

Project: East Pony
Site: LD Section 15
Well: Tatanka Federal LD13-615
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

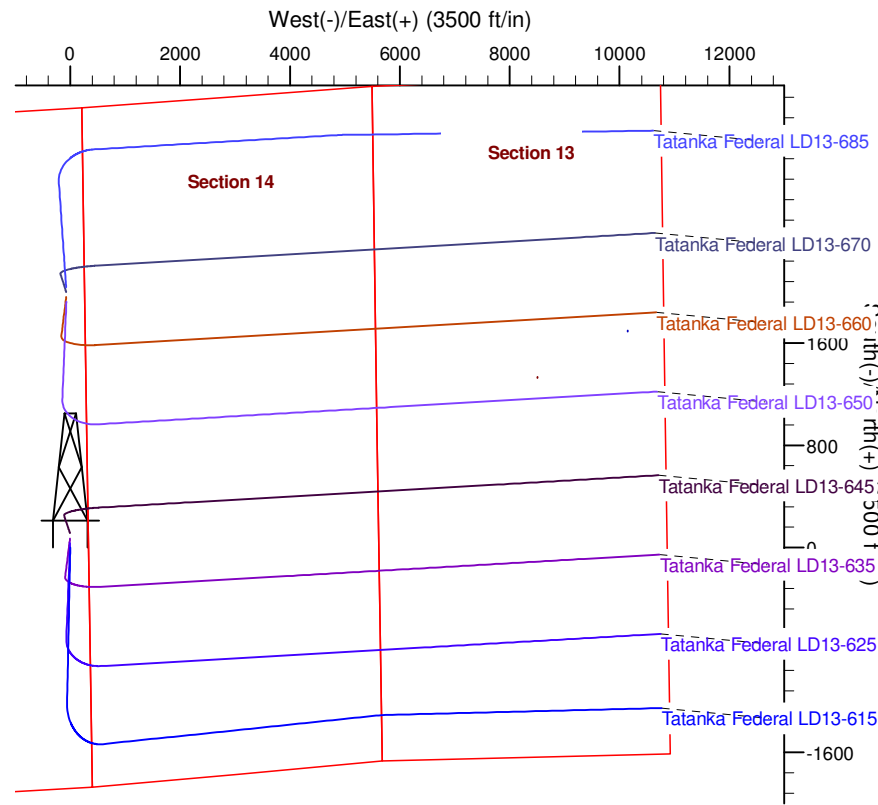
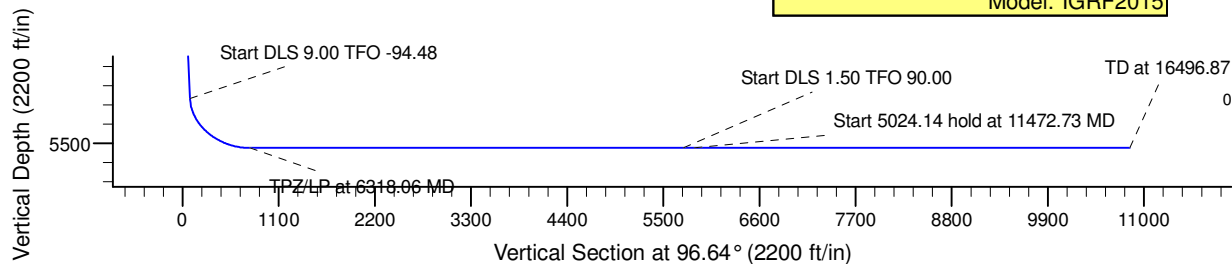
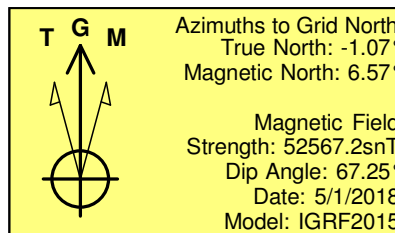
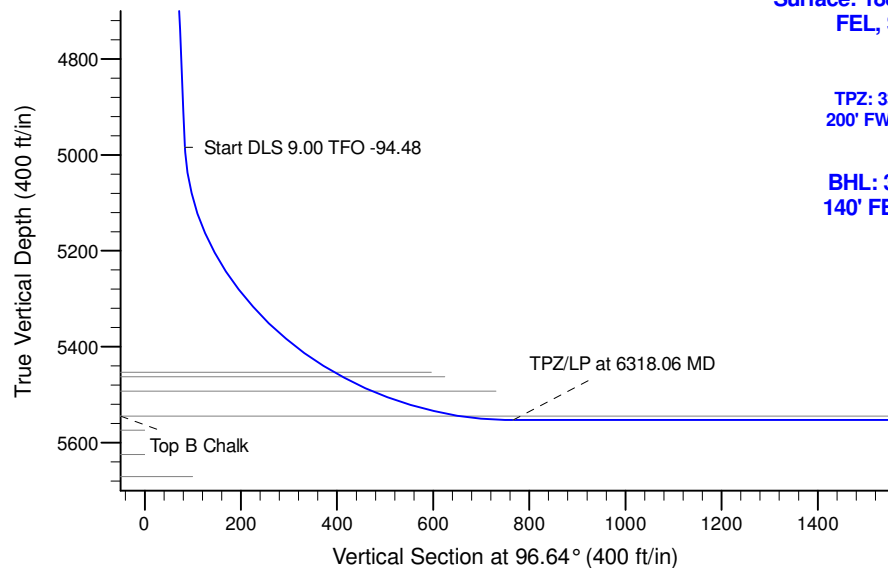
SECTION DETAILS

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	2198.00	0.00	0.00	2198.00	0.00	0.00	0.00	0.00	0.00	
3	3779.75	31.64	182.70	3700.60	-425.22	-20.05	2.00	182.70	29.25	
4	5287.44	31.64	182.70	4984.26	-1215.14	-57.29	0.00	0.00	83.59	
5	6318.06	90.00	87.44	5553.00	-1535.28	593.54	9.00	-94.48	767.07	Tatanka Federal LD13-615 TPZ/LP
6	11343.06	90.00	87.44	5553.00	-1310.84	5613.52	0.00	0.00	5727.44	
7	11472.73	90.00	89.39	5553.00	-1307.25	5743.14	1.50	90.00	5855.77	
8	16496.87	90.00	89.39	5553.00	-1253.32	10766.98	0.00	0.00	10839.68	Tatanka Federal LD13-615 BHL

Surface: 1881' FSL, 335' FEL, Sec.15

TPZ: 330' FSL, 200' FWL, Sec.14

BHL: 360' FSL, 140' FEL, Sec.13



WELL DETAILS: Tatanka Federal LD13-615

Northing	Easting	Latitude	Longitude
0.00	1520103.25	40.7492800	-103.8418100

Plan: Plan #1 (Tatanka Federal LD13-615/Wellbore #1)

Created By: Colby Baxter Date: 10:45, July 10 2018
Checked: _____ Date: _____
Reviewed: _____ Date: _____
Approved: _____ Date: _____

Northern Region - DJ Basin

East Pony

LD Section 15

Tatanka Federal LD13-615

Wellbore #1

Plan: Plan #1

Standard Survey Report

10 July, 2018

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Well:	Tatanka Federal LD13-615	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDMP

Project	East Pony, 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	LD Section 15				
Site Position:		Northing:	1,522,925.45 usft	Latitude:	40.7571973
From:	Map	Easting:	3,456,045.62 usft	Longitude:	-103.8537859
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	1.06 °

Well		Tatanka Federal LD13-615				
Well Position	+N/-S	0.00 ft	Northing:	1,520,103.25 usft	Latitude:	40.7492800
	+E/-W	0.00 ft	Easting:	3,459,416.83 usft	Longitude:	-103.8418100
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,663.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/1/2018	7.64	67.25	52,567.17078755

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 (°)	
	-2.00	0.00	0.00	96.64	

Survey Tool Program	Date	7/10/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	16,496.87	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.

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Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Well:	Tatanka Federal LD13-615	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	
2,198.00	0.00	0.00	2,198.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.04	182.70	2,200.00	0.00	0.00	0.00	2.00	2.00	0.00	
2,300.00	2.04	182.70	2,299.98	-1.82	-0.09	0.12	2.00	2.00	0.00	
2,400.00	4.04	182.70	2,399.83	-7.11	-0.34	0.49	2.00	2.00	0.00	
2,500.00	6.04	182.70	2,499.44	-15.89	-0.75	1.09	2.00	2.00	0.00	
2,600.00	8.04	182.70	2,598.68	-28.13	-1.33	1.93	2.00	2.00	0.00	
2,700.00	10.04	182.70	2,697.43	-43.83	-2.07	3.01	2.00	2.00	0.00	
2,800.00	12.04	182.70	2,795.58	-62.95	-2.97	4.33	2.00	2.00	0.00	
2,900.00	14.04	182.70	2,893.00	-85.49	-4.03	5.88	2.00	2.00	0.00	
3,000.00	16.04	182.70	2,989.57	-111.41	-5.25	7.66	2.00	2.00	0.00	
3,100.00	18.04	182.70	3,085.17	-140.68	-6.63	9.68	2.00	2.00	0.00	
3,200.00	20.04	182.70	3,179.69	-173.26	-8.17	11.92	2.00	2.00	0.00	
3,300.00	22.04	182.70	3,273.02	-209.12	-9.86	14.39	2.00	2.00	0.00	
3,400.00	24.04	182.70	3,365.04	-248.22	-11.70	17.07	2.00	2.00	0.00	
3,500.00	26.04	182.70	3,455.64	-290.49	-13.70	19.98	2.00	2.00	0.00	
3,600.00	28.04	182.70	3,544.70	-335.90	-15.84	23.11	2.00	2.00	0.00	
3,700.00	30.04	182.70	3,632.13	-384.39	-18.12	26.44	2.00	2.00	0.00	
3,779.75	31.64	182.70	3,700.60	-425.22	-20.05	29.25	2.00	2.00	0.00	
3,800.00	31.64	182.70	3,717.84	-435.83	-20.55	29.98	0.00	0.00	0.00	
3,900.00	31.64	182.70	3,802.98	-488.22	-23.02	33.58	0.00	0.00	0.00	
4,000.00	31.64	182.70	3,888.12	-540.61	-25.49	37.19	0.00	0.00	0.00	
4,100.00	31.64	182.70	3,973.26	-593.01	-27.96	40.79	0.00	0.00	0.00	
4,200.00	31.64	182.70	4,058.40	-645.40	-30.43	44.40	0.00	0.00	0.00	
4,300.00	31.64	182.70	4,143.54	-697.79	-32.90	48.00	0.00	0.00	0.00	
4,400.00	31.64	182.70	4,228.68	-750.18	-35.37	51.60	0.00	0.00	0.00	
4,500.00	31.64	182.70	4,313.82	-802.58	-37.84	55.21	0.00	0.00	0.00	
4,600.00	31.64	182.70	4,398.97	-854.97	-40.31	58.81	0.00	0.00	0.00	
4,700.00	31.64	182.70	4,484.11	-907.36	-42.78	62.42	0.00	0.00	0.00	
4,800.00	31.64	182.70	4,569.25	-959.75	-45.25	66.02	0.00	0.00	0.00	
4,900.00	31.64	182.70	4,654.39	-1,012.15	-47.72	69.63	0.00	0.00	0.00	
5,000.00	31.64	182.70	4,739.53	-1,064.54	-50.19	73.23	0.00	0.00	0.00	
5,100.00	31.64	182.70	4,824.67	-1,116.93	-52.66	76.83	0.00	0.00	0.00	

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Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Well:	Tatanka Federal LD13-615	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)
5,200.00	31.64	182.70	4,909.81	-1,169.32	-55.13	80.44	0.00	0.00	0.00
5,287.44	31.64	182.70	4,984.26	-1,215.14	-57.29	83.59	0.00	0.00	0.00
5,300.00	31.56	180.55	4,994.95	-1,221.71	-57.48	84.16	9.00	-0.56	-17.14
5,400.00	32.29	163.54	5,080.00	-1,273.61	-50.14	97.45	9.00	0.73	-17.01
5,500.00	35.13	148.11	5,163.33	-1,323.76	-27.33	125.91	9.00	2.84	-15.43
5,600.00	39.63	135.23	5,242.89	-1,370.93	10.41	168.85	9.00	4.50	-12.88
5,700.00	45.29	124.83	5,316.73	-1,413.95	62.14	225.21	9.00	5.66	-10.40
5,800.00	51.71	116.40	5,383.02	-1,451.78	126.60	293.61	9.00	6.43	-8.43
5,900.00	58.64	109.39	5,440.14	-1,483.48	202.18	372.35	9.00	6.93	-7.01
6,000.00	65.90	103.37	5,486.67	-1,508.26	287.03	459.49	9.00	7.26	-6.02
6,100.00	73.36	98.00	5,521.48	-1,525.51	379.06	552.91	9.00	7.47	-5.37
6,200.00	80.96	93.04	5,543.70	-1,534.82	476.01	650.28	9.00	7.59	-4.96
6,300.00	88.61	88.29	5,552.78	-1,535.96	575.49	749.22	9.00	7.66	-4.75
6,318.06	90.00	87.44	5,553.00	-1,535.28	593.54	767.07	9.00	7.67	-4.71
6,400.00	90.00	87.44	5,553.00	-1,531.62	675.39	847.95	0.00	0.00	0.00
6,500.00	90.00	87.44	5,553.00	-1,527.16	775.29	946.67	0.00	0.00	0.00
6,600.00	90.00	87.44	5,553.00	-1,522.69	875.19	1,045.38	0.00	0.00	0.00
6,700.00	90.00	87.44	5,553.00	-1,518.22	975.09	1,144.10	0.00	0.00	0.00
6,800.00	90.00	87.44	5,553.00	-1,513.76	1,074.99	1,242.81	0.00	0.00	0.00
6,900.00	90.00	87.44	5,553.00	-1,509.29	1,174.89	1,341.52	0.00	0.00	0.00
7,000.00	90.00	87.44	5,553.00	-1,504.82	1,274.79	1,440.24	0.00	0.00	0.00
7,100.00	90.00	87.44	5,553.00	-1,500.36	1,374.70	1,538.95	0.00	0.00	0.00
7,200.00	90.00	87.44	5,553.00	-1,495.89	1,474.60	1,637.66	0.00	0.00	0.00
7,300.00	90.00	87.44	5,553.00	-1,491.42	1,574.50	1,736.38	0.00	0.00	0.00
7,400.00	90.00	87.44	5,553.00	-1,486.96	1,674.40	1,835.09	0.00	0.00	0.00
7,500.00	90.00	87.44	5,553.00	-1,482.49	1,774.30	1,933.81	0.00	0.00	0.00
7,600.00	90.00	87.44	5,553.00	-1,478.02	1,874.20	2,032.52	0.00	0.00	0.00
7,700.00	90.00	87.44	5,553.00	-1,473.56	1,974.10	2,131.23	0.00	0.00	0.00
7,800.00	90.00	87.44	5,553.00	-1,469.09	2,074.00	2,229.95	0.00	0.00	0.00
7,900.00	90.00	87.44	5,553.00	-1,464.62	2,173.90	2,328.66	0.00	0.00	0.00
8,000.00	90.00	87.44	5,553.00	-1,460.16	2,273.80	2,427.37	0.00	0.00	0.00
8,100.00	90.00	87.44	5,553.00	-1,455.69	2,373.70	2,526.09	0.00	0.00	0.00
8,200.00	90.00	87.44	5,553.00	-1,451.23	2,473.60	2,624.80	0.00	0.00	0.00
8,300.00	90.00	87.44	5,553.00	-1,446.76	2,573.50	2,723.52	0.00	0.00	0.00
8,400.00	90.00	87.44	5,553.00	-1,442.29	2,673.40	2,822.23	0.00	0.00	0.00
8,500.00	90.00	87.44	5,553.00	-1,437.83	2,773.30	2,920.94	0.00	0.00	0.00
8,600.00	90.00	87.44	5,553.00	-1,433.36	2,873.20	3,019.66	0.00	0.00	0.00
8,700.00	90.00	87.44	5,553.00	-1,428.89	2,973.10	3,118.37	0.00	0.00	0.00
8,800.00	90.00	87.44	5,553.00	-1,424.43	3,073.00	3,217.08	0.00	0.00	0.00
8,900.00	90.00	87.44	5,553.00	-1,419.96	3,172.90	3,315.80	0.00	0.00	0.00
9,000.00	90.00	87.44	5,553.00	-1,415.49	3,272.80	3,414.51	0.00	0.00	0.00
9,100.00	90.00	87.44	5,553.00	-1,411.03	3,372.70	3,513.23	0.00	0.00	0.00
9,200.00	90.00	87.44	5,553.00	-1,406.56	3,472.60	3,611.94	0.00	0.00	0.00

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Survey Report

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Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Well:	Tatanka Federal LD13-615	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)
9,300.00	90.00	87.44	5,553.00	-1,402.09	3,572.50	3,710.65	0.00	0.00	0.00
9,400.00	90.00	87.44	5,553.00	-1,397.63	3,672.40	3,809.37	0.00	0.00	0.00
9,500.00	90.00	87.44	5,553.00	-1,393.16	3,772.30	3,908.08	0.00	0.00	0.00
9,600.00	90.00	87.44	5,553.00	-1,388.69	3,872.20	4,006.79	0.00	0.00	0.00
9,700.00	90.00	87.44	5,553.00	-1,384.23	3,972.10	4,105.51	0.00	0.00	0.00
9,800.00	90.00	87.44	5,553.00	-1,379.76	4,072.00	4,204.22	0.00	0.00	0.00
9,900.00	90.00	87.44	5,553.00	-1,375.29	4,171.90	4,302.94	0.00	0.00	0.00
10,000.00	90.00	87.44	5,553.00	-1,370.83	4,271.80	4,401.65	0.00	0.00	0.00
10,100.00	90.00	87.44	5,553.00	-1,366.36	4,371.70	4,500.36	0.00	0.00	0.00
10,200.00	90.00	87.44	5,553.00	-1,361.89	4,471.60	4,599.08	0.00	0.00	0.00
10,300.00	90.00	87.44	5,553.00	-1,357.43	4,571.50	4,697.79	0.00	0.00	0.00
10,400.00	90.00	87.44	5,553.00	-1,352.96	4,671.40	4,796.50	0.00	0.00	0.00
10,500.00	90.00	87.44	5,553.00	-1,348.49	4,771.30	4,895.22	0.00	0.00	0.00
10,600.00	90.00	87.44	5,553.00	-1,344.03	4,871.20	4,993.93	0.00	0.00	0.00
10,700.00	90.00	87.44	5,553.00	-1,339.56	4,971.10	5,092.65	0.00	0.00	0.00
10,800.00	90.00	87.44	5,553.00	-1,335.09	5,071.00	5,191.36	0.00	0.00	0.00
10,900.00	90.00	87.44	5,553.00	-1,330.63	5,170.90	5,290.07	0.00	0.00	0.00
11,000.00	90.00	87.44	5,553.00	-1,326.16	5,270.80	5,388.79	0.00	0.00	0.00
11,100.00	90.00	87.44	5,553.00	-1,321.69	5,370.70	5,487.50	0.00	0.00	0.00
11,200.00	90.00	87.44	5,553.00	-1,317.23	5,470.60	5,586.21	0.00	0.00	0.00
11,300.00	90.00	87.44	5,553.00	-1,312.76	5,570.50	5,684.93	0.00	0.00	0.00
11,343.06	90.00	87.44	5,553.00	-1,310.84	5,613.52	5,727.44	0.00	0.00	0.00
11,400.00	90.00	88.29	5,553.00	-1,308.72	5,670.42	5,783.71	1.50	0.00	1.50
11,472.73	90.00	89.39	5,553.00	-1,307.25	5,743.14	5,855.77	1.50	0.00	1.50
11,500.00	90.00	89.39	5,553.00	-1,306.95	5,770.40	5,882.82	0.00	0.00	0.00
11,600.00	90.00	89.39	5,553.00	-1,305.88	5,870.40	5,982.01	0.00	0.00	0.00
11,700.00	90.00	89.39	5,553.00	-1,304.81	5,970.39	6,081.21	0.00	0.00	0.00
11,800.00	90.00	89.39	5,553.00	-1,303.73	6,070.39	6,180.41	0.00	0.00	0.00
11,900.00	90.00	89.39	5,553.00	-1,302.66	6,170.38	6,279.61	0.00	0.00	0.00
12,000.00	90.00	89.39	5,553.00	-1,301.59	6,270.37	6,378.81	0.00	0.00	0.00
12,100.00	90.00	89.39	5,553.00	-1,300.51	6,370.37	6,478.01	0.00	0.00	0.00
12,200.00	90.00	89.39	5,553.00	-1,299.44	6,470.36	6,577.21	0.00	0.00	0.00
12,300.00	90.00	89.39	5,553.00	-1,298.37	6,570.36	6,676.41	0.00	0.00	0.00
12,400.00	90.00	89.39	5,553.00	-1,297.29	6,670.35	6,775.61	0.00	0.00	0.00
12,500.00	90.00	89.39	5,553.00	-1,296.22	6,770.35	6,874.81	0.00	0.00	0.00
12,600.00	90.00	89.39	5,553.00	-1,295.15	6,870.34	6,974.01	0.00	0.00	0.00
12,700.00	90.00	89.39	5,553.00	-1,294.07	6,970.33	7,073.21	0.00	0.00	0.00
12,800.00	90.00	89.39	5,553.00	-1,293.00	7,070.33	7,172.41	0.00	0.00	0.00
12,900.00	90.00	89.39	5,553.00	-1,291.93	7,170.32	7,271.61	0.00	0.00	0.00
13,000.00	90.00	89.39	5,553.00	-1,290.85	7,270.32	7,370.81	0.00	0.00	0.00
13,100.00	90.00	89.39	5,553.00	-1,289.78	7,370.31	7,470.01	0.00	0.00	0.00
13,200.00	90.00	89.39	5,553.00	-1,288.71	7,470.31	7,569.21	0.00	0.00	0.00
13,300.00	90.00	89.39	5,553.00	-1,287.63	7,570.30	7,668.41	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Well:	Tatanka Federal LD13-615	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)
13,400.00	90.00	89.39	5,553.00	-1,286.56	7,670.29	7,767.61	0.00	0.00	0.00
13,500.00	90.00	89.39	5,553.00	-1,285.49	7,770.29	7,866.81	0.00	0.00	0.00
13,600.00	90.00	89.39	5,553.00	-1,284.41	7,870.28	7,966.00	0.00	0.00	0.00
13,700.00	90.00	89.39	5,553.00	-1,283.34	7,970.28	8,065.20	0.00	0.00	0.00
13,800.00	90.00	89.39	5,553.00	-1,282.27	8,070.27	8,164.40	0.00	0.00	0.00
13,900.00	90.00	89.39	5,553.00	-1,281.19	8,170.26	8,263.60	0.00	0.00	0.00
14,000.00	90.00	89.39	5,553.00	-1,280.12	8,270.26	8,362.80	0.00	0.00	0.00
14,100.00	90.00	89.39	5,553.00	-1,279.05	8,370.25	8,462.00	0.00	0.00	0.00
14,200.00	90.00	89.39	5,553.00	-1,277.97	8,470.25	8,561.20	0.00	0.00	0.00
14,300.00	90.00	89.39	5,553.00	-1,276.90	8,570.24	8,660.40	0.00	0.00	0.00
14,400.00	90.00	89.39	5,553.00	-1,275.83	8,670.24	8,759.60	0.00	0.00	0.00
14,500.00	90.00	89.39	5,553.00	-1,274.75	8,770.23	8,858.80	0.00	0.00	0.00
14,600.00	90.00	89.39	5,553.00	-1,273.68	8,870.22	8,958.00	0.00	0.00	0.00
14,700.00	90.00	89.39	5,553.00	-1,272.61	8,970.22	9,057.20	0.00	0.00	0.00
14,800.00	90.00	89.39	5,553.00	-1,271.53	9,070.21	9,156.40	0.00	0.00	0.00
14,900.00	90.00	89.39	5,553.00	-1,270.46	9,170.21	9,255.60	0.00	0.00	0.00
15,000.00	90.00	89.39	5,553.00	-1,269.39	9,270.20	9,354.80	0.00	0.00	0.00
15,100.00	90.00	89.39	5,553.00	-1,268.31	9,370.20	9,454.00	0.00	0.00	0.00
15,200.00	90.00	89.39	5,553.00	-1,267.24	9,470.19	9,553.20	0.00	0.00	0.00
15,300.00	90.00	89.39	5,553.00	-1,266.17	9,570.18	9,652.40	0.00	0.00	0.00
15,400.00	90.00	89.39	5,553.00	-1,265.09	9,670.18	9,751.60	0.00	0.00	0.00
15,500.00	90.00	89.39	5,553.00	-1,264.02	9,770.17	9,850.80	0.00	0.00	0.00
15,600.00	90.00	89.39	5,553.00	-1,262.95	9,870.17	9,949.99	0.00	0.00	0.00
15,700.00	90.00	89.39	5,553.00	-1,261.87	9,970.16	10,049.19	0.00	0.00	0.00
15,800.00	90.00	89.39	5,553.00	-1,260.80	10,070.16	10,148.39	0.00	0.00	0.00
15,900.00	90.00	89.39	5,553.00	-1,259.73	10,170.15	10,247.59	0.00	0.00	0.00
16,000.00	90.00	89.39	5,553.00	-1,258.65	10,270.14	10,346.79	0.00	0.00	0.00
16,100.00	90.00	89.39	5,553.00	-1,257.58	10,370.14	10,445.99	0.00	0.00	0.00
16,200.00	90.00	89.39	5,553.00	-1,256.51	10,470.13	10,545.19	0.00	0.00	0.00
16,300.00	90.00	89.39	5,553.00	-1,255.43	10,570.13	10,644.39	0.00	0.00	0.00
16,400.00	90.00	89.39	5,553.00	-1,254.36	10,670.12	10,743.59	0.00	0.00	0.00
16,496.87	90.00	89.39	5,553.00	-1,253.32	10,766.98	10,839.68	0.00	0.00	0.00

Noble Energy, Inc.

Survey Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Well:	Tatanka Federal LD13-615	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
Tatanka Federal LD13-6 - plan misses target center by 4396.58ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	2,822.20	-3,371.22	1,522,925.45	3,456,045.62	40.7571973	-103.8537859
Tatanka Federal LD13-6 - plan hits target center - Point	0.00	0.00	4,984.26	-1,215.14	-57.29	1,518,888.12	3,459,359.53	40.7459483	-103.8420987
Tatanka Federal LD13-6 - plan hits target center - Point	0.00	0.00	5,553.00	-1,535.28	593.54	1,518,567.97	3,460,010.37	40.7450363	-103.8397719
Tatanka Federal LD13-6 - plan hits target center - Point	0.00	0.00	5,553.00	-1,253.32	10,766.98	1,518,849.94	3,470,183.79	40.7452815	-103.8030443

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
386.00	386.00	Pierre			
720.00	720.00	Upper Pierre Aquifer Top			
1,344.00	1,344.00	Upper Pierre Aquifer Base			
3,212.04	3,191.00	Parkman			
3,750.95	3,676.00	Sussex			
4,447.35	4,269.00	Shannon			
4,864.31	4,624.00	Teepee Buttes			
5,925.38	5,453.00	Sharon Springs			
5,946.14	5,463.00	Top A Chalk			
6,015.86	5,493.00	Top A Marl			
6,208.61	5,545.00	Top B Chalk			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2198	2198	0	0	Start Build 2.00
5287	4984	-425	-20	Start DLS 9.00 TFO -94.48
6318	5553	-1215	-57	TPZ/LP at 6318.06 MD
11,343	5553	-1535	594	Start DLS 1.50 TFO 90.00
11,473	5553	-1311	5614	Start 5024.14 hold at 11472.73 MD
16,497	5553	-1307	5743	TD at 16496.87

Checked By: _____ Approved By: _____ Date: _____

Northern Region - DJ Basin

East Pony

LD Section 15

Tatanka Federal LD13-615

Wellbore #1

Plan #1

Anticollision Summary Report

10 July, 2018

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Reference Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tatanka Federal LD13-615	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	7/10/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	16,496.87	Plan #1 (Wellbore #1)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
LD Section 01						
McCaffrey State LD12-74-1AHN - Original Drilling - Origin	14,805.14	10,391.02	5,272.57	5,135.98	38.601	CC, ES
McCaffrey State LD12-74-1AHN - Original Drilling - Origin	16,496.87	10,391.02	5,537.33	5,378.54	34.873	SF
McCaffrey State LD12-75-1BHN - Original Drilling - Origin	14,296.77	10,303.02	5,268.56	5,139.69	40.884	CC
McCaffrey State LD12-75-1BHN - Original Drilling - Origin	14,400.00	10,303.02	5,269.57	5,139.42	40.489	ES
McCaffrey State LD12-75-1BHN - Original Drilling - Origin	16,496.87	10,303.02	5,709.48	5,545.57	34.832	SF
McCaffrey State LD12-75HN - Original Drilling - Original	13,923.62	10,402.02	5,266.82	5,140.66	41.746	CC
McCaffrey State LD12-75HN - Original Drilling - Original	14,000.00	10,402.02	5,267.38	5,139.98	41.346	ES
McCaffrey State LD12-75HN - Original Drilling - Original	16,496.87	10,402.02	5,861.83	5,692.56	34.629	SF
Nalen State LD12-76-1AHN - Original Drilling - Original D	13,458.84	10,388.02	5,265.41	5,142.62	42.880	CC
Nalen State LD12-76-1AHN - Original Drilling - Original D	13,500.00	10,388.02	5,265.57	5,142.61	42.822	ES
Nalen State LD12-76-1AHN - Original Drilling - Original D	16,200.00	10,388.02	5,936.20	5,782.27	38.563	SF
Nalen State LD12-77-1BHN - Original Drilling - Original D	13,081.36	10,419.02	5,261.14	5,145.12	45.348	CC
Nalen State LD12-77-1BHN - Original Drilling - Original D	13,100.00	10,419.02	5,261.17	5,145.02	45.297	ES
Nalen State LD12-77-1BHN - Original Drilling - Original D	15,900.00	10,419.02	5,968.61	5,814.47	38.722	SF
Nalen State LD12-77HN - Original Drilling - Original Drilli	12,584.14	10,320.02	5,313.86	5,205.66	49.109	CC
Nalen State LD12-77HN - Original Drilling - Original Drilli	12,700.00	10,320.02	5,315.13	5,205.47	48.469	ES
Nalen State LD12-77HN - Original Drilling - Original Drilli	15,500.00	10,320.02	6,061.30	5,907.18	39.328	SF
Smith State LD12-72-1AHN - Original Drilling - Original D	16,065.69	10,216.02	5,283.37	5,129.63	34.367	CC
Smith State LD12-72-1AHN - Original Drilling - Original D	16,100.00	10,216.02	5,283.48	5,129.57	34.328	ES
Smith State LD12-72-1AHN - Original Drilling - Original D	16,496.87	10,216.02	5,300.93	5,144.38	33.861	SF
Smith State LD12-73-1BHN - Original Drilling - Original D	15,633.26	10,286.02	5,279.47	5,132.96	36.035	CC
Smith State LD12-73-1BHN - Original Drilling - Original D	15,700.00	10,286.02	5,279.89	5,132.75	35.884	ES
Smith State LD12-73-1BHN - Original Drilling - Original D	16,496.87	10,286.02	5,349.64	5,192.39	34.021	SF
Smith State LD12-73HN - Original Drilling - Original Drilli	15,200.94	10,349.02	5,276.86	5,136.76	37.667	CC
Smith State LD12-73HN - Original Drilling - Original Drilli	15,300.00	10,349.02	5,277.79	5,136.32	37.309	ES
Smith State LD12-73HN - Original Drilling - Original Drilli	16,496.87	10,349.02	5,433.66	5,272.01	33.614	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 Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Reference Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tatanka Federal LD13-615	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						
LD Section 02						
Gonsoulin State LD11-76HN - Original Drilling - Original D	3,503.05	10,851.00	5,102.08	5,037.55	79.063	CC, ES
Gonsoulin State LD11-76HN - Original Drilling - Original D	12,200.00	10,851.00	6,685.23	6,563.74	55.027	SF
Gradishar State LD11-72-1BHN - Original Drilling - Origin	11,247.13	10,443.02	5,249.95	5,157.84	56.991	CC
Gradishar State LD11-72-1BHN - Original Drilling - Origin	11,300.00	10,443.02	5,250.22	5,157.51	56.628	ES
Gradishar State LD11-72-1BHN - Original Drilling - Origin	14,300.00	10,443.02	6,157.29	6,016.94	43.873	SF
Gradishar State LD11-72HN - Original Drilling - Original D	10,802.93	10,436.02	5,254.44	5,166.33	59.636	CC
Gradishar State LD11-72HN - Original Drilling - Original D	10,900.00	10,436.02	5,255.33	5,165.71	58.634	ES
Gradishar State LD11-72HN - Original Drilling - Original D	13,900.00	10,436.02	6,171.56	6,030.76	43.830	SF
Gradishar State LD11-73-1AHN - Original Drilling - Origin	10,347.74	10,448.02	5,258.12	5,172.24	61.225	CC
Gradishar State LD11-73-1AHN - Original Drilling - Origin	10,400.00	10,448.02	5,258.38	5,171.52	60.542	ES
Gradishar State LD11-73-1AHN - Original Drilling - Origin	13,400.00	10,448.02	6,137.81	5,997.24	43.663	SF
Little State LD11-74-1BHN - Original Drilling - Original Dr	9,900.34	10,663.00	5,267.34	5,190.08	68.179	CC, ES
Little State LD11-74-1BHN - Original Drilling - Original Dr	13,400.00	10,663.00	6,379.76	6,248.21	48.498	SF
Little State LD11-74HN - Original Drilling - Original Drillin	9,461.73	10,598.00	5,270.43	5,198.23	73.007	CC
Little State LD11-74HN - Original Drilling - Original Drillin	9,500.00	10,598.00	5,270.56	5,197.88	72.510	ES
Little State LD11-74HN - Original Drilling - Original Drillin	13,000.00	10,598.00	6,392.40	6,260.46	48.447	SF
Moses State LD11-77-1AHN - Original Drilling - Original D	3,526.61	10,911.02	4,954.04	4,898.19	88.707	CC, ES
Moses State LD11-77-1AHN - Original Drilling - Original D	11,800.00	10,911.02	6,684.93	6,563.52	55.058	SF
Moses State LD11-78-1BHN - Original Drilling - Original D	3,515.14	10,639.02	4,741.25	4,693.34	98.957	CC, ES
Moses State LD11-78-1BHN - Original Drilling - Original D	11,472.73	10,639.02	6,742.61	6,624.05	56.870	SF
Moses State LD11-78HN - Original Drilling - Original Drill	3,524.40	10,870.02	4,696.30	4,654.17	111.472	CC, ES
Moses State LD11-78HN - Original Drilling - Original Drill	11,200.00	10,870.02	6,881.44	6,760.09	56.705	SF
LD Section 11						
Castor LD11-75HN - Original Drilling - Original Drilling - A	8,859.54	9,890.00	5,612.31	5,546.71	85.556	CC
Castor LD11-75HN - Original Drilling - Original Drilling - A	8,900.00	9,890.00	5,612.45	5,546.35	84.909	ES
Castor LD11-75HN - Original Drilling - Original Drilling - A	12,600.00	9,890.00	6,777.89	6,657.32	56.217	SF
LD Section 12						
Castor Federal LD13-78HN - Original Drilling - Oringinal	11,900.00	9,887.99	325.84	211.25	2.843	SF
Castor Federal LD13-78HN - Original Drilling - Oringinal	12,000.00	9,887.99	302.51	199.22	2.929	ES
Castor Federal LD13-78HN - Original Drilling - Oringinal	12,023.32	9,887.99	301.61	199.52	2.954	CC
Castor LD12-78HN - Original Drilling - Original Drilling - A	11,936.43	4,829.00	5,237.03	5,145.17	57.013	CC
Castor LD12-78HN - Original Drilling - Original Drilling - A	12,000.00	4,829.00	5,237.41	5,144.85	56.582	ES
Castor LD12-78HN - Original Drilling - Original Drilling - A	13,600.00	4,829.00	5,494.90	5,388.56	51.675	SF
LD Section 13						
Kog Nicola #1 (DA) - Original Drilling - Original Drilling - A	15,906.88	5,278.00	2,958.43	2,724.50	12.646	CC, ES
Kog Nicola #1 (DA) - Original Drilling - Original Drilling - A	16,200.00	5,278.00	2,972.92	2,736.44	12.571	SF
Rauth #G (DA) - Original Drilling - Original Drilling - As D	14,263.97	5,485.00	2,613.17	2,395.22	11.990	CC
Rauth #G (DA) - Original Drilling - Original Drilling - As D	14,300.00	5,485.00	2,613.42	2,395.10	11.971	ES
Rauth #G (DA) - Original Drilling - Original Drilling - As D	14,500.00	5,485.00	2,623.81	2,403.80	11.926	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 Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Reference Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tatanka Federal LD13-615	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						
LD Section 14						
Alice G Nay #1 (PA) - Original Drilling - Original Drilling -	9,088.81	5,497.00	1,276.22	1,120.09	8.174	CC
Alice G Nay #1 (PA) - Original Drilling - Original Drilling -	9,100.00	5,497.00	1,276.27	1,120.08	8.171	ES, SF
Alice Nay #1 (DA) - Original Drilling - Original Drilling - As	9,107.08	5,527.00	3,269.31	3,112.38	20.833	CC, ES
Alice Nay #1 (DA) - Original Drilling - Original Drilling - As	9,600.00	5,527.00	3,306.26	3,145.18	20.526	SF
Alice Nay #1/2 (DA) - Original Drilling - Original Drilling -	9,097.64	5,507.00	1,939.30	1,782.88	12.398	CC
Alice Nay #1/2 (DA) - Original Drilling - Original Drilling -	9,100.00	5,507.00	1,939.30	1,782.86	12.396	ES
Alice Nay #1/2 (DA) - Original Drilling - Original Drilling -	9,300.00	5,507.00	1,949.83	1,792.00	12.354	SF
Alice Nay #1/3 (DA) - Original Drilling - Original Drilling -	9,421.54	5,504.00	1,602.92	1,442.91	10.018	CC, ES
Alice Nay #1/3 (DA) - Original Drilling - Original Drilling -	9,500.00	5,504.00	1,604.84	1,444.30	9.996	SF
Alice Nay #2 (DA) - Original Drilling - Original Drilling - As	9,571.21	5,510.00	1,602.70	1,440.86	9.903	CC, ES
Alice Nay #2 (DA) - Original Drilling - Original Drilling - As	9,700.00	5,510.00	1,607.86	1,445.21	9.885	SF
Brady #1 (DA) - Original Drilling - Original Drilling - As Dr	10,761.16	5,540.00	2,927.75	2,751.42	16.605	CC
Brady #1 (DA) - Original Drilling - Original Drilling - As Dr	10,800.00	5,540.00	2,928.00	2,751.32	16.572	ES
Brady #1 (DA) - Original Drilling - Original Drilling - As Dr	11,100.00	5,540.00	2,947.29	2,768.12	16.450	SF
Castor Federal LD14-68HN - Original Drilling - Original D	2,549.36	2,944.64	2,990.06	2,974.40	190.932	CC, ES
Castor Federal LD14-68HN - Original Drilling - Original D	11,300.00	9,850.00	4,331.91	4,153.36	24.261	SF
McDermott #1-14 (PA) - Original Drilling - Original Drilling	9,256.56	5,497.00	1,439.53	1,281.53	9.111	CC, ES
McDermott #1-14 (PA) - Original Drilling - Original Drilling	9,300.00	5,497.00	1,440.19	1,281.90	9.099	SF
Nay #1 (DA) - Original Drilling - Original Drilling - As Drille	9,106.75	5,669.00	2,613.31	2,453.55	16.357	CC, ES
Nay #1 (DA) - Original Drilling - Original Drilling - As Drille	9,400.00	5,669.00	2,629.71	2,467.60	16.222	SF
Zimith #1 (DA) - Original Drilling - Original Drilling - As Dr	2,198.00	2,165.00	1,717.88	1,666.93	33.719	CC
Zimith #1 (DA) - Original Drilling - Original Drilling - As Dr	2,300.00	2,266.98	1,719.13	1,665.82	32.245	ES
Zimith #1 (DA) - Original Drilling - Original Drilling - As Dr	7,400.00	5,520.00	2,644.66	2,505.81	19.048	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Reference Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tatanka Federal LD13-615	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						
LD Section 15						
Castor Federal LD15-72HN - Original Drilling - Original D	5,653.57	9,861.00	460.10	390.15	6.578	CC
Castor Federal LD15-72HN - Original Drilling - Original D	5,700.00	9,861.00	463.58	389.95	6.296	ES
Castor Federal LD15-72HN - Original Drilling - Original D	5,800.00	9,861.00	493.54	413.30	6.151	SF
Castor Federal LD15-73-1HN - Original Drilling - Original	5,545.76	9,807.00	696.46	609.59	8.018	CC
Castor Federal LD15-73-1HN - Original Drilling - Original	5,550.00	9,807.00	696.48	609.41	7.999	ES
Castor Federal LD15-73-1HN - Original Drilling - Original	5,650.00	9,807.00	711.66	620.46	7.803	SF
Castor Federal LD15-74-1HN - Original Drilling - Original D	5,527.48	9,918.00	1,016.76	926.43	11.256	CC
Castor Federal LD15-73HN - Original Drilling - Original D	5,550.00	9,918.00	1,017.38	926.27	11.167	ES
Castor Federal LD15-73HN - Original Drilling - Original D	5,650.00	9,918.00	1,034.93	940.85	11.000	SF
Castor Federal LD15-74-1HN - Original Drilling - Original	5,506.30	10,146.00	1,383.61	1,293.97	15.435	CC, ES
Castor Federal LD15-74-1HN - Original Drilling - Original	5,600.00	10,146.00	1,393.36	1,302.08	15.264	SF
Castor Federal LD15-74HN - Original Drilling - Original D	5,468.75	9,978.00	1,649.35	1,557.61	17.979	CC, ES
Castor Federal LD15-74HN - Original Drilling - Original D	5,550.00	9,978.00	1,656.39	1,563.49	17.830	SF
Castor Federal LD15-75-1HN - Original Drilling - Original	5,465.30	10,055.00	1,962.94	1,870.94	21.337	CC, ES
Castor Federal LD15-75-1HN - Original Drilling - Original	5,600.00	10,055.00	1,981.35	1,887.60	21.135	SF
Dillos PC LD15-74HN - Original Drilling - Original Drilling	5,410.52	9,913.00	2,586.43	2,492.92	27.658	CC, ES
Dillos PC LD15-74HN - Original Drilling - Original Drilling	5,550.00	9,913.00	2,605.18	2,510.26	27.447	SF
Fiscus Federal LD15-76HN - Original Drilling - Original D	5,405.69	9,886.02	2,913.74	2,816.47	29.952	CC, ES
Fiscus Federal LD15-76HN - Original Drilling - Original D	5,500.00	9,886.02	2,922.17	2,824.15	29.811	SF
Fiscus Federal LD15-77-1HN - Original Drilling - Original	5,406.37	9,986.74	3,264.82	3,167.55	33.565	CC, ES
Fiscus Federal LD15-77-1HN - Original Drilling - Original	5,550.00	9,990.02	3,283.84	3,185.36	33.346	SF
Fiscus Federal LD15-77HN - Original Drilling - Original D	5,396.35	9,906.02	3,482.18	3,384.71	35.726	CC
Fiscus Federal LD15-77HN - Original Drilling - Original D	5,400.00	9,906.02	3,482.19	3,384.69	35.715	ES
Fiscus Federal LD15-77HN - Original Drilling - Original D	5,550.00	9,906.02	3,503.82	3,405.15	35.511	SF
Tatanka Federal LD13-625 - Wellbore #1 - Plan #1	2,198.00	2,203.00	36.53	21.22	2.386	CC, ES
Tatanka Federal LD13-625 - Wellbore #1 - Plan #1	16,400.00	18,869.43	579.26	276.94	1.916	SF
Tatanka Federal LD13-635 - Wellbore #1 - Plan #1	2,198.00	2,203.00	72.92	57.60	4.762	CC, ES
Tatanka Federal LD13-635 - Wellbore #1 - Plan #1	16,496.87	16,078.78	1,201.36	930.52	4.436	SF
Tatanka Federal LD13-645 - Wellbore #1 - Plan #1	2,198.00	2,204.00	112.98	97.66	7.377	CC, ES
Tatanka Federal LD13-645 - Wellbore #1 - Plan #1	16,496.87	16,104.10	1,820.50	1,549.14	6.709	SF
Tatanka Federal LD13-650 - Wellbore #1 - Plan #1	3,130.60	3,757.24	1,820.65	1,797.65	79.163	CC, ES
Tatanka Federal LD13-650 - Wellbore #1 - Plan #1	16,496.87	16,262.14	2,474.80	2,203.45	9.120	SF
Tatanka Federal LD13-660 - Wellbore #1 - Plan #1	2,198.00	2,213.00	1,964.09	1,948.74	127.986	CC
Tatanka Federal LD13-660 - Wellbore #1 - Plan #1	2,200.00	2,215.00	1,964.09	1,948.73	127.869	ES
Tatanka Federal LD13-660 - Wellbore #1 - Plan #1	16,496.87	16,173.38	3,094.97	2,823.56	11.403	SF
Tatanka Federal LD13-670 - Wellbore #1 - Plan #1	2,198.00	2,214.00	2,000.51	1,985.16	130.329	CC
Tatanka Federal LD13-670 - Wellbore #1 - Plan #1	2,200.00	2,216.00	2,000.51	1,985.15	130.210	ES
Tatanka Federal LD13-670 - Wellbore #1 - Plan #1	16,496.87	16,154.79	3,715.03	3,443.58	13.686	SF
Tatanka Federal LD13-685 - Wellbore #1 - Plan #1	2,110.43	2,127.43	2,036.99	2,022.27	138.331	CC
Tatanka Federal LD13-685 - Wellbore #1 - Plan #1	2,198.00	2,200.00	2,037.05	2,021.75	133.147	ES
Tatanka Federal LD13-685 - Wellbore #1 - Plan #1	16,496.87	16,259.63	4,515.39	4,243.69	16.619	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 Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Reference Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tatanka Federal LD13-615	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						
LD Section 22						
Fiscus LD22-76HN - Original Drilling - As Drilled	5,524.97	10,079.02	3,118.99	3,028.70	34.547	CC, ES
Fiscus LD22-76HN - Original Drilling - As Drilled	5,700.00	10,079.02	3,146.94	3,054.63	34.091	SF
Gracie LD22-720 - Original Drilling - Original Drilling - As	5,900.78	10,754.00	920.32	871.97	19.034	CC, ES
Gracie LD22-720 - Original Drilling - Original Drilling - As	6,050.00	10,754.00	947.16	895.70	18.406	SF
Gracie LD22-730 - Original Drilling - Original Drilling - As	5,696.00	10,481.00	1,316.33	1,261.57	24.038	CC
Gracie LD22-730 - Original Drilling - Original Drilling - As	5,700.00	10,481.00	1,316.35	1,261.51	24.005	ES
Gracie LD22-730 - Original Drilling - Original Drilling - As	5,850.00	10,481.00	1,342.17	1,284.69	23.347	SF
Gracie LD22-740 - Original Drilling - Original Drilling - As	5,587.77	10,427.00	1,850.35	1,757.14	19.851	CC
Gracie LD22-740 - Original Drilling - Original Drilling - As	5,600.00	10,427.00	1,850.50	1,757.01	19.794	ES
Gracie LD22-740 - Original Drilling - Original Drilling - As	5,750.00	10,427.00	1,876.97	1,780.37	19.432	SF
Gracie LD22-750 - Original Drilling - Original Drilling - As	5,538.88	10,575.00	2,449.01	2,349.77	24.676	CC
Gracie LD22-750 - Original Drilling - Original Drilling - As	5,550.00	10,575.00	2,449.13	2,349.72	24.637	ES
Gracie LD22-750 - Original Drilling - Original Drilling - As	5,700.00	10,575.00	2,474.04	2,372.65	24.401	SF
Kidd LD22-770 - Original Drilling - Original Drilling - As D	5,461.25	10,396.00	3,679.72	3,580.31	37.016	CC, ES
Kidd LD22-770 - Original Drilling - Original Drilling - As D	5,650.00	10,396.00	3,711.91	3,610.75	36.691	SF
Kidd LD22-780 - Original Drilling - Original Drilling - As D	5,448.92	10,500.00	4,310.74	4,209.02	42.378	CC
Kidd LD22-780 - Original Drilling - Original Drilling - As D	5,450.00	10,500.00	4,310.74	4,209.01	42.374	ES
Kidd LD22-780 - Original Drilling - Original Drilling - As D	5,600.00	10,500.00	4,331.08	4,228.19	42.096	SF
LD Section 23						
Fiscus Federal LD23-78HN - Original Drilling - Original D	6,774.31	10,037.02	994.50	948.19	21.474	CC, ES
Fiscus Federal LD23-78HN - Original Drilling - Original D	7,500.00	10,037.02	1,231.12	1,153.83	15.928	SF
Hensley #A-1 (DA) - Hensley #A-1 OH - As-drilled (No Su	9,381.01	5,522.00	1,038.32	778.15	3.991	CC
Hensley #A-1 (DA) - Hensley #A-1 OH - As-drilled (No Su	9,400.00	5,522.00	1,038.49	778.00	3.987	ES, SF
Ingram #1 (DA) - Ingram #1 OH - As-drilled (No Surveys)	10,700.16	5,518.00	1,050.50	775.12	3.815	CC, ES
Ingram #1 (DA) - Ingram #1 OH - As-drilled (No Surveys)	10,800.00	5,518.00	1,055.23	778.30	3.810	SF

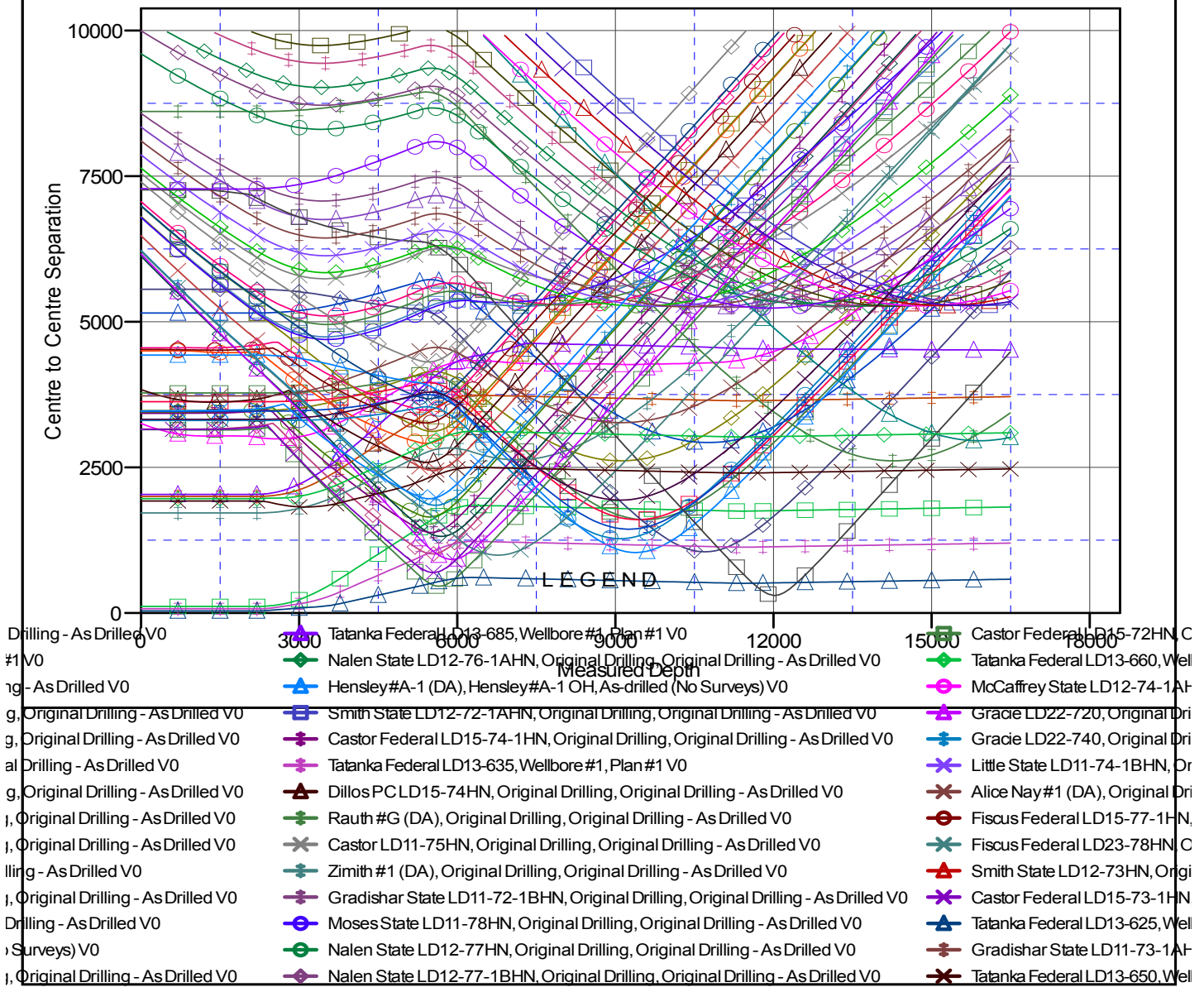
Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Reference Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tatanka Federal LD13-615	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 @ 4693.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Tatanka Federal LD13-615
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°

Ladder Plot



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

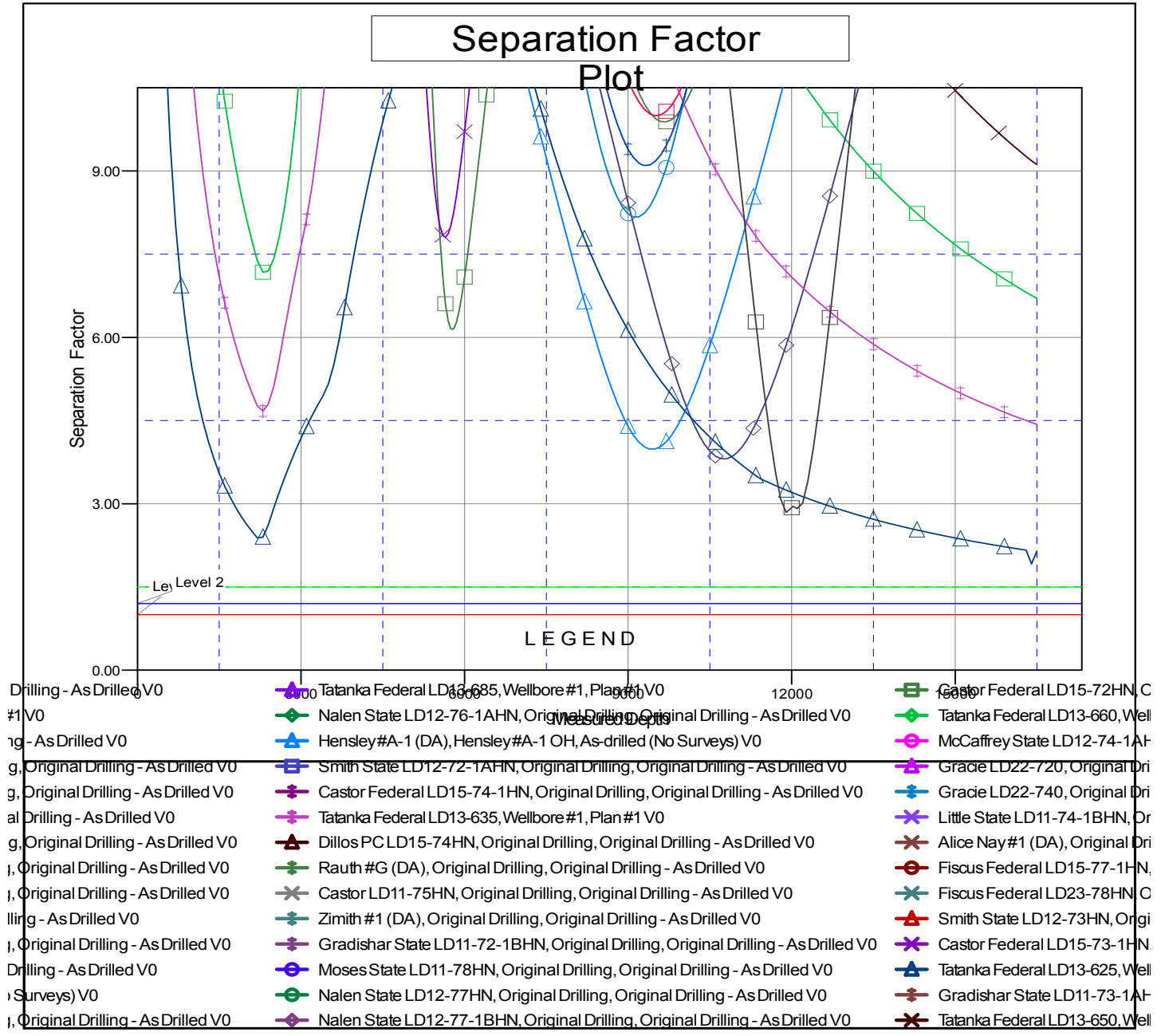
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Tatanka Federal LD13-615
Project:	East Pony	TVD Reference:	KB @ 4693.00ft
Reference Site:	LD Section 15	MD Reference:	KB @ 4693.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Tatanka Federal LD13-615	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 @ 4693.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Tatanka Federal LD13-615
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°



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