

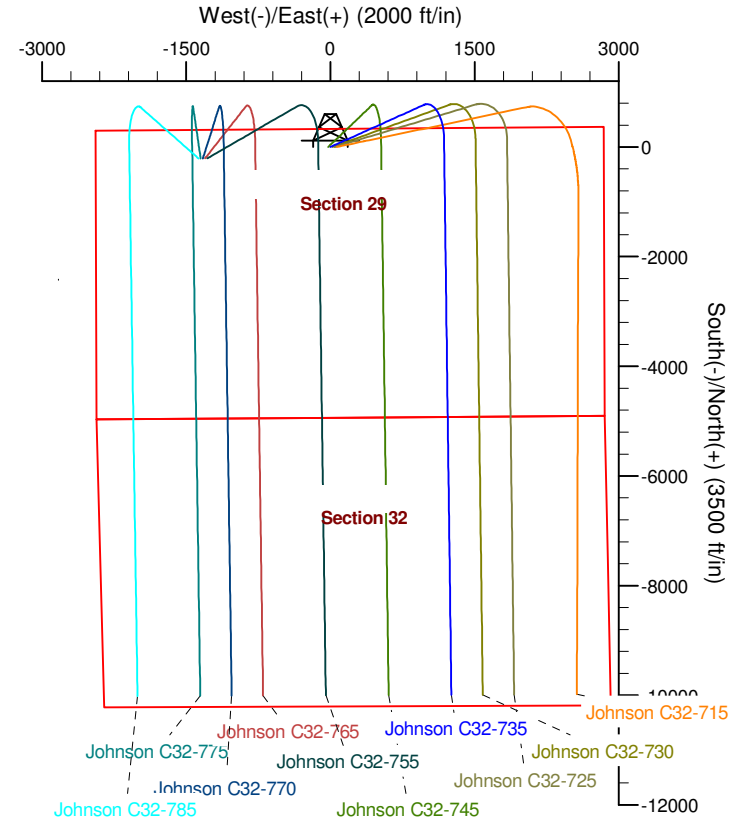
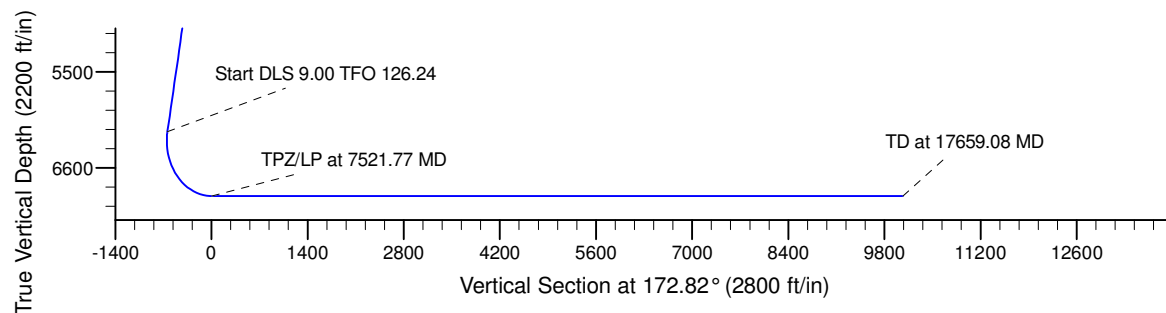
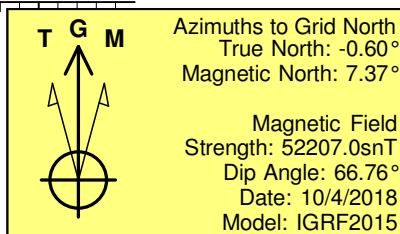
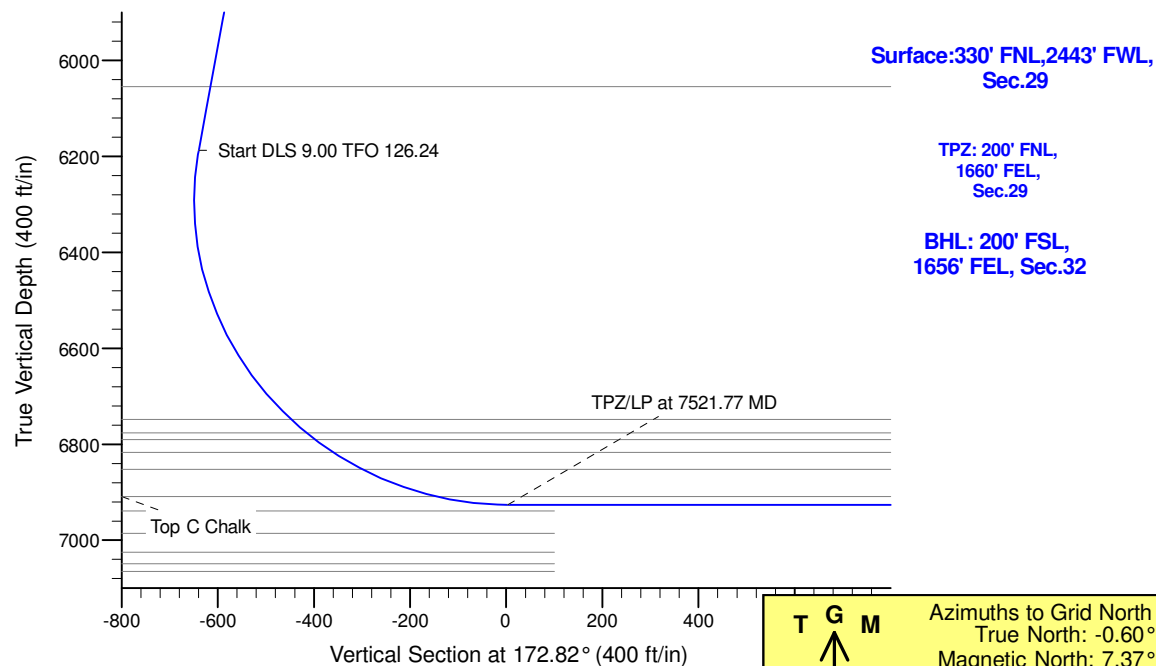
Project: Mustang  
Site: C Section 29  
Well: Johnson C32-735  
Wellbore: Wellbore #1  
Design: Plan #1

# 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	3174.98	19.50	51.70	3156.27	101.83	128.95	2.00	51.70	-84.91	
4	6390.40	19.50	51.70	6187.27	767.01	971.29	0.00	0.00	-639.58	
5	7521.77	90.00	179.57	6926.00	145.47	1182.49	9.00	126.24	3.49	TPZ Johnson C32-735
6	17659.08	90.00	179.57	6926.00	-9991.55	1258.87	0.00	0.00	10070.54	BHL Johnson C32-735



## WELL DETAILS: Johnson C32-735

	Northing	Easting	Latitude	Longitude
0.00	0.00	1349747.88	4775.00 40.2897669	-104.5754330

## Plan: Plan #1 (Johnson C32-735/Wellbore #1)

Created By: Colby Baxter	Date: 6:38, October 12 2018
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____

# **Northern Region - DJ Basin**

**Mustang**

**C Section 29**

**Johnson C32-735**

**Wellbore #1**

**Plan: Plan #1**

## **Standard Survey Report**

**04 October, 2018**

# Noble Energy, Inc.

## Survey Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Well:</b>	Johnson C32-735	<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		C Section 29			
Site Position:		Northing:	1,346,017.00 usft	Latitude:	40.2794770
From:	Lat/Long	Easting:	3,259,619.89 usft	Longitude:	-104.5694640
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.60 °

Well	Johnson C32-735					
Well Position	+N/-S	0.00 ft	Northing:	1,349,747.88 usft	Latitude:	40.2897670
	+E/-W	0.00 ft	Easting:	3,257,915.51 usft	Longitude:	-104.5754330
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,775.00 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	10/4/2018	7.96	66.76	52,207.01789970

<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	172.82	

<b>Survey Tool Program</b>	<b>Date</b>	10/4/2018			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.00	17,659.08	Plan #1 (Wellbore #1)	2_MWD+IFR1	A005Mb: IFR declination correction only	

<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 Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Well:</b>	Johnson C32-735	<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	51.70	2,299.98	1.08	1.37	-0.90	2.00	2.00	0.00
2,400.00	4.00	51.70	2,399.84	4.32	5.48	-3.61	2.00	2.00	0.00
2,500.00	6.00	51.70	2,499.45	9.73	12.32	-8.11	2.00	2.00	0.00
2,600.00	8.00	51.70	2,598.70	17.28	21.88	-14.41	2.00	2.00	0.00
2,700.00	10.00	51.70	2,697.47	26.97	34.16	-22.49	2.00	2.00	0.00
2,800.00	12.00	51.70	2,795.62	38.80	49.13	-32.35	2.00	2.00	0.00
2,900.00	14.00	51.70	2,893.06	52.74	66.78	-43.98	2.00	2.00	0.00
3,000.00	16.00	51.70	2,989.64	68.78	87.10	-57.35	2.00	2.00	0.00
3,100.00	18.00	51.70	3,085.27	86.90	110.04	-72.46	2.00	2.00	0.00
3,174.98	19.50	51.70	3,156.27	101.83	128.95	-84.91	2.00	2.00	0.00
3,200.00	19.50	51.70	3,179.85	107.01	135.51	-89.23	0.00	0.00	0.00
3,300.00	19.50	51.70	3,274.12	127.70	161.70	-106.48	0.00	0.00	0.00
3,400.00	19.50	51.70	3,368.38	148.38	187.90	-123.73	0.00	0.00	0.00
3,500.00	19.50	51.70	3,462.65	169.07	214.10	-140.98	0.00	0.00	0.00
3,600.00	19.50	51.70	3,556.91	189.76	240.29	-158.23	0.00	0.00	0.00
3,700.00	19.50	51.70	3,651.17	210.44	266.49	-175.48	0.00	0.00	0.00
3,800.00	19.50	51.70	3,745.44	231.13	292.69	-192.73	0.00	0.00	0.00
3,900.00	19.50	51.70	3,839.70	251.82	318.88	-209.98	0.00	0.00	0.00
4,000.00	19.50	51.70	3,933.97	272.50	345.08	-227.23	0.00	0.00	0.00
4,100.00	19.50	51.70	4,028.23	293.19	371.28	-244.48	0.00	0.00	0.00
4,200.00	19.50	51.70	4,122.50	313.88	397.48	-261.73	0.00	0.00	0.00
4,300.00	19.50	51.70	4,216.76	334.57	423.67	-278.98	0.00	0.00	0.00
4,400.00	19.50	51.70	4,311.03	355.25	449.87	-296.23	0.00	0.00	0.00
4,500.00	19.50	51.70	4,405.29	375.94	476.07	-313.48	0.00	0.00	0.00
4,600.00	19.50	51.70	4,499.55	396.63	502.26	-330.73	0.00	0.00	0.00
4,700.00	19.50	51.70	4,593.82	417.31	528.46	-347.98	0.00	0.00	0.00
4,800.00	19.50	51.70	4,688.08	438.00	554.66	-365.23	0.00	0.00	0.00
4,900.00	19.50	51.70	4,782.35	458.69	580.85	-382.48	0.00	0.00	0.00
5,000.00	19.50	51.70	4,876.61	479.38	607.05	-399.73	0.00	0.00	0.00
5,100.00	19.50	51.70	4,970.88	500.06	633.25	-416.98	0.00	0.00	0.00
5,200.00	19.50	51.70	5,065.14	520.75	659.44	-434.23	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 Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Well:</b>	Johnson C32-735	<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	19.50	51.70	5,159.41	541.44	685.64	-451.48	0.00	0.00	0.00
5,400.00	19.50	51.70	5,253.67	562.12	711.84	-468.73	0.00	0.00	0.00
5,500.00	19.50	51.70	5,347.93	582.81	738.03	-485.98	0.00	0.00	0.00
5,600.00	19.50	51.70	5,442.20	603.50	764.23	-503.23	0.00	0.00	0.00
5,700.00	19.50	51.70	5,536.46	624.18	790.43	-520.48	0.00	0.00	0.00
5,800.00	19.50	51.70	5,630.73	644.87	816.62	-537.73	0.00	0.00	0.00
5,900.00	19.50	51.70	5,724.99	665.56	842.82	-554.98	0.00	0.00	0.00
6,000.00	19.50	51.70	5,819.26	686.25	869.02	-572.23	0.00	0.00	0.00
6,100.00	19.50	51.70	5,913.52	706.93	895.21	-589.48	0.00	0.00	0.00
6,200.00	19.50	51.70	6,007.78	727.62	921.41	-606.73	0.00	0.00	0.00
6,300.00	19.50	51.70	6,102.05	748.31	947.61	-623.98	0.00	0.00	0.00
6,390.40	19.50	51.70	6,187.27	767.01	971.29	-639.58	0.00	0.00	0.00
6,400.00	19.00	53.84	6,196.33	768.92	973.81	-641.16	9.00	-5.19	22.30
6,500.00	15.74	82.33	6,291.93	780.36	1,000.45	-649.18	9.00	-3.26	28.48
6,600.00	17.10	114.21	6,388.04	776.14	1,027.35	-641.62	9.00	1.36	31.88
6,700.00	22.24	136.45	6,482.30	756.35	1,053.85	-618.68	9.00	5.15	22.24
6,800.00	29.24	149.61	6,572.39	721.49	1,079.30	-580.91	9.00	7.00	13.16
6,900.00	37.06	157.84	6,656.10	672.41	1,103.07	-529.25	9.00	7.81	8.23
7,000.00	45.26	163.49	6,731.35	610.33	1,124.57	-464.97	9.00	8.20	5.65
7,100.00	53.67	167.71	6,796.30	536.77	1,143.28	-389.64	9.00	8.41	4.22
7,200.00	62.21	171.09	6,849.34	453.54	1,158.74	-305.14	9.00	8.53	3.39
7,300.00	70.81	173.98	6,889.17	362.70	1,170.56	-213.53	9.00	8.60	2.89
7,400.00	79.45	176.58	6,914.82	266.47	1,178.45	-117.07	9.00	8.64	2.60
7,500.00	88.11	179.04	6,925.64	167.23	1,182.23	-18.14	9.00	8.66	2.46
7,521.77	90.00	179.57	6,926.00	145.47	1,182.49	3.49	9.00	8.67	2.42
7,600.00	90.00	179.57	6,926.00	67.24	1,183.08	81.18	0.00	0.00	0.00
7,700.00	90.00	179.57	6,926.00	-32.76	1,183.83	180.49	0.00	0.00	0.00
7,800.00	90.00	179.57	6,926.00	-132.75	1,184.59	279.79	0.00	0.00	0.00
7,900.00	90.00	179.57	6,926.00	-232.75	1,185.34	379.10	0.00	0.00	0.00
8,000.00	90.00	179.57	6,926.00	-332.75	1,186.09	478.41	0.00	0.00	0.00
8,100.00	90.00	179.57	6,926.00	-432.75	1,186.85	577.71	0.00	0.00	0.00
8,200.00	90.00	179.57	6,926.00	-532.74	1,187.60	677.02	0.00	0.00	0.00
8,300.00	90.00	179.57	6,926.00	-632.74	1,188.35	776.33	0.00	0.00	0.00
8,400.00	90.00	179.57	6,926.00	-732.74	1,189.11	875.63	0.00	0.00	0.00
8,500.00	90.00	179.57	6,926.00	-832.73	1,189.86	974.94	0.00	0.00	0.00
8,600.00	90.00	179.57	6,926.00	-932.73	1,190.61	1,074.25	0.00	0.00	0.00
8,700.00	90.00	179.57	6,926.00	-1,032.73	1,191.37	1,173.56	0.00	0.00	0.00
8,800.00	90.00	179.57	6,926.00	-1,132.73	1,192.12	1,272.86	0.00	0.00	0.00
8,900.00	90.00	179.57	6,926.00	-1,232.72	1,192.88	1,372.17	0.00	0.00	0.00
9,000.00	90.00	179.57	6,926.00	-1,332.72	1,193.63	1,471.48	0.00	0.00	0.00
9,100.00	90.00	179.57	6,926.00	-1,432.72	1,194.38	1,570.78	0.00	0.00	0.00
9,200.00	90.00	179.57	6,926.00	-1,532.71	1,195.14	1,670.09	0.00	0.00	0.00
9,300.00	90.00	179.57	6,926.00	-1,632.71	1,195.89	1,769.40	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 Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Well:</b>	Johnson C32-735	<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	179.57	6,926.00	-1,732.71	1,196.64	1,868.70	0.00	0.00	0.00
9,500.00	90.00	179.57	6,926.00	-1,832.71	1,197.40	1,968.01	0.00	0.00	0.00
9,600.00	90.00	179.57	6,926.00	-1,932.70	1,198.15	2,067.32	0.00	0.00	0.00
9,700.00	90.00	179.57	6,926.00	-2,032.70	1,198.90	2,166.63	0.00	0.00	0.00
9,800.00	90.00	179.57	6,926.00	-2,132.70	1,199.66	2,265.93	0.00	0.00	0.00
9,900.00	90.00	179.57	6,926.00	-2,232.69	1,200.41	2,365.24	0.00	0.00	0.00
10,000.00	90.00	179.57	6,926.00	-2,332.69	1,201.16	2,464.55	0.00	0.00	0.00
10,100.00	90.00	179.57	6,926.00	-2,432.69	1,201.92	2,563.85	0.00	0.00	0.00
10,200.00	90.00	179.57	6,926.00	-2,532.69	1,202.67	2,663.16	0.00	0.00	0.00
10,300.00	90.00	179.57	6,926.00	-2,632.68	1,203.42	2,762.47	0.00	0.00	0.00
10,400.00	90.00	179.57	6,926.00	-2,732.68	1,204.18	2,861.77	0.00	0.00	0.00
10,500.00	90.00	179.57	6,926.00	-2,832.68	1,204.93	2,961.08	0.00	0.00	0.00
10,600.00	90.00	179.57	6,926.00	-2,932.68	1,205.68	3,060.39	0.00	0.00	0.00
10,700.00	90.00	179.57	6,926.00	-3,032.67	1,206.44	3,159.69	0.00	0.00	0.00
10,800.00	90.00	179.57	6,926.00	-3,132.67	1,207.19	3,259.00	0.00	0.00	0.00
10,900.00	90.00	179.57	6,926.00	-3,232.67	1,207.94	3,358.31	0.00	0.00	0.00
11,000.00	90.00	179.57	6,926.00	-3,332.66	1,208.70	3,457.62	0.00	0.00	0.00
11,100.00	90.00	179.57	6,926.00	-3,432.66	1,209.45	3,556.92	0.00	0.00	0.00
11,200.00	90.00	179.57	6,926.00	-3,532.66	1,210.20	3,656.23	0.00	0.00	0.00
11,300.00	90.00	179.57	6,926.00	-3,632.66	1,210.96	3,755.54	0.00	0.00	0.00
11,400.00	90.00	179.57	6,926.00	-3,732.65	1,211.71	3,854.84	0.00	0.00	0.00
11,500.00	90.00	179.57	6,926.00	-3,832.65	1,212.46	3,954.15	0.00	0.00	0.00
11,600.00	90.00	179.57	6,926.00	-3,932.65	1,213.22	4,053.46	0.00	0.00	0.00
11,700.00	90.00	179.57	6,926.00	-4,032.64	1,213.97	4,152.76	0.00	0.00	0.00
11,800.00	90.00	179.57	6,926.00	-4,132.64	1,214.72	4,252.07	0.00	0.00	0.00
11,900.00	90.00	179.57	6,926.00	-4,232.64	1,215.48	4,351.38	0.00	0.00	0.00
12,000.00	90.00	179.57	6,926.00	-4,332.64	1,216.23	4,450.69	0.00	0.00	0.00
12,100.00	90.00	179.57	6,926.00	-4,432.63	1,216.98	4,549.99	0.00	0.00	0.00
12,200.00	90.00	179.57	6,926.00	-4,532.63	1,217.74	4,649.30	0.00	0.00	0.00
12,300.00	90.00	179.57	6,926.00	-4,632.63	1,218.49	4,748.61	0.00	0.00	0.00
12,400.00	90.00	179.57	6,926.00	-4,732.62	1,219.24	4,847.91	0.00	0.00	0.00
12,500.00	90.00	179.57	6,926.00	-4,832.62	1,220.00	4,947.22	0.00	0.00	0.00
12,600.00	90.00	179.57	6,926.00	-4,932.62	1,220.75	5,046.53	0.00	0.00	0.00
12,700.00	90.00	179.57	6,926.00	-5,032.62	1,221.50	5,145.83	0.00	0.00	0.00
12,800.00	90.00	179.57	6,926.00	-5,132.61	1,222.26	5,245.14	0.00	0.00	0.00
12,900.00	90.00	179.57	6,926.00	-5,232.61	1,223.01	5,344.45	0.00	0.00	0.00
13,000.00	90.00	179.57	6,926.00	-5,332.61	1,223.76	5,443.76	0.00	0.00	0.00
13,100.00	90.00	179.57	6,926.00	-5,432.60	1,224.52	5,543.06	0.00	0.00	0.00
13,200.00	90.00	179.57	6,926.00	-5,532.60	1,225.27	5,642.37	0.00	0.00	0.00
13,300.00	90.00	179.57	6,926.00	-5,632.60	1,226.03	5,741.68	0.00	0.00	0.00
13,400.00	90.00	179.57	6,926.00	-5,732.60	1,226.78	5,840.98	0.00	0.00	0.00
13,500.00	90.00	179.57	6,926.00	-5,832.59	1,227.53	5,940.29	0.00	0.00	0.00
13,600.00	90.00	179.57	6,926.00	-5,932.59	1,228.29	6,039.60	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 Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Well:</b>	Johnson C32-735	<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	179.57	6,926.00	-6,032.59	1,229.04	6,138.90	0.00	0.00	0.00
13,800.00	90.00	179.57	6,926.00	-6,132.58	1,229.79	6,238.21	0.00	0.00	0.00
13,900.00	90.00	179.57	6,926.00	-6,232.58	1,230.55	6,337.52	0.00	0.00	0.00
14,000.00	90.00	179.57	6,926.00	-6,332.58	1,231.30	6,436.83	0.00	0.00	0.00
14,100.00	90.00	179.57	6,926.00	-6,432.58	1,232.05	6,536.13	0.00	0.00	0.00
14,200.00	90.00	179.57	6,926.00	-6,532.57	1,232.81	6,635.44	0.00	0.00	0.00
14,300.00	90.00	179.57	6,926.00	-6,632.57	1,233.56	6,734.75	0.00	0.00	0.00
14,400.00	90.00	179.57	6,926.00	-6,732.57	1,234.31	6,834.05	0.00	0.00	0.00
14,500.00	90.00	179.57	6,926.00	-6,832.56	1,235.07	6,933.36	0.00	0.00	0.00
14,600.00	90.00	179.57	6,926.00	-6,932.56	1,235.82	7,032.67	0.00	0.00	0.00
14,700.00	90.00	179.57	6,926.00	-7,032.56	1,236.57	7,131.97	0.00	0.00	0.00
14,800.00	90.00	179.57	6,926.00	-7,132.56	1,237.33	7,231.28	0.00	0.00	0.00
14,900.00	90.00	179.57	6,926.00	-7,232.55	1,238.08	7,330.59	0.00	0.00	0.00
15,000.00	90.00	179.57	6,926.00	-7,332.55	1,238.83	7,429.89	0.00	0.00	0.00
15,100.00	90.00	179.57	6,926.00	-7,432.55	1,239.59	7,529.20	0.00	0.00	0.00
15,200.00	90.00	179.57	6,926.00	-7,532.54	1,240.34	7,628.51	0.00	0.00	0.00
15,300.00	90.00	179.57	6,926.00	-7,632.54	1,241.09	7,727.82	0.00	0.00	0.00
15,400.00	90.00	179.57	6,926.00	-7,732.54	1,241.85	7,827.12	0.00	0.00	0.00
15,500.00	90.00	179.57	6,926.00	-7,832.54	1,242.60	7,926.43	0.00	0.00	0.00
15,600.00	90.00	179.57	6,926.00	-7,932.53	1,243.35	8,025.74	0.00	0.00	0.00
15,700.00	90.00	179.57	6,926.00	-8,032.53	1,244.11	8,125.04	0.00	0.00	0.00
15,800.00	90.00	179.57	6,926.00	-8,132.53	1,244.86	8,224.35	0.00	0.00	0.00
15,900.00	90.00	179.57	6,926.00	-8,232.52	1,245.61	8,323.66	0.00	0.00	0.00
16,000.00	90.00	179.57	6,926.00	-8,332.52	1,246.37	8,422.96	0.00	0.00	0.00
16,100.00	90.00	179.57	6,926.00	-8,432.52	1,247.12	8,522.27	0.00	0.00	0.00
16,200.00	90.00	179.57	6,926.00	-8,532.52	1,247.87	8,621.58	0.00	0.00	0.00
16,300.00	90.00	179.57	6,926.00	-8,632.51	1,248.63	8,720.89	0.00	0.00	0.00
16,400.00	90.00	179.57	6,926.00	-8,732.51	1,249.38	8,820.19	0.00	0.00	0.00
16,500.00	90.00	179.57	6,926.00	-8,832.51	1,250.13	8,919.50	0.00	0.00	0.00
16,600.00	90.00	179.57	6,926.00	-8,932.50	1,250.89	9,018.81	0.00	0.00	0.00
16,700.00	90.00	179.57	6,926.00	-9,032.50	1,251.64	9,118.11	0.00	0.00	0.00
16,800.00	90.00	179.57	6,926.00	-9,132.50	1,252.39	9,217.42	0.00	0.00	0.00
16,900.00	90.00	179.57	6,926.00	-9,232.50	1,253.15	9,316.73	0.00	0.00	0.00
17,000.00	90.00	179.57	6,926.00	-9,332.49	1,253.90	9,416.03	0.00	0.00	0.00
17,100.00	90.00	179.57	6,926.00	-9,432.49	1,254.65	9,515.34	0.00	0.00	0.00
17,200.00	90.00	179.57	6,926.00	-9,532.49	1,255.41	9,614.65	0.00	0.00	0.00
17,300.00	90.00	179.57	6,926.00	-9,632.49	1,256.16	9,713.96	0.00	0.00	0.00
17,400.00	90.00	179.57	6,926.00	-9,732.48	1,256.92	9,813.26	0.00	0.00	0.00
17,500.00	90.00	179.57	6,926.00	-9,832.48	1,257.67	9,912.57	0.00	0.00	0.00
17,600.00	90.00	179.57	6,926.00	-9,932.48	1,258.42	10,011.88	0.00	0.00	0.00
17,659.08	90.00	179.57	6,926.00	-9,991.55	1,258.87	10,070.54	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 Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Well:</b>	Johnson C32-735	<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

### 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
SHL Johnson C32-735 - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,349,747.88	3,257,915.51	40.2897670	-104.5754330
KOP Johnson C32-735 - plan hits target center - Point	0.00	0.00	6,187.26	767.01	971.29	1,350,514.89	3,258,886.80	40.2918445	-104.5719226
BHL Johnson C32-735 - plan hits target center - Point	0.00	0.00	6,926.00	-9,991.55	1,258.87	1,339,756.35	3,259,174.38	40.2623048	-104.5712957
TPZ Johnson C32-735 - plan hits target center - Point	0.00	0.00	6,926.00	145.47	1,182.49	1,349,893.35	3,259,098.00	40.2901323	-104.5711889

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
628.00	628.00	Pierre			
708.00	708.00	Upper Pierre Aquifer Top			
1,604.00	1,604.00	Upper Pierre Aquifer Base			
3,742.25	3,691.00	Parkman			
4,232.36	4,153.00	Sussex			
5,122.41	4,992.00	Shannon			
6,250.09	6,055.00	Teepee Buttes			
7,024.09	6,748.00	Sharon Springs			
7,066.83	6,776.00	Top A Chalk			
7,089.48	6,790.00	Top A Marl			
7,136.30	6,817.00	Top B Chalk			
7,205.75	6,852.00	Top B Marl			
7,371.50	6,909.00	Top C Chalk			

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2200	2200	0	0	Start Build 2.00
6390	6187	767	971	Start DLS 9.00 TFO 126.24
7522	6926	145	1182	TPZ/LP at 7521.77 MD
17,659	6926	-9992	1259	TD at 17659.08 MD

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



# **Northern Region - DJ Basin**

**Mustang**

**C Section 29**

**Johnson C32-735**

**Wellbore #1**

**Plan #1**

## **Anticollision Summary Report**

**04 October, 2018**

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Reference Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Johnson C32-735	<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>	10/4/2018		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	17,659.08	Plan #1 (Wellbore #1)	2_MWD+IFR1	A005Mb: IFR declination correction only

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						
C Section 20						
Agricultural Products Inc 20-414 - Wellbore #1 - Wellbore	6,400.13	6,148.36	4,959.37	4,912.33	105.439	CC, ES
Agricultural Products Inc 20-414 - Wellbore #1 - Wellbore	6,850.00	6,684.08	5,081.39	5,031.02	100.883	SF
BALBOA #20-1(SI) - Wellbore #1 - No Surveys	6,924.25	6,617.20	1,168.16	1,085.40	14.116	CC, ES
BALBOA #20-1(SI) - Wellbore #1 - No Surveys	7,050.00	6,707.22	1,176.70	1,092.91	14.044	SF
Balboa C #20-24D(PR) - Wellbore #1 - MWD Survey	441.08	415.97	482.34	480.27	233.230	CC
Balboa C #20-24D(PR) - Wellbore #1 - MWD Survey	500.00	470.10	482.64	480.10	190.626	ES
Balboa C #20-24D(PR) - Wellbore #1 - MWD Survey	6,500.00	6,413.76	1,146.16	1,092.14	21.215	SF
BALBOS #C20-4(TA) - Wellbore #1 - No Surveys	6,240.74	5,996.19	312.78	235.49	4.047	CC
BALBOS #C20-4(TA) - Wellbore #1 - No Surveys	6,300.00	6,052.05	313.41	235.38	4.016	ES
BALBOS #C20-4(TA) - Wellbore #1 - No Surveys	6,390.40	6,137.27	316.75	237.63	4.003	SF
Chenoweth 2 - Wellbore #1 - Wellbore #1 - As Drilled	0.00	2.73	2,037.29			
Chenoweth 2 - Wellbore #1 - Wellbore #1 - As Drilled	2,500.00	2,567.14	2,040.21	2,022.76	116.861	ES
Chenoweth 2 - Wellbore #1 - Wellbore #1 - As Drilled	6,800.00	6,641.76	2,893.16	2,844.69	59.686	SF
Chenoweth C20-25D(SI) - Wellbore #1 - MWD Surveys	976.24	953.47	481.29	476.34	97.155	CC, ES
Chenoweth C20-25D(SI) - Wellbore #1 - MWD Surveys	6,550.00	6,469.40	2,277.43	2,226.70	44.897	SF
HANSCOME C #28-30D(SI) - Wellbore #1 - No Surveys	6,953.93	6,643.85	1,204.04	1,120.96	14.492	CC, ES
HANSCOME C #28-30D(SI) - Wellbore #1 - No Surveys	7,050.00	6,711.22	1,208.92	1,125.07	14.418	SF
HANSCOME C #29-27D(SI) - Wellbore #1 - No Surveys	6,942.31	6,635.08	1,192.09	1,109.12	14.368	CC
HANSCOME C #29-27D(SI) - Wellbore #1 - No Surveys	6,950.00	6,640.90	1,192.12	1,109.08	14.357	ES
HANSCOME C #29-27D(SI) - Wellbore #1 - No Surveys	7,050.00	6,711.22	1,198.26	1,114.42	14.293	SF
Highland 12-20 - Wellbore #1 - Wellbore #1 - As Drilled	2,943.97	2,970.50	2,895.21	2,874.68	141.044	CC
Highland 12-20 - Wellbore #1 - Wellbore #1 - As Drilled	3,000.00	3,020.77	2,895.32	2,874.41	138.469	ES
Highland 12-20 - Wellbore #1 - Wellbore #1 - As Drilled	6,750.00	6,512.59	3,257.45	3,208.46	66.481	SF
JOHNSON C #29-28(PR) - Wellbore #1 - No Surveys	3,600.69	3,518.56	367.71	324.13	8.436	CC, ES
JOHNSON C #29-28(PR) - Wellbore #1 - No Surveys	3,900.00	3,800.70	381.05	333.80	8.065	SF
Klingenberg C20-780 - Original Drilling - Original Drilling	1,321.91	1,323.03	1,990.48	1,982.76	257.933	CC
Klingenberg C20-780 - Original Drilling - Original Drilling	2,300.00	2,317.54	1,992.51	1,978.90	146.399	ES
Klingenberg C20-780 - Original Drilling - Original Drilling	7,521.77	6,943.66	3,135.01	3,087.03	65.349	SF
Klingenberg C20-780 - Original Drilling - ST01 - ST01 - A	1,321.91	1,323.03	1,990.48	1,982.76	257.933	CC
Klingenberg C20-780 - Original Drilling - ST01 - ST01 - A	2,300.00	2,317.54	1,992.51	1,978.90	146.400	ES
Klingenberg C20-780 - Original Drilling - ST01 - ST01 - A	6,600.00	6,396.52	2,960.33	2,916.56	67.622	SF
Klingenberg C20-780 - Original Drilling - ST02 - ST02 - A	1,321.91	1,323.03	1,990.48	1,982.76	257.933	CC
Klingenberg C20-780 - Original Drilling - ST02 - ST02 - A	2,300.00	2,317.54	1,992.51	1,978.90	146.400	ES
Klingenberg C20-780 - Original Drilling - ST02 - ST02 - A	6,600.00	6,396.52	2,960.33	2,916.56	67.622	SF
Prebish 2 - Wellbore #1 - Wellbore #1 - As Drilled	4,927.59	4,746.06	3,901.79	3,866.61	110.911	CC
Prebish 2 - Wellbore #1 - Wellbore #1 - As Drilled	5,100.00	4,896.72	3,902.48	3,865.98	106.906	ES
Prebish 2 - Wellbore #1 - Wellbore #1 - As Drilled	6,800.00	6,576.26	4,055.06	4,005.23	81.377	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 Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Reference Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Johnson C32-735	<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
Offset Well - Wellbore - Design						
C Section 20						
Prebish C20-19 - Wellbore #1 - Wellbore #1 - As Drilled	6,428.62	6,223.12	4,105.55	4,058.15	86.616	CC, ES
Prebish C20-19 - Wellbore #1 - Wellbore #1 - As Drilled	6,750.00	6,517.17	4,176.89	4,127.30	84.238	SF

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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Reference Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Johnson C32-735	<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
C Section 29						
CPC-JOHNSON #29-1(SI) - Wellbore #1 - No Surveys	7,834.02	6,889.00	1,131.54	1,043.85	12.903	CC, ES
CPC-JOHNSON #29-1(SI) - Wellbore #1 - No Surveys	7,900.00	6,889.00	1,133.47	1,045.58	12.896	SF
JOHNSON #19-29(SI) - Wellbore #1 - No Surveys	11,280.45	6,927.00	2,325.65	2,212.09	20.479	CC
JOHNSON #19-29(SI) - Wellbore #1 - No Surveys	11,300.00	6,927.00	2,325.73	2,212.01	20.451	ES
JOHNSON #19-29(SI) - Wellbore #1 - No Surveys	11,600.00	6,927.00	2,347.50	2,231.62	20.258	SF
JOHNSON #20-29(SI) - Wellbore #1 - No Surveys	11,391.36	6,911.00	504.36	389.88	4.406	CC
JOHNSON #20-29(SI) - Wellbore #1 - No Surveys	11,400.00	6,911.00	504.43	389.83	4.402	ES, SF
JOHNSON #29-13(SI) - Wellbore #1 - No Surveys	9,308.23	6,912.00	323.98	227.68	3.364	CC, ES, SF
JOHNSON #29-15(SI) - Wellbore #1 - No Surveys	8,683.89	6,908.00	277.62	185.64	3.018	CC, ES, SF
JOHNSON C #29-18(SI) - Wellbore #1 - No Surveys	2,200.00	2,186.00	1,048.56	1,021.83	39.228	CC
JOHNSON C #29-18(SI) - Wellbore #1 - No Surveys	8,703.59	6,912.00	1,100.46	1,008.33	11.944	ES
JOHNSON C #29-18(SI) - Wellbore #1 - No Surveys	8,800.00	6,912.00	1,104.68	1,012.03	11.924	SF
JOHNSON C #29-19(SI) - Wellbore #1 - Gyro Surveys	2,288.97	2,338.07	1,694.99	1,679.01	106.112	CC
JOHNSON C #29-19(SI) - Wellbore #1 - Gyro Surveys	2,300.00	2,350.20	1,695.01	1,678.95	105.575	ES
JOHNSON C #29-19(SI) - Wellbore #1 - Gyro Surveys	9,200.00	6,887.36	2,598.49	2,540.14	44.534	SF
JOHNSON C #29-29(SI) - Wellbore #1 - No Surveys	2,200.00	2,180.00	1,175.97	1,149.29	44.081	CC, ES
JOHNSON C #29-29(SI) - Wellbore #1 - No Surveys	7,700.00	6,906.00	2,358.06	2,270.57	26.951	SF
Johnson C32-715 - Wellbore #1 - Plan #1	2,000.00	1,999.00	67.51	53.64	4.868	CC, ES
Johnson C32-715 - Wellbore #1 - Plan #1	2,100.00	2,096.27	69.47	54.91	4.771	SF
Johnson C32-725 - Wellbore #1 - Plan #1	2,200.00	2,199.00	44.91	29.61	2.935	CC
Johnson C32-725 - Wellbore #1 - Plan #1	2,400.00	2,396.26	45.47	28.79	2.726	ES
Johnson C32-725 - Wellbore #1 - Plan #1	2,700.00	2,692.06	49.01	30.36	2.629	SF
Johnson C32-730 - Wellbore #1 - Plan #1	2,538.46	2,537.61	14.01	-3.69	0.792	Level 1, CC, ES, SF
Johnson C32-745 - Wellbore #1 - Plan #1	2,246.39	2,245.82	19.49	3.86	1.247	Level 3, CC, ES, SF
Johnson C32-755 - Wellbore #1 - Plan #1	3,173.90	3,564.45	1,250.56	1,227.53	54.288	CC
Johnson C32-755 - Wellbore #1 - Plan #1	17,659.08	17,699.14	1,306.00	1,068.30	5.494	ES, SF
Johnson C32-765 - Wellbore #1 - Plan #1	2,669.78	2,870.65	1,297.94	1,278.73	67.594	CC
Johnson C32-765 - Wellbore #1 - Plan #1	2,700.00	2,900.54	1,298.08	1,278.66	66.849	ES
Johnson C32-765 - Wellbore #1 - Plan #1	17,659.08	17,466.62	1,961.96	1,724.35	8.257	SF
Johnson C32-770 - Wellbore #1 - Plan #1	2,200.00	2,211.00	1,342.37	1,327.03	87.473	CC, ES
Johnson C32-770 - Wellbore #1 - Plan #1	17,659.08	17,631.86	2,286.92	2,047.97	9.571	SF
Johnson C32-775 - Wellbore #1 - Plan #1	2,200.99	2,212.40	1,364.73	1,349.38	88.881	CC, ES
Johnson C32-775 - Wellbore #1 - Plan #1	17,659.08	17,516.48	2,612.09	2,373.34	10.941	SF
Johnson C32-785 - Wellbore #1 - Plan #1	1,912.55	1,923.55	1,387.10	1,373.82	104.409	CC
Johnson C32-785 - Wellbore #1 - Plan #1	2,000.00	2,009.18	1,387.11	1,373.20	99.752	ES
Johnson C32-785 - Wellbore #1 - Plan #1	17,659.08	17,485.29	3,266.75	3,028.10	13.688	SF
JOHNSON PM C #29-8(SI) - Wellbore #1 - No Surveys	9,272.49	6,908.00	802.73	706.74	8.362	CC, ES
JOHNSON PM C #29-8(SI) - Wellbore #1 - No Surveys	9,300.00	6,908.00	803.20	706.97	8.347	SF
JOHNSON R C #29-2(SI) - Wellbore #1 - No Surveys	7,949.77	6,899.00	314.28	226.08	3.563	CC, ES, SF
UPRC #29-4H(SI) - Wellbore #1 - No Surveys	2,200.00	2,188.00	1,941.22	1,914.47	72.576	CC, ES
UPRC #29-4H(SI) - Wellbore #1 - No Surveys	8,500.00	6,914.00	3,134.36	3,043.54	34.514	SF
UPRC #29-6H(SI) - Wellbore #1 - No Surveys	2,200.00	2,196.00	1,573.60	1,546.78	58.679	CC, ES
UPRC #29-6H(SI) - Wellbore #1 - No Surveys	9,300.00	6,922.00	1,772.56	1,676.44	18.442	SF
VICTOR #C29-16(SI) - Wellbore #1 - No Surveys	12,046.39	6,900.00	1,103.66	982.92	9.140	CC, ES
VICTOR #C29-16(SI) - Wellbore #1 - No Surveys	12,100.00	6,900.00	1,104.97	983.61	9.105	SF
VICTOR C #29-10(SI) - Wellbore #1 - No Surveys	10,675.48	6,938.00	344.81	236.79	3.192	CC, ES, SF
VICTOR C #29-11(SI) - Wellbore #1 - No Surveys	10,676.48	6,945.00	1,695.72	1,587.63	15.688	CC
VICTOR C #29-11(SI) - Wellbore #1 - No Surveys	10,700.00	6,945.00	1,695.88	1,587.61	15.664	ES
VICTOR C #29-11(SI) - Wellbore #1 - No Surveys	10,800.00	6,945.00	1,700.21	1,591.24	15.603	SF
VICTOR C #29-12(SI) - Wellbore #1 - No Surveys	10,634.58	6,950.00	2,974.49	2,866.73	27.605	CC, ES
VICTOR C #29-12(SI) - Wellbore #1 - No Surveys	11,200.00	6,950.00	3,027.75	2,915.87	27.062	SF
VICTOR C #29-13(SI) - Wellbore #1 - No Surveys	12,141.23	6,924.00	2,954.89	2,833.00	24.242	CC, ES
VICTOR C #29-13(SI) - Wellbore #1 - No Surveys	12,600.00	6,924.00	2,990.29	2,864.91	23.849	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 Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Reference Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Johnson C32-735	<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
C Section 29						
VICTOR C #29-14(SI) - Wellbore #1 - No Surveys	12,113.14	6,911.00	1,660.62	1,539.12	13.667	CC, ES
VICTOR C #29-14(SI) - Wellbore #1 - No Surveys	12,200.00	6,911.00	1,662.89	1,540.74	13.614	SF
VICTOR C #29-15(SI) - Wellbore #1 - No Surveys	11,915.13	6,927.00	334.20	214.51	2.792	CC, ES, SF
VICTOR C #29-3(PA) - Wellbore #1 - Gyro Surveys	773.91	758.92	817.84	812.82	162.865	CC
VICTOR C #29-3(PA) - Wellbore #1 - Gyro Surveys	2,200.00	2,184.47	819.54	804.43	54.256	ES
VICTOR C #29-3(PA) - Wellbore #1 - Gyro Surveys	8,400.00	6,905.25	1,876.60	1,822.68	34.807	SF
VICTOR C #29-4(PA) - Wellbore #1 - No Surveys	2,200.00	2,189.00	1,812.93	1,786.17	67.757	CC, ES
VICTOR C #29-4(PA) - Wellbore #1 - No Surveys	5,100.00	4,959.88	2,558.16	2,496.64	41.582	SF
VICTOR C #29-5(PA) - Wellbore #1 - Gyro Surveys	0.00	6.78	2,436.37			
VICTOR C #29-5(PA) - Wellbore #1 - Gyro Surveys	2,200.00	2,206.49	2,441.64	2,426.45	160.760	ES
VICTOR C #29-5(PA) - Wellbore #1 - Gyro Surveys	10,100.00	6,968.97	3,087.07	3,021.78	47.283	SF
VICTOR C #29-6(PA) - Wellbore #1 - No Surveys	2,200.00	2,197.00	1,735.05	1,708.23	64.678	CC, ES
VICTOR C #29-6(PA) - Wellbore #1 - No Surveys	5,100.00	4,967.88	2,434.85	2,372.96	39.339	SF
VICTOR C #29-9(SI) - Wellbore #1 - No Surveys	10,582.18	6,896.00	1,147.56	1,040.76	10.744	CC
VICTOR C #29-9(SI) - Wellbore #1 - No Surveys	10,600.00	6,896.00	1,147.70	1,040.70	10.727	ES
VICTOR C #29-9(SI) - Wellbore #1 - No Surveys	10,700.00	6,896.00	1,153.59	1,045.66	10.688	SF
C Section 32						
HENNINGTON C #32-10(PR) - Wellbore #1 - No Surveys	15,885.82	6,891.00	311.70	151.53	1.946	CC, ES, SF
HENNINGTON C #32-2(PR) - Wellbore #1 - No Surveys	13,117.33	6,892.00	348.54	217.13	2.652	CC, ES, SF
HENNINGTON C #32-7(PA) - Wellbore #1 - Gyro Survey	14,464.26	6,851.97	513.43	405.16	4.742	CC, ES, SF
HOWELL #1(SI) - Wellbore #1 - No Surveys	16,840.89	6,921.00	2,423.13	2,252.59	14.208	CC, ES
HOWELL #1(SI) - Wellbore #1 - No Surveys	17,000.00	6,921.00	2,428.35	2,256.56	14.136	SF
HOWELL #32-1(SI) - Wellbore #1 - No Surveys	14,825.54	6,905.00	1,662.32	1,513.16	11.145	CC, ES
HOWELL #32-1(SI) - Wellbore #1 - No Surveys	14,900.00	6,905.00	1,663.98	1,514.27	11.115	SF
HOWELL #32-2(SI) - Wellbore #1 - No Surveys	13,431.71	6,899.00	1,603.54	1,468.86	11.906	CC, ES
HOWELL #32-2(SI) - Wellbore #1 - No Surveys	13,500.00	6,899.00	1,604.99	1,469.80	11.872	SF
HOWELL #32-23(PR) - Wellbore #1 - No Surveys	14,532.47	6,932.00	2,838.21	2,691.87	19.395	CC, ES
HOWELL #32-23(PR) - Wellbore #1 - No Surveys	14,900.00	6,932.00	2,861.90	2,712.81	19.195	SF
HOWELL #C 32-12(SI) - Wellbore #1 - No Surveys	16,051.99	6,946.00	2,991.86	2,829.46	18.422	CC
HOWELL #C 32-12(SI) - Wellbore #1 - No Surveys	16,100.00	6,946.00	2,992.25	2,829.40	18.375	ES
HOWELL #C 32-12(SI) - Wellbore #1 - No Surveys	16,400.00	6,946.00	3,012.03	2,846.99	18.249	SF
MCGUIRK-HOWELL C #32-11(SI) - Wellbore #1 - No Su	15,847.14	6,904.00	1,669.15	1,509.27	10.440	CC, ES
MCGUIRK-HOWELL C #32-11(SI) - Wellbore #1 - No Su	15,900.00	6,904.00	1,669.99	1,509.70	10.419	SF
MCGUIRK-HOWELL C #32-14(TA) - Wellbore #1 - No Su	17,220.45	6,910.00	1,777.67	1,603.19	10.188	CC, ES
MCGUIRK-HOWELL C #32-14(TA) - Wellbore #1 - No Su	17,300.00	6,910.00	1,779.45	1,604.38	10.164	SF
MCGUIRK-HOWELL C #32-4(SI) - Wellbore #1 - No Sur	13,145.73	6,947.00	2,879.79	2,747.61	21.787	CC, ES
MCGUIRK-HOWELL C #32-4(SI) - Wellbore #1 - No Sur	13,500.00	6,947.00	2,901.50	2,766.55	21.501	SF
NELSON #32-25(PR) - Wellbore #1 - No Surveys	13,937.21	6,936.00	2,322.55	2,182.36	16.566	CC, ES
NELSON #32-25(PR) - Wellbore #1 - No Surveys	14,200.00	6,936.00	2,337.37	2,195.27	16.448	SF
PLUSS #32-43(PA) - Wellbore #1 - Gyro Surveys	17,359.89	6,863.27	633.46	494.46	4.557	CC, ES, SF
PTF #C 32-1(SI) - Wellbore #1 - No Surveys	13,403.04	6,884.00	971.27	837.01	7.235	CC, ES
PTF #C 32-1(SI) - Wellbore #1 - No Surveys	13,500.00	6,884.00	976.09	840.86	7.218	SF
PTF #C 32-16(SI) - Wellbore #1 - No Surveys	17,264.50	6,885.00	977.19	802.46	5.593	CC, ES
PTF #C 32-16(SI) - Wellbore #1 - No Surveys	17,300.00	6,885.00	977.83	802.67	5.582	SF
PTF #C 32-8(SI) - Wellbore #1 - No Surveys	14,776.39	6,874.00	980.94	832.57	6.611	CC
PTF #C 32-8(SI) - Wellbore #1 - No Surveys	14,800.00	6,874.00	981.22	832.55	6.600	ES, SF
PTF #C 32-9(SI) - Wellbore #1 - No Surveys	16,138.76	6,876.00	1,004.53	841.82	6.174	CC, ES
PTF #C 32-9(SI) - Wellbore #1 - No Surveys	16,200.00	6,876.00	1,006.40	843.01	6.160	SF

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



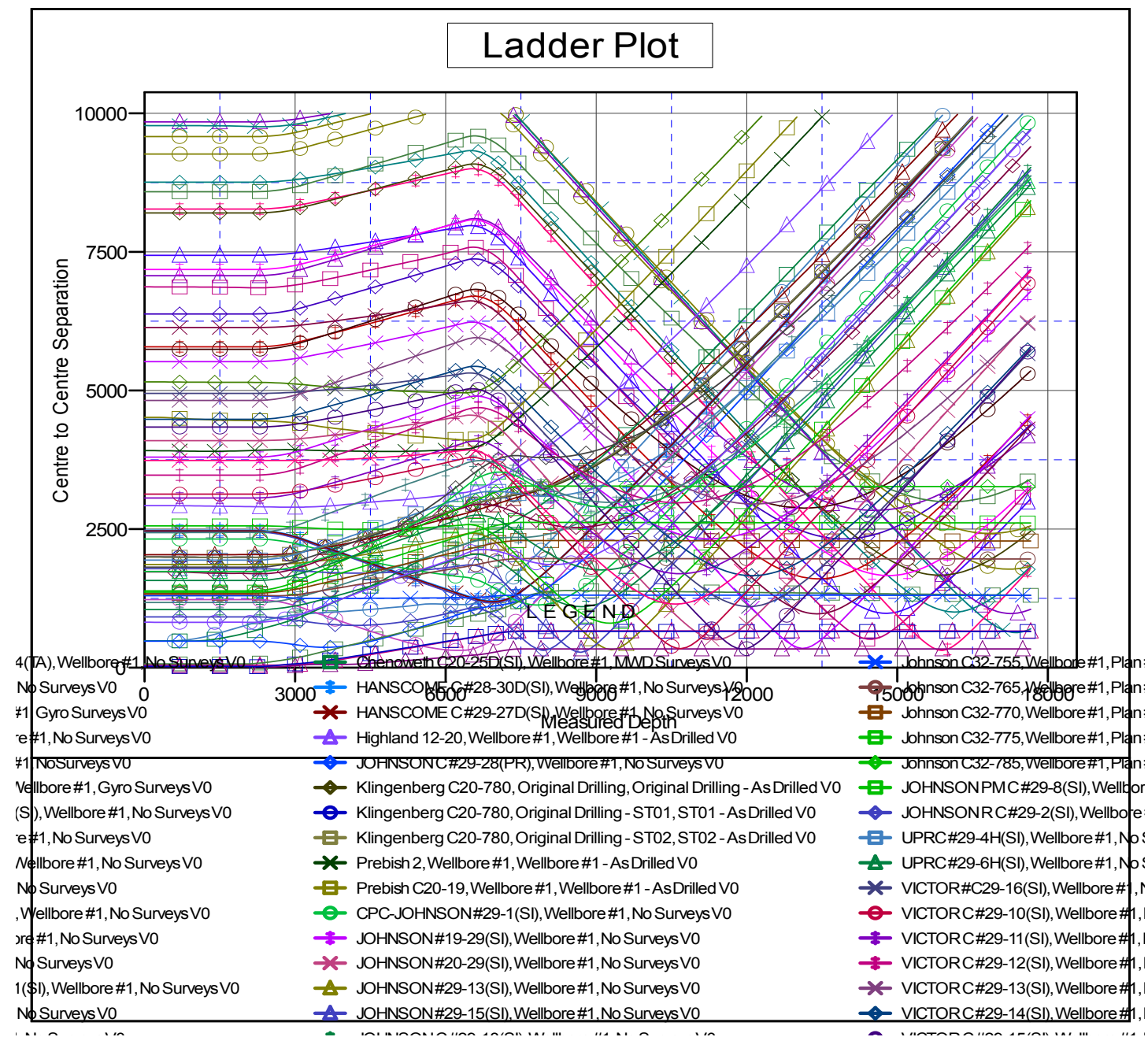
## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Reference Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Johnson C32-735	<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

Coordinates are relative to: Johnson C32-735

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

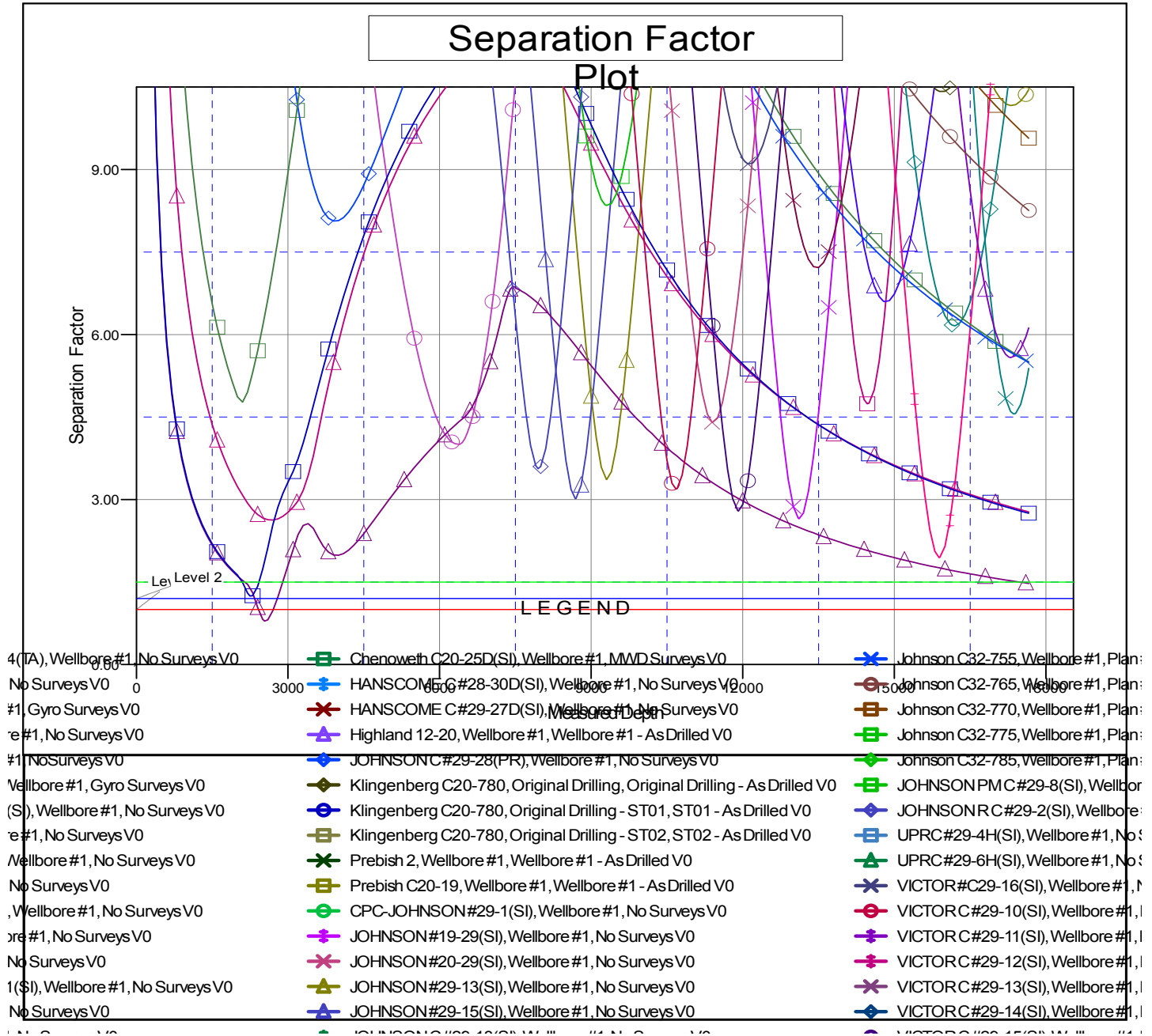
# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Johnson C32-735
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4805.00ft
<b>Reference Site:</b>	C Section 29	<b>MD Reference:</b>	KB @ 4805.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Johnson C32-735	<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 @ 4805.00ft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.5000000

Coordinates are relative to: Johnson C32-735  
 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