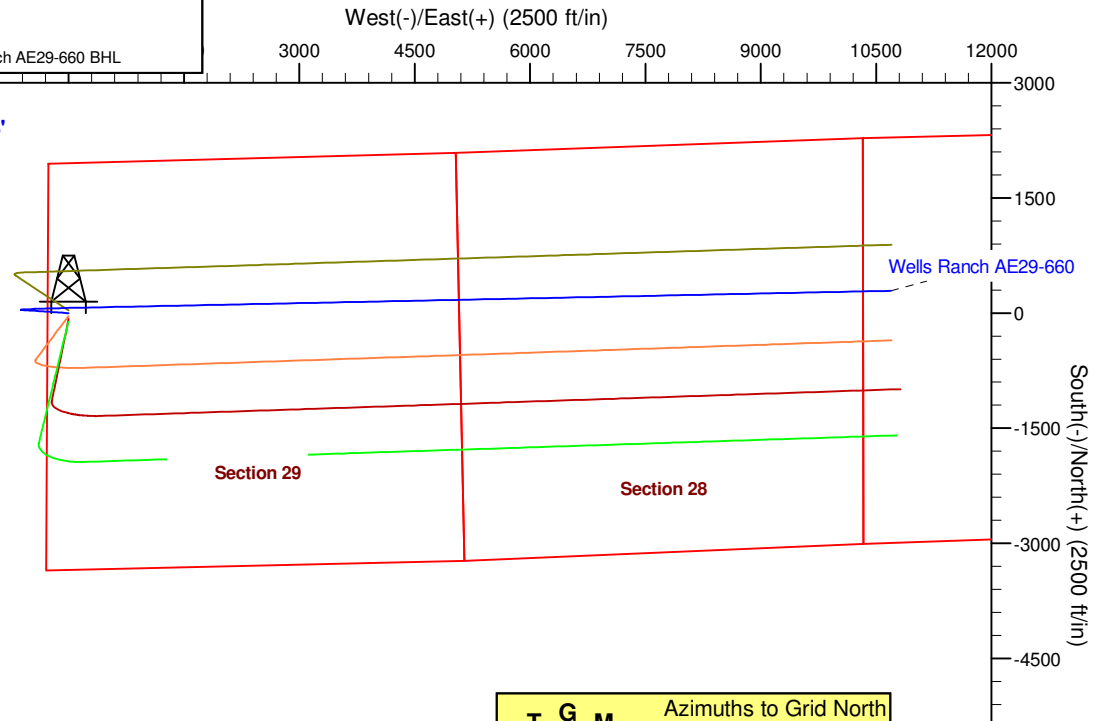
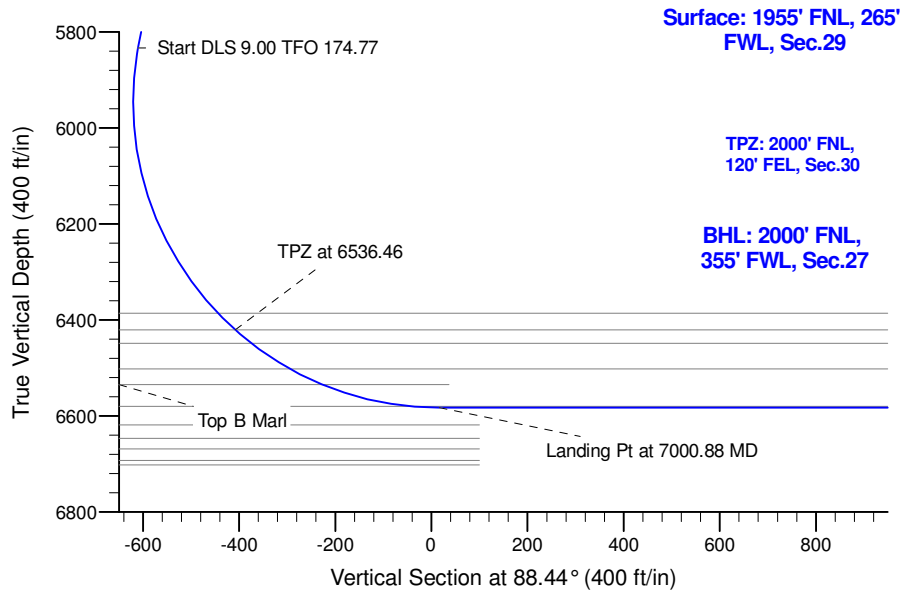
Project: Wells Ranch
Site: AE Section 29
Well: Wells Ranch AE29-660
Wellbore: Wells Ranch AE29-660
Design: Plan 1

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	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	
3	2714.56	10.29	273.95	2711.80	3.17	-45.98	2.00	273.95	-45.87	
4	5887.00	10.29	273.95	5833.21	42.20	-611.39	0.00	0.00	-610.02	
5	7000.88	90.00	88.80	6583.00	67.53	14.68	9.00	174.77	16.51	
6	17680.88	90.00	88.80	6583.00	291.20	10692.33	0.00	0.00	10696.30	Wells Ranch AE29-660 BHL



WELL DETAILS: Wells Ranch AE29-660

0.00	Northing	Easting	Latitude	Longitude
0.00	1412327.77	3318505.35	40.4595984	-104.3553587

Plan: Plan 1 (Wells Ranch AE29-660/Wells Ranch AE29-660)

Created By: Colby Baxter Date: 12:54, February 12 2018

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region - DJ Basin

Wells Ranch

AE Section 29

Wells Ranch AE29-660

Wells Ranch AE29-660

Plan: Plan 1

Standard Survey Report

12 February, 2018

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-660
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Well:	Wells Ranch AE29-660	North Reference:	Grid
Wellbore:	Wells Ranch AE29-660	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 AE29-660					
Well Position	+N/-S	0.00 ft	Northing:	1,412,327.78 usft	Latitude:	40.4595985
	+E/-W	0.00 ft	Easting:	3,318,505.35 usft	Longitude:	-104.3553587
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,768.00 ft

Wellbore	Wells Ranch AE29-660				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/5/2017	8.00	66.97	52,469.73588949

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	88.44	

Survey Tool Program	Date	2/12/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,680.89	Plan 1 (Wells Ranch AE29-660)	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.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-660
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Well:	Wells Ranch AE29-660	North Reference:	Grid
Wellbore:	Wells Ranch AE29-660	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	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	2.00	273.95	2,299.98	0.12	-1.74	-1.74	2.00	2.00	0.00
2,400.00	4.00	273.95	2,399.84	0.48	-6.96	-6.95	2.00	2.00	0.00
2,500.00	6.00	273.95	2,499.45	1.08	-15.66	-15.62	2.00	2.00	0.00
2,600.00	8.00	273.95	2,598.70	1.92	-27.81	-27.75	2.00	2.00	0.00
2,700.00	10.00	273.95	2,697.47	3.00	-43.42	-43.32	2.00	2.00	0.00
2,714.56	10.29	273.95	2,711.80	3.17	-45.98	-45.87	2.00	2.00	0.00
2,800.00	10.29	273.95	2,795.86	4.22	-61.21	-61.07	0.00	0.00	0.00
2,900.00	10.29	273.95	2,894.25	5.45	-79.03	-78.85	0.00	0.00	0.00
3,000.00	10.29	273.95	2,992.65	6.69	-96.85	-96.63	0.00	0.00	0.00
3,100.00	10.29	273.95	3,091.04	7.92	-114.67	-114.42	0.00	0.00	0.00
3,200.00	10.29	273.95	3,189.43	9.15	-132.50	-132.20	0.00	0.00	0.00
3,300.00	10.29	273.95	3,287.82	10.38	-150.32	-149.98	0.00	0.00	0.00
3,400.00	10.29	273.95	3,386.21	11.61	-168.14	-167.76	0.00	0.00	0.00
3,500.00	10.29	273.95	3,484.60	12.84	-185.96	-185.55	0.00	0.00	0.00
3,600.00	10.29	273.95	3,582.99	14.07	-203.79	-203.33	0.00	0.00	0.00
3,700.00	10.29	273.95	3,681.38	15.30	-221.61	-221.11	0.00	0.00	0.00
3,800.00	10.29	273.95	3,779.78	16.53	-239.43	-238.89	0.00	0.00	0.00
3,900.00	10.29	273.95	3,878.17	17.76	-257.25	-256.68	0.00	0.00	0.00
4,000.00	10.29	273.95	3,976.56	18.99	-275.08	-274.46	0.00	0.00	0.00
4,100.00	10.29	273.95	4,074.95	20.22	-292.90	-292.24	0.00	0.00	0.00
4,200.00	10.29	273.95	4,173.34	21.45	-310.72	-310.03	0.00	0.00	0.00
4,300.00	10.29	273.95	4,271.73	22.68	-328.55	-327.81	0.00	0.00	0.00
4,400.00	10.29	273.95	4,370.12	23.91	-346.37	-345.59	0.00	0.00	0.00
4,500.00	10.29	273.95	4,468.51	25.14	-364.19	-363.37	0.00	0.00	0.00
4,600.00	10.29	273.95	4,566.91	26.37	-382.01	-381.16	0.00	0.00	0.00
4,700.00	10.29	273.95	4,665.30	27.60	-399.84	-398.94	0.00	0.00	0.00
4,800.00	10.29	273.95	4,763.69	28.83	-417.66	-416.72	0.00	0.00	0.00
4,900.00	10.29	273.95	4,862.08	30.06	-435.48	-434.50	0.00	0.00	0.00
5,000.00	10.29	273.95	4,960.47	31.29	-453.30	-452.29	0.00	0.00	0.00
5,100.00	10.29	273.95	5,058.86	32.52	-471.13	-470.07	0.00	0.00	0.00
5,200.00	10.29	273.95	5,157.25	33.75	-488.95	-487.85	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-660
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Well:	Wells Ranch AE29-660	North Reference:	Grid
Wellbore:	Wells Ranch AE29-660	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	10.29	273.95	5,255.64	34.98	-506.77	-505.63	0.00	0.00	0.00
5,400.00	10.29	273.95	5,354.04	36.21	-524.59	-523.42	0.00	0.00	0.00
5,500.00	10.29	273.95	5,452.43	37.44	-542.42	-541.20	0.00	0.00	0.00
5,600.00	10.29	273.95	5,550.82	38.67	-560.24	-558.98	0.00	0.00	0.00
5,700.00	10.29	273.95	5,649.21	39.90	-578.06	-576.76	0.00	0.00	0.00
5,800.00	10.29	273.95	5,747.60	41.13	-595.89	-594.55	0.00	0.00	0.00
5,887.01	10.29	273.95	5,833.21	42.20	-611.39	-610.02	0.00	0.00	0.00
5,900.00	9.13	274.62	5,846.01	42.36	-613.58	-612.20	9.00	-8.96	5.17
6,000.00	0.94	353.92	5,945.58	43.82	-621.59	-620.17	9.00	-8.19	79.30
6,100.00	8.97	82.87	6,045.17	45.60	-613.92	-612.46	9.00	8.03	88.95
6,200.00	17.94	85.92	6,142.32	47.67	-590.77	-589.26	9.00	8.98	3.04
6,300.00	26.94	86.96	6,234.66	49.97	-552.71	-551.15	9.00	8.99	1.05
6,400.00	35.93	87.51	6,319.89	52.45	-500.68	-499.07	9.00	9.00	0.55
6,500.00	44.93	87.86	6,395.94	55.05	-435.94	-434.29	9.00	9.00	0.35
6,600.00	53.93	88.12	6,460.91	57.69	-360.11	-358.41	9.00	9.00	0.26
6,700.00	62.92	88.32	6,513.22	60.33	-275.04	-273.30	9.00	9.00	0.20
6,800.00	71.92	88.50	6,551.57	62.89	-182.84	-181.06	9.00	9.00	0.17
6,900.00	80.92	88.65	6,575.02	65.30	-85.76	-83.96	9.00	9.00	0.16
7,000.00	89.92	88.80	6,583.00	67.52	13.79	15.62	9.00	9.00	0.15
7,000.89	90.00	88.80	6,583.00	67.53	14.68	16.51	9.00	9.00	0.15
7,100.00	90.00	88.80	6,583.00	69.61	113.77	115.62	0.00	0.00	0.00
7,200.00	90.00	88.80	6,583.00	71.70	213.75	215.62	0.00	0.00	0.00
7,300.00	90.00	88.80	6,583.00	73.80	313.73	315.62	0.00	0.00	0.00
7,400.00	90.00	88.80	6,583.00	75.89	413.70	415.61	0.00	0.00	0.00
7,500.00	90.00	88.80	6,583.00	77.99	513.68	515.61	0.00	0.00	0.00
7,600.00	90.00	88.80	6,583.00	80.08	613.66	615.61	0.00	0.00	0.00
7,700.00	90.00	88.80	6,583.00	82.18	713.64	715.61	0.00	0.00	0.00
7,800.00	90.00	88.80	6,583.00	84.27	813.62	815.61	0.00	0.00	0.00
7,900.00	90.00	88.80	6,583.00	86.36	913.59	915.60	0.00	0.00	0.00
8,000.00	90.00	88.80	6,583.00	88.46	1,013.57	1,015.60	0.00	0.00	0.00
8,100.00	90.00	88.80	6,583.00	90.55	1,113.55	1,115.60	0.00	0.00	0.00
8,200.00	90.00	88.80	6,583.00	92.65	1,213.53	1,215.60	0.00	0.00	0.00
8,300.00	90.00	88.80	6,583.00	94.74	1,313.51	1,315.60	0.00	0.00	0.00
8,400.00	90.00	88.80	6,583.00	96.84	1,413.48	1,415.59	0.00	0.00	0.00
8,500.00	90.00	88.80	6,583.00	98.93	1,513.46	1,515.59	0.00	0.00	0.00
8,600.00	90.00	88.80	6,583.00	101.02	1,613.44	1,615.59	0.00	0.00	0.00
8,700.00	90.00	88.80	6,583.00	103.12	1,713.42	1,715.59	0.00	0.00	0.00
8,800.00	90.00	88.80	6,583.00	105.21	1,813.40	1,815.59	0.00	0.00	0.00
8,900.00	90.00	88.80	6,583.00	107.31	1,913.37	1,915.58	0.00	0.00	0.00
9,000.00	90.00	88.80	6,583.00	109.40	2,013.35	2,015.58	0.00	0.00	0.00
9,100.00	90.00	88.80	6,583.00	111.50	2,113.33	2,115.58	0.00	0.00	0.00
9,200.00	90.00	88.80	6,583.00	113.59	2,213.31	2,215.58	0.00	0.00	0.00
9,300.00	90.00	88.80	6,583.00	115.68	2,313.29	2,315.58	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-660
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Well:	Wells Ranch AE29-660	North Reference:	Grid
Wellbore:	Wells Ranch AE29-660	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)
9,400.00	90.00	88.80	6,583.00	117.78	2,413.27	2,415.57	0.00	0.00	0.00
9,500.00	90.00	88.80	6,583.00	119.87	2,513.24	2,515.57	0.00	0.00	0.00
9,600.00	90.00	88.80	6,583.00	121.97	2,613.22	2,615.57	0.00	0.00	0.00
9,700.00	90.00	88.80	6,583.00	124.06	2,713.20	2,715.57	0.00	0.00	0.00
9,800.00	90.00	88.80	6,583.00	126.15	2,813.18	2,815.57	0.00	0.00	0.00
9,900.00	90.00	88.80	6,583.00	128.25	2,913.16	2,915.56	0.00	0.00	0.00
10,000.00	90.00	88.80	6,583.00	130.34	3,013.13	3,015.56	0.00	0.00	0.00
10,100.00	90.00	88.80	6,583.00	132.44	3,113.11	3,115.56	0.00	0.00	0.00
10,200.00	90.00	88.80	6,583.00	134.53	3,213.09	3,215.56	0.00	0.00	0.00
10,300.00	90.00	88.80	6,583.00	136.63	3,313.07	3,315.56	0.00	0.00	0.00
10,400.00	90.00	88.80	6,583.00	138.72	3,413.05	3,415.56	0.00	0.00	0.00
10,500.00	90.00	88.80	6,583.00	140.81	3,513.02	3,515.55	0.00	0.00	0.00
10,600.00	90.00	88.80	6,583.00	142.91	3,613.00	3,615.55	0.00	0.00	0.00
10,700.00	90.00	88.80	6,583.00	145.00	3,712.98	3,715.55	0.00	0.00	0.00
10,800.00	90.00	88.80	6,583.00	147.10	3,812.96	3,815.55	0.00	0.00	0.00
10,900.00	90.00	88.80	6,583.00	149.19	3,912.94	3,915.55	0.00	0.00	0.00
11,000.00	90.00	88.80	6,583.00	151.29	4,012.91	4,015.54	0.00	0.00	0.00
11,100.00	90.00	88.80	6,583.00	153.38	4,112.89	4,115.54	0.00	0.00	0.00
11,200.00	90.00	88.80	6,583.00	155.47	4,212.87	4,215.54	0.00	0.00	0.00
11,300.00	90.00	88.80	6,583.00	157.57	4,312.85	4,315.54	0.00	0.00	0.00
11,400.00	90.00	88.80	6,583.00	159.66	4,412.83	4,415.54	0.00	0.00	0.00
11,500.00	90.00	88.80	6,583.00	161.76	4,512.80	4,515.53	0.00	0.00	0.00
11,600.00	90.00	88.80	6,583.00	163.85	4,612.78	4,615.53	0.00	0.00	0.00
11,700.00	90.00	88.80	6,583.00	165.95	4,712.76	4,715.53	0.00	0.00	0.00
11,800.00	90.00	88.80	6,583.00	168.04	4,812.74	4,815.53	0.00	0.00	0.00
11,900.00	90.00	88.80	6,583.00	170.13	4,912.72	4,915.53	0.00	0.00	0.00
12,000.00	90.00	88.80	6,583.00	172.23	5,012.69	5,015.52	0.00	0.00	0.00
12,100.00	90.00	88.80	6,583.00	174.32	5,112.67	5,115.52	0.00	0.00	0.00
12,200.00	90.00	88.80	6,583.00	176.42	5,212.65	5,215.52	0.00	0.00	0.00
12,300.00	90.00	88.80	6,583.00	178.51	5,312.63	5,315.52	0.00	0.00	0.00
12,400.00	90.00	88.80	6,583.00	180.61	5,412.61	5,415.52	0.00	0.00	0.00
12,500.00	90.00	88.80	6,583.00	182.70	5,512.59	5,515.51	0.00	0.00	0.00
12,600.00	90.00	88.80	6,583.00	184.79	5,612.56	5,615.51	0.00	0.00	0.00
12,700.00	90.00	88.80	6,583.00	186.89	5,712.54	5,715.51	0.00	0.00	0.00
12,800.00	90.00	88.80	6,583.00	188.98	5,812.52	5,815.51	0.00	0.00	0.00
12,900.00	90.00	88.80	6,583.00	191.08	5,912.50	5,915.51	0.00	0.00	0.00
13,000.00	90.00	88.80	6,583.00	193.17	6,012.48	6,015.50	0.00	0.00	0.00
13,100.00	90.00	88.80	6,583.00	195.26	6,112.45	6,115.50	0.00	0.00	0.00
13,200.00	90.00	88.80	6,583.00	197.36	6,212.43	6,215.50	0.00	0.00	0.00
13,300.00	90.00	88.80	6,583.00	199.45	6,312.41	6,315.50	0.00	0.00	0.00
13,400.00	90.00	88.80	6,583.00	201.55	6,412.39	6,415.50	0.00	0.00	0.00
13,500.00	90.00	88.80	6,583.00	203.64	6,512.37	6,515.49	0.00	0.00	0.00
13,600.00	90.00	88.80	6,583.00	205.74	6,612.34	6,615.49	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-660
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Well:	Wells Ranch AE29-660	North Reference:	Grid
Wellbore:	Wells Ranch AE29-660	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	88.80	6,583.00	207.83	6,712.32	6,715.49	0.00	0.00	0.00
13,800.00	90.00	88.80	6,583.00	209.92	6,812.30	6,815.49	0.00	0.00	0.00
13,900.00	90.00	88.80	6,583.00	212.02	6,912.28	6,915.49	0.00	0.00	0.00
14,000.00	90.00	88.80	6,583.00	214.11	7,012.26	7,015.49	0.00	0.00	0.00
14,100.00	90.00	88.80	6,583.00	216.21	7,112.23	7,115.48	0.00	0.00	0.00
14,200.00	90.00	88.80	6,583.00	218.30	7,212.21	7,215.48	0.00	0.00	0.00
14,300.00	90.00	88.80	6,583.00	220.40	7,312.19	7,315.48	0.00	0.00	0.00
14,400.00	90.00	88.80	6,583.00	222.49	7,412.17	7,415.48	0.00	0.00	0.00
14,500.00	90.00	88.80	6,583.00	224.58	7,512.15	7,515.48	0.00	0.00	0.00
14,600.00	90.00	88.80	6,583.00	226.68	7,612.12	7,615.47	0.00	0.00	0.00
14,700.00	90.00	88.80	6,583.00	228.77	7,712.10	7,715.47	0.00	0.00	0.00
14,800.00	90.00	88.80	6,583.00	230.87	7,812.08	7,815.47	0.00	0.00	0.00
14,900.00	90.00	88.80	6,583.00	232.96	7,912.06	7,915.47	0.00	0.00	0.00
15,000.00	90.00	88.80	6,583.00	235.06	8,012.04	8,015.47	0.00	0.00	0.00
15,100.00	90.00	88.80	6,583.00	237.15	8,112.02	8,115.46	0.00	0.00	0.00
15,200.00	90.00	88.80	6,583.00	239.24	8,211.99	8,215.46	0.00	0.00	0.00
15,300.00	90.00	88.80	6,583.00	241.34	8,311.97	8,315.46	0.00	0.00	0.00
15,400.00	90.00	88.80	6,583.00	243.43	8,411.95	8,415.46	0.00	0.00	0.00
15,500.00	90.00	88.80	6,583.00	245.53	8,511.93	8,515.46	0.00	0.00	0.00
15,600.00	90.00	88.80	6,583.00	247.62	8,611.91	8,615.45	0.00	0.00	0.00
15,700.00	90.00	88.80	6,583.00	249.72	8,711.88	8,715.45	0.00	0.00	0.00
15,800.00	90.00	88.80	6,583.00	251.81	8,811.86	8,815.45	0.00	0.00	0.00
15,900.00	90.00	88.80	6,583.00	253.90	8,911.84	8,915.45	0.00	0.00	0.00
16,000.00	90.00	88.80	6,583.00	256.00	9,011.82	9,015.45	0.00	0.00	0.00
16,100.00	90.00	88.80	6,583.00	258.09	9,111.80	9,115.44	0.00	0.00	0.00
16,200.00	90.00	88.80	6,583.00	260.19	9,211.77	9,215.44	0.00	0.00	0.00
16,300.00	90.00	88.80	6,583.00	262.28	9,311.75	9,315.44	0.00	0.00	0.00
16,400.00	90.00	88.80	6,583.00	264.37	9,411.73	9,415.44	0.00	0.00	0.00
16,500.00	90.00	88.80	6,583.00	266.47	9,511.71	9,515.44	0.00	0.00	0.00
16,600.00	90.00	88.80	6,583.00	268.56	9,611.69	9,615.43	0.00	0.00	0.00
16,700.00	90.00	88.80	6,583.00	270.66	9,711.66	9,715.43	0.00	0.00	0.00
16,800.00	90.00	88.80	6,583.00	272.75	9,811.64	9,815.43	0.00	0.00	0.00
16,900.00	90.00	88.80	6,583.00	274.85	9,911.62	9,915.43	0.00	0.00	0.00
17,000.00	90.00	88.80	6,583.00	276.94	10,011.60	10,015.43	0.00	0.00	0.00
17,100.00	90.00	88.80	6,583.00	279.03	10,111.58	10,115.43	0.00	0.00	0.00
17,200.00	90.00	88.80	6,583.00	281.13	10,211.55	10,215.42	0.00	0.00	0.00
17,300.00	90.00	88.80	6,583.00	283.22	10,311.53	10,315.42	0.00	0.00	0.00
17,400.00	90.00	88.80	6,583.00	285.32	10,411.51	10,415.42	0.00	0.00	0.00
17,500.00	90.00	88.80	6,583.00	287.41	10,511.49	10,515.42	0.00	0.00	0.00
17,600.00	90.00	88.80	6,583.00	289.51	10,611.47	10,615.42	0.00	0.00	0.00
17,680.89	90.00	88.80	6,583.00	291.20	10,692.33	10,696.30	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-660
Project:	Wells Ranch	TVD Reference:	Well @ 4798.00ft
Site:	AE Section 29	MD Reference:	Well @ 4798.00ft
Well:	Wells Ranch AE29-660	North Reference:	Grid
Wellbore:	Wells Ranch AE29-660	Survey Calculation Method:	Minimum Curvature
Design:	Plan 1	Database:	EDMP

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
Wells Ranch AE29-660 - - plan misses target center by 111.83ft at 6547.32ft MD (6428.16 TVD, 56.30 N, -401.34 E) - Point	0.00	0.00	6,421.00	-54.85	-391.32	1,412,272.93	3,318,114.04	40.4594618	-104.3567674
Wells Ranch AE29-660 I - plan hits target center - Point	0.00	0.00	6,583.00	291.20	10,692.33	1,412,618.98	3,329,197.67	40.4600125	-104.3169233

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
457.00	457.00	Pierre				
604.00	604.00	Upper Pierre Aquifer Top				
1,530.00	1,530.00	Upper Pierre Aquifer Base				
3,557.32	3,541.00	Parkman				
4,329.75	4,301.00	Sussex				
4,875.53	4,838.00	Shannon				
5,750.60	5,699.00	Teepee Buttes				
6,486.11	6,386.00	Sharon Springs				
6,536.46	6,421.00	Top A Chalk				
6,580.19	6,449.00	Top A Marl				
6,676.21	6,502.00	Top B Chalk				
6,752.07	6,535.00	Top B Marl				
6,939.05	6,580.00	Top C Chalk				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment	
2200	2200	0	0	Start Build 2.00	
5887	5833	42	-611	Start DLS 9.00 TFO 174.77	
6536	6421	56	-409	TPZ at 6536.46	
7001	6583	68	15	Landing Pt at 7000.88 MD	
17,681	6583	291	10,692	TD at 17680.88 MD	

Checked By: _____ Approved By: _____ Date: _____

Northern Region - DJ Basin

Wells Ranch

AE Section 29

Wells Ranch AE29-660

Wells Ranch AE29-660

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 AE29-660
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 AE29-660	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch AE29-660	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	2/12/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	17,680.89	Plan 1 (Wells Ranch AE29-660)	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	5,997.58	5,862.54	9,656.08	9,615.44	237.615	CC
Wells Ranch 36J - Original Drilling - As Drilled	6,000.00	5,865.90	9,656.09	9,615.43	237.498	ES
Wells Ranch 36J - Original Drilling - As Drilled	6,600.00	6,441.52	9,899.74	9,855.80	225.267	SF
Wells Ranch AE29-631 - Wells Ranch AE29-631 - Plan 1	2,000.00	2,000.00	112.44	98.56	8.105	CC, ES
Wells Ranch AE29-631 - Wells Ranch AE29-631 - Plan 1	17,680.89	17,891.13	1,885.12	1,606.43	6.764	SF
Wells Ranch AE29-640 - Wells Ranch AE29-640 - Plan 1	2,200.00	2,200.00	75.97	60.66	4.963	CC, ES
Wells Ranch AE29-640 - Wells Ranch AE29-640 - Plan 1	17,680.89	17,447.89	1,285.36	1,008.74	4.647	SF
Wells Ranch AE29-650 - Wells Ranch AE29-650 - Plan 1	2,200.00	2,200.00	35.88	20.57	2.344	CC
Wells Ranch AE29-650 - Wells Ranch AE29-650 - Plan 1	2,300.00	2,300.02	36.05	20.03	2.251	ES
Wells Ranch AE29-650 - Wells Ranch AE29-650 - Plan 1	2,400.00	2,399.84	37.04	20.32	2.216	SF
Wells Ranch AE29-669 - Wells Ranch AE29-669 - Plan 1	2,000.00	2,000.00	36.99	23.12	2.666	CC, ES
Wells Ranch AE29-669 - Wells Ranch AE29-669 - Plan 1	17,680.89	17,824.12	601.16	320.46	2.142	SF
Wells Ranch AE30-62-1AHNA - Original Drilling - Original	4,017.35	4,014.00	2,871.40	2,845.25	109.795	CC, ES
Wells Ranch AE30-62-1AHNA - Original Drilling - Original	6,600.00	6,270.52	2,942.28	2,899.58	68.901	SF
Wells Ranch AE30-62HNC - Original Drilling - Original Dr	4,603.55	4,621.12	2,713.87	2,683.40	89.067	CC, ES
Wells Ranch AE30-62HNC - Original Drilling - Original Dr	6,650.00	6,507.28	2,753.64	2,709.82	62.828	SF
Wells Ranch AE30-63-1AHNA - Original Drilling - Original	3,153.72	3,126.21	2,203.41	2,183.16	108.770	CC
Wells Ranch AE30-63-1AHNA - Original Drilling - Original	3,200.00	3,150.92	2,203.64	2,183.14	107.490	ES
Wells Ranch AE30-63-1AHNA - Original Drilling - Original	6,450.00	6,415.59	2,263.76	2,219.62	51.294	SF
Wells Ranch AE30-63-1BHNA - Original Drilling - Original	5,024.26	5,061.26	2,562.49	2,528.56	75.525	CC
Wells Ranch AE30-63-1BHNA - Original Drilling - Original	5,100.00	5,109.50	2,562.91	2,528.54	74.575	ES
Wells Ranch AE30-63-1BHNA - Original Drilling - Original	6,600.00	6,376.00	2,590.71	2,547.16	59.488	SF
Wells Ranch AE30-63-1HNC - Original Drilling - Original	100.00	73.47	2,387.12	2,386.88	9,666.669	CC
Wells Ranch AE30-63-1HNC - Original Drilling - Original	4,600.00	4,590.51	2,406.50	2,376.39	79.909	ES
Wells Ranch AE30-63-1HNC - Original Drilling - Original	6,650.00	6,390.29	2,446.98	2,403.30	56.022	SF
Wells Ranch AE30-63HNC - Original Drilling - Original Dr	4,414.28	4,413.08	2,041.99	2,012.62	69.531	CC
Wells Ranch AE30-63HNC - Original Drilling - Original Dr	4,500.00	4,490.64	2,042.21	2,012.26	68.201	ES
Wells Ranch AE30-63HNC - Original Drilling - Original Dr	6,350.00	6,350.00	2,106.86	2,063.97	49.116	SF
Wells Ranch AE30-64-1AHNA - Original Drilling - Original	5,097.29	5,144.78	1,587.32	1,552.55	45.643	CC
Wells Ranch AE30-64-1AHNA - Original Drilling - Original	5,100.00	5,146.87	1,587.32	1,552.53	45.621	ES
Wells Ranch AE30-64-1AHNA - Original Drilling - Original	6,450.00	6,441.29	1,606.83	1,562.47	36.221	SF
Wells Ranch AE30-64-1BHNA - Original Drilling - Original	3,824.09	3,835.08	1,878.03	1,852.84	74.572	CC
Wells Ranch AE30-64-1BHNA - Original Drilling - Original	3,900.00	3,898.94	1,878.40	1,852.74	73.202	ES
Wells Ranch AE30-64-1BHNA - Original Drilling - Original	6,500.00	6,338.54	1,931.52	1,888.16	44.545	SF
Wells Ranch AE30-64-1HNC - Original Drilling - Original	4,699.66	4,729.59	1,733.62	1,702.04	54.899	CC
Wells Ranch AE30-64-1HNC - Original Drilling - Original	4,800.00	4,816.62	1,734.08	1,701.84	53.784	ES
Wells Ranch AE30-64-1HNC - Original Drilling - Original	6,550.00	6,441.90	1,758.51	1,714.46	39.921	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 AE29-660
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 AE29-660	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch AE29-660	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	3,297.30	3,282.62	1,449.81	1,428.94	69.471	CC
Wells Ranch AE30-64HNC - Original Drilling - Original Dr	3,800.00	3,782.60	1,451.67	1,427.24	59.422	ES
Wells Ranch AE30-64HNC - Original Drilling - Original Dr	6,550.00	6,481.37	1,510.62	1,467.15	34.754	SF
Wells Ranch AE30-65-1AHNB - Original Drilling - Original	5,592.90	5,627.82	943.90	906.15	25.006	CC
Wells Ranch AE30-65-1AHNB - Original Drilling - Original	5,600.00	5,634.02	943.90	906.11	24.974	ES
Wells Ranch AE30-65-1AHNB - Original Drilling - Original	6,400.00	6,481.30	949.79	906.44	21.911	SF
Wells Ranch AE30-65-1BHNH - Original Drilling - Original	5,181.86	5,183.69	1,243.13	1,208.61	36.007	CC
Wells Ranch AE30-65-1BHNH - Original Drilling - Original	5,200.00	5,197.78	1,243.16	1,208.52	35.885	ES
Wells Ranch AE30-65-1BHNH - Original Drilling - Original	6,450.00	6,270.22	1,295.32	1,252.90	30.535	SF
Wells Ranch AE30-65-1HNC - Original Drilling - Original	6,340.07	6,295.26	1,101.14	1,058.61	25.888	CC
Wells Ranch AE30-65-1HNC - Original Drilling - Original	6,350.00	6,299.94	1,101.17	1,058.60	25.865	ES
Wells Ranch AE30-65-1HNC - Original Drilling - Original	6,500.00	6,383.34	1,109.59	1,066.41	25.696	SF
Wells Ranch AE30-65HNC - Original Drilling - Original Dr	6,443.33	6,482.04	781.74	737.83	17.803	CC, ES
Wells Ranch AE30-65HNC - Original Drilling - Original Dr	6,450.00	6,482.57	781.77	737.84	17.797	SF
Wells Ranch AE30-66-1AHNC - Original Drilling - Original	3,218.84	3,189.19	118.58	98.47	5.896	CC, ES
Wells Ranch AE30-66-1AHNC - Original Drilling - Original	3,300.00	3,268.50	119.93	99.26	5.801	SF
Wells Ranch AE30-66-1BHNH - Original Drilling - Original	6,435.23	6,537.14	616.91	573.12	14.089	CC, ES
Wells Ranch AE30-66-1BHNH - Original Drilling - Original	6,450.00	6,537.22	617.11	573.28	14.080	SF
Wells Ranch AE30-66-1HNC - Original Drilling - APD - R	1,500.00	1,489.01	233.68	228.53	45.425	CC, ES
Wells Ranch AE30-66-1HNC - Original Drilling - APD - R	6,500.00	6,458.11	422.25	399.21	18.331	SF
Wells Ranch AE30-66HNC - Original Drilling - APD - Rev	3,556.58	3,530.28	59.42	46.94	4.761	CC, ES
Wells Ranch AE30-66HNC - Original Drilling - APD - Rev	6,513.87	6,457.81	106.84	83.76	4.630	SF
Wells Ranch AE30-67-1AHNC - Original Drilling - Original	2,805.36	2,771.71	190.24	173.05	11.067	CC, ES
Wells Ranch AE30-67-1AHNC - Original Drilling - Original	6,550.00	6,520.38	390.07	346.42	8.935	SF
Wells Ranch AE30-67-1BHNH - Original Drilling - Original	3,364.18	3,337.18	63.70	42.56	3.014	CC
Wells Ranch AE30-67-1BHNH - Original Drilling - Original	6,428.33	6,430.07	80.53	37.67	1.879	ES, SF
Wells Ranch AE30-67-1HNC - Original Drilling - APD - R	1,500.00	1,491.01	202.90	197.75	39.442	CC, ES
Wells Ranch AE30-67-1HNC - Original Drilling - APD - R	6,486.42	6,453.76	237.84	214.83	10.339	SF
Wells Ranch AE30-67HNC - Original Drilling - APD - Rev	6,553.31	6,772.63	611.13	588.23	26.695	CC, ES
Wells Ranch AE30-67HNC - Original Drilling - APD - Rev	6,600.00	6,758.11	613.04	589.87	26.463	SF
Wells Ranch AE30-68-1BHNH - Original Drilling - Original	6,304.58	6,365.20	711.25	667.94	16.421	CC, ES, SF
Wells Ranch AE30-68-1HNC - Original Drilling - APD - R	6,275.40	6,310.89	905.29	882.86	40.363	CC, ES
Wells Ranch AE30-68-1HNC - Original Drilling - APD - R	6,400.00	6,366.69	912.08	889.31	40.066	SF
Wells Ranch AE30-68HN - Original Drilling - Original Dril	6,412.84	6,361.25	1,297.49	1,253.12	29.243	CC, ES
Wells Ranch AE30-68HN - Original Drilling - Original Dril	6,500.00	6,369.60	1,300.39	1,255.77	29.144	SF
Wells Ranch AE30-69-1AHNA - Original Drilling - APD - R	6,519.52	6,487.38	1,696.45	1,673.36	73.468	CC, ES
Wells Ranch AE30-69-1AHNA - Original Drilling - APD - R	6,850.00	6,397.64	1,725.04	1,701.15	72.226	SF
Wells Ranch AE30-69-1HNC - Original Drilling - Original	6,589.92	6,525.43	1,583.31	1,539.66	36.268	CC, ES
Wells Ranch AE30-69-1HNC - Original Drilling - Original	6,650.00	6,511.97	1,584.42	1,540.65	36.198	SF
Wells Ranch AE30-69HNB - Original Drilling - Original Dr	1,705.93	1,707.95	1,689.31	1,679.26	168.229	CC
Wells Ranch AE30-69HNB - Original Drilling - Original Dr	1,900.00	1,882.44	1,690.14	1,678.84	149.669	ES
Wells Ranch AE30-69HNB - Original Drilling - Original Dr	6,650.00	6,460.35	1,895.22	1,851.51	43.366	SF
Wells Ranch State AE30-62-1BHNA - Original Drilling - O	1,744.92	1,715.91	3,155.37	3,145.19	310.091	CC
Wells Ranch State AE30-62-1BHNA - Original Drilling - O	3,400.00	3,354.81	3,156.37	3,134.77	146.138	ES
Wells Ranch State AE30-62-1BHNA - Original Drilling - O	6,450.00	6,530.43	3,241.50	3,198.06	74.613	SF
Wells Ranch State AE30-62-1HNC - Original Drilling - Or	3,398.88	3,380.98	3,045.52	3,023.95	141.181	CC
Wells Ranch State AE30-62-1HNC - Original Drilling - Or	3,400.00	3,381.57	3,045.52	3,023.94	141.142	ES
Wells Ranch State AE30-62-1HNC - Original Drilling - Or	6,750.00	6,479.00	3,101.32	3,057.32	70.472	SF
Wells Ranch State AE31-69HNC - Original Drilling - Orig	100.00	67.77	3,201.07	3,200.83	10,000.000	CC
Wells Ranch State AE31-69HNC - Original Drilling - Orig	1,605.57	1,576.65	3,204.53	3,195.39	350.660	ES
Wells Ranch State AE31-69HNC - Original Drilling - Orig	7,900.00	6,125.32	3,638.19	3,590.90	76.938	SF
Wells Ranch USX AE29 Test Well - Wellbore #1 - Design						Out of range
Wells Ranch USX AE29-12 - Wells Ranch USX AE29-12	1,861.67	1,848.70	1,560.36	1,547.64	122.594	CC

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 AE29-660
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 AE29-660	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch AE29-660	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	7,500.00	6,565.50	1,569.97	1,520.69	31.856	ES
Wells Ranch USX AE29-12 - Wells Ranch USX AE29-12	7,800.00	6,565.70	1,601.20	1,550.30	31.459	SF
Wells Ranch USX AE29-14P - Original Drilling - Original	8,533.69	6,567.19	2,662.77	2,605.65	46.617	CC, ES
Wells Ranch USX AE29-14P - Original Drilling - Original	9,400.00	6,578.77	2,800.12	2,736.10	43.738	SF
Wells Ranch USX AE29-62-1HN - Original Drilling - Original	2,381.86	2,406.00	2,807.31	2,791.92	182.382	CC
Wells Ranch USX AE29-62-1HN - Original Drilling - Original	16,731.34	15,756.03	2,925.28	2,550.20	7.799	ES
Wells Ranch USX AE29-62-1HN - Original Drilling - Original	16,900.00	15,756.03	2,930.14	2,553.74	7.785	SF
Wells Ranch USX AE29-63-1HN - Original Drilling - Original	11,300.00	11,300.00	2,390.55	2,199.54	12.515	SF
Wells Ranch USX AE29-63-1HN - Original Drilling - Original	11,808.29	10,800.02	2,371.09	2,187.27	12.899	CC, ES
Wells Ranch USX AE29-63-1HN - Modeling - Original Dr	16,742.83	15,747.03	2,350.61	2,221.97	18.272	CC, ES
Wells Ranch USX AE29-63-1HN - Modeling - Original Dr	17,000.00	15,747.03	2,364.64	2,233.61	18.047	SF
Wells Ranch USX AE29-68HN - Original Drilling - Original	7,307.38	6,700.01	1,268.11	1,218.37	25.496	CC
Wells Ranch USX AE29-68HN - Original Drilling - Original	16,400.00	15,762.10	1,338.80	957.91	3.515	ES
Wells Ranch USX AE29-68HN - Original Drilling - Original	16,700.00	16,020.03	1,351.88	961.02	3.459	SF
Wells Ranch USX AE29-99HZ - Original Drilling - Original	9,490.16	7,902.48	83.47	44.32	2.132	CC
Wells Ranch USX AE29-99HZ - Original Drilling - Original	9,500.00	7,908.90	83.81	43.76	2.093	ES
Wells Ranch USX AE29-99HZ - Original Drilling - Original	9,600.00	7,972.79	119.25	56.41	1.898	SF
AE Section 30						
Pappenheim #6-62-27-0108BH - Pappenheim #6-62-27-0	17,680.89	6,688.58	1,334.21	1,172.48	8.250	CC, ES, SF
Pappenheim #6-62-27-1609BH - Pappenheim #6-62-27-1	17,680.89	6,614.67	1,057.75	895.60	6.523	CC, ES, SF
Pappenheim #6-62-27-1724BH - Pappenheim #6-62-27-1	17,680.89	6,576.62	409.94	256.45	2.671	CC, ES, SF
Pappenheim #6-62-27-3225BH2 - Pappenheim #6-62-27	17,680.89	6,569.21	340.14	192.03	2.297	CC, ES, SF
Pappenheim #6-62-27-3340BH2 - Pappenheim #6-62-27	17,680.89	6,566.04	778.83	618.62	4.861	CC, ES, SF
Pappenheim #6-62-27-4841BH2 - Pappenheim #6-62-27	17,680.89	6,532.47	1,404.55	1,243.41	8.717	CC, ES, SF
Pappenheim #6-62-27-4956BH2 - Pappenheim #6-62-27	17,680.89	6,543.18	1,888.09	1,725.98	11.647	CC, ES, SF
Pappenheim #6-62-27-6457BH2 - Pappenheim #6-62-27	17,680.89	6,677.31	2,549.98	2,386.19	15.569	CC, ES, SF

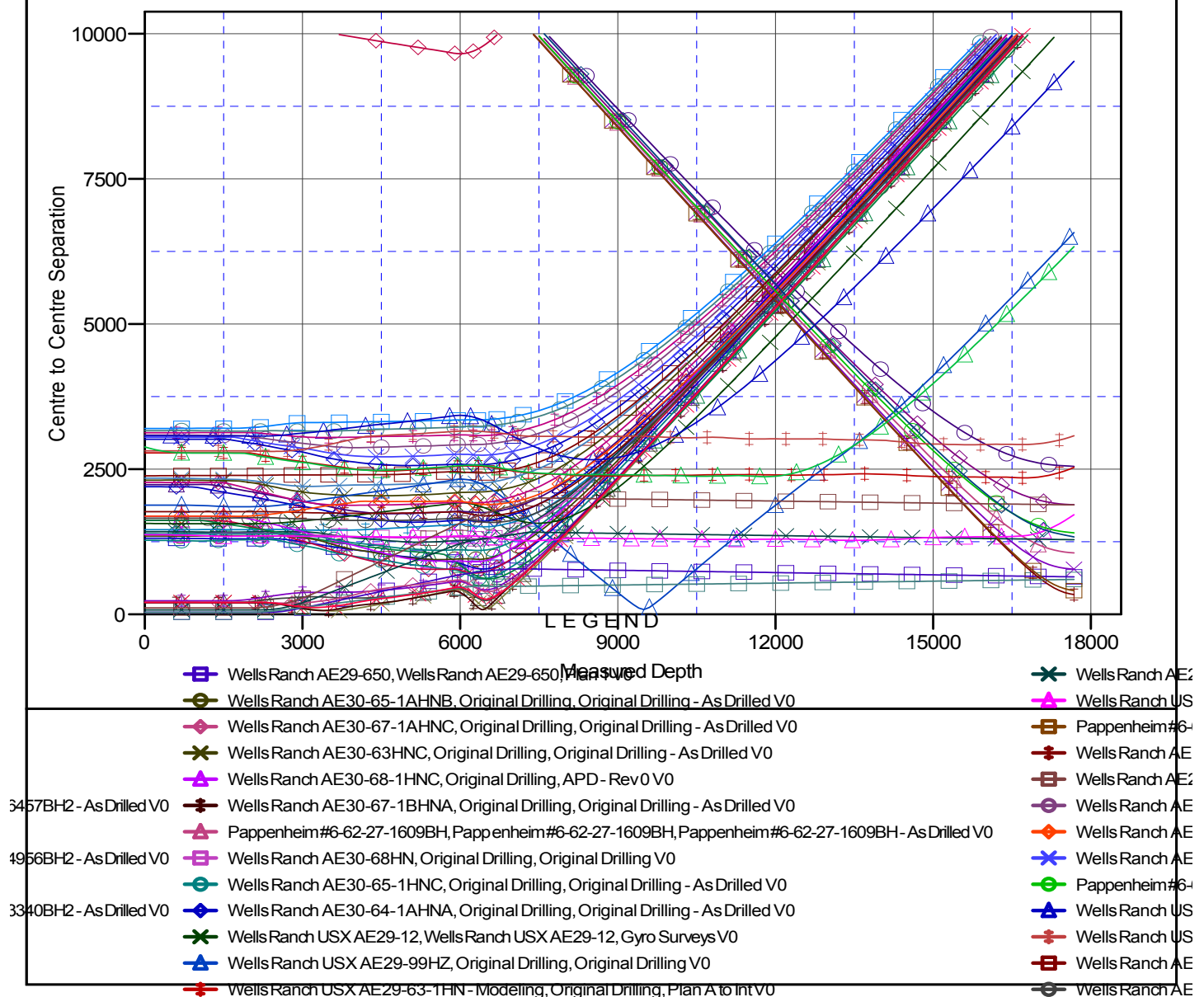
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Wells Ranch AE29-660
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 AE29-660	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wells Ranch AE29-660	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Wells Ranch AE29-660

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.74°



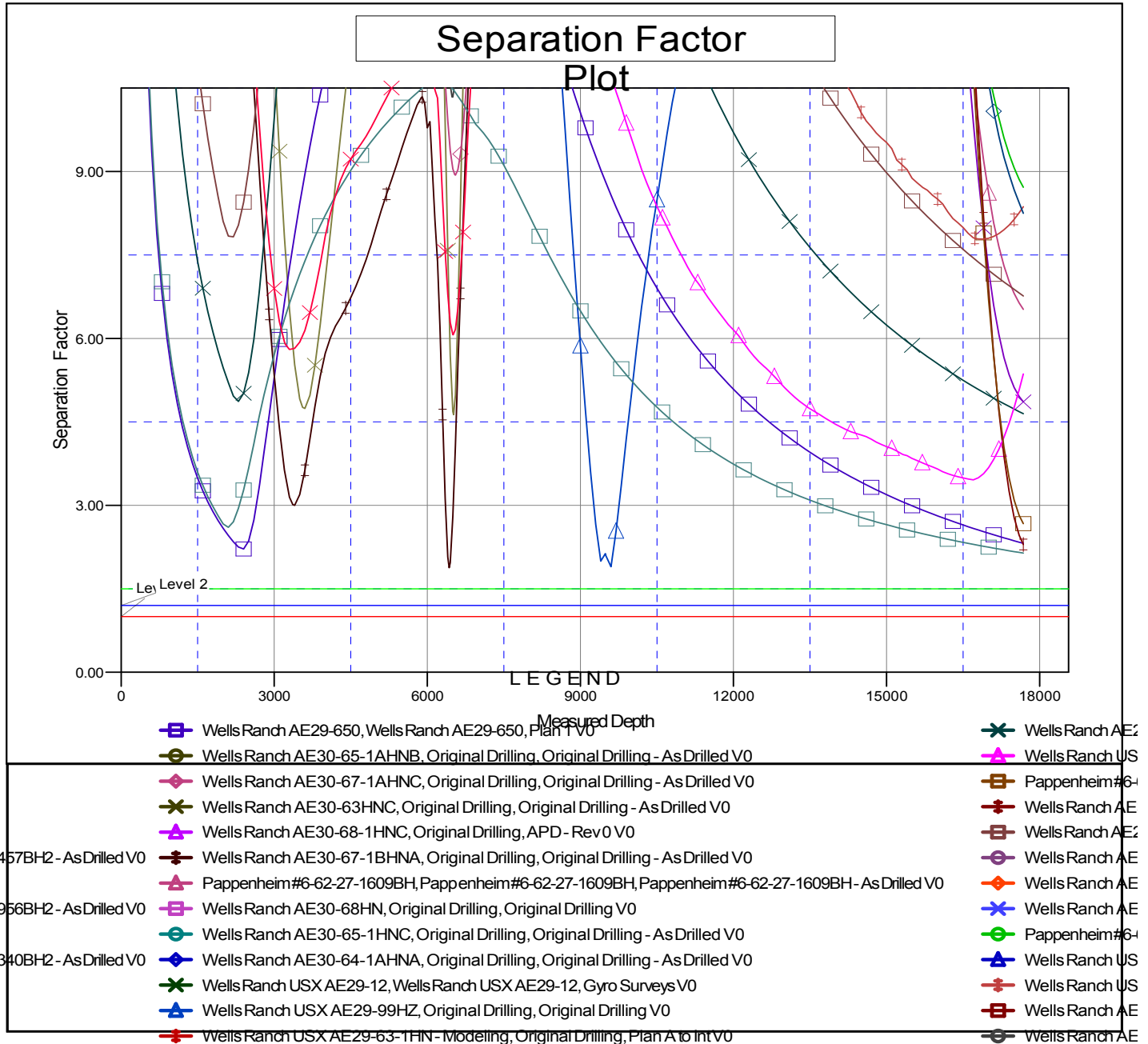
CC - Min centre to center distance or convergent point. SF - min separation factor. ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

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Reference Wellbore	Wells Ranch AE29-660	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 AE29-660
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