

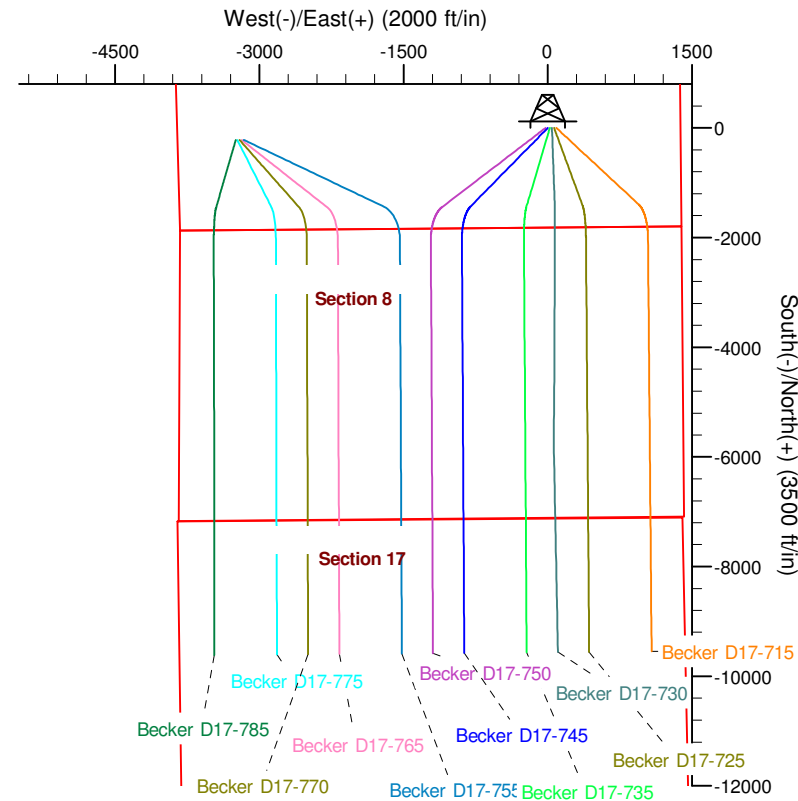
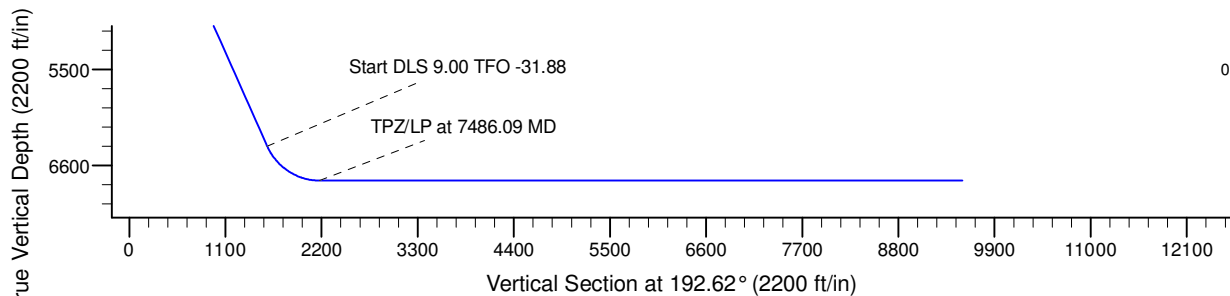
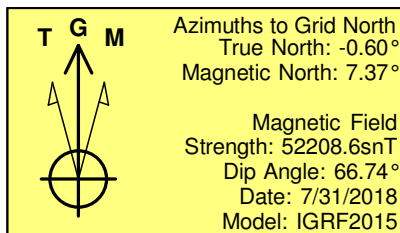
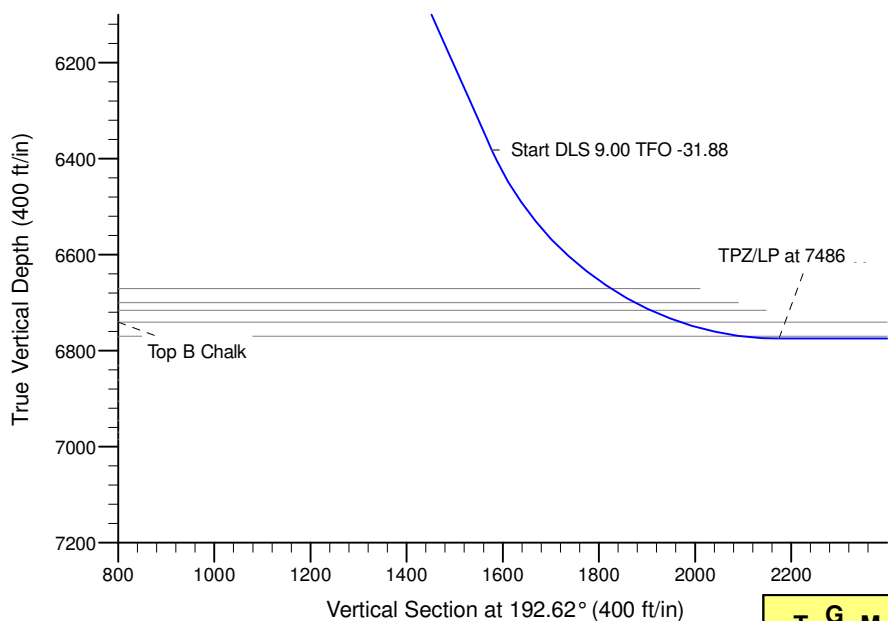
Project: Mustang
Site: D Section 08
Well: Becker D17-745
Wellbore: Wellbore #1
Design: Plan #1

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	3443.91	24.88	209.25	3405.19	-231.95	-129.90	2.00	209.25	254.72	
4	6724.89	24.88	209.25	6381.71	-1436.24	-804.33	0.00	0.00	1577.28	
5	7486.09	90.00	179.81	6775.00	-2028.87	-892.05	9.00	-31.88	2174.77	Becker D17-745 TPZ
6	15031.49	90.00	179.81	6775.00	-9574.24	-867.64	0.00	0.00	9532.46	Becker D17-745 BHL



WELL DETAILS: Becker D17-745

	Northing	Easting	Latitude	Longitude
0.00	0.00	1336070.94	4747.00	40.2521800
		3259471.37		-104.5703700

Plan: Plan #1 (Becker D17-745/Wellbore #1)

Created By: Colby Baxter Date: 9:14, October 02 2018

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region - DJ Basin

Mustang

D Section 08

Becker D17-745

Wellbore #1

Plan: Plan #1

Standard Survey Report

02 October, 2018

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Well:	Becker D17-745	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		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 D17-745					
Well Position	+N/-S	0.00 ft	Northing:	1,336,070.94 usft	Latitude:	40.2521800
	+E/-W	0.00 ft	Easting:	3,259,471.37 usft	Longitude:	-104.5703700
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,747.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/31/2018	7.98	66.74	52,208.56696944

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	192.62	

Survey Tool Program	Date	10/1/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	15,031.00	Plan #1 (Wellbore #1)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

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

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Well:	Becker D17-745	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	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	209.25	2,299.98	-1.52	-0.85	1.67	2.00	2.00	0.00
2,400.00	4.00	209.25	2,399.84	-6.09	-3.41	6.69	2.00	2.00	0.00
2,500.00	6.00	209.25	2,499.45	-13.69	-7.67	15.04	2.00	2.00	0.00
2,600.00	8.00	209.25	2,598.70	-24.33	-13.62	26.71	2.00	2.00	0.00
2,700.00	10.00	209.25	2,697.47	-37.97	-21.27	41.70	2.00	2.00	0.00
2,800.00	12.00	209.25	2,795.62	-54.62	-30.59	59.98	2.00	2.00	0.00
2,900.00	14.00	209.25	2,893.06	-74.25	-41.58	81.54	2.00	2.00	0.00
3,000.00	16.00	209.25	2,989.64	-96.83	-54.23	106.34	2.00	2.00	0.00
3,100.00	18.00	209.25	3,085.27	-122.33	-68.51	134.35	2.00	2.00	0.00
3,200.00	20.00	209.25	3,179.82	-150.74	-84.42	165.54	2.00	2.00	0.00
3,300.00	22.00	209.25	3,273.17	-182.01	-101.93	199.88	2.00	2.00	0.00
3,400.00	24.00	209.25	3,365.21	-216.09	-121.02	237.32	2.00	2.00	0.00
3,443.91	24.88	209.25	3,405.19	-231.95	-129.90	254.72	2.00	2.00	0.00
3,500.00	24.88	209.25	3,456.08	-252.53	-141.43	277.33	0.00	0.00	0.00
3,600.00	24.88	209.25	3,546.80	-289.24	-161.98	317.64	0.00	0.00	0.00
3,700.00	24.88	209.25	3,637.52	-325.94	-182.54	357.95	0.00	0.00	0.00
3,800.00	24.88	209.25	3,728.24	-362.65	-203.09	398.26	0.00	0.00	0.00
3,900.00	24.88	209.25	3,818.96	-399.35	-223.65	438.57	0.00	0.00	0.00
4,000.00	24.88	209.25	3,909.68	-436.06	-244.21	478.88	0.00	0.00	0.00
4,100.00	24.88	209.25	4,000.40	-472.76	-264.76	519.19	0.00	0.00	0.00
4,200.00	24.88	209.25	4,091.12	-509.47	-285.32	559.50	0.00	0.00	0.00
4,300.00	24.88	209.25	4,181.84	-546.17	-305.87	599.81	0.00	0.00	0.00
4,400.00	24.88	209.25	4,272.56	-582.88	-326.43	640.12	0.00	0.00	0.00
4,500.00	24.88	209.25	4,363.28	-619.58	-346.99	680.43	0.00	0.00	0.00
4,600.00	24.88	209.25	4,454.00	-656.29	-367.54	720.74	0.00	0.00	0.00
4,700.00	24.88	209.25	4,544.72	-692.99	-388.10	761.05	0.00	0.00	0.00
4,800.00	24.88	209.25	4,635.44	-729.70	-408.65	801.36	0.00	0.00	0.00
4,900.00	24.88	209.25	4,726.16	-766.40	-429.21	841.67	0.00	0.00	0.00
5,000.00	24.88	209.25	4,816.88	-803.11	-449.76	881.98	0.00	0.00	0.00
5,100.00	24.88	209.25	4,907.60	-839.81	-470.32	922.29	0.00	0.00	0.00
5,200.00	24.88	209.25	4,998.32	-876.52	-490.88	962.60	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Well:	Becker D17-745	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	24.88	209.25	5,089.04	-913.23	-511.43	1,002.91	0.00	0.00	0.00
5,400.00	24.88	209.25	5,179.76	-949.93	-531.99	1,043.22	0.00	0.00	0.00
5,500.00	24.88	209.25	5,270.48	-986.64	-552.54	1,083.53	0.00	0.00	0.00
5,600.00	24.88	209.25	5,361.20	-1,023.34	-573.10	1,123.84	0.00	0.00	0.00
5,700.00	24.88	209.25	5,451.92	-1,060.05	-593.66	1,164.15	0.00	0.00	0.00
5,800.00	24.88	209.25	5,542.64	-1,096.75	-614.21	1,204.46	0.00	0.00	0.00
5,900.00	24.88	209.25	5,633.36	-1,133.46	-634.77	1,244.77	0.00	0.00	0.00
6,000.00	24.88	209.25	5,724.08	-1,170.16	-655.32	1,285.08	0.00	0.00	0.00
6,100.00	24.88	209.25	5,814.80	-1,206.87	-675.88	1,325.39	0.00	0.00	0.00
6,200.00	24.88	209.25	5,905.53	-1,243.57	-696.44	1,365.70	0.00	0.00	0.00
6,300.00	24.88	209.25	5,996.25	-1,280.28	-716.99	1,406.01	0.00	0.00	0.00
6,400.00	24.88	209.25	6,086.97	-1,316.98	-737.55	1,446.32	0.00	0.00	0.00
6,500.00	24.88	209.25	6,177.69	-1,353.69	-758.10	1,486.63	0.00	0.00	0.00
6,600.00	24.88	209.25	6,268.41	-1,390.39	-778.66	1,526.94	0.00	0.00	0.00
6,700.00	24.88	209.25	6,359.13	-1,427.10	-799.22	1,567.25	0.00	0.00	0.00
6,724.90	24.88	209.25	6,381.71	-1,436.24	-804.33	1,577.28	0.00	0.00	0.00
6,800.00	30.81	202.28	6,448.11	-1,467.85	-819.36	1,611.42	9.00	7.90	-9.28
6,900.00	39.10	196.10	6,530.02	-1,521.96	-837.86	1,668.26	9.00	8.28	-6.18
7,000.00	47.61	191.82	6,602.69	-1,588.54	-854.20	1,736.80	9.00	8.51	-4.28
7,100.00	56.24	188.58	6,664.31	-1,665.94	-867.99	1,815.35	9.00	8.63	-3.25
7,200.00	64.94	185.93	6,713.37	-1,752.28	-878.90	1,901.98	9.00	8.70	-2.65
7,300.00	73.68	183.64	6,748.67	-1,845.41	-886.64	1,994.55	9.00	8.74	-2.29
7,400.00	82.45	181.55	6,769.33	-1,943.05	-891.03	2,090.79	9.00	8.76	-2.09
7,486.09	90.00	179.81	6,775.00	-2,028.87	-892.05	2,174.77	9.00	8.77	-2.01
7,500.00	90.00	179.81	6,775.00	-2,042.79	-892.00	2,188.34	0.00	0.00	0.00
7,600.00	90.00	179.81	6,775.00	-2,142.79	-891.68	2,285.85	0.00	0.00	0.00
7,700.00	90.00	179.81	6,775.00	-2,242.79	-891.35	2,383.36	0.00	0.00	0.00
7,800.00	90.00	179.81	6,775.00	-2,342.79	-891.03	2,480.87	0.00	0.00	0.00
7,900.00	90.00	179.81	6,775.00	-2,442.79	-890.71	2,578.38	0.00	0.00	0.00
8,000.00	90.00	179.81	6,775.00	-2,542.78	-890.38	2,675.90	0.00	0.00	0.00
8,100.00	90.00	179.81	6,775.00	-2,642.78	-890.06	2,773.41	0.00	0.00	0.00
8,200.00	90.00	179.81	6,775.00	-2,742.78	-889.74	2,870.92	0.00	0.00	0.00
8,300.00	90.00	179.81	6,775.00	-2,842.78	-889.41	2,968.43	0.00	0.00	0.00
8,400.00	90.00	179.81	6,775.00	-2,942.78	-889.09	3,065.95	0.00	0.00	0.00
8,500.00	90.00	179.81	6,775.00	-3,042.78	-888.77	3,163.46	0.00	0.00	0.00
8,600.00	90.00	179.81	6,775.00	-3,142.78	-888.44	3,260.97	0.00	0.00	0.00
8,700.00	90.00	179.81	6,775.00	-3,242.78	-888.12	3,358.48	0.00	0.00	0.00
8,800.00	90.00	179.81	6,775.00	-3,342.78	-887.80	3,455.99	0.00	0.00	0.00
8,900.00	90.00	179.81	6,775.00	-3,442.78	-887.47	3,553.51	0.00	0.00	0.00
9,000.00	90.00	179.81	6,775.00	-3,542.78	-887.15	3,651.02	0.00	0.00	0.00
9,100.00	90.00	179.81	6,775.00	-3,642.78	-886.83	3,748.53	0.00	0.00	0.00
9,200.00	90.00	179.81	6,775.00	-3,742.78	-886.50	3,846.04	0.00	0.00	0.00
9,300.00	90.00	179.81	6,775.00	-3,842.78	-886.18	3,943.56	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Well:	Becker D17-745	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	179.81	6,775.00	-3,942.78	-885.86	4,041.07	0.00	0.00	0.00
9,500.00	90.00	179.81	6,775.00	-4,042.78	-885.53	4,138.58	0.00	0.00	0.00
9,600.00	90.00	179.81	6,775.00	-4,142.78	-885.21	4,236.09	0.00	0.00	0.00
9,700.00	90.00	179.81	6,775.00	-4,242.78	-884.88	4,333.60	0.00	0.00	0.00
9,800.00	90.00	179.81	6,775.00	-4,342.78	-884.56	4,431.12	0.00	0.00	0.00
9,900.00	90.00	179.81	6,775.00	-4,442.77	-884.24	4,528.63	0.00	0.00	0.00
10,000.00	90.00	179.81	6,775.00	-4,542.77	-883.91	4,626.14	0.00	0.00	0.00
10,100.00	90.00	179.81	6,775.00	-4,642.77	-883.59	4,723.65	0.00	0.00	0.00
10,200.00	90.00	179.81	6,775.00	-4,742.77	-883.27	4,821.17	0.00	0.00	0.00
10,300.00	90.00	179.81	6,775.00	-4,842.77	-882.94	4,918.68	0.00	0.00	0.00
10,400.00	90.00	179.81	6,775.00	-4,942.77	-882.62	5,016.19	0.00	0.00	0.00
10,500.00	90.00	179.81	6,775.00	-5,042.77	-882.30	5,113.70	0.00	0.00	0.00
10,600.00	90.00	179.81	6,775.00	-5,142.77	-881.97	5,211.21	0.00	0.00	0.00
10,700.00	90.00	179.81	6,775.00	-5,242.77	-881.65	5,308.73	0.00	0.00	0.00
10,800.00	90.00	179.81	6,775.00	-5,342.77	-881.33	5,406.24	0.00	0.00	0.00
10,900.00	90.00	179.81	6,775.00	-5,442.77	-881.00	5,503.75	0.00	0.00	0.00
11,000.00	90.00	179.81	6,775.00	-5,542.77	-880.68	5,601.26	0.00	0.00	0.00
11,100.00	90.00	179.81	6,775.00	-5,642.77	-880.36	5,698.78	0.00	0.00	0.00
11,200.00	90.00	179.81	6,775.00	-5,742.77	-880.03	5,796.29	0.00	0.00	0.00
11,300.00	90.00	179.81	6,775.00	-5,842.77	-879.71	5,893.80	0.00	0.00	0.00
11,400.00	90.00	179.81	6,775.00	-5,942.77	-879.39	5,991.31	0.00	0.00	0.00
11,500.00	90.00	179.81	6,775.00	-6,042.77	-879.06	6,088.82	0.00	0.00	0.00
11,600.00	90.00	179.81	6,775.00	-6,142.77	-878.74	6,186.34	0.00	0.00	0.00
11,700.00	90.00	179.81	6,775.00	-6,242.77	-878.42	6,283.85	0.00	0.00	0.00
11,800.00	90.00	179.81	6,775.00	-6,342.77	-878.09	6,381.36	0.00	0.00	0.00
11,900.00	90.00	179.81	6,775.00	-6,442.76	-877.77	6,478.87	0.00	0.00	0.00
12,000.00	90.00	179.81	6,775.00	-6,542.76	-877.45	6,576.39	0.00	0.00	0.00
12,100.00	90.00	179.81	6,775.00	-6,642.76	-877.12	6,673.90	0.00	0.00	0.00
12,200.00	90.00	179.81	6,775.00	-6,742.76	-876.80	6,771.41	0.00	0.00	0.00
12,300.00	90.00	179.81	6,775.00	-6,842.76	-876.48	6,868.92	0.00	0.00	0.00
12,400.00	90.00	179.81	6,775.00	-6,942.76	-876.15	6,966.43	0.00	0.00	0.00
12,500.00	90.00	179.81	6,775.00	-7,042.76	-875.83	7,063.95	0.00	0.00	0.00
12,600.00	90.00	179.81	6,775.00	-7,142.76	-875.51	7,161.46	0.00	0.00	0.00
12,700.00	90.00	179.81	6,775.00	-7,242.76	-875.18	7,258.97	0.00	0.00	0.00
12,800.00	90.00	179.81	6,775.00	-7,342.76	-874.86	7,356.48	0.00	0.00	0.00
12,900.00	90.00	179.81	6,775.00	-7,442.76	-874.54	7,454.00	0.00	0.00	0.00
13,000.00	90.00	179.81	6,775.00	-7,542.76	-874.21	7,551.51	0.00	0.00	0.00
13,100.00	90.00	179.81	6,775.00	-7,642.76	-873.89	7,649.02	0.00	0.00	0.00
13,200.00	90.00	179.81	6,775.00	-7,742.76	-873.57	7,746.53	0.00	0.00	0.00
13,300.00	90.00	179.81	6,775.00	-7,842.76	-873.24	7,844.04	0.00	0.00	0.00
13,400.00	90.00	179.81	6,775.00	-7,942.76	-872.92	7,941.56	0.00	0.00	0.00
13,500.00	90.00	179.81	6,775.00	-8,042.76	-872.60	8,039.07	0.00	0.00	0.00
13,600.00	90.00	179.81	6,775.00	-8,142.76	-872.27	8,136.58	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Well:	Becker D17-745	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	179.81	6,775.00	-8,242.76	-871.95	8,234.09	0.00	0.00	0.00
13,800.00	90.00	179.81	6,775.00	-8,342.75	-871.63	8,331.61	0.00	0.00	0.00
13,900.00	90.00	179.81	6,775.00	-8,442.75	-871.30	8,429.12	0.00	0.00	0.00
14,000.00	90.00	179.81	6,775.00	-8,542.75	-870.98	8,526.63	0.00	0.00	0.00
14,100.00	90.00	179.81	6,775.00	-8,642.75	-870.65	8,624.14	0.00	0.00	0.00
14,200.00	90.00	179.81	6,775.00	-8,742.75	-870.33	8,721.65	0.00	0.00	0.00
14,300.00	90.00	179.81	6,775.00	-8,842.75	-870.01	8,819.17	0.00	0.00	0.00
14,400.00	90.00	179.81	6,775.00	-8,942.75	-869.68	8,916.68	0.00	0.00	0.00
14,500.00	90.00	179.81	6,775.00	-9,042.75	-869.36	9,014.19	0.00	0.00	0.00
14,600.00	90.00	179.81	6,775.00	-9,142.75	-869.04	9,111.70	0.00	0.00	0.00
14,700.00	90.00	179.81	6,775.00	-9,242.75	-868.71	9,209.22	0.00	0.00	0.00
14,800.00	90.00	179.81	6,775.00	-9,342.75	-868.39	9,306.73	0.00	0.00	0.00
14,900.00	90.00	179.81	6,775.00	-9,442.75	-868.07	9,404.24	0.00	0.00	0.00
15,000.00	90.00	179.81	6,775.00	-9,542.75	-867.74	9,501.75	0.00	0.00	0.00
15,031.49	90.00	179.81	6,775.00	-9,574.24	-867.64	9,532.46	0.00	0.00	0.00

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
Becker D17-745 SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,336,070.94	3,259,471.37	40.2521800	-104.5703700
Becker D17-745 KOP - plan hits target center - Point	0.00	0.00	6,381.71	-1,436.23	-804.33	1,334,634.71	3,258,667.04	40.2482607	-104.5733053
Becker D17-745 BHL - plan hits target center - Point	0.00	0.00	6,775.00	-9,574.24	-867.64	1,326,496.72	3,258,603.73	40.2259242	-104.5738366
Becker D17-745 TPZ - plan hits target center - Point	0.00	0.00	6,775.00	-2,028.87	-892.05	1,334,042.07	3,258,579.33	40.2466365	-104.5736417

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Well:	Becker D17-745	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDMP

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
490.00	490.00	Pierre				
624.00	624.00	Upper Pierre Aquifer Top				
1,540.00	1,540.00	Upper Pierre Aquifer Base				
3,664.16	3,605.00	Parkman				
4,424.74	4,295.00	Sussex				
5,119.18	4,925.00	Shannon				
6,304.14	6,000.00	Teepee Buttes				
7,112.21	6,671.00	Sharon Springs				
7,169.89	6,700.00	Top A Chalk				
7,206.27	6,716.00	Top A Marl				
7,274.40	6,741.00	Top B Chalk				
7,405.23	6,770.00	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	
6725	6382	-1436	-804	Start DLS 9.00 TFO -31.88	
7486	6775	-2029	-892	TPZ/LP at 7486.09 MD	
15,031	6775	-9574	-868	TD at 15031.49 MD	

Checked By: _____ Approved By: _____ Date: _____

Northern Region - DJ Basin

Mustang

D Section 08

Becker D17-745

Wellbore #1

Plan #1

Anticollision Summary Report

02 October, 2018

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Reference Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Becker D17-745	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	10/1/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	15,031.00	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
Offset Well - Wellbore - Design						
D Section 05						
BECKER #15-9I(PR) - Wellbore #1 - Gyro Surveys	4,963.78	4,707.40	924.15	889.73	26.854	CC
BECKER #15-9I(PR) - Wellbore #1 - Gyro Surveys	5,000.00	4,737.76	924.33	889.65	26.656	ES
BECKER #15-9I(PR) - Wellbore #1 - Gyro Surveys	6,200.00	5,847.96	1,073.30	1,029.61	24.566	SF
BECKER #5-13(PA) - Wellbore #1 - No Surveys	4,832.92	4,656.31	1,713.62	1,655.38	29.423	CC
BECKER #5-13(PA) - Wellbore #1 - No Surveys	5,000.00	4,807.88	1,715.06	1,654.76	28.444	ES
BECKER #5-13(PA) - Wellbore #1 - No Surveys	6,800.00	6,439.11	1,906.53	1,824.15	23.145	SF
BECKER #5-14(PA) - Wellbore #1 - Gyro Surveys	6,968.42	6,524.02	2,371.87	2,322.00	47.563	CC, ES
BECKER #5-14(PA) - Wellbore #1 - Gyro Surveys	7,300.00	6,660.28	2,414.50	2,362.36	46.306	SF
BECKER #5-16(PA) - Wellbore #1 - Gyro Surveys	100.00	67.99	580.37	580.13	2,370.993	CC
BECKER #5-16(PA) - Wellbore #1 - Gyro Surveys	2,214.04	2,185.04	586.52	571.37	38.697	ES
BECKER #5-16(PA) - Wellbore #1 - Gyro Surveys	3,000.00	2,958.10	668.30	647.84	32.666	SF
BECKER #5-2(PA) - Wellbore #1 - Gyro Surveys	6,822.20	6,452.40	1,469.31	1,420.34	30.001	CC, ES
BECKER #5-2(PA) - Wellbore #1 - Gyro Surveys	7,050.00	6,616.50	1,493.92	1,443.19	29.445	SF
BECKER #5-5(PA) - Wellbore #1 - Gyro Surveys	4,270.49	4,092.30	1,021.74	992.43	34.857	CC
BECKER #5-5(PA) - Wellbore #1 - Gyro Surveys	4,300.00	4,119.91	1,021.80	992.27	34.601	ES
BECKER #5-5(PA) - Wellbore #1 - Gyro Surveys	5,800.00	5,500.00	1,184.12	1,143.51	29.157	SF
BECKER #5-8(PR) - Wellbore #1 - Gyro Surveys	6,495.24	6,132.54	2,575.08	2,528.68	55.498	CC
BECKER #5-8(PR) - Wellbore #1 - Gyro Surveys	6,750.00	6,441.37	2,575.55	2,526.90	52.936	ES
BECKER #5-8(PR) - Wellbore #1 - Gyro Surveys	7,150.00	6,879.52	2,646.66	2,594.55	50.788	SF
BECKER #6(SI) - Wellbore #1 - Gyro Surveys	3,674.37	3,594.19	299.82	274.67	11.919	CC, ES
BECKER #6(SI) - Wellbore #1 - Gyro Surveys	3,800.00	3,711.99	304.11	278.07	11.681	SF
Becker 5-1(PA) - Wellbore #1 - Gyro Surveys	2,978.57	2,951.64	593.62	573.24	29.119	CC
Becker 5-1(PA) - Wellbore #1 - Gyro Surveys	3,000.00	2,971.88	593.66	573.13	28.916	ES
Becker 5-1(PA) - Wellbore #1 - Gyro Surveys	3,800.00	3,717.20	662.23	636.16	25.402	SF
Becker 5-15(PA) - Wellbore #1 - Gyro Surveys	6,608.07	6,230.27	84.85	36.53	1.756	CC, ES, SF
Becker Ranch #5E-223 - Wellbore #1 - As Drilled	7,155.95	11,398.00	2,532.58	2,422.84	23.077	CC, ES
Becker Ranch #5E-223 - Wellbore #1 - As Drilled	7,250.00	11,398.00	2,536.32	2,426.18	23.027	SF
Becker Ranch #5E-403 - As Drilled - As Drilled	7,208.21	11,599.00	2,830.49	2,716.24	24.775	CC, ES
Becker Ranch #5E-403 - As Drilled - As Drilled	7,350.00	11,599.00	2,839.38	2,724.36	24.687	SF
Becker Ranch #5J-103 - Wellbore #1 - As Drilled	6,351.14	8,438.00	3,507.03	3,454.76	67.105	CC, ES
Becker Ranch #5J-103 - Wellbore #1 - As Drilled	6,800.00	8,438.00	3,539.41	3,485.61	65.795	SF
Becker Ranch #5J-203 - Wellbore #1 - Plan #1	7,147.53	11,568.80	1,579.51	1,507.18	21.839	CC
Becker Ranch #5J-203 - Wellbore #1 - Plan #1	7,150.00	11,568.80	1,579.51	1,507.17	21.833	ES
Becker Ranch #5J-203 - Wellbore #1 - Plan #1	7,250.00	11,568.80	1,586.51	1,513.44	21.714	SF
Becker Ranch #5J-303 - Wellbore #1 - As Drilled	7,137.97	11,473.00	1,881.71	1,769.15	16.718	CC, ES, SF
Becker Ranch #5J-323 - Wellbore #1 - As Drilled	7,090.44	11,430.00	1,253.78	1,142.79	11.297	CC, ES
Becker Ranch #5J-323 - Wellbore #1 - As Drilled	7,100.00	11,430.00	1,253.84	1,142.83	11.294	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 Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Reference Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Becker D17-745	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
D Section 05						
Becker Ranch #5J-323R - Wellbore #1 - Plan #1	7,079.44	11,454.00	1,238.62	1,166.95	17.282	CC, ES
Becker Ranch #5J-323R - Wellbore #1 - Plan #1	7,150.00	11,454.00	1,242.24	1,170.20	17.243	SF
Becker Ranch #5J-343 - Wellbore #1 - As Drilled	7,143.74	11,500.00	2,199.03	2,086.57	19.553	CC, ES
Becker Ranch #5J-343 - Wellbore #1 - As Drilled	7,200.00	11,500.00	2,200.58	2,087.99	19.545	SF
Becker Ranch #5M-203 - Wellbore #1 - Plan #1	6,968.10	11,268.00	392.32	328.88	6.184	CC, ES, SF
Becker Ranch #5M-243 - Wellbore #1 - Plan #1	7,028.27	11,282.50	915.21	844.89	13.015	CC, ES
Becker Ranch #5M-423 - Wellbore #1 - Plan #1	7,050.00	11,282.50	915.64	845.26	13.010	SF
Becker Ranch #5M-303 - Wellbore #1 - Plan #1	7,033.26	11,462.20	638.44	570.84	9.444	CC, ES, SF
Becker Ranch #5M-323 - Wellbore #1 - Plan #1	6,961.50	11,315.70	377.96	318.78	6.387	CC, ES, SF
Becker Ranch #5M-423 - Wellbore #1 - Plan #1	7,040.98	11,437.50	452.93	396.49	8.026	CC, ES
Becker Ranch #5M-423 - Wellbore #1 - Plan #1	7,050.00	11,437.50	453.08	396.58	8.020	SF
Becker Ranch #5R-203 - Wellbore #1 - Plan #1	6,778.86	11,257.60	1,101.44	1,030.74	15.578	CC, ES
Becker Ranch #5R-203 - Wellbore #1 - Plan #1	6,800.00	11,257.60	1,101.69	1,030.89	15.560	SF
Becker Ranch #5R-243 - Wellbore #1 - Plan #1	6,888.94	11,231.80	476.88	410.72	7.208	CC, ES
Becker Ranch #5R-243 - Wellbore #1 - Plan #1	6,900.00	11,231.80	477.06	410.81	7.201	SF
Becker Ranch #5R-303 - Wellbore #1 - Plan #1	6,878.04	11,308.90	866.63	797.58	12.551	CC, ES
Becker Ranch #5R-303 - Wellbore #1 - Plan #1	6,950.00	11,308.90	870.70	800.99	12.490	SF
Becker Ranch #5R-323 - Wellbore #1 - Plan #1	6,805.19	11,332.80	1,325.47	1,254.97	18.801	CC, ES
Becker Ranch #5R-323 - Wellbore #1 - Plan #1	6,900.00	11,332.80	1,329.79	1,258.81	18.734	SF
Becker Ranch #5R-443 - Wellbore #1 - Plan #1	6,992.74	11,417.20	638.68	573.55	9.806	CC
Becker Ranch #5R-443 - Wellbore #1 - Plan #1	7,000.00	11,417.20	638.75	573.55	9.797	ES, SF
Becker Ranch #5U-243 - Wellbore #1 - Plan #1	6,670.33	11,243.60	1,654.92	1,585.28	23.762	CC, ES
Becker Ranch #5U-243 - Wellbore #1 - Plan #1	6,850.00	11,243.60	1,665.46	1,594.63	23.512	SF
Becker Ranch #5U-303 - Wellbore #1 - Plan #1	6,662.96	11,348.00	2,075.85	2,006.28	29.838	CC, ES
Becker Ranch #5U-303 - Wellbore #1 - Plan #1	7,000.00	11,348.00	2,105.74	2,033.75	29.251	SF
Becker Ranch #5U-443 - Wellbore #1 - Plan #1	6,807.22	11,407.70	1,911.53	1,841.40	27.259	CC, ES
Becker Ranch #5U-443 - Wellbore #1 - Plan #1	7,000.00	11,407.70	1,923.98	1,852.50	26.918	SF
LDS #D08-18D(PR) - Wellbore #1 - MWD Surveys	8,599.49	7,218.38	255.67	183.06	3.521	CC, ES, SF
LDS #D08-29(SI) - Wellbore #1 - Gyro Surveys	7,181.48	6,665.20	1,580.99	1,529.63	30.780	CC, ES
LDS #D08-29(SI) - Wellbore #1 - Gyro Surveys	7,400.00	6,734.57	1,603.23	1,550.39	30.336	SF
LDS D08-28D(PR) - Wellbore #1 - MWD Surveys	7,161.61	6,812.94	572.35	519.73	10.878	CC, ES
LDS D08-28D(PR) - Wellbore #1 - MWD Surveys	7,250.00	6,846.53	579.58	526.01	10.819	SF
LDS D08-30D(SI) - Wellbore #1 - MWD Surveys	743.90	731.91	3,035.51	3,030.86	652.567	CC
LDS D08-30D(SI) - Wellbore #1 - MWD Surveys	800.00	771.00	3,035.70	3,030.71	608.291	ES
LDS D08-30D(SI) - Wellbore #1 - MWD Surveys	8,500.00	7,021.81	3,347.82	3,285.14	53.406	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 Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Reference Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Becker D17-745	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
D Section 08						
Becker D17-715 - Wellbore #1 - Plan #1	2,000.00	1,998.00	89.32	75.40	6.417	CC, ES
Becker D17-715 - Wellbore #1 - Plan #1	2,200.00	2,194.58	92.96	77.67	6.082	SF
Becker D17-725 - Wellbore #1 - Plan #1	2,200.00	2,198.00	66.99	51.69	4.378	CC, ES
Becker D17-725 - Wellbore #1 - Plan #1	2,300.00	2,297.54	68.18	52.20	4.267	SF
Becker D17-730 - Wellbore #1 - Plan #1	2,200.00	2,201.00	44.66	29.35	2.917	CC, ES
Becker D17-730 - Wellbore #1 - Plan #1	2,300.00	2,301.02	45.55	29.54	2.845	SF
Becker D17-735 - Wellbore #1 - Plan #1	2,200.00	2,200.00	22.33	7.02	1.459	Level 3, CC, ES
Becker D17-735 - Wellbore #1 - Plan #1	2,300.00	2,300.02	23.25	7.24	1.452	Level 3, SF
Becker D17-750 - Wellbore #1 - Plan #1	2,455.40	2,522.88	19.85	2.69	1.157	Level 2, CC
Becker D17-750 - Wellbore #1 - Plan #1	2,500.00	2,567.38	20.01	2.55	1.146	Level 2, ES, SF
Becker D17-755 - Wellbore #1 - Plan #1	7,487.69	7,741.72	653.15	593.04	10.867	CC
Becker D17-755 - Wellbore #1 - Plan #1	15,031.49	15,272.70	657.64	494.52	4.032	ES, SF
Becker D17-765 - Wellbore #1 - Plan #1	7,500.80	7,482.08	1,290.31	1,228.28	20.803	CC
Becker D17-765 - Wellbore #1 - Plan #1	15,031.49	15,008.84	1,298.83	1,112.71	6.978	ES, SF
Becker D17-770 - Wellbore #1 - Plan #1	7,488.64	7,602.88	1,624.99	1,563.98	26.633	CC
Becker D17-770 - Wellbore #1 - Plan #1	15,031.49	15,143.31	1,636.21	1,450.88	8.829	ES, SF
Becker D17-775 - Wellbore #1 - Plan #1	7,485.86	7,455.50	1,938.14	1,877.73	32.080	CC
Becker D17-775 - Wellbore #1 - Plan #1	15,031.49	15,002.18	1,951.70	1,765.90	10.504	ES, SF
Becker D17-785 - Wellbore #1 - Plan #1	7,451.88	7,294.37	2,580.70	2,523.49	45.107	CC
Becker D17-785 - Wellbore #1 - Plan #1	15,031.49	14,900.93	2,599.03	2,436.61	16.001	ES, SF
HSR-ALVIN DECHANT #12-8 (SI) - Wellbore #1 - No Su	10,491.29	6,760.00	2,177.80	2,071.19	20.426	CC
HSR-ALVIN DECHANT #12-8 (SI) - Wellbore #1 - No Su	10,500.00	6,760.00	2,177.82	2,071.12	20.411	ES
HSR-ALVIN DECHANT #12-8 (SI) - Wellbore #1 - No Su	10,800.00	6,760.00	2,199.58	2,090.40	20.147	SF
HSR-ALVIN DECHANT #13-8(SI) - Wellbore #1 - No Sur	12,076.53	6,749.00	2,255.85	2,137.81	19.111	CC
HSR-ALVIN DECHANT #13-8(SI) - Wellbore #1 - No Sur	12,100.00	6,749.00	2,255.98	2,137.70	19.075	ES
HSR-ALVIN DECHANT #13-8(SI) - Wellbore #1 - No Sur	12,400.00	6,749.00	2,278.93	2,158.16	18.870	SF
HSR-LDS #14-8(SI) - Wellbore #1 - No Surveys	11,551.10	6,740.00	1,117.69	1,003.62	9.798	CC, ES
HSR-LDS #14-8(SI) - Wellbore #1 - No Surveys	11,600.00	6,740.00	1,118.76	1,004.14	9.760	SF
HSR-LDS #15-8(SI) - Wellbore #1 - No Surveys	11,824.93	6,737.00	316.55	200.49	2.727	CC, ES, SF
HSR-LDS #16-8(SI) - Wellbore #1 - No Surveys	11,938.94	6,736.00	1,674.28	1,557.38	14.322	CC, ES
HSR-LDS #16-8(SI) - Wellbore #1 - No Surveys	12,000.00	6,736.00	1,675.39	1,558.27	14.304	SF
HSR-LDS #3-8(SI) - Wellbore #1 - No Surveys	8,046.47	6,738.00	1,103.73	1,012.72	12.128	CC, ES
HSR-LDS #3-8(SI) - Wellbore #1 - No Surveys	8,100.00	6,738.00	1,105.02	1,013.59	12.086	SF
HSR-LDS #4-8(SI) - Wellbore 1 - No Surveys	8,200.32	6,763.00	2,241.58	2,149.53	24.352	CC, ES
HSR-LDS #4-8(SI) - Wellbore 1 - No Surveys	8,600.00	6,763.00	2,276.93	2,182.21	24.038	SF
HSR-LDS #5-8(SI) - Wellbore #1 - No Surveys	9,352.65	6,756.00	2,403.67	2,304.78	24.307	CC, ES
HSR-LDS #5-8(SI) - Wellbore #1 - No Surveys	9,700.00	6,756.00	2,428.63	2,327.07	23.913	SF
HSR-LDS #6-8(SI) - Wellbore #1 - No Surveys	9,291.64	6,736.00	1,002.68	904.36	10.198	CC
HSR-LDS #6-8(SI) - Wellbore #1 - No Surveys	9,300.00	6,736.00	1,002.71	904.30	10.189	ES
HSR-LDS #6-8(SI) - Wellbore #1 - No Surveys	9,400.00	6,736.00	1,008.51	909.15	10.150	SF
HSR-LDS #9-8(SI) - Wellbore #1 - No Surveys	10,380.06	6,731.00	1,632.22	1,526.64	15.459	CC, ES
HSR-LDS #9-8(SI) - Wellbore #1 - No Surveys	10,500.00	6,731.00	1,636.62	1,530.65	15.444	SF
HSR-LDS A #10-8(SI) - Wellbore #1 - No Surveys	10,658.58	6,735.00	400.26	292.68	3.721	CC, ES, SF
HSR-LDS A #11-8(SI) - Wellbore #1 - No Surveys	10,512.43	6,737.00	1,058.13	951.57	9.929	CC, ES
HSR-LDS A #11-8(SI) - Wellbore #1 - No Surveys	10,600.00	6,737.00	1,061.75	954.27	9.878	SF
LDS #18-8(SI) - Wellbore #1 - No Surveys	8,742.50	6,758.00	1,643.10	1,548.00	17.277	CC, ES
LDS #18-8(SI) - Wellbore #1 - No Surveys	8,900.00	6,758.00	1,650.64	1,554.28	17.130	SF
LDS #20-8(SI) - Wellbore #1 - No Surveys	11,284.65	6,734.00	974.33	862.26	8.694	CC, ES
LDS #20-8(SI) - Wellbore #1 - No Surveys	11,300.00	6,734.00	974.45	862.36	8.693	SF
LDS D #09-30(SI) - Wellbore #1 - No Surveys	5,524.18	5,242.41	2,031.95	1,965.53	30.589	CC
LDS D #09-30(SI) - Wellbore #1 - No Surveys	5,700.00	5,401.92	2,033.30	1,964.69	29.635	ES
LDS D #09-30(SI) - Wellbore #1 - No Surveys	7,600.00	6,725.00	2,112.68	2,024.19	23.873	SF
LDS D #09-31D(SI) - Wellbore #1 - No Surveys	5,577.14	5,290.46	2,042.17	1,975.08	30.441	CC

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Becker D17-745
Project:	Mustang	TVD Reference:	KB @ 4777.00ft
Reference Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Becker D17-745	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
D Section 08						
LDS D #09-31D(SI) - Wellbore #1 - No Surveys	5,700.00	5,401.92	2,042.82	1,974.21	29.773	ES
LDS D #09-31D(SI) - Wellbore #1 - No Surveys	7,600.00	6,725.00	2,109.07	2,020.54	23.824	SF
RUBY RED #D #8-1D(PA) - Wellbore #1 - Gyro Surveys	8,278.23	6,721.29	1,258.23	1,201.45	22.161	CC, ES
RUBY RED #D #8-1D(PA) - Wellbore #1 - Gyro Surveys	8,300.00	6,721.09	1,258.42	1,201.58	22.141	SF
RUBY RED #D 8-7(PR) - Wellbore #1 - Gyro Surveys	9,337.50	6,733.39	165.10	101.91	2.613	CC, ES, SF
RUBY RED #D 8-8(PR) - Wellbore #1 - Gyro Surveys	9,340.81	6,717.66	1,812.12	1,749.01	28.713	CC, ES
RUBY RED #D 8-8(PR) - Wellbore #1 - Gyro Surveys	9,500.00	6,716.26	1,819.10	1,755.44	28.579	SF
RUBY RED D8-2(PA) - Wellbore #1 - Gyro Surveys	7,793.43	6,732.15	79.76	25.49	1.470	Level 3, CC, ES, SF
TWO E RANCHES #1(PA) - Wellbore #1 - Gyro Surveys	10,945.84	6,780.89	1,965.57	1,891.28	26.459	CC, ES
TWO E RANCHES #1(PA) - Wellbore #1 - Gyro Surveys	11,300.00	6,784.11	1,997.22	1,920.02	25.871	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Becker D17-745
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Reference Site:	D Section 08	MD Reference:	KB @ 4777.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Becker D17-745	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						
D Section 17						
Butterball D19-27D - Wellbore #1 - Gyro Surveys	15,031.49	6,973.95	5,066.87	4,963.77	49.147	CC, ES, SF
Guttersen State D16-33 (SI) - Wellbore #1 - No Surveys	15,031.49	6,750.00	2,685.90	2,551.55	19.991	CC, ES, SF
HSR LDS 6-17 (SI) - Wellbore #1 - No Surveys	14,580.60	6,748.00	1,171.65	1,034.45	8.539	CC
HSR LDS 6-17 (SI) - Wellbore #1 - No Surveys	14,600.00	6,748.00	1,171.81	1,034.37	8.526	ES
HSR LDS 6-17 (SI) - Wellbore #1 - No Surveys	14,700.00	6,748.00	1,177.72	1,039.33	8.510	SF
HSR LDS B5-17 (SI) - Wellbore #1 - No Surveys	14,433.67	6,749.00	2,278.16	2,142.09	16.743	CC, ES
HSR LDS B5-17 (SI) - Wellbore #1 - No Surveys	14,700.00	6,749.00	2,293.68	2,155.30	16.575	SF
HSR Mike Guttersen 16-17X (SI) - Wellbore #1 - No Su	15,031.49	6,755.00	2,792.71	2,675.51	23.830	CC, ES, SF
HSR Weeks 10-17 - Wellbore #1 - Gyro Surveys	15,031.49	6,700.00	928.82	861.17	13.730	CC, ES, SF
HSR Weeks 15-17 (SI) - Wellbore #1 - No Surveys	15,031.49	6,753.00	2,201.80	2,107.63	23.381	CC, ES, SF
HSR Weeks 9-17 - Wellbore #1 - Gyro Surveys	15,031.49	6,751.66	1,642.95	1,544.09	16.620	CC, ES, SF
HSR-LDS 3-17 (SI) - Wellbore #1 - No Surveys	13,256.39	6,743.00	1,172.48	1,045.56	9.238	CC, ES
HSR-LDS 3-17 (SI) - Wellbore #1 - No Surveys	13,400.00	6,743.00	1,181.25	1,052.94	9.207	SF
HSR-LDS 4-17 (SI) - Wellbore #1 - No Surveys	13,439.30	6,745.00	2,299.20	2,170.86	17.915	CC, ES
HSR-LDS 4-17 (SI) - Wellbore #1 - No Surveys	13,700.00	6,745.00	2,313.93	2,183.31	17.714	SF
LDS 18-17 (SI) - Wellbore #1 - No Surveys	13,928.28	6,748.00	1,496.31	1,364.18	11.324	CC, ES
LDS 18-17 (SI) - Wellbore #1 - No Surveys	14,100.00	6,748.00	1,506.13	1,372.40	11.263	SF
LDS D17-13 - Wellbore #1 - Gyro Surveys	15,031.49	6,890.41	3,616.89	3,535.23	44.295	CC, ES, SF
LDS D17-18 (SI) - Wellbore #1 - No Surveys	13,861.36	6,746.00	190.88	59.28	1.450	Level 3, CC, ES, SF
LDS D17-20 - Wellbore #1 - No Surveys	15,031.49	6,754.00	1,674.87	1,537.26	12.171	CC, ES, SF
LDS D17-21 - Wellbore #1 - No Surveys	15,031.49	6,750.00	642.99	522.85	5.352	CC, ES, SF
LDS D17-22 (SI) - Wellbore #1 - No Surveys	15,031.49	6,745.00	921.28	780.41	6.540	CC, ES, SF
LDS D17-24D - Wellbore #1 - LDS D17-24D - As Drilled	15,031.49	6,880.52	1,507.18	1,448.83	25.832	CC, ES, SF
LDS D17-25D - Wellbore #1 - LDS D17-25D - As Drilled	15,031.49	6,992.90	2,034.62	1,944.50	22.576	CC, ES, SF
LDS D17-31D - LDS D17-31D - LDS D17-31D - As Drille	13,950.34	7,000.85	3,018.37	2,911.49	28.241	CC, ES
LDS D17-31D - LDS D17-31D - LDS D17-31D - As Drille	14,400.00	7,002.45	3,051.68	2,941.87	27.790	SF
LDS D17-32D - LDS D17-32D - LDS D17-32D - As Drille	15,031.49	6,801.86	3,033.75	2,929.06	28.978	CC, ES, SF
LDS D17-33 - LDS D17-33 - LDS D17-33 - As Drilled	15,031.49	6,774.78	3,144.25	3,049.73	33.267	CC, ES, SF
LDS D17-7 - Wellbore #1 - No Surveys	14,556.87	6,744.00	203.65	66.67	1.487	Level 3, CC, ES, SF
LDS D20-29D - Wellbore #1 - LDS D20-29D - As Drilled	15,031.49	6,950.06	3,448.00	3,374.87	47.150	CC, ES, SF
LDS D20-30D - Wellbore #1 - LDS D20-30D - As Drilled	15,031.49	6,808.66	4,303.18	4,222.03	53.022	CC, ES, SF
LDS RED D17-11 (SI) - Wellbore #1 - No Surveys	15,031.49	6,751.00	1,197.18	1,082.12	10.405	CC, ES, SF
LDS Red D17-12 - Wellbore #1 - No Surveys	15,031.49	6,754.00	2,571.97	2,435.40	18.833	CC, ES, SF
LDS Red D17-14X (SI) - Wellbore #1 - No Surveys	15,031.49	6,755.00	2,187.01	2,091.52	22.904	CC, ES, SF
LDS Red D17-3J - Wellbore #1 - Gyro Surveys	15,031.49	6,748.79	2,741.69	2,658.05	32.781	CC, ES, SF
LDS White D17-1 - Wellbore #1 - Gyro Surveys	13,213.72	6,722.56	1,608.60	1,517.61	17.678	CC, ES
LDS White D17-1 - Wellbore #1 - Gyro Surveys	13,300.00	6,722.74	1,610.91	1,519.66	17.652	SF
LDS White D17-2 - Wellbore #1 - No Surveys	13,235.18	6,741.00	307.75	181.01	2.428	CC, ES, SF
LDS White D17-8 - Wellbore #1 - No Surveys	14,567.51	6,739.00	1,549.89	1,412.87	11.311	CC, ES
LDS White D17-8 - Wellbore #1 - No Surveys	14,600.00	6,739.00	1,550.23	1,413.09	11.304	SF
Thomson D20-31D - Wellbore #1 - Gyro Surveys	15,000.00	15,000.00	5,322.79	5,213.07	48.511	ES, SF
Thomson D20-31D - Wellbore #1 - Gyro Surveys	15,031.49	6,258.36	5,297.68	5,218.64	67.018	CC
Weeks 20-17 (SI) - Wellbore #1 - Gyro Surveys	15,031.49	6,738.59	1,815.35	1,740.74	24.331	CC, ES, SF

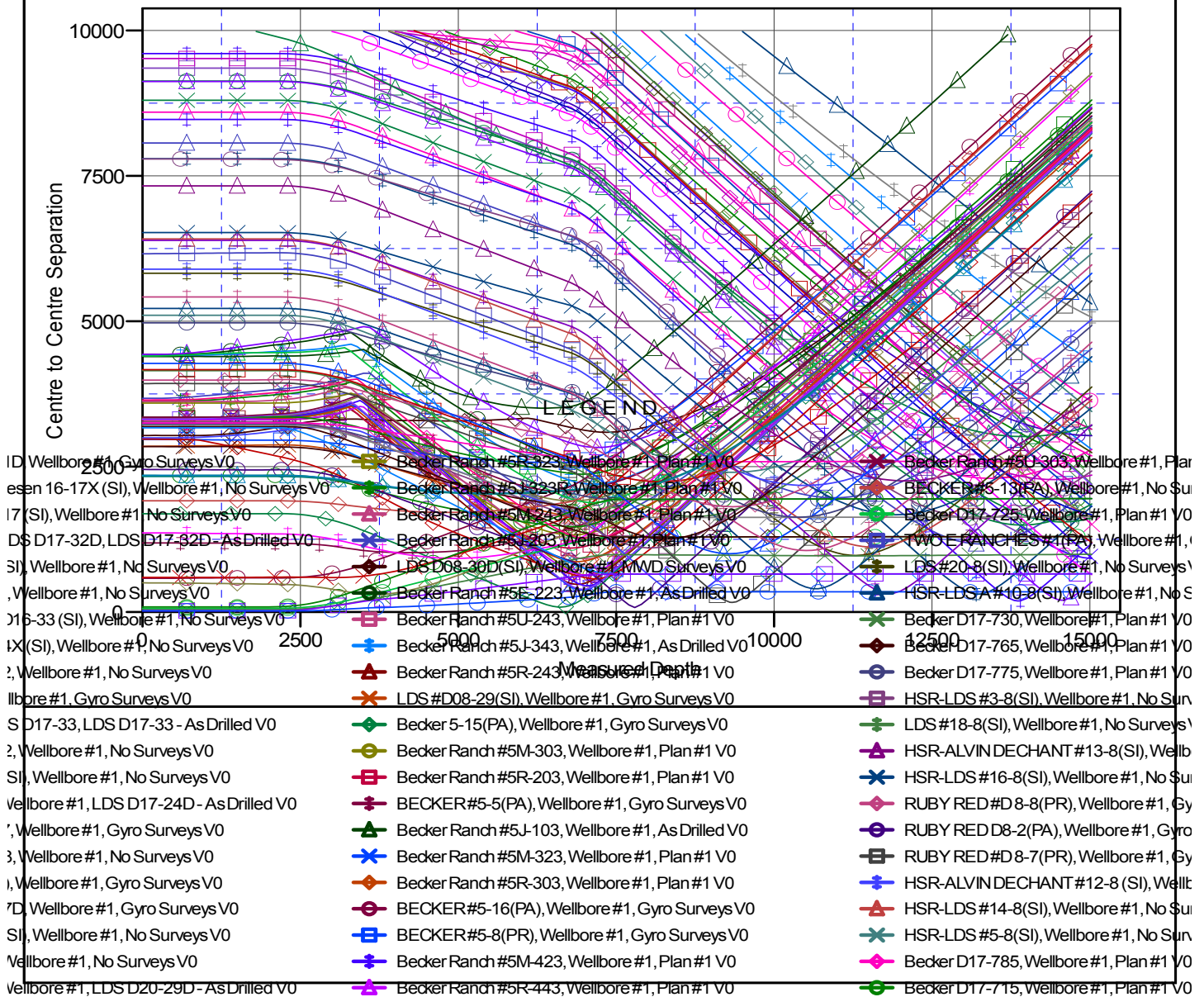
Noble Energy, Inc.
Anticollision Summary Report

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Reference Well:	Becker D17-745	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 @ 4777.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Becker D17-745
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.60°

Ladder Plot



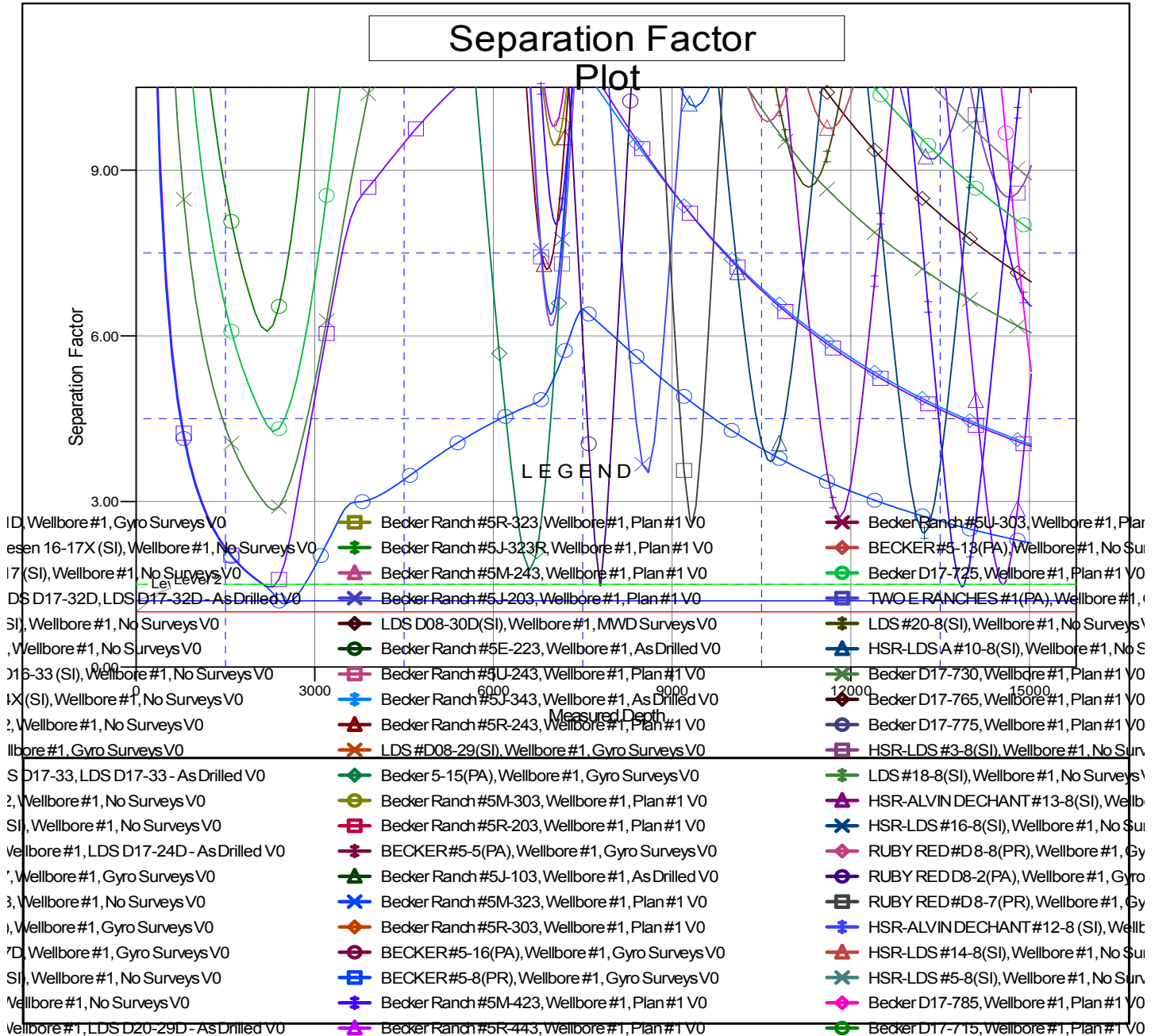
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Grid Convergence at Surface is: 0.60°



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