

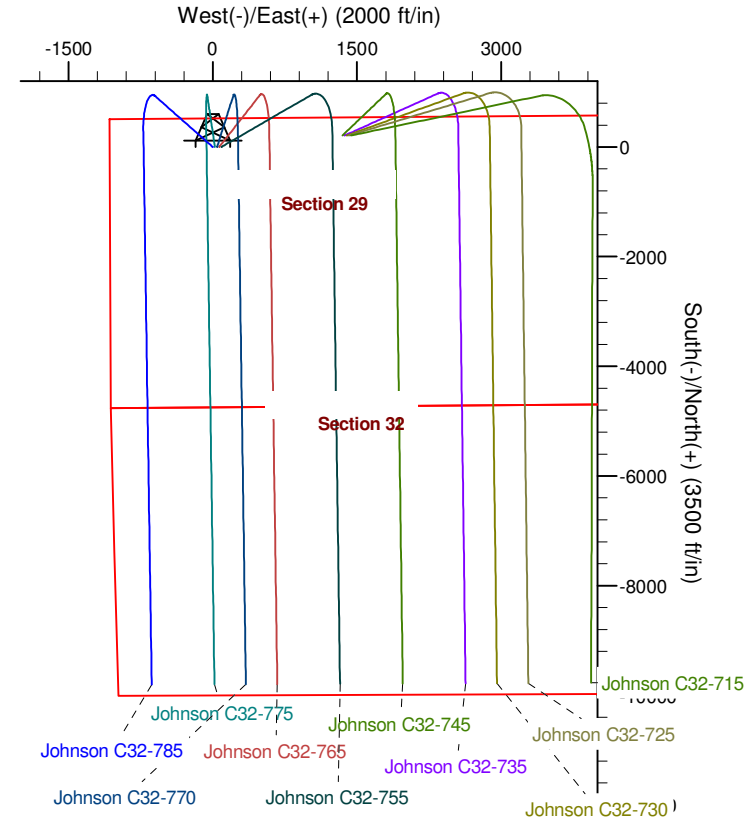
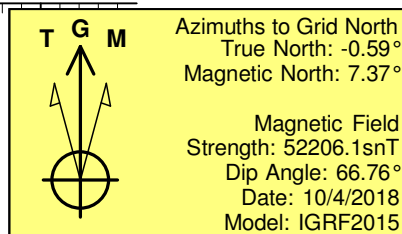
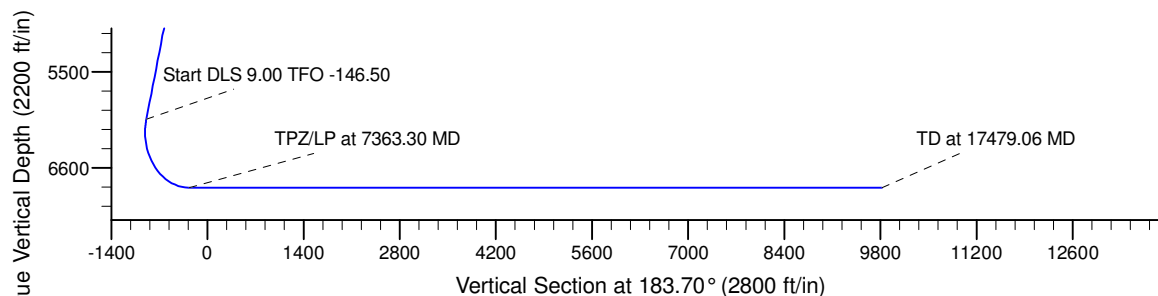
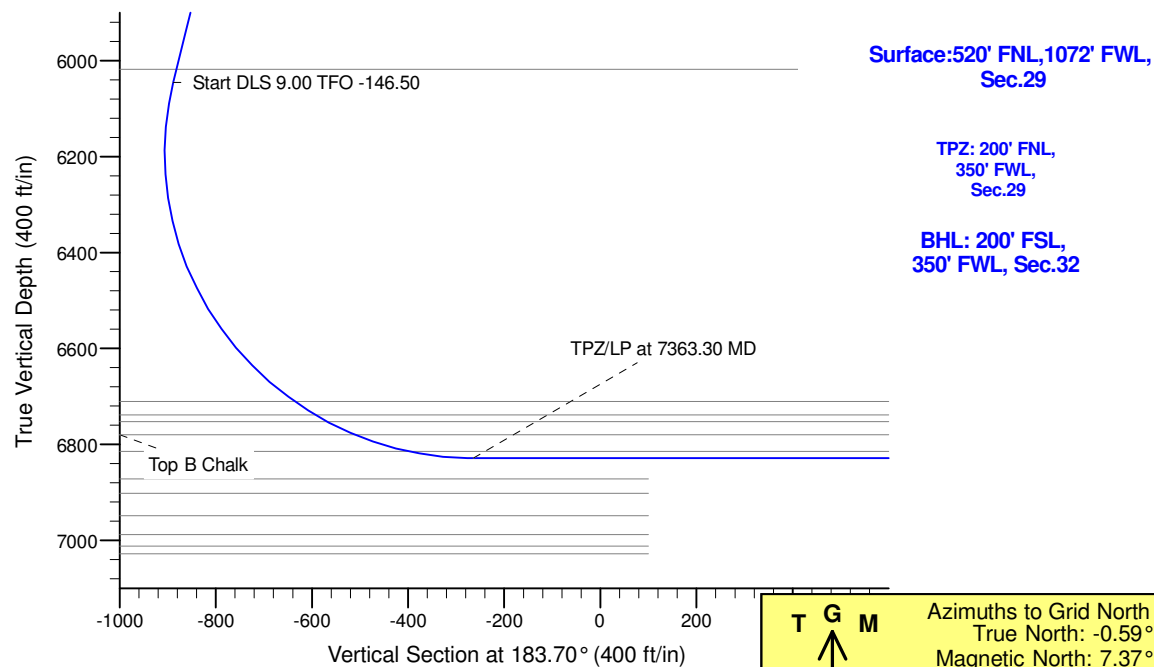
Project: Mustang
Site: C Section 29
Well: Johnson C32-785
Wellbore: Wellbore #1
Design: Plan #1

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	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	
3	2849.69	16.99	327.17	2837.29	105.11	-67.81	2.00	327.17	-100.51	
4	6204.45	16.99	327.17	6045.56	929.03	-599.34	0.00	0.00	-888.36	
5	7363.30	90.00	179.51	6829.00	311.04	-722.07	9.00	-146.50	-263.74	TPZ Johnson C32-785
6	17479.06	90.00	179.51	6829.00	-9804.34	-634.78	0.00	0.00	9824.87	BHL Johnson C32-785



WELL DETAILS: Johnson C32-785

	Northing	Easting	Latitude	Longitude
0.00	0.00	1349538.72	40.2892320	-104.5803560

Plan: Plan #1 (Johnson C32-785/Wellbore #1)

Created By: Colby Baxter	Date: 15:57, October 04 2018
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____

Northern Region - DJ Basin

Mustang

C Section 29

Johnson C32-785

Wellbore #1

Plan: Plan #1

Standard Survey Report

04 October, 2018

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Well:	Johnson C32-785	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDMP

Project	Mustang, 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	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 C32-785					
Well Position	+N/-S	0.00 ft	Northing:	1,349,538.72 usft	Latitude:	40.2892320
	+E/-W	0.00 ft	Easting:	3,256,544.27 usft	Longitude:	-104.5803560
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,786.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/4/2018	7.97	66.76	52,206.14230863

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	183.70	

Survey Tool Program	Date	10/4/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,479.06	Plan #1 (Wellbore #1)	2_MWD+IFR1	A005Mb: IFR declination correction only	

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 Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Well:	Johnson C32-785	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDMP

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,100.00	2.00	327.17	2,099.98	1.47	-0.95	-1.40	2.00	2.00	0.00	
2,200.00	4.00	327.17	2,199.84	5.86	-3.78	-5.61	2.00	2.00	0.00	
2,300.00	6.00	327.17	2,299.45	13.19	-8.51	-12.61	2.00	2.00	0.00	
2,400.00	8.00	327.17	2,398.70	23.43	-15.11	-22.40	2.00	2.00	0.00	
2,500.00	10.00	327.17	2,497.47	36.57	-23.59	-34.97	2.00	2.00	0.00	
2,600.00	12.00	327.17	2,595.62	52.61	-33.94	-50.30	2.00	2.00	0.00	
2,700.00	14.00	327.17	2,693.06	71.51	-46.13	-68.38	2.00	2.00	0.00	
2,800.00	16.00	327.17	2,789.64	93.26	-60.16	-89.17	2.00	2.00	0.00	
2,849.69	16.99	327.17	2,837.29	105.11	-67.81	-100.51	2.00	2.00	0.00	
2,900.00	16.99	327.17	2,885.40	117.47	-75.78	-112.33	0.00	0.00	0.00	
3,000.00	16.99	327.17	2,981.03	142.03	-91.63	-135.81	0.00	0.00	0.00	
3,100.00	16.99	327.17	3,076.67	166.59	-107.47	-159.30	0.00	0.00	0.00	
3,200.00	16.99	327.17	3,172.30	191.15	-123.31	-182.78	0.00	0.00	0.00	
3,300.00	16.99	327.17	3,267.93	215.71	-139.16	-206.26	0.00	0.00	0.00	
3,400.00	16.99	327.17	3,363.57	240.27	-155.00	-229.75	0.00	0.00	0.00	
3,500.00	16.99	327.17	3,459.20	264.83	-170.85	-253.23	0.00	0.00	0.00	
3,600.00	16.99	327.17	3,554.84	289.38	-186.69	-276.72	0.00	0.00	0.00	
3,700.00	16.99	327.17	3,650.47	313.94	-202.53	-300.20	0.00	0.00	0.00	
3,800.00	16.99	327.17	3,746.10	338.50	-218.38	-323.69	0.00	0.00	0.00	
3,900.00	16.99	327.17	3,841.74	363.06	-234.22	-347.17	0.00	0.00	0.00	
4,000.00	16.99	327.17	3,937.37	387.62	-250.07	-370.66	0.00	0.00	0.00	
4,100.00	16.99	327.17	4,033.00	412.18	-265.91	-394.14	0.00	0.00	0.00	
4,200.00	16.99	327.17	4,128.64	436.74	-281.75	-417.63	0.00	0.00	0.00	
4,300.00	16.99	327.17	4,224.27	461.30	-297.60	-441.11	0.00	0.00	0.00	
4,400.00	16.99	327.17	4,319.90	485.86	-313.44	-464.60	0.00	0.00	0.00	
4,500.00	16.99	327.17	4,415.54	510.42	-329.29	-488.08	0.00	0.00	0.00	
4,600.00	16.99	327.17	4,511.17	534.98	-345.13	-511.56	0.00	0.00	0.00	
4,700.00	16.99	327.17	4,606.81	559.54	-360.97	-535.05	0.00	0.00	0.00	
4,800.00	16.99	327.17	4,702.44	584.10	-376.82	-558.53	0.00	0.00	0.00	
4,900.00	16.99	327.17	4,798.07	608.66	-392.66	-582.02	0.00	0.00	0.00	
5,000.00	16.99	327.17	4,893.71	633.22	-408.51	-605.50	0.00	0.00	0.00	
5,100.00	16.99	327.17	4,989.34	657.78	-424.35	-628.99	0.00	0.00	0.00	
5,200.00	16.99	327.17	5,084.97	682.34	-440.19	-652.47	0.00	0.00	0.00	

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Well:	Johnson C32-785	North Reference:	Grid
Wellbore:	Wellbore #1	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	16.99	327.17	5,180.61	706.90	-456.04	-675.96	0.00	0.00	0.00
5,400.00	16.99	327.17	5,276.24	731.46	-471.88	-699.44	0.00	0.00	0.00
5,500.00	16.99	327.17	5,371.87	756.02	-487.73	-722.93	0.00	0.00	0.00
5,600.00	16.99	327.17	5,467.51	780.58	-503.57	-746.41	0.00	0.00	0.00
5,700.00	16.99	327.17	5,563.14	805.14	-519.42	-769.89	0.00	0.00	0.00
5,800.00	16.99	327.17	5,658.78	829.70	-535.26	-793.38	0.00	0.00	0.00
5,900.00	16.99	327.17	5,754.41	854.26	-551.10	-816.86	0.00	0.00	0.00
6,000.00	16.99	327.17	5,850.04	878.82	-566.95	-840.35	0.00	0.00	0.00
6,100.00	16.99	327.17	5,945.68	903.37	-582.79	-863.83	0.00	0.00	0.00
6,200.00	16.99	327.17	6,041.31	927.93	-598.64	-887.32	0.00	0.00	0.00
6,204.45	16.99	327.17	6,045.56	929.03	-599.34	-888.36	0.00	0.00	0.00
6,300.00	10.88	301.24	6,138.35	945.47	-614.65	-903.78	9.00	-6.40	-27.14
6,400.00	9.85	249.82	6,236.91	947.42	-630.78	-904.68	9.00	-1.03	-51.42
6,500.00	15.37	216.00	6,334.59	933.72	-646.62	-889.99	9.00	5.52	-33.83
6,600.00	23.15	201.98	6,428.97	904.71	-661.80	-860.06	9.00	7.78	-14.02
6,700.00	31.56	194.94	6,517.73	861.10	-675.93	-815.63	9.00	8.41	-7.04
6,800.00	40.21	190.65	6,598.68	803.97	-688.67	-757.80	9.00	8.65	-4.28
6,900.00	48.97	187.68	6,669.84	734.73	-699.71	-687.98	9.00	8.76	-2.97
7,000.00	57.78	185.42	6,729.44	655.07	-708.76	-607.91	9.00	8.82	-2.27
7,100.00	66.63	183.56	6,776.02	566.97	-715.62	-519.55	9.00	8.85	-1.86
7,200.00	75.50	181.93	6,808.44	472.58	-720.10	-425.07	9.00	8.87	-1.63
7,300.00	84.38	180.43	6,825.90	374.24	-722.11	-326.81	9.00	8.88	-1.50
7,363.30	90.00	179.51	6,829.00	311.04	-722.07	-263.74	9.00	8.88	-1.46
7,400.00	90.00	179.51	6,829.00	274.35	-721.75	-227.14	0.00	0.00	0.00
7,500.00	90.00	179.51	6,829.00	174.35	-720.89	-127.41	0.00	0.00	0.00
7,600.00	90.00	179.51	6,829.00	74.36	-720.02	-27.68	0.00	0.00	0.00
7,700.00	90.00	179.51	6,829.00	-25.64	-719.16	72.05	0.00	0.00	0.00
7,800.00	90.00	179.51	6,829.00	-125.64	-718.30	171.78	0.00	0.00	0.00
7,900.00	90.00	179.51	6,829.00	-225.63	-717.44	271.52	0.00	0.00	0.00
8,000.00	90.00	179.51	6,829.00	-325.63	-716.57	371.25	0.00	0.00	0.00
8,100.00	90.00	179.51	6,829.00	-425.63	-715.71	470.98	0.00	0.00	0.00
8,200.00	90.00	179.51	6,829.00	-525.62	-714.85	570.71	0.00	0.00	0.00
8,300.00	90.00	179.51	6,829.00	-625.62	-713.98	670.44	0.00	0.00	0.00
8,400.00	90.00	179.51	6,829.00	-725.61	-713.12	770.17	0.00	0.00	0.00
8,500.00	90.00	179.51	6,829.00	-825.61	-712.26	869.91	0.00	0.00	0.00
8,600.00	90.00	179.51	6,829.00	-925.61	-711.40	969.64	0.00	0.00	0.00
8,700.00	90.00	179.51	6,829.00	-1,025.60	-710.53	1,069.37	0.00	0.00	0.00
8,800.00	90.00	179.51	6,829.00	-1,125.60	-709.67	1,169.10	0.00	0.00	0.00
8,900.00	90.00	179.51	6,829.00	-1,225.60	-708.81	1,268.83	0.00	0.00	0.00
9,000.00	90.00	179.51	6,829.00	-1,325.59	-707.94	1,368.56	0.00	0.00	0.00
9,100.00	90.00	179.51	6,829.00	-1,425.59	-707.08	1,468.29	0.00	0.00	0.00
9,200.00	90.00	179.51	6,829.00	-1,525.59	-706.22	1,568.03	0.00	0.00	0.00
9,300.00	90.00	179.51	6,829.00	-1,625.58	-705.36	1,667.76	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Well:	Johnson C32-785	North Reference:	Grid
Wellbore:	Wellbore #1	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	179.51	6,829.00	-1,725.58	-704.49	1,767.49	0.00	0.00	0.00
9,500.00	90.00	179.51	6,829.00	-1,825.57	-703.63	1,867.22	0.00	0.00	0.00
9,600.00	90.00	179.51	6,829.00	-1,925.57	-702.77	1,966.95	0.00	0.00	0.00
9,700.00	90.00	179.51	6,829.00	-2,025.57	-701.90	2,066.68	0.00	0.00	0.00
9,800.00	90.00	179.51	6,829.00	-2,125.56	-701.04	2,166.42	0.00	0.00	0.00
9,900.00	90.00	179.51	6,829.00	-2,225.56	-700.18	2,266.15	0.00	0.00	0.00
10,000.00	90.00	179.51	6,829.00	-2,325.56	-699.32	2,365.88	0.00	0.00	0.00
10,100.00	90.00	179.51	6,829.00	-2,425.55	-698.45	2,465.61	0.00	0.00	0.00
10,200.00	90.00	179.51	6,829.00	-2,525.55	-697.59	2,565.34	0.00	0.00	0.00
10,300.00	90.00	179.51	6,829.00	-2,625.54	-696.73	2,665.07	0.00	0.00	0.00
10,400.00	90.00	179.51	6,829.00	-2,725.54	-695.86	2,764.81	0.00	0.00	0.00
10,500.00	90.00	179.51	6,829.00	-2,825.54	-695.00	2,864.54	0.00	0.00	0.00
10,600.00	90.00	179.51	6,829.00	-2,925.53	-694.14	2,964.27	0.00	0.00	0.00
10,700.00	90.00	179.51	6,829.00	-3,025.53	-693.28	3,064.00	0.00	0.00	0.00
10,800.00	90.00	179.51	6,829.00	-3,125.53	-692.41	3,163.73	0.00	0.00	0.00
10,900.00	90.00	179.51	6,829.00	-3,225.52	-691.55	3,263.46	0.00	0.00	0.00
11,000.00	90.00	179.51	6,829.00	-3,325.52	-690.69	3,363.20	0.00	0.00	0.00
11,100.00	90.00	179.51	6,829.00	-3,425.51	-689.82	3,462.93	0.00	0.00	0.00
11,200.00	90.00	179.51	6,829.00	-3,525.51	-688.96	3,562.66	0.00	0.00	0.00
11,300.00	90.00	179.51	6,829.00	-3,625.51	-688.10	3,662.39	0.00	0.00	0.00
11,400.00	90.00	179.51	6,829.00	-3,725.50	-687.24	3,762.12	0.00	0.00	0.00
11,500.00	90.00	179.51	6,829.00	-3,825.50	-686.37	3,861.85	0.00	0.00	0.00
11,600.00	90.00	179.51	6,829.00	-3,925.50	-685.51	3,961.58	0.00	0.00	0.00
11,700.00	90.00	179.51	6,829.00	-4,025.49	-684.65	4,061.32	0.00	0.00	0.00
11,800.00	90.00	179.51	6,829.00	-4,125.49	-683.78	4,161.05	0.00	0.00	0.00
11,900.00	90.00	179.51	6,829.00	-4,225.48	-682.92	4,260.78	0.00	0.00	0.00
12,000.00	90.00	179.51	6,829.00	-4,325.48	-682.06	4,360.51	0.00	0.00	0.00
12,100.00	90.00	179.51	6,829.00	-4,425.48	-681.20	4,460.24	0.00	0.00	0.00
12,200.00	90.00	179.51	6,829.00	-4,525.47	-680.33	4,559.97	0.00	0.00	0.00
12,300.00	90.00	179.51	6,829.00	-4,625.47	-679.47	4,659.71	0.00	0.00	0.00
12,400.00	90.00	179.51	6,829.00	-4,725.47	-678.61	4,759.44	0.00	0.00	0.00
12,500.00	90.00	179.51	6,829.00	-4,825.46	-677.74	4,859.17	0.00	0.00	0.00
12,600.00	90.00	179.51	6,829.00	-4,925.46	-676.88	4,958.90	0.00	0.00	0.00
12,700.00	90.00	179.51	6,829.00	-5,025.46	-676.02	5,058.63	0.00	0.00	0.00
12,800.00	90.00	179.51	6,829.00	-5,125.45	-675.16	5,158.36	0.00	0.00	0.00
12,900.00	90.00	179.51	6,829.00	-5,225.45	-674.29	5,258.10	0.00	0.00	0.00
13,000.00	90.00	179.51	6,829.00	-5,325.44	-673.43	5,357.83	0.00	0.00	0.00
13,100.00	90.00	179.51	6,829.00	-5,425.44	-672.57	5,457.56	0.00	0.00	0.00
13,200.00	90.00	179.51	6,829.00	-5,525.44	-671.70	5,557.29	0.00	0.00	0.00
13,300.00	90.00	179.51	6,829.00	-5,625.43	-670.84	5,657.02	0.00	0.00	0.00
13,400.00	90.00	179.51	6,829.00	-5,725.43	-669.98	5,756.75	0.00	0.00	0.00
13,500.00	90.00	179.51	6,829.00	-5,825.43	-669.12	5,856.49	0.00	0.00	0.00
13,600.00	90.00	179.51	6,829.00	-5,925.42	-668.25	5,956.22	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Well:	Johnson C32-785	North Reference:	Grid
Wellbore:	Wellbore #1	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	179.51	6,829.00	-6,025.42	-667.39	6,055.95	0.00	0.00	0.00
13,800.00	90.00	179.51	6,829.00	-6,125.41	-666.53	6,155.68	0.00	0.00	0.00
13,900.00	90.00	179.51	6,829.00	-6,225.41	-665.66	6,255.41	0.00	0.00	0.00
14,000.00	90.00	179.51	6,829.00	-6,325.41	-664.80	6,355.14	0.00	0.00	0.00
14,100.00	90.00	179.51	6,829.00	-6,425.40	-663.94	6,454.87	0.00	0.00	0.00
14,200.00	90.00	179.51	6,829.00	-6,525.40	-663.08	6,554.61	0.00	0.00	0.00
14,300.00	90.00	179.51	6,829.00	-6,625.40	-662.21	6,654.34	0.00	0.00	0.00
14,400.00	90.00	179.51	6,829.00	-6,725.39	-661.35	6,754.07	0.00	0.00	0.00
14,500.00	90.00	179.51	6,829.00	-6,825.39	-660.49	6,853.80	0.00	0.00	0.00
14,600.00	90.00	179.51	6,829.00	-6,925.38	-659.62	6,953.53	0.00	0.00	0.00
14,700.00	90.00	179.51	6,829.00	-7,025.38	-658.76	7,053.26	0.00	0.00	0.00
14,800.00	90.00	179.51	6,829.00	-7,125.38	-657.90	7,153.00	0.00	0.00	0.00
14,900.00	90.00	179.51	6,829.00	-7,225.37	-657.04	7,252.73	0.00	0.00	0.00
15,000.00	90.00	179.51	6,829.00	-7,325.37	-656.17	7,352.46	0.00	0.00	0.00
15,100.00	90.00	179.51	6,829.00	-7,425.37	-655.31	7,452.19	0.00	0.00	0.00
15,200.00	90.00	179.51	6,829.00	-7,525.36	-654.45	7,551.92	0.00	0.00	0.00
15,300.00	90.00	179.51	6,829.00	-7,625.36	-653.58	7,651.65	0.00	0.00	0.00
15,400.00	90.00	179.51	6,829.00	-7,725.35	-652.72	7,751.39	0.00	0.00	0.00
15,500.00	90.00	179.51	6,829.00	-7,825.35	-651.86	7,851.12	0.00	0.00	0.00
15,600.00	90.00	179.51	6,829.00	-7,925.35	-651.00	7,950.85	0.00	0.00	0.00
15,700.00	90.00	179.51	6,829.00	-8,025.34	-650.13	8,050.58	0.00	0.00	0.00
15,800.00	90.00	179.51	6,829.00	-8,125.34	-649.27	8,150.31	0.00	0.00	0.00
15,900.00	90.00	179.51	6,829.00	-8,225.34	-648.41	8,250.04	0.00	0.00	0.00
16,000.00	90.00	179.51	6,829.00	-8,325.33	-647.54	8,349.78	0.00	0.00	0.00
16,100.00	90.00	179.51	6,829.00	-8,425.33	-646.68	8,449.51	0.00	0.00	0.00
16,200.00	90.00	179.51	6,829.00	-8,525.32	-645.82	8,549.24	0.00	0.00	0.00
16,300.00	90.00	179.51	6,829.00	-8,625.32	-644.96	8,648.97	0.00	0.00	0.00
16,400.00	90.00	179.51	6,829.00	-8,725.32	-644.09	8,748.70	0.00	0.00	0.00
16,500.00	90.00	179.51	6,829.00	-8,825.31	-643.23	8,848.43	0.00	0.00	0.00
16,600.00	90.00	179.51	6,829.00	-8,925.31	-642.37	8,948.16	0.00	0.00	0.00
16,700.00	90.00	179.51	6,829.00	-9,025.31	-641.50	9,047.90	0.00	0.00	0.00
16,800.00	90.00	179.51	6,829.00	-9,125.30	-640.64	9,147.63	0.00	0.00	0.00
16,900.00	90.00	179.51	6,829.00	-9,225.30	-639.78	9,247.36	0.00	0.00	0.00
17,000.00	90.00	179.51	6,829.00	-9,325.30	-638.92	9,347.09	0.00	0.00	0.00
17,100.00	90.00	179.51	6,829.00	-9,425.29	-638.05	9,446.82	0.00	0.00	0.00
17,200.00	90.00	179.51	6,829.00	-9,525.29	-637.19	9,546.55	0.00	0.00	0.00
17,300.00	90.00	179.51	6,829.00	-9,625.28	-636.33	9,646.29	0.00	0.00	0.00
17,400.00	90.00	179.51	6,829.00	-9,725.28	-635.46	9,746.02	0.00	0.00	0.00
17,479.06	90.00	179.51	6,829.00	-9,804.34	-634.78	9,824.87	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Well:	Johnson C32-785	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	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 C32-785 - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,349,538.72	3,256,544.27	40.2892320	-104.5803560
KOP Johnson C32-785 - plan hits target center - Point	0.00	0.00	6,045.57	929.03	-599.34	1,350,467.75	3,255,944.93	40.2917991	-104.5824698
BHL Johnson C32-785 - plan hits target center - Point	0.00	0.00	6,829.00	-9,804.34	-634.78	1,339,734.40	3,255,909.49	40.2623378	-104.5829948
TPZ Johnson C32-785 - plan hits target center - Point	0.00	0.00	6,829.00	311.04	-722.07	1,349,849.77	3,255,822.21	40.2901063	-104.5829327

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
591.00	591.00	Pierre				
671.00	671.00	Upper Pierre Aquifer Top				
1,567.00	1,567.00	Upper Pierre Aquifer Base				
3,703.69	3,654.00	Parkman				
4,186.79	4,116.00	Sussex				
5,064.09	4,955.00	Shannon				
6,175.63	6,018.00	Teepee Buttes				
6,966.75	6,711.00	Sharon Springs				
7,018.35	6,739.00	Top A Chalk				
7,046.93	6,753.00	Top A Marl				
7,110.21	6,780.00	Top B Chalk				
7,228.66	6,815.00	Top B Marl				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2000	2000	0	0	Start Build 2.00
6204	6046	929	-599	Start DLS 9.00 TFO -146.50
7363	6829	311	-722	TPZ/LP at 7363.30 MD
17,479	6829	-9804	-635	TD at 17479.06 MD

Checked By: _____ Approved By: _____ Date: _____

Northern Region - DJ Basin

Mustang

C Section 29

Johnson C32-785

Wellbore #1

Plan #1

Anticollision Summary Report

04 October, 2018

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Reference Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson C32-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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	10/4/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,479.06	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	6,352.84	6,121.73	4,092.49	4,047.41	90.788	CC, ES
Agricultural Products Inc 20-414 - Wellbore #1 - Wellbore	6,700.00	6,530.32	4,182.22	4,134.90	88.387	SF
BALBOA #20-1(SI) - Wellbore #1 - No Surveys	2,000.00	1,931.00	3,795.11	3,771.32	159.541	CC
BALBOA #20-1(SI) - Wellbore #1 - No Surveys	2,200.00	2,130.84	3,796.70	3,770.46	144.677	ES
BALBOA #20-1(SI) - Wellbore #1 - No Surveys	7,250.00	6,750.08	4,378.86	4,293.25	51.150	SF
Balboa C #20-24D(PR) - Wellbore #1 - MWD Survey	451.62	414.99	1,506.79	1,504.68	716.055	CC
Balboa C #20-24D(PR) - Wellbore #1 - MWD Survey	500.00	454.87	1,507.02	1,504.54	607.770	ES
Balboa C #20-24D(PR) - Wellbore #1 - MWD Survey	6,500.00	6,447.27	2,493.09	2,440.30	47.230	SF
BALBOS #C20-4(TA) - Wellbore #1 - No Surveys	2,000.00	1,939.00	2,422.32	2,398.46	101.533	CC
BALBOS #C20-4(TA) - Wellbore #1 - No Surveys	2,500.00	2,436.47	2,425.28	2,395.30	80.911	ES
BALBOS #C20-4(TA) - Wellbore #1 - No Surveys	7,000.00	6,668.44	2,868.69	2,784.39	34.030	SF
Chenoweth 2 - Wellbore #1 - Wellbore #1 - As Drilled	6,280.62	6,111.14	294.67	249.05	6.458	CC, ES
Chenoweth 2 - Wellbore #1 - Wellbore #1 - As Drilled	6,300.00	6,130.03	294.93	249.15	6.442	SF
Chenoweth C20-25D(SI) - Wellbore #1 - MWD Surveys	6,259.61	6,316.97	1,181.26	1,123.18	20.340	CC, ES
Chenoweth C20-25D(SI) - Wellbore #1 - MWD Surveys	6,350.00	6,396.59	1,186.13	1,127.47	20.219	SF
HANSCOME C #28-30D(SI) - Wellbore #1 - No Surveys	2,000.00	1,935.00	3,831.43	3,807.60	160.831	CC
HANSCOME C #28-30D(SI) - Wellbore #1 - No Surveys	2,100.00	2,034.98	3,831.85	3,806.80	152.958	ES
HANSCOME C #28-30D(SI) - Wellbore #1 - No Surveys	7,250.00	6,754.08	4,422.71	4,337.08	51.646	SF
HANSCOME C #29-27D(SI) - Wellbore #1 - No Surveys	2,000.00	1,935.00	3,819.41	3,795.59	160.327	CC
HANSCOME C #29-27D(SI) - Wellbore #1 - No Surveys	2,100.00	2,034.98	3,819.82	3,794.77	152.478	ES
HANSCOME C #29-27D(SI) - Wellbore #1 - No Surveys	7,250.00	6,754.08	4,407.75	4,322.11	51.469	SF
Highland 12-20 - Wellbore #1 - Wellbore #1 - As Drilled	6,348.84	6,153.61	1,524.28	1,478.96	33.632	CC
Highland 12-20 - Wellbore #1 - Wellbore #1 - As Drilled	6,350.00	6,154.75	1,524.28	1,478.95	33.626	ES
Highland 12-20 - Wellbore #1 - Wellbore #1 - As Drilled	6,500.00	6,295.24	1,542.41	1,496.10	33.303	SF
JOHNSON C #29-28(PR) - Wellbore #1 - No Surveys	2,000.00	1,950.00	1,545.26	1,521.31	64.511	CC
JOHNSON C #29-28(PR) - Wellbore #1 - No Surveys	2,300.00	2,249.45	1,547.09	1,519.46	55.989	ES
JOHNSON C #29-28(PR) - Wellbore #1 - No Surveys	7,200.00	6,758.44	2,114.89	2,029.43	24.746	SF
Klingenberg C20-780 - Original Drilling - Original Drilling	5,688.80	5,543.41	48.99	10.79	1.282	Level 3, CC, ES
Klingenberg C20-780 - Original Drilling - Original Drilling	5,700.00	5,554.14	49.09	10.80	1.282	Level 3, SF
Klingenberg C20-780 - Original Drilling - ST01 - ST01 - A	5,688.80	5,543.41	48.99	10.79	1.282	Level 3, CC, ES
Klingenberg C20-780 - Original Drilling - ST01 - ST01 - A	5,700.00	5,554.14	49.09	10.80	1.282	Level 3, SF
Klingenberg C20-780 - Original Drilling - ST02 - ST02 - A	5,688.80	5,543.41	48.99	10.79	1.282	Level 3, CC, ES
Klingenberg C20-780 - Original Drilling - ST02 - ST02 - A	5,700.00	5,554.14	49.09	10.80	1.282	Level 3, SF
Prebush 2 - Wellbore #1 - Wellbore #1 - As Drilled	6,343.88	6,130.98	2,926.03	2,880.80	64.702	CC
Prebush 2 - Wellbore #1 - Wellbore #1 - As Drilled	6,350.00	6,137.63	2,926.05	2,880.79	64.636	ES
Prebush 2 - Wellbore #1 - Wellbore #1 - As Drilled	6,600.00	6,397.51	2,975.89	2,929.03	63.501	SF
Prebush C20-19 - Wellbore #1 - Wellbore #1 - As Drilled	6,339.63	6,169.80	3,711.97	3,666.42	81.493	CC, ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Reference Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson C32-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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						
C Section 20						
Prebish C20-19 - Wellbore #1 - Wellbore #1 - As Drilled	6,650.00	6,437.56	3,785.94	3,738.61	79.996	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Reference Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson C32-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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						
C Section 29						
CPC-JOHNSON #29-1(SI) - Wellbore #1 - No Surveys	2,000.00	1,952.00	3,687.95	3,663.98	153.851	CC
CPC-JOHNSON #29-1(SI) - Wellbore #1 - No Surveys	2,100.00	2,051.98	3,688.88	3,663.68	146.384	ES
CPC-JOHNSON #29-1(SI) - Wellbore #1 - No Surveys	9,000.00	6,781.00	4,606.04	4,511.87	48.912	SF
JOHNSON #19-29(SI) - Wellbore #1 - No Surveys	11,104.12	6,819.00	946.29	832.81	8.339	CC, ES
JOHNSON #19-29(SI) - Wellbore #1 - No Surveys	11,200.00	6,819.00	951.14	836.95	8.329	SF
JOHNSON #20-29(SI) - Wellbore #1 - No Surveys	11,218.13	6,803.00	3,776.18	3,661.74	32.997	CC, ES
JOHNSON #20-29(SI) - Wellbore #1 - No Surveys	12,100.00	6,803.00	3,877.78	3,756.09	31.864	SF
JOHNSON #29-13(SI) - Wellbore #1 - No Surveys	2,000.00	1,975.00	2,662.53	2,638.36	110.151	CC, ES
JOHNSON #29-13(SI) - Wellbore #1 - No Surveys	9,700.00	6,804.00	3,003.91	2,903.73	29.986	SF
JOHNSON #29-15(SI) - Wellbore #1 - No Surveys	2,000.00	1,971.00	2,952.09	2,927.95	122.307	CC, ES
JOHNSON #29-15(SI) - Wellbore #1 - No Surveys	9,400.00	6,800.00	3,662.10	3,564.61	37.564	SF
JOHNSON C #29-18(SI) - Wellbore #1 - No Surveys	2,000.00	1,975.00	1,684.05	1,659.88	69.670	CC, ES
JOHNSON C #29-18(SI) - Wellbore #1 - No Surveys	8,900.00	6,804.00	2,205.79	2,111.70	23.443	SF
JOHNSON C #29-19(SI) - Wellbore #1 - Gyro Surveys	8,429.42	6,818.80	746.33	691.01	13.490	CC, ES
JOHNSON C #29-19(SI) - Wellbore #1 - Gyro Surveys	8,500.00	6,816.63	749.66	693.88	13.441	SF
JOHNSON C #29-29(SI) - Wellbore #1 - No Surveys	3,030.80	2,979.49	356.29	319.61	9.715	CC
JOHNSON C #29-29(SI) - Wellbore #1 - No Surveys	3,100.00	3,045.67	356.86	319.35	9.512	ES
JOHNSON C #29-29(SI) - Wellbore #1 - No Surveys	3,500.00	3,428.20	381.77	339.39	9.007	SF
Johnson C32-715 - Wellbore #1 - Plan #1	2,000.00	1,988.00	1,453.98	1,440.15	105.133	CC, ES
Johnson C32-715 - Wellbore #1 - Plan #1	17,479.06	18,073.78	4,571.39	4,333.43	19.210	SF
Johnson C32-725 - Wellbore #1 - Plan #1	2,000.00	1,988.00	1,431.59	1,417.76	103.514	CC, ES
Johnson C32-725 - Wellbore #1 - Plan #1	17,479.06	17,764.53	3,917.95	3,679.75	16.448	SF
Johnson C32-730 - Wellbore #1 - Plan #1	2,000.00	1,989.00	1,409.20	1,395.37	101.870	CC, ES
Johnson C32-730 - Wellbore #1 - Plan #1	17,479.06	17,848.79	3,596.91	3,358.83	15.108	SF
Johnson C32-735 - Wellbore #1 - Plan #1	2,000.00	1,989.00	1,387.10	1,373.27	100.272	CC, ES
Johnson C32-735 - Wellbore #1 - Plan #1	17,479.06	17,656.42	3,266.75	3,028.20	13.694	SF
Johnson C32-745 - Wellbore #1 - Plan #1	2,000.00	1,988.00	1,364.74	1,350.91	98.681	CC, ES
Johnson C32-745 - Wellbore #1 - Plan #1	17,479.06	17,492.71	2,613.11	2,373.88	10.923	SF
Johnson C32-755 - Wellbore #1 - Plan #1	2,000.00	2,001.00	90.11	76.23	6.493	CC, ES
Johnson C32-755 - Wellbore #1 - Plan #1	2,200.00	2,200.84	94.01	78.71	6.143	SF
Johnson C32-765 - Wellbore #1 - Plan #1	2,000.00	2,001.00	67.51	53.63	4.865	CC, ES
Johnson C32-765 - Wellbore #1 - Plan #1	2,100.00	2,099.99	69.18	54.59	4.743	SF
Johnson C32-770 - Wellbore #1 - Plan #1	2,000.00	2,000.00	45.19	31.32	3.258	CC, ES
Johnson C32-770 - Wellbore #1 - Plan #1	2,100.00	2,100.02	46.15	31.56	3.163	SF
Johnson C32-775 - Wellbore #1 - Plan #1	2,000.00	2,000.00	22.60	8.72	1.629	CC, ES
Johnson C32-775 - Wellbore #1 - Plan #1	2,100.00	2,100.02	23.57	8.99	1.616	SF
JOHNSON PM C #29-8(SI) - Wellbore #1 - No Surveys	2,000.00	1,971.00	3,645.07	3,620.93	151.017	CC, ES
JOHNSON PM C #29-8(SI) - Wellbore #1 - No Surveys	10,200.00	6,800.00	4,222.77	4,118.89	40.649	SF
JOHNSON R C #29-2(SI) - Wellbore #1 - No Surveys	2,000.00	1,962.00	2,243.96	2,219.91	93.272	CC
JOHNSON R C #29-2(SI) - Wellbore #1 - No Surveys	2,100.00	2,061.98	2,244.96	2,219.67	88.778	ES
JOHNSON R C #29-2(SI) - Wellbore #1 - No Surveys	8,300.00	6,791.00	3,007.37	2,917.24	33.368	SF
UPRC #29-4H(SI) - Wellbore #1 - No Surveys	7,823.57	6,806.00	181.20	93.40	2.064	CC, ES, SF
UPRC #29-6H(SI) - Wellbore #1 - No Surveys	2,000.00	1,985.00	1,492.08	1,467.82	61.506	CC
UPRC #29-6H(SI) - Wellbore #1 - No Surveys	8,945.44	6,814.00	1,510.80	1,416.16	15.964	ES
UPRC #29-6H(SI) - Wellbore #1 - No Surveys	9,100.00	6,814.00	1,518.68	1,422.92	15.859	SF
VICTOR #C29-16(SI) - Wellbore #1 - No Surveys	11,873.82	6,792.00	4,374.77	4,254.01	36.227	CC
VICTOR #C29-16(SI) - Wellbore #1 - No Surveys	11,900.00	6,792.00	4,374.85	4,253.83	36.150	ES
VICTOR #C29-16(SI) - Wellbore #1 - No Surveys	12,900.00	6,792.00	4,493.51	4,364.10	34.724	SF
VICTOR C #29-10(SI) - Wellbore #1 - No Surveys	10,501.32	6,830.00	2,927.80	2,819.89	27.133	CC, ES
VICTOR C #29-10(SI) - Wellbore #1 - No Surveys	11,000.00	6,830.00	2,969.96	2,857.94	26.512	SF
VICTOR C #29-11(SI) - Wellbore #1 - No Surveys	10,500.84	6,837.00	1,576.89	1,468.93	14.606	CC, ES
VICTOR C #29-11(SI) - Wellbore #1 - No Surveys	10,700.00	6,837.00	1,589.42	1,479.88	14.510	SF
VICTOR C #29-12(SI) - Wellbore #1 - No Surveys	10,457.54	6,842.00	298.17	190.56	2.771	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

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Reference Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson C32-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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						
C Section 29						
VICTOR C #29-13(SI) - Wellbore #1 - No Surveys	11,964.21	6,816.00	316.11	194.24	2.594	CC, ES, SF
VICTOR C #29-14(SI) - Wellbore #1 - No Surveys	11,937.54	6,803.00	1,610.41	1,488.92	13.256	CC, ES
VICTOR C #29-14(SI) - Wellbore #1 - No Surveys	12,100.00	6,803.00	1,618.59	1,495.76	13.177	SF
VICTOR C #29-15(SI) - Wellbore #1 - No Surveys	11,740.98	6,819.00	2,937.04	2,817.36	24.540	CC, ES
VICTOR C #29-15(SI) - Wellbore #1 - No Surveys	12,200.00	6,819.00	2,972.70	2,849.12	24.055	SF
VICTOR C #29-3(PA) - Wellbore #1 - Gyro Surveys	2,013.52	1,990.52	773.85	760.09	56.220	CC, ES
VICTOR C #29-3(PA) - Wellbore #1 - Gyro Surveys	8,200.00	6,801.12	1,434.94	1,381.04	26.620	SF
VICTOR C #29-4(PA) - Wellbore #1 - No Surveys	2,751.97	2,721.37	420.62	387.24	12.604	CC
VICTOR C #29-4(PA) - Wellbore #1 - No Surveys	2,800.00	2,767.64	420.81	386.86	12.394	ES
VICTOR C #29-4(PA) - Wellbore #1 - No Surveys	3,500.00	3,437.20	473.30	430.78	11.131	SF
VICTOR C #29-5(PA) - Wellbore #1 - Gyro Surveys	9,127.24	6,820.14	289.76	229.65	4.821	CC, ES, SF
VICTOR C #29-6(PA) - Wellbore #1 - No Surveys	2,000.00	1,986.00	1,715.57	1,691.30	70.694	CC, ES
VICTOR C #29-6(PA) - Wellbore #1 - No Surveys	5,100.00	4,975.34	2,498.24	2,436.52	40.477	SF
VICTOR C #29-9(SI) - Wellbore #1 - No Surveys	10,409.65	6,788.00	4,420.27	4,313.57	41.429	CC, ES
VICTOR C #29-9(SI) - Wellbore #1 - No Surveys	11,600.00	6,788.00	4,577.74	4,461.35	39.331	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Reference Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson C32-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	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 32						
HENNINGTON C #32-10(PR) - Wellbore #1 - No Surveys	15,711.69	6,783.00	2,955.20	2,794.90	18.436	CC, ES
HENNINGTON C #32-10(PR) - Wellbore #1 - No Surveys	16,100.00	6,783.00	2,980.60	2,817.08	18.227	SF
HENNINGTON C #32-2(PR) - Wellbore #1 - No Surveys	12,943.16	6,784.00	2,921.39	2,789.93	22.223	CC
HENNINGTON C #32-2(PR) - Wellbore #1 - No Surveys	13,000.00	6,784.00	2,921.94	2,789.92	22.132	ES
HENNINGTON C #32-2(PR) - Wellbore #1 - No Surveys	13,400.00	6,784.00	2,956.89	2,821.60	21.855	SF
HENNINGTON C #32-7(PA) - Wellbore #1 - Gyro Survey	14,286.52	6,965.45	2,754.84	2,644.42	24.948	CC
HENNINGTON C #32-7(PA) - Wellbore #1 - Gyro Survey	14,300.00	6,965.05	2,754.88	2,644.32	24.918	ES
HENNINGTON C #32-7(PA) - Wellbore #1 - Gyro Survey	14,700.00	6,953.08	2,785.67	2,671.98	24.502	SF
HOWELL #1(SI) - Wellbore #1 - No Surveys	16,664.45	6,813.00	842.73	672.06	4.938	CC, ES
HOWELL #1(SI) - Wellbore #1 - No Surveys	16,700.00	6,813.00	843.48	672.55	4.935	SF
HOWELL #32-1(SI) - Wellbore #1 - No Surveys	14,649.93	6,797.00	1,605.75	1,456.50	10.759	CC, ES
HOWELL #32-1(SI) - Wellbore #1 - No Surveys	14,800.00	6,797.00	1,612.74	1,462.32	10.721	SF
HOWELL #32-2(SI) - Wellbore #1 - No Surveys	13,256.17	6,791.00	1,666.05	1,531.32	12.366	CC, ES
HOWELL #32-2(SI) - Wellbore #1 - No Surveys	13,400.00	6,791.00	1,672.25	1,536.31	12.302	SF
HOWELL #32-23(PR) - Wellbore #1 - No Surveys	14,355.57	6,824.00	430.18	283.78	2.938	CC, ES, SF
HOWELL #C 32-12(SI) - Wellbore #1 - No Surveys	15,874.93	6,838.00	274.86	112.36	1.691	CC, ES, SF
MCGUIRK-HOWELL C #32-11(SI) - Wellbore #1 - No Su	15,671.52	6,796.00	1,597.80	1,437.81	9.987	CC
MCGUIRK-HOWELL C #32-11(SI) - Wellbore #1 - No Su	15,700.00	6,796.00	1,598.05	1,437.78	9.971	ES
MCGUIRK-HOWELL C #32-11(SI) - Wellbore #1 - No Su	15,800.00	6,796.00	1,602.95	1,441.94	9.956	SF
MCGUIRK-HOWELL C #32-14(TA) - Wellbore #1 - No Su	17,044.72	6,802.00	1,487.77	1,313.15	8.520	CC, ES
MCGUIRK-HOWELL C #32-14(TA) - Wellbore #1 - No Su	17,100.00	6,802.00	1,488.80	1,313.68	8.502	SF
MCGUIRK-HOWELL C #32-4(SI) - Wellbore #1 - No Sur	12,968.80	6,839.00	390.11	257.91	2.951	CC, ES, SF
NELSON #32-25(PR) - Wellbore #1 - No Surveys	13,760.88	6,828.00	946.48	806.23	6.748	CC, ES
NELSON #32-25(PR) - Wellbore #1 - No Surveys	13,800.00	6,828.00	947.29	806.70	6.738	SF
PLUSS #32-43(PA) - Wellbore #1 - Gyro Surveys	17,183.68	6,921.93	2,633.04	2,492.10	18.682	CC
PLUSS #32-43(PA) - Wellbore #1 - Gyro Surveys	17,200.00	6,921.48	2,633.09	2,491.99	18.661	ES
PLUSS #32-43(PA) - Wellbore #1 - Gyro Surveys	17,479.06	6,913.89	2,649.55	2,506.27	18.493	SF
PTF #C 32-1(SI) - Wellbore #1 - No Surveys	13,230.32	6,776.00	4,240.89	4,106.56	31.571	CC
PTF #C 32-1(SI) - Wellbore #1 - No Surveys	13,300.00	6,776.00	4,241.46	4,106.42	31.410	ES
PTF #C 32-1(SI) - Wellbore #1 - No Surveys	14,100.00	6,776.00	4,329.14	4,187.41	30.546	SF
PTF #C 32-16(SI) - Wellbore #1 - No Surveys	17,091.78	6,777.00	4,242.58	4,067.68	24.257	CC
PTF #C 32-16(SI) - Wellbore #1 - No Surveys	17,100.00	6,777.00	4,242.59	4,067.60	24.245	ES
PTF #C 32-16(SI) - Wellbore #1 - No Surveys	17,479.06	6,777.00	4,260.22	4,081.69	23.863	SF
PTF #C 32-8(SI) - Wellbore #1 - No Surveys	14,603.67	6,766.00	4,249.05	4,100.56	28.615	CC, ES
PTF #C 32-8(SI) - Wellbore #1 - No Surveys	15,400.00	6,766.00	4,323.03	4,167.78	27.845	SF
PTF #C 32-9(SI) - Wellbore #1 - No Surveys	15,966.07	6,768.00	4,271.16	4,108.30	26.226	CC
PTF #C 32-9(SI) - Wellbore #1 - No Surveys	16,000.00	6,768.00	4,271.29	4,108.08	26.170	ES
PTF #C 32-9(SI) - Wellbore #1 - No Surveys	16,700.00	6,768.00	4,333.75	4,164.68	25.632	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 Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Reference Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson C32-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4816.00ft

Offset Depths are relative to Offset Datum

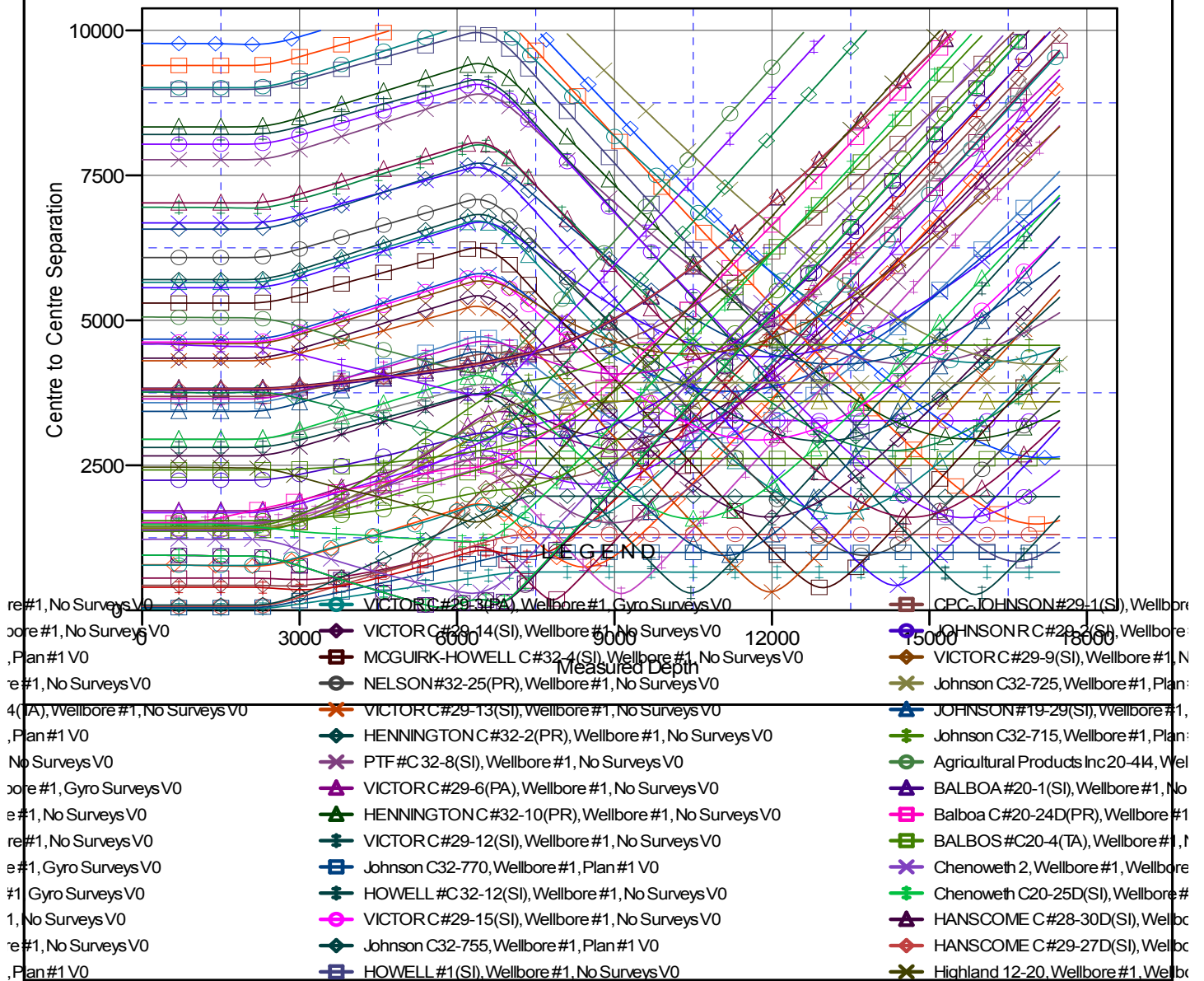
Central Meridian is -105.5000000

Coordinates are relative to: Johnson C32-785

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°

Ladder Plot



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

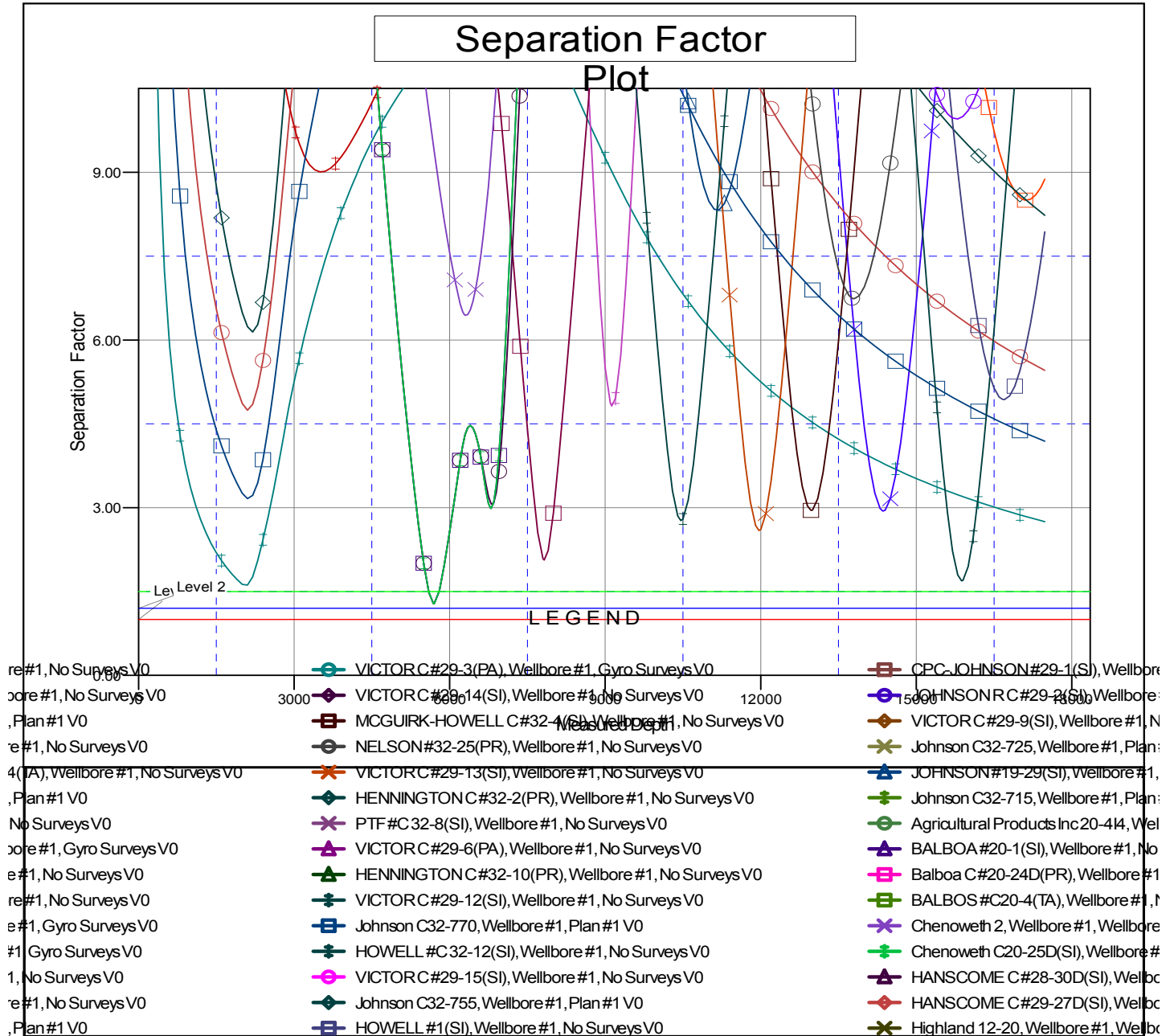
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Johnson C32-785
Project:	Mustang	TVD Reference:	KB @ 4816.00ft
Reference Site:	C Section 29	MD Reference:	KB @ 4816.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson C32-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4816.00ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.5000000

Coordinates are relative to: Johnson C32-785
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.59°



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