

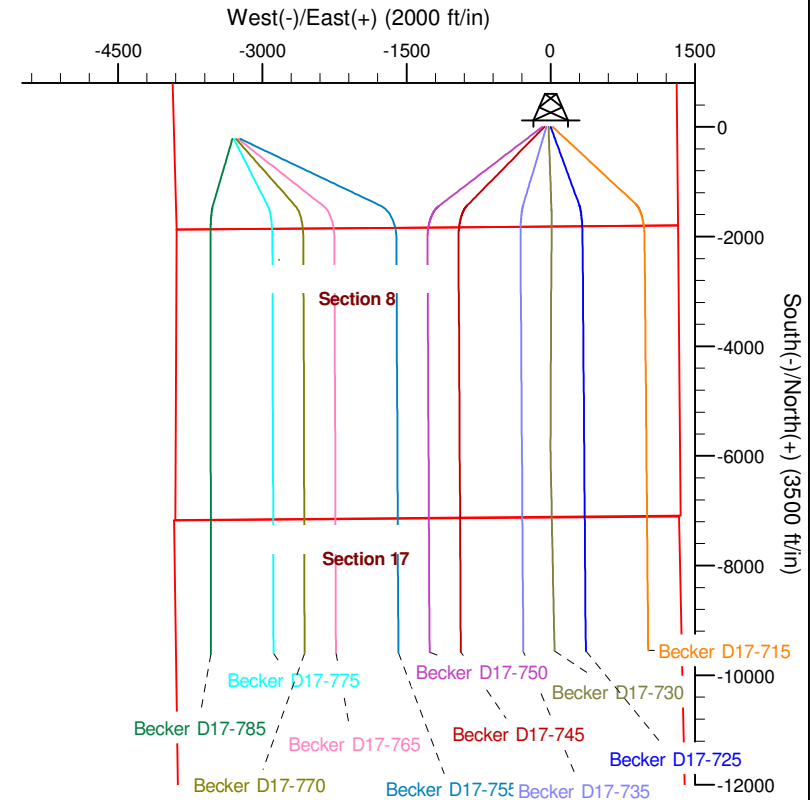
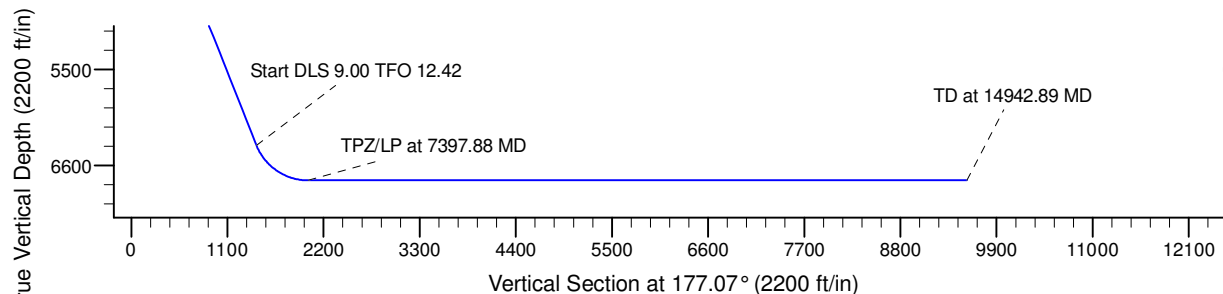
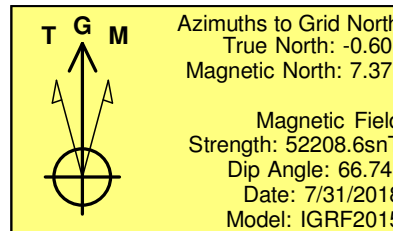
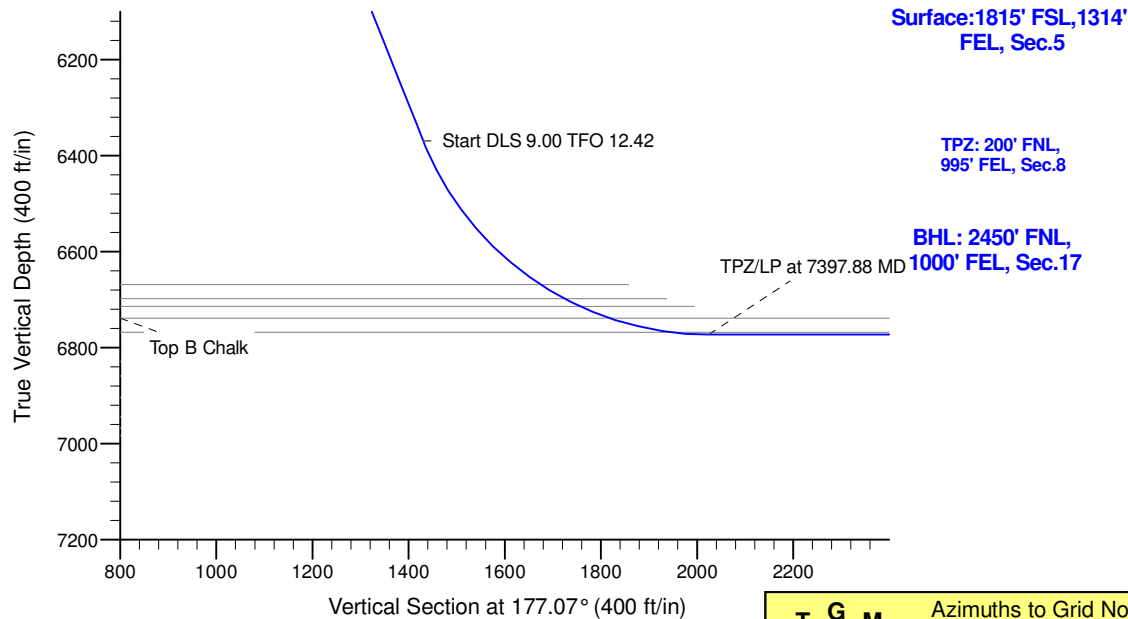
Project: Mustang  
Site: D Section 08  
Well: Becker D17-725  
Wellbore: Wellbore #1  
Design: Plan #1

# 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	3290.75	21.82	168.19	3264.59	-200.81	41.98	2.00	168.19	202.70	
4	6635.12	21.82	168.19	6369.46	-1417.32	296.27	0.00	0.00	1430.62	
5	7397.88	90.00	179.75	6773.00	-2010.10	331.25	9.00	12.42	2024.41	Becker D17-725 TPZ
6	14942.89	90.00	179.75	6773.00	-9555.03	364.67	0.00	0.00	9561.18	Becker D17-725 BHL



## WELL DETAILS: Becker D17-725

	Northing	Easting	Latitude	Longitude
0.00	0.00	1336071.64	4745.00	40.2521800
		3259538.35	40.2521800	-104.5701300

## Plan: Plan #1 (Becker D17-725/Wellbore #1)

Created By: Colby Baxter Date: 8:48, October 02 2018

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

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

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

# **Northern Region - DJ Basin**

**Mustang**

**D Section 08**

**Becker D17-725**

**Wellbore #1**

**Plan: Plan #1**

## **Standard Survey Report**

**02 October, 2018**

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Well:</b>	Becker D17-725	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDMP

<b>Project</b>	Mustang, Weld County Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		D Section 08					
Site Position:		Northing:	1,334,012.94	usft	Latitude:	40.2466118	
From:	Map	Easting:	3,256,643.55	usft	Longitude:	-104.5805772	
Position Uncertainty:	0.00	ft	Slot Radius:	13.200	in	Grid Convergence:	0.59 °

Well	Becker D17-725					
Well Position	+N/-S	0.00 ft	Northing:	1,336,071.64 usft	Latitude:	40.2521800
	+E/-W	0.00 ft	Easting:	3,259,538.35 usft	Longitude:	-104.5701300
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,745.00 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	7/31/2018	7.98	66.74	52,208.60793594

<b>Design</b>	Plan #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	177.07	

<b>Survey Tool Program</b>	<b>Date</b>	10/1/2018			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.00	14,942.87	Plan #1 (Wellbore #1)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

<b>Planned Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Well:</b>	Becker D17-725	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDMP

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	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	168.19	2,299.98	-1.71	0.36	1.72	2.00	2.00	0.00
2,400.00	4.00	168.19	2,399.84	-6.83	1.43	6.89	2.00	2.00	0.00
2,500.00	6.00	168.19	2,499.45	-15.36	3.21	15.51	2.00	2.00	0.00
2,600.00	8.00	168.19	2,598.70	-27.29	5.70	27.55	2.00	2.00	0.00
2,700.00	10.00	168.19	2,697.47	-42.60	8.91	43.00	2.00	2.00	0.00
2,800.00	12.00	168.19	2,795.62	-61.28	12.81	61.85	2.00	2.00	0.00
2,900.00	14.00	168.19	2,893.06	-83.30	17.41	84.08	2.00	2.00	0.00
3,000.00	16.00	168.19	2,989.64	-108.63	22.71	109.65	2.00	2.00	0.00
3,100.00	18.00	168.19	3,085.27	-137.25	28.69	138.53	2.00	2.00	0.00
3,200.00	20.00	168.19	3,179.82	-169.11	35.35	170.70	2.00	2.00	0.00
3,290.75	21.82	168.19	3,264.59	-200.81	41.98	202.70	2.00	2.00	0.00
3,300.00	21.82	168.19	3,273.17	-204.18	42.68	206.09	0.00	0.00	0.00
3,400.00	21.82	168.19	3,366.01	-240.55	50.28	242.81	0.00	0.00	0.00
3,500.00	21.82	168.19	3,458.85	-276.93	57.89	279.52	0.00	0.00	0.00
3,600.00	21.82	168.19	3,551.69	-313.30	65.49	316.24	0.00	0.00	0.00
3,700.00	21.82	168.19	3,644.53	-349.68	73.10	352.96	0.00	0.00	0.00
3,800.00	21.82	168.19	3,737.37	-386.05	80.70	389.67	0.00	0.00	0.00
3,900.00	21.82	168.19	3,830.21	-422.43	88.30	426.39	0.00	0.00	0.00
4,000.00	21.82	168.19	3,923.05	-458.80	95.91	463.10	0.00	0.00	0.00
4,100.00	21.82	168.19	4,015.89	-495.18	103.51	499.82	0.00	0.00	0.00
4,200.00	21.82	168.19	4,108.72	-531.55	111.11	536.54	0.00	0.00	0.00
4,300.00	21.82	168.19	4,201.56	-567.92	118.72	573.25	0.00	0.00	0.00
4,400.00	21.82	168.19	4,294.40	-604.30	126.32	609.97	0.00	0.00	0.00
4,500.00	21.82	168.19	4,387.24	-640.67	133.93	646.69	0.00	0.00	0.00
4,600.00	21.82	168.19	4,480.08	-677.05	141.53	683.40	0.00	0.00	0.00
4,700.00	21.82	168.19	4,572.92	-713.42	149.13	720.12	0.00	0.00	0.00
4,800.00	21.82	168.19	4,665.76	-749.80	156.74	756.83	0.00	0.00	0.00
4,900.00	21.82	168.19	4,758.60	-786.17	164.34	793.55	0.00	0.00	0.00
5,000.00	21.82	168.19	4,851.43	-822.55	171.94	830.27	0.00	0.00	0.00
5,100.00	21.82	168.19	4,944.27	-858.92	179.55	866.98	0.00	0.00	0.00
5,200.00	21.82	168.19	5,037.11	-895.30	187.15	903.70	0.00	0.00	0.00

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Well:</b>	Becker D17-725	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDMP

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,300.00	21.82	168.19	5,129.95	-931.67	194.75	940.42	0.00	0.00	0.00
5,400.00	21.82	168.19	5,222.79	-968.05	202.36	977.13	0.00	0.00	0.00
5,500.00	21.82	168.19	5,315.63	-1,004.42	209.96	1,013.85	0.00	0.00	0.00
5,600.00	21.82	168.19	5,408.47	-1,040.80	217.57	1,050.56	0.00	0.00	0.00
5,700.00	21.82	168.19	5,501.31	-1,077.17	225.17	1,087.28	0.00	0.00	0.00
5,800.00	21.82	168.19	5,594.15	-1,113.55	232.77	1,124.00	0.00	0.00	0.00
5,900.00	21.82	168.19	5,686.98	-1,149.92	240.38	1,160.71	0.00	0.00	0.00
6,000.00	21.82	168.19	5,779.82	-1,186.30	247.98	1,197.43	0.00	0.00	0.00
6,100.00	21.82	168.19	5,872.66	-1,222.67	255.58	1,234.14	0.00	0.00	0.00
6,200.00	21.82	168.19	5,965.50	-1,259.05	263.19	1,270.86	0.00	0.00	0.00
6,300.00	21.82	168.19	6,058.34	-1,295.42	270.79	1,307.58	0.00	0.00	0.00
6,400.00	21.82	168.19	6,151.18	-1,331.80	278.40	1,344.29	0.00	0.00	0.00
6,500.00	21.82	168.19	6,244.02	-1,368.17	286.00	1,381.01	0.00	0.00	0.00
6,600.00	21.82	168.19	6,336.86	-1,404.55	293.60	1,417.73	0.00	0.00	0.00
6,635.12	21.82	168.19	6,369.46	-1,417.32	296.27	1,430.62	0.00	0.00	0.00
6,700.00	27.55	170.90	6,428.39	-1,443.96	301.12	1,457.47	9.00	8.83	4.18
6,800.00	36.44	173.51	6,513.12	-1,496.41	308.14	1,510.21	9.00	8.90	2.61
6,900.00	45.37	175.21	6,588.63	-1,561.51	314.48	1,575.55	9.00	8.93	1.69
7,000.00	54.32	176.45	6,653.04	-1,637.67	319.98	1,651.89	9.00	8.95	1.24
7,100.00	63.28	177.43	6,704.79	-1,723.00	324.51	1,737.34	9.00	8.96	0.99
7,200.00	72.25	178.28	6,742.59	-1,815.40	327.95	1,829.80	9.00	8.97	0.84
7,300.00	81.22	179.04	6,765.51	-1,912.61	330.22	1,926.99	9.00	8.97	0.76
7,397.88	90.00	179.75	6,773.00	-2,010.10	331.25	2,024.41	9.00	8.97	0.72
7,400.00	90.00	179.75	6,773.00	-2,012.22	331.26	2,026.53	0.00	0.00	0.00
7,500.00	90.00	179.75	6,773.00	-2,112.22	331.70	2,126.42	0.00	0.00	0.00
7,600.00	90.00	179.75	6,773.00	-2,212.22	332.15	2,226.31	0.00	0.00	0.00
7,700.00	90.00	179.75	6,773.00	-2,312.21	332.59	2,326.20	0.00	0.00	0.00
7,800.00	90.00	179.75	6,773.00	-2,412.21	333.03	2,426.09	0.00	0.00	0.00
7,900.00	90.00	179.75	6,773.00	-2,512.21	333.47	2,525.98	0.00	0.00	0.00
8,000.00	90.00	179.75	6,773.00	-2,612.21	333.92	2,625.87	0.00	0.00	0.00
8,100.00	90.00	179.75	6,773.00	-2,712.21	334.36	2,725.76	0.00	0.00	0.00
8,200.00	90.00	179.75	6,773.00	-2,812.21	334.80	2,825.65	0.00	0.00	0.00
8,300.00	90.00	179.75	6,773.00	-2,912.21	335.25	2,925.54	0.00	0.00	0.00
8,400.00	90.00	179.75	6,773.00	-3,012.21	335.69	3,025.43	0.00	0.00	0.00
8,500.00	90.00	179.75	6,773.00	-3,112.21	336.13	3,125.33	0.00	0.00	0.00
8,600.00	90.00	179.75	6,773.00	-3,212.21	336.57	3,225.22	0.00	0.00	0.00
8,700.00	90.00	179.75	6,773.00	-3,312.20	337.02	3,325.11	0.00	0.00	0.00
8,800.00	90.00	179.75	6,773.00	-3,412.20	337.46	3,425.00	0.00	0.00	0.00
8,900.00	90.00	179.75	6,773.00	-3,512.20	337.90	3,524.89	0.00	0.00	0.00
9,000.00	90.00	179.75	6,773.00	-3,612.20	338.35	3,624.78	0.00	0.00	0.00
9,100.00	90.00	179.75	6,773.00	-3,712.20	338.79	3,724.67	0.00	0.00	0.00
9,200.00	90.00	179.75	6,773.00	-3,812.20	339.23	3,824.56	0.00	0.00	0.00
9,300.00	90.00	179.75	6,773.00	-3,912.20	339.68	3,924.45	0.00	0.00	0.00

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Well:</b>	Becker D17-725	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDMP

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,400.00	90.00	179.75	6,773.00	-4,012.20	340.12	4,024.34	0.00	0.00	0.00
9,500.00	90.00	179.75	6,773.00	-4,112.20	340.56	4,124.23	0.00	0.00	0.00
9,600.00	90.00	179.75	6,773.00	-4,212.20	341.00	4,224.12	0.00	0.00	0.00
9,700.00	90.00	179.75	6,773.00	-4,312.20	341.45	4,324.01	0.00	0.00	0.00
9,800.00	90.00	179.75	6,773.00	-4,412.19	341.89	4,423.91	0.00	0.00	0.00
9,900.00	90.00	179.75	6,773.00	-4,512.19	342.33	4,523.80	0.00	0.00	0.00
10,000.00	90.00	179.75	6,773.00	-4,612.19	342.78	4,623.69	0.00	0.00	0.00
10,100.00	90.00	179.75	6,773.00	-4,712.19	343.22	4,723.58	0.00	0.00	0.00
10,200.00	90.00	179.75	6,773.00	-4,812.19	343.66	4,823.47	0.00	0.00	0.00
10,300.00	90.00	179.75	6,773.00	-4,912.19	344.10	4,923.36	0.00	0.00	0.00
10,400.00	90.00	179.75	6,773.00	-5,012.19	344.55	5,023.25	0.00	0.00	0.00
10,500.00	90.00	179.75	6,773.00	-5,112.19	344.99	5,123.14	0.00	0.00	0.00
10,600.00	90.00	179.75	6,773.00	-5,212.19	345.43	5,223.03	0.00	0.00	0.00
10,700.00	90.00	179.75	6,773.00	-5,312.19	345.88	5,322.92	0.00	0.00	0.00
10,800.00	90.00	179.75	6,773.00	-5,412.18	346.32	5,422.81	0.00	0.00	0.00
10,900.00	90.00	179.75	6,773.00	-5,512.18	346.76	5,522.70	0.00	0.00	0.00
11,000.00	90.00	179.75	6,773.00	-5,612.18	347.21	5,622.60	0.00	0.00	0.00
11,100.00	90.00	179.75	6,773.00	-5,712.18	347.65	5,722.49	0.00	0.00	0.00
11,200.00	90.00	179.75	6,773.00	-5,812.18	348.09	5,822.38	0.00	0.00	0.00
11,300.00	90.00	179.75	6,773.00	-5,912.18	348.53	5,922.27	0.00	0.00	0.00
11,400.00	90.00	179.75	6,773.00	-6,012.18	348.98	6,022.16	0.00	0.00	0.00
11,500.00	90.00	179.75	6,773.00	-6,112.18	349.42	6,122.05	0.00	0.00	0.00
11,600.00	90.00	179.75	6,773.00	-6,212.18	349.86	6,221.94	0.00	0.00	0.00
11,700.00	90.00	179.75	6,773.00	-6,312.18	350.31	6,321.83	0.00	0.00	0.00
11,800.00	90.00	179.75	6,773.00	-6,412.17	350.75	6,421.72	0.00	0.00	0.00
11,900.00	90.00	179.75	6,773.00	-6,512.17	351.19	6,521.61	0.00	0.00	0.00
12,000.00	90.00	179.75	6,773.00	-6,612.17	351.63	6,621.50	0.00	0.00	0.00
12,100.00	90.00	179.75	6,773.00	-6,712.17	352.08	6,721.39	0.00	0.00	0.00
12,200.00	90.00	179.75	6,773.00	-6,812.17	352.52	6,821.28	0.00	0.00	0.00
12,300.00	90.00	179.75	6,773.00	-6,912.17	352.96	6,921.18	0.00	0.00	0.00
12,400.00	90.00	179.75	6,773.00	-7,012.17	353.41	7,021.07	0.00	0.00	0.00
12,500.00	90.00	179.75	6,773.00	-7,112.17	353.85	7,120.96	0.00	0.00	0.00
12,600.00	90.00	179.75	6,773.00	-7,212.17	354.29	7,220.85	0.00	0.00	0.00
12,700.00	90.00	179.75	6,773.00	-7,312.17	354.74	7,320.74	0.00	0.00	0.00
12,800.00	90.00	179.75	6,773.00	-7,412.16	355.18	7,420.63	0.00	0.00	0.00
12,900.00	90.00	179.75	6,773.00	-7,512.16	355.62	7,520.52	0.00	0.00	0.00
13,000.00	90.00	179.75	6,773.00	-7,612.16	356.06	7,620.41	0.00	0.00	0.00
13,100.00	90.00	179.75	6,773.00	-7,712.16	356.51	7,720.30	0.00	0.00	0.00
13,200.00	90.00	179.75	6,773.00	-7,812.16	356.95	7,820.19	0.00	0.00	0.00
13,300.00	90.00	179.75	6,773.00	-7,912.16	357.39	7,920.08	0.00	0.00	0.00
13,400.00	90.00	179.75	6,773.00	-8,012.16	357.84	8,019.97	0.00	0.00	0.00
13,500.00	90.00	179.75	6,773.00	-8,112.16	358.28	8,119.87	0.00	0.00	0.00
13,600.00	90.00	179.75	6,773.00	-8,212.16	358.72	8,219.76	0.00	0.00	0.00

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Well:</b>	Becker D17-725	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDMP

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,700.00	90.00	179.75	6,773.00	-8,312.16	359.16	8,319.65	0.00	0.00	0.00
13,800.00	90.00	179.75	6,773.00	-8,412.15	359.61	8,419.54	0.00	0.00	0.00
13,900.00	90.00	179.75	6,773.00	-8,512.15	360.05	8,519.43	0.00	0.00	0.00
14,000.00	90.00	179.75	6,773.00	-8,612.15	360.49	8,619.32	0.00	0.00	0.00
14,100.00	90.00	179.75	6,773.00	-8,712.15	360.94	8,719.21	0.00	0.00	0.00
14,200.00	90.00	179.75	6,773.00	-8,812.15	361.38	8,819.10	0.00	0.00	0.00
14,300.00	90.00	179.75	6,773.00	-8,912.15	361.82	8,918.99	0.00	0.00	0.00
14,400.00	90.00	179.75	6,773.00	-9,012.15	362.27	9,018.88	0.00	0.00	0.00
14,500.00	90.00	179.75	6,773.00	-9,112.15	362.71	9,118.77	0.00	0.00	0.00
14,600.00	90.00	179.75	6,773.00	-9,212.15	363.15	9,218.66	0.00	0.00	0.00
14,700.00	90.00	179.75	6,773.00	-9,312.15	363.59	9,318.55	0.00	0.00	0.00
14,800.00	90.00	179.75	6,773.00	-9,412.15	364.04	9,418.45	0.00	0.00	0.00
14,900.00	90.00	179.75	6,773.00	-9,512.14	364.48	9,518.34	0.00	0.00	0.00
14,942.89	90.00	179.75	6,773.00	-9,555.03	364.67	9,561.18	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									
Becker D17-725 SHL	0.00	0.01	0.00	0.00	0.00	1,336,071.64	3,259,538.35	40.2521800	-104.5701300
- plan hits target center									
- Point									
Becker D17-725 KOP	0.00	0.00	6,369.46	-1,417.32	296.27	1,334,654.32	3,259,834.63	40.2482810	-104.5691219
- plan hits target center									
- Point									
Becker D17-725 BHL	0.00	0.00	6,773.00	-9,555.03	364.67	1,326,516.63	3,259,903.02	40.2259415	-104.5691829
- plan hits target center									
- Point									
Becker D17-725 TPZ	0.00	0.00	6,773.00	-2,010.10	331.25	1,334,061.54	3,259,869.60	40.2466529	-104.5690189
- plan hits target center									
- Point									

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Well:</b>	Becker D17-725	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDMP

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
488.00	488.00	Pierre				
622.00	622.00	Upper Pierre Aquifer Top				
1,538.00	1,538.00	Upper Pierre Aquifer Base				
3,655.27	3,603.00	Parkman				
4,398.49	4,293.00	Sussex				
5,077.09	4,923.00	Shannon				
6,235.01	5,998.00	Teepee Buttes				
7,028.24	6,669.00	Sharon Springs				
7,085.23	6,698.00	Top A Chalk				
7,121.19	6,714.00	Top A Marl				
7,188.54	6,739.00	Top B Chalk				
7,317.91	6,768.00	Top B Marl				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2200	2200	0	0	Start Build 2.00	
6635	6369	-1417	296	Start DLS 9.00 TFO 12.42	
7398	6773	-2010	331	TPZ/LP at 7397.88 MD	
14,943	6773	-9555	365	TD at 14942.89 MD	

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



# **Northern Region - DJ Basin**

**Mustang**

**D Section 08**

**Becker D17-725**

**Wellbore #1**

**Plan #1**

## **Anticollision Summary Report**

**02 October, 2018**

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Reference Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Becker D17-725	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

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

<b>Survey Tool Program</b>	<b>Date</b>	10/1/2018		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	14,942.87	Plan #1 (Wellbore #1)	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
D Section 05						
BECKER #15-9I(PR) - Wellbore #1 - Gyro Surveys	3,254.03	3,203.45	1,388.40	1,366.17	62.457	CC
BECKER #15-9I(PR) - Wellbore #1 - Gyro Surveys	3,290.75	3,233.99	1,388.51	1,366.05	61.806	ES
BECKER #15-9I(PR) - Wellbore #1 - Gyro Surveys	6,700.00	6,359.37	2,020.33	1,973.48	43.124	SF
BECKER #5-13(PA) - Wellbore #1 - No Surveys	2,200.00	2,193.00	1,979.80	1,953.01	73.898	CC
BECKER #5-13(PA) - Wellbore #1 - No Surveys	2,300.00	2,292.98	1,980.24	1,952.24	70.715	ES
BECKER #5-13(PA) - Wellbore #1 - No Surveys	6,800.00	6,506.12	2,785.02	2,702.96	33.939	SF
BECKER #5-14(PA) - Wellbore #1 - Gyro Surveys	4,018.30	3,977.26	3,398.60	3,370.82	122.310	CC
BECKER #5-14(PA) - Wellbore #1 - Gyro Surveys	4,200.00	4,149.95	3,398.84	3,369.73	116.744	ES
BECKER #5-14(PA) - Wellbore #1 - Gyro Surveys	7,397.88	6,654.62	3,693.17	3,641.60	71.609	SF
BECKER #5-16(PA) - Wellbore #1 - Gyro Surveys	100.00	70.08	515.24	515.00	2,073.907	CC
BECKER #5-16(PA) - Wellbore #1 - Gyro Surveys	2,400.00	2,368.60	521.98	505.56	31.804	ES
BECKER #5-16(PA) - Wellbore #1 - Gyro Surveys	3,300.00	3,237.35	577.28	554.80	25.684	SF
BECKER #5-2(PA) - Wellbore #1 - Gyro Surveys	3,795.85	3,697.06	2,391.09	2,365.13	92.129	CC
BECKER #5-2(PA) - Wellbore #1 - Gyro Surveys	3,900.00	3,801.19	2,391.25	2,364.52	89.482	ES
BECKER #5-2(PA) - Wellbore #1 - Gyro Surveys	7,150.00	6,742.75	2,711.87	2,661.07	53.379	SF
BECKER #5-5(PA) - Wellbore #1 - Gyro Surveys	5,777.01	5,523.79	277.36	236.81	6.840	CC
BECKER #5-5(PA) - Wellbore #1 - Gyro Surveys	5,800.00	5,545.02	277.50	236.77	6.814	ES
BECKER #5-5(PA) - Wellbore #1 - Gyro Surveys	5,900.00	5,636.94	281.35	239.90	6.788	SF
BECKER #5-8(PR) - Wellbore #1 - Gyro Surveys	2,032.19	2,038.29	3,022.41	3,008.40	215.842	CC
BECKER #5-8(PR) - Wellbore #1 - Gyro Surveys	2,300.00	2,317.62	3,023.75	3,007.83	189.947	ES
BECKER #5-8(PR) - Wellbore #1 - Gyro Surveys	7,050.00	6,919.13	3,745.08	3,694.17	73.553	SF
BECKER #6(SI) - Wellbore #1 - Gyro Surveys	3,867.15	3,766.42	65.77	39.30	2.484	CC, ES, SF
Becker 5-1(PA) - Wellbore #1 - Gyro Surveys	1,274.67	1,266.70	658.83	650.24	76.736	CC
Becker 5-1(PA) - Wellbore #1 - Gyro Surveys	1,500.00	1,489.54	659.47	649.30	64.838	ES
Becker 5-1(PA) - Wellbore #1 - Gyro Surveys	3,200.00	3,163.71	767.65	745.80	35.125	SF
Becker 5-15(PA) - Wellbore #1 - Gyro Surveys	5,782.53	5,513.91	1,169.69	1,127.88	27.978	CC
Becker 5-15(PA) - Wellbore #1 - Gyro Surveys	5,800.00	5,529.67	1,169.71	1,127.76	27.879	ES
Becker 5-15(PA) - Wellbore #1 - Gyro Surveys	6,800.00	6,421.29	1,250.40	1,200.59	25.103	SF
Becker Ranch #5E-223 - Wellbore #1 - As Drilled	6,674.57	11,346.00	3,765.14	3,659.17	35.531	CC
Becker Ranch #5E-223 - Wellbore #1 - As Drilled	6,700.00	11,346.14	3,765.24	3,659.10	35.474	ES
Becker Ranch #5E-223 - Wellbore #1 - As Drilled	7,200.00	11,398.00	3,803.37	3,693.63	34.656	SF
Becker Ranch #5E-403 - As Drilled - As Drilled	6,816.29	11,599.00	4,073.41	3,961.53	36.409	CC
Becker Ranch #5E-403 - As Drilled - As Drilled	6,850.00	11,599.00	4,073.59	3,961.45	36.324	ES
Becker Ranch #5E-403 - As Drilled - As Drilled	7,300.00	11,599.00	4,109.45	3,994.48	35.744	SF
Becker Ranch #5J-103 - Wellbore #1 - As Drilled	5,672.56	8,438.00	4,146.69	4,094.74	79.822	CC
Becker Ranch #5J-103 - Wellbore #1 - As Drilled	5,700.00	8,438.00	4,146.78	4,094.69	79.600	ES
Becker Ranch #5J-103 - Wellbore #1 - As Drilled	6,635.12	8,438.00	4,256.94	4,200.91	75.972	SF

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

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Reference Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Becker D17-725	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 05						
Becker Ranch #5J-203 - Wellbore #1 - Plan #1	6,868.12	11,568.80	2,801.70	2,730.20	39.186	CC, ES
Becker Ranch #5J-203 - Wellbore #1 - Plan #1	7,250.00	11,568.80	2,837.45	2,763.55	38.392	SF
Becker Ranch #5J-303 - Wellbore #1 - As Drilled	6,782.92	11,473.00	3,112.01	2,999.89	27.756	CC
Becker Ranch #5J-303 - Wellbore #1 - As Drilled	6,800.00	11,473.00	3,112.07	2,999.85	27.732	ES
Becker Ranch #5J-303 - Wellbore #1 - As Drilled	7,000.00	11,473.00	3,121.51	3,008.41	27.598	SF
Becker Ranch #5J-323 - Wellbore #1 - As Drilled	6,805.33	11,430.00	2,468.88	2,357.82	22.230	CC, ES
Becker Ranch #5J-323 - Wellbore #1 - As Drilled	7,000.00	11,430.00	2,478.91	2,366.48	22.049	SF
Becker Ranch #5J-323R - Wellbore #1 - Plan #1	6,707.05	11,222.30	2,435.19	2,366.79	35.603	CC, ES
Becker Ranch #5J-323R - Wellbore #1 - Plan #1	7,250.00	11,450.80	2,507.41	2,434.62	34.447	SF
Becker Ranch #5J-343 - Wellbore #1 - As Drilled	6,750.77	11,500.00	3,429.66	3,318.71	30.911	CC, ES
Becker Ranch #5J-343 - Wellbore #1 - As Drilled	7,050.00	11,500.00	3,445.95	3,333.41	30.619	SF
Becker Ranch #5M-203 - Wellbore #1 - Plan #1	6,793.36	11,268.00	1,516.25	1,445.84	21.536	CC
Becker Ranch #5M-203 - Wellbore #1 - Plan #1	6,800.00	11,268.00	1,516.27	1,445.80	21.517	ES
Becker Ranch #5M-203 - Wellbore #1 - Plan #1	6,950.00	11,268.00	1,526.87	1,455.25	21.318	SF
Becker Ranch #5M-243 - Wellbore #1 - Plan #1	6,760.57	11,282.50	2,117.46	2,047.38	30.213	CC, ES
Becker Ranch #5M-243 - Wellbore #1 - Plan #1	6,950.00	11,282.50	2,128.07	2,057.08	29.975	SF
Becker Ranch #5M-303 - Wellbore #1 - Plan #1	6,831.50	11,462.20	1,805.71	1,734.88	25.493	CC, ES
Becker Ranch #5M-303 - Wellbore #1 - Plan #1	6,950.00	11,462.20	1,811.04	1,739.79	25.419	SF
Becker Ranch #5M-323 - Wellbore #1 - Plan #1	6,857.83	11,315.70	1,132.26	1,062.42	16.213	CC, ES
Becker Ranch #5M-323 - Wellbore #1 - Plan #1	6,950.00	11,315.70	1,137.64	1,067.22	16.155	SF
Becker Ranch #5M-423 - Wellbore #1 - Plan #1	6,917.48	11,437.50	1,364.28	1,294.26	19.485	CC, ES
Becker Ranch #5M-423 - Wellbore #1 - Plan #1	7,000.00	11,437.50	1,368.19	1,297.55	19.366	SF
Becker Ranch #5R-203 - Wellbore #1 - Plan #1	6,844.53	11,257.60	319.32	260.99	5.475	CC, ES
Becker Ranch #5R-203 - Wellbore #1 - Plan #1	6,850.00	11,257.60	319.39	261.03	5.473	SF
Becker Ranch #5R-243 - Wellbore #1 - Plan #1	6,822.41	11,231.80	887.10	817.75	12.791	CC, ES
Becker Ranch #5R-243 - Wellbore #1 - Plan #1	6,850.00	11,231.80	887.69	818.18	12.771	SF
Becker Ranch #5R-303 - Wellbore #1 - Plan #1	6,879.04	11,308.90	550.53	484.38	8.322	CC, ES, SF
Becker Ranch #5R-323 - Wellbore #1 - Plan #1	6,895.20	11,332.80	349.51	294.26	6.325	CC, ES, SF
Becker Ranch #5R-443 - Wellbore #1 - Plan #1	6,932.05	11,417.20	904.30	835.95	13.229	CC, ES
Becker Ranch #5R-443 - Wellbore #1 - Plan #1	6,950.00	11,417.20	904.59	836.13	13.213	SF
Becker Ranch #5U-243 - Wellbore #1 - Plan #1	6,864.88	11,243.60	517.59	451.54	7.837	CC, ES, SF
Becker Ranch #5U-303 - Wellbore #1 - Plan #1	6,918.79	11,348.00	908.97	839.75	13.133	CC, ES
Becker Ranch #5U-303 - Wellbore #1 - Plan #1	6,950.00	11,348.00	909.84	840.38	13.098	SF
Becker Ranch #5U-443 - Wellbore #1 - Plan #1	6,966.14	11,407.70	774.23	708.12	11.712	CC, ES
Becker Ranch #5U-443 - Wellbore #1 - Plan #1	7,000.00	11,407.70	775.54	709.19	11.690	SF
LDS #D08-18D(PR) - Wellbore #1 - MWD Surveys	8,400.00	7,219.29	1,552.37	1,479.32	21.252	SF
LDS #D08-18D(PR) - Wellbore #1 - MWD Surveys	8,524.74	7,218.91	1,547.35	1,474.83	21.338	CC, ES
LDS #D08-29(SI) - Wellbore #1 - Gyro Surveys	5,478.87	5,268.55	2,777.77	2,739.35	72.302	CC
LDS #D08-29(SI) - Wellbore #1 - Gyro Surveys	5,600.00	5,377.01	2,778.12	2,738.80	70.656	ES
LDS #D08-29(SI) - Wellbore #1 - Gyro Surveys	7,600.00	6,730.82	2,920.69	2,867.74	55.166	SF
LDS D08-28D(PR) - Wellbore #1 - MWD Surveys	6,408.28	6,301.02	1,820.47	1,773.11	38.437	CC
LDS D08-28D(PR) - Wellbore #1 - MWD Surveys	6,500.00	6,385.68	1,820.82	1,772.83	37.942	ES
LDS D08-28D(PR) - Wellbore #1 - MWD Surveys	7,350.00	6,870.11	1,868.10	1,814.86	35.089	SF
LDS D08-30D(SI) - Wellbore #1 - MWD Surveys	742.38	732.39	3,092.09	3,087.44	665.270	CC
LDS D08-30D(SI) - Wellbore #1 - MWD Surveys	800.00	771.00	3,092.28	3,087.29	619.630	ES
LDS D08-30D(SI) - Wellbore #1 - MWD Surveys	10,500.00	10,500.00	5,527.02	5,445.80	68.051	SF

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

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Reference Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Becker D17-725	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 08						
Becker D17-715 - Wellbore #1 - Plan #1	2,000.00	2,000.00	22.33	8.40	1.603	CC, ES
Becker D17-715 - Wellbore #1 - Plan #1	2,100.00	2,099.56	23.27	8.65	1.591	SF
Becker D17-730 - Wellbore #1 - Plan #1	2,200.00	2,201.00	22.33	7.02	1.458	Level 3, CC
Becker D17-730 - Wellbore #1 - Plan #1	2,300.00	2,300.98	22.73	6.72	1.420	Level 3, ES, SF
Becker D17-735 - Wellbore #1 - Plan #1	2,200.00	2,202.00	44.66	29.35	2.916	CC
Becker D17-735 - Wellbore #1 - Plan #1	2,300.00	2,301.98	45.03	29.02	2.812	ES
Becker D17-735 - Wellbore #1 - Plan #1	2,400.00	2,401.84	46.52	29.83	2.787	SF
Becker D17-745 - Wellbore #1 - Plan #1	2,200.00	2,202.00	66.99	51.67	4.374	CC, ES
Becker D17-745 - Wellbore #1 - Plan #1	2,300.00	2,300.81	68.22	52.23	4.267	SF
Becker D17-750 - Wellbore #1 - Plan #1	2,200.00	2,270.00	89.32	73.88	5.786	CC
Becker D17-750 - Wellbore #1 - Plan #1	2,300.00	2,369.98	89.67	73.54	5.558	ES
Becker D17-750 - Wellbore #1 - Plan #1	2,400.00	2,468.64	91.39	74.59	5.441	SF
Becker D17-755 - Wellbore #1 - Plan #1	7,415.54	7,741.74	1,938.18	1,878.06	32.240	CC
Becker D17-755 - Wellbore #1 - Plan #1	14,942.89	15,256.21	1,951.70	1,787.91	11.916	ES, SF
Becker D17-765 - Wellbore #1 - Plan #1	7,418.74	7,473.93	2,580.67	2,519.14	41.940	CC
Becker D17-765 - Wellbore #1 - Plan #1	14,942.89	14,991.67	2,598.17	2,411.79	13.941	ES, SF
Becker D17-770 - Wellbore #1 - Plan #1	7,413.35	7,603.97	2,909.99	2,848.75	47.513	CC
Becker D17-770 - Wellbore #1 - Plan #1	14,942.89	15,125.65	2,930.21	2,743.57	15.700	ES, SF
Becker D17-775 - Wellbore #1 - Plan #1	7,403.15	7,450.00	3,227.43	3,167.26	53.645	CC
Becker D17-775 - Wellbore #1 - Plan #1	14,942.89	14,979.77	3,249.95	3,063.57	17.437	ES, SF
Becker D17-785 - Wellbore #1 - Plan #1	1,904.96	1,930.96	3,318.91	3,305.62	249.830	CC
Becker D17-785 - Wellbore #1 - Plan #1	2,100.00	2,100.00	3,319.41	3,304.84	227.815	ES
Becker D17-785 - Wellbore #1 - Plan #1	14,942.89	14,882.11	3,898.22	3,735.39	23.940	SF
HSR-ALVIN DECHANT #12-8 (SI) - Wellbore #1 - No Sur	10,414.24	6,760.00	3,471.75	3,364.93	32.501	CC, ES
HSR-ALVIN DECHANT #12-8 (SI) - Wellbore #1 - No Sur	11,000.00	6,760.00	3,520.82	3,410.59	31.942	SF
HSR-ALVIN DECHANT #13-8(SI) - Wellbore #1 - No Sur	11,999.39	6,749.00	3,551.69	3,433.29	29.996	CC
HSR-ALVIN DECHANT #13-8(SI) - Wellbore #1 - No Sur	12,000.00	6,749.00	3,551.69	3,433.28	29.995	ES
HSR-ALVIN DECHANT #13-8(SI) - Wellbore #1 - No Sur	12,500.00	6,749.00	3,586.80	3,465.38	29.540	SF
HSR-LDS #14-8(SI) - Wellbore #1 - No Surveys	11,475.32	6,740.00	2,412.90	2,298.51	21.092	CC
HSR-LDS #14-8(SI) - Wellbore #1 - No Surveys	11,500.00	6,740.00	2,413.03	2,298.47	21.064	ES
HSR-LDS #14-8(SI) - Wellbore #1 - No Surveys	11,700.00	6,740.00	2,423.34	2,307.64	20.944	SF
HSR-LDS #15-8(SI) - Wellbore #1 - No Surveys	11,750.86	6,737.00	978.99	862.56	8.408	CC, ES
HSR-LDS #15-8(SI) - Wellbore #1 - No Surveys	11,800.00	6,737.00	980.22	863.58	8.404	SF
HSR-LDS #16-8(SI) - Wellbore #1 - No Surveys	11,866.50	6,736.00	378.60	261.31	3.228	CC, ES, SF
HSR-LDS #3-8(SI) - Wellbore #1 - No Surveys	7,970.71	6,738.00	2,394.75	2,304.00	26.389	CC, ES
HSR-LDS #3-8(SI) - Wellbore #1 - No Surveys	8,300.00	6,738.00	2,417.28	2,324.94	26.178	SF
HSR-LDS #4-8(SI) - Wellbore 1 - No Surveys	8,123.20	6,763.00	3,532.79	3,440.96	38.474	CC, ES
HSR-LDS #4-8(SI) - Wellbore 1 - No Surveys	8,800.00	6,763.00	3,597.03	3,501.71	37.737	SF
HSR-LDS #5-8(SI) - Wellbore #1 - No Surveys	9,275.33	6,756.00	3,696.25	3,597.34	37.369	CC
HSR-LDS #5-8(SI) - Wellbore #1 - No Surveys	9,300.00	6,756.00	3,696.33	3,597.27	37.312	ES
HSR-LDS #5-8(SI) - Wellbore #1 - No Surveys	10,000.00	6,756.00	3,766.62	3,663.62	36.572	SF
HSR-LDS #6-8(SI) - Wellbore #1 - No Surveys	9,216.00	6,736.00	2,295.19	2,196.84	23.338	CC, ES
HSR-LDS #6-8(SI) - Wellbore #1 - No Surveys	9,500.00	6,736.00	2,312.69	2,212.83	23.159	SF
HSR-LDS #9-8(SI) - Wellbore #1 - No Surveys	10,307.57	6,731.00	338.41	232.60	3.198	CC, ES, SF
HSR-LDS A #10-8(SI) - Wellbore #1 - No Surveys	10,584.61	6,735.00	893.89	786.07	8.290	CC, ES
HSR-LDS A #10-8(SI) - Wellbore #1 - No Surveys	10,600.00	6,735.00	894.02	786.12	8.286	SF
HSR-LDS A #11-8(SI) - Wellbore #1 - No Surveys	10,436.72	6,737.00	2,352.10	2,245.32	22.028	CC, ES
HSR-LDS A #11-8(SI) - Wellbore #1 - No Surveys	10,700.00	6,737.00	2,366.79	2,258.54	21.863	SF
LDS #18-8(SI) - Wellbore #1 - No Surveys	8,666.09	6,758.00	2,934.96	2,839.94	30.889	CC, ES
LDS #18-8(SI) - Wellbore #1 - No Surveys	9,100.00	6,758.00	2,966.86	2,869.52	30.479	SF
LDS #20-8(SI) - Wellbore #1 - No Surveys	11,211.37	6,734.00	320.56	208.18	2.852	CC, ES, SF
LDS D #09-30(SI) - Wellbore #1 - No Surveys	7,382.09	6,724.80	817.22	729.62	9.329	CC, ES
LDS D #09-30(SI) - Wellbore #1 - No Surveys	7,400.00	6,725.00	817.44	729.74	9.320	SF

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

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Reference Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Becker D17-725	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 08						
LDS D #09-31D(SI) - Wellbore #1 - No Surveys	7,404.89	6,725.00	815.12	727.41	9.293	CC, ES, SF
RUBY RED #D #8-1D(PA) - Wellbore #1 - Gyro Surveys	8,205.37	6,713.29	33.04	-23.49	0.585	Level 1, CC, ES, SF
RUBY RED #D 8-7(PR) - Wellbore #1 - Gyro Surveys	9,263.24	6,735.00	1,127.47	1,064.22	17.827	CC, ES
RUBY RED #D 8-7(PR) - Wellbore #1 - Gyro Surveys	9,300.00	6,734.80	1,128.07	1,064.64	17.785	SF
RUBY RED #D 8-8(PR) - Wellbore #1 - Gyro Surveys	9,268.46	6,726.36	519.58	456.33	8.215	CC, ES
RUBY RED #D 8-8(PR) - Wellbore #1 - Gyro Surveys	9,300.00	6,726.08	520.53	457.03	8.197	SF
RUBY RED D8-2(PA) - Wellbore #1 - Gyro Surveys	7,719.10	6,728.76	1,210.96	1,157.03	22.458	CC, ES
RUBY RED D8-2(PA) - Wellbore #1 - Gyro Surveys	7,800.00	6,728.32	1,213.65	1,159.40	22.369	SF
TWO E RANCHES #1(PA) - Wellbore #1 - Gyro Surveys	10,869.17	6,794.25	3,259.97	3,185.30	43.653	CC
TWO E RANCHES #1(PA) - Wellbore #1 - Gyro Surveys	10,900.00	6,794.52	3,260.12	3,185.23	43.534	ES
TWO E RANCHES #1(PA) - Wellbore #1 - Gyro Surveys	11,500.00	6,799.76	3,320.44	3,242.20	42.436	SF

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Reference Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Becker D17-725	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 17						
Butterball D19-27D - Wellbore #1 - Gyro Surveys	14,942.89	6,977.21	6,204.73	6,096.89	57.538	CC, ES, SF
Guttersen State D16-33 (SI) - Wellbore #1 - No Surveys	14,942.89	6,750.00	1,701.55	1,589.17	15.141	CC, ES, SF
HSR LDS 6-17 (SI) - Wellbore #1 - No Surveys	14,504.75	6,748.00	2,470.49	2,332.76	17.937	CC, ES
HSR LDS 6-17 (SI) - Wellbore #1 - No Surveys	14,700.00	6,748.00	2,478.19	2,339.31	17.845	SF
HSR LDS B5-17 (SI) - Wellbore #1 - No Surveys	14,356.50	6,749.00	3,576.82	3,440.24	26.189	CC
HSR LDS B5-17 (SI) - Wellbore #1 - No Surveys	14,400.00	6,749.00	3,577.08	3,440.20	26.132	ES
HSR LDS B5-17 (SI) - Wellbore #1 - No Surveys	14,800.00	6,749.00	3,604.21	3,464.95	25.882	SF
HSR Mike Guttersen 16-17X (SI) - Wellbore #1 - No Su	14,942.89	6,755.00	2,302.25	2,212.22	25.573	CC, ES, SF
HSR Weeks 10-17 - Wellbore #1 - Gyro Surveys	14,942.89	6,700.00	1,329.84	1,240.63	14.906	CC, ES, SF
HSR Weeks 15-17 (SI) - Wellbore #1 - No Surveys	14,942.89	6,753.00	2,386.56	2,283.35	23.123	CC, ES, SF
HSR Weeks 9-17 - Wellbore #1 - Gyro Surveys	14,942.89	6,746.65	831.89	777.44	15.278	CC, ES, SF
HSR-LDS 3-17 (SI) - Wellbore #1 - No Surveys	13,180.54	6,743.00	2,469.73	2,342.36	19.389	CC
HSR-LDS 3-17 (SI) - Wellbore #1 - No Surveys	13,200.00	6,743.00	2,469.81	2,342.30	19.370	ES
HSR-LDS 3-17 (SI) - Wellbore #1 - No Surveys	13,400.00	6,743.00	2,479.46	2,350.81	19.272	SF
HSR-LDS 4-17 (SI) - Wellbore #1 - No Surveys	13,362.11	6,745.00	3,596.67	3,467.87	27.925	CC
HSR-LDS 4-17 (SI) - Wellbore #1 - No Surveys	13,400.00	6,745.00	3,596.87	3,467.81	27.869	ES
HSR-LDS 4-17 (SI) - Wellbore #1 - No Surveys	13,800.00	6,745.00	3,623.23	3,491.74	27.557	SF
LDS 18-17 (SI) - Wellbore #1 - No Surveys	13,852.05	6,748.00	2,794.37	2,661.74	21.069	CC, ES
LDS 18-17 (SI) - Wellbore #1 - No Surveys	14,100.00	6,748.00	2,805.34	2,671.23	20.917	SF
LDS D17-13 - Wellbore #1 - Gyro Surveys	14,942.89	6,900.00	4,644.50	4,548.69	48.476	CC, ES, SF
LDS D17-18 (SI) - Wellbore #1 - No Surveys	13,786.68	6,746.00	1,488.85	1,356.75	11.271	CC
LDS D17-18 (SI) - Wellbore #1 - No Surveys	13,800.00	6,746.00	1,488.91	1,356.73	11.264	ES
LDS D17-18 (SI) - Wellbore #1 - No Surveys	13,900.00	6,746.00	1,493.16	1,360.52	11.257	SF
LDS D17-20 - Wellbore #1 - No Surveys	14,942.89	6,754.00	2,957.38	2,816.49	20.990	CC, ES, SF
LDS D17-21 - Wellbore #1 - No Surveys	14,942.89	6,750.00	1,838.40	1,698.70	13.160	CC, ES, SF
LDS D17-22 (SI) - Wellbore #1 - No Surveys	14,942.89	6,745.00	381.51	240.63	2.708	CC, ES, SF
LDS D17-24D - Wellbore #1 - LDS D17-24D - As Drilled	14,942.89	6,890.89	2,241.43	2,147.00	23.737	CC, ES, SF
LDS D17-25D - Wellbore #1 - LDS D17-25D - As Drilled	14,942.89	6,992.53	3,181.61	3,078.17	30.760	CC, ES, SF
LDS D17-31D - LDS D17-31D - LDS D17-31D - As Drille	13,872.32	7,012.61	4,316.40	4,208.93	40.166	CC
LDS D17-31D - LDS D17-31D - LDS D17-31D - As Drille	13,900.00	7,012.70	4,316.48	4,208.84	40.101	ES
LDS D17-31D - LDS D17-31D - LDS D17-31D - As Drille	14,500.00	7,014.62	4,361.79	4,251.13	39.415	SF
LDS D17-32D - LDS D17-32D - LDS D17-32D - As Drille	14,942.89	6,803.71	4,333.19	4,227.90	41.156	CC, ES, SF
LDS D17-33 - LDS D17-33 - LDS D17-33 - As Drilled	14,942.89	6,784.52	4,342.75	4,240.43	42.441	CC, ES, SF
LDS D17-7 - Wellbore #1 - No Surveys	14,482.66	6,744.00	1,095.15	957.63	7.963	CC, ES
LDS D17-7 - Wellbore #1 - No Surveys	14,500.00	6,744.00	1,095.29	957.67	7.959	SF
LDS D20-29D - Wellbore #1 - LDS D20-29D - As Drilled	14,942.89	6,954.70	4,235.47	4,143.30	45.950	CC, ES, SF
LDS D20-30D - Wellbore #1 - LDS D20-30D - As Drilled	14,942.89	6,803.15	5,319.63	5,225.68	56.622	CC, ES, SF
LDS RED D17-11 (SI) - Wellbore #1 - No Surveys	14,942.89	6,751.00	2,298.07	2,161.52	16.829	CC, ES, SF
LDS Red D17-12 - Wellbore #1 - No Surveys	14,942.89	6,754.00	3,842.28	3,701.85	27.362	CC, ES, SF
LDS Red D17-14X (SI) - Wellbore #1 - No Surveys	14,942.89	6,755.00	2,923.31	2,800.83	23.868	CC, ES, SF
LDS Red D17-3J - Wellbore #1 - Gyro Surveys	14,942.89	6,736.47	3,814.02	3,716.19	38.984	CC, ES, SF
LDS White D17-1 - Wellbore #1 - Gyro Surveys	13,141.22	6,737.04	311.48	219.87	3.400	CC, ES, SF
LDS White D17-2 - Wellbore #1 - No Surveys	13,161.10	6,741.00	989.47	862.27	7.778	CC, ES
LDS White D17-2 - Wellbore #1 - No Surveys	13,200.00	6,741.00	990.24	862.86	7.774	SF
LDS White D17-8 - Wellbore #1 - No Surveys	14,494.91	6,739.00	251.07	113.50	1.825	CC
LDS White D17-8 - Wellbore #1 - No Surveys	14,500.00	6,739.00	251.12	113.48	1.824	ES, SF
Thomson D20-31D - Wellbore #1 - Gyro Surveys	14,942.89	6,056.94	6,156.01	6,063.04	66.215	CC, ES, SF
Weeks 20-17 (SI) - Wellbore #1 - Gyro Surveys	14,942.89	6,735.51	1,677.85	1,617.00	27.573	CC, ES, SF

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



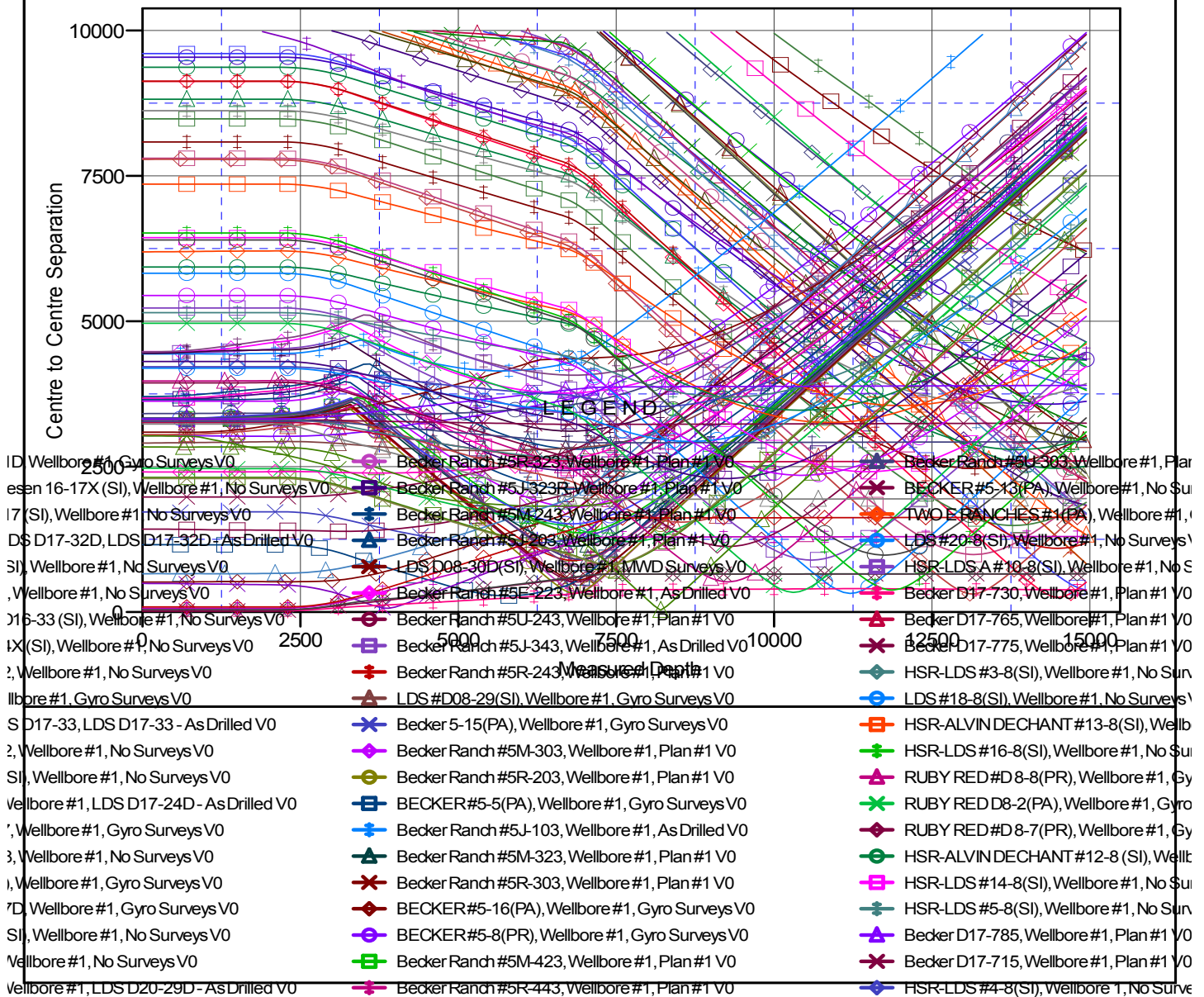
**Noble Energy, Inc.**  
**Anticollision Summary Report**

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Reference Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Becker D17-725	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB @ 4775.00ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: Becker D17-725  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°

## Ladder Plot



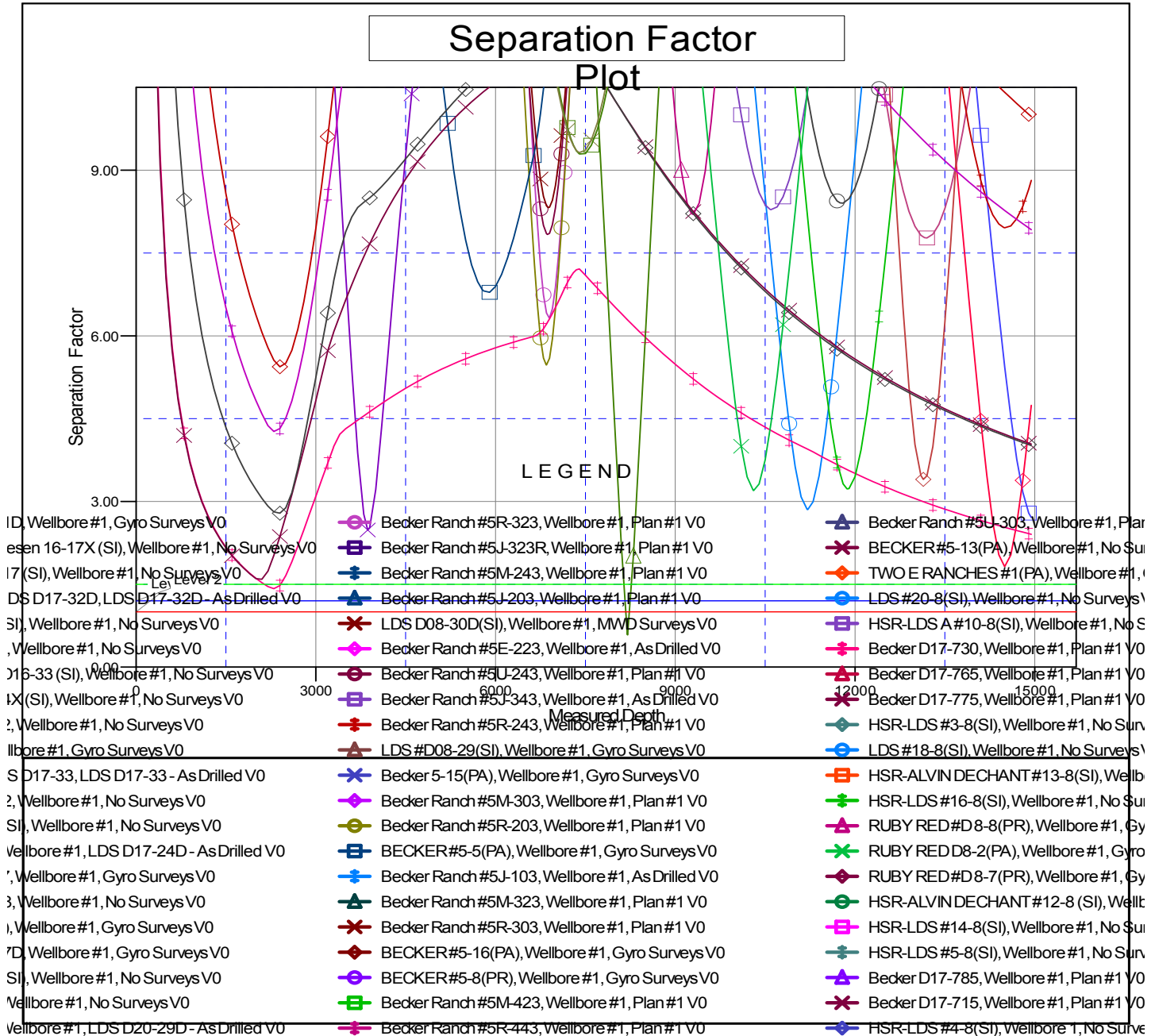
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Becker D17-725
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4775.00ft
<b>Reference Site:</b>	D Section 08	<b>MD Reference:</b>	KB @ 4775.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Becker D17-725	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB @ 4775.00ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: Becker D17-725  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°



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