

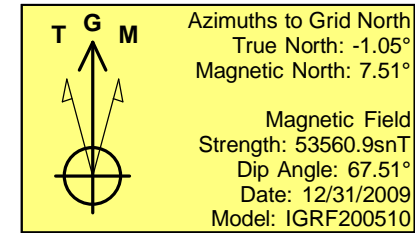
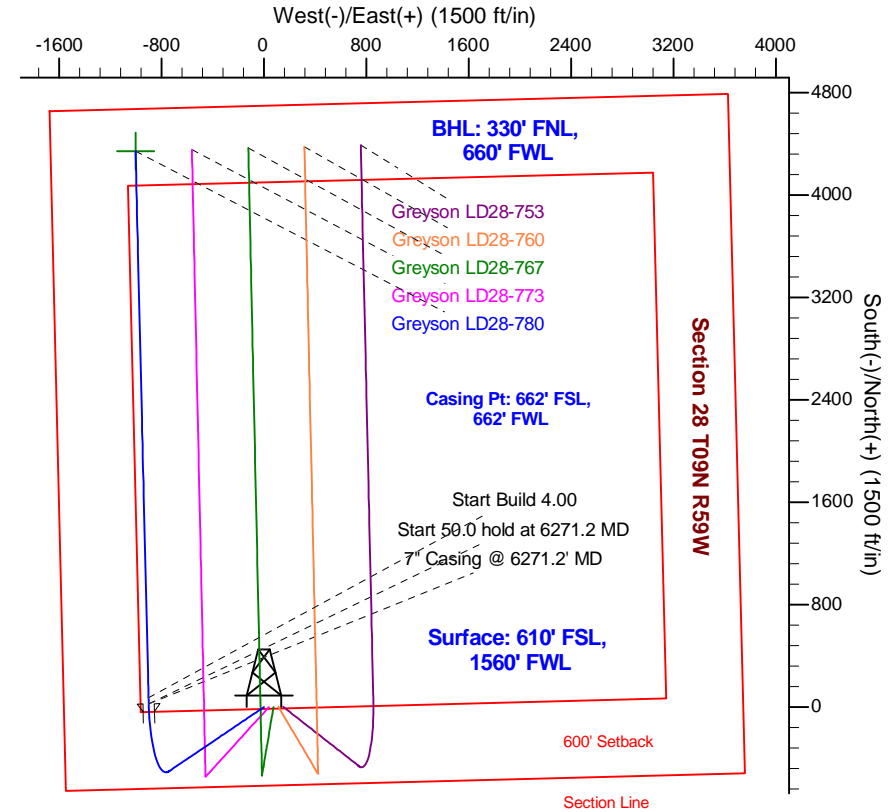
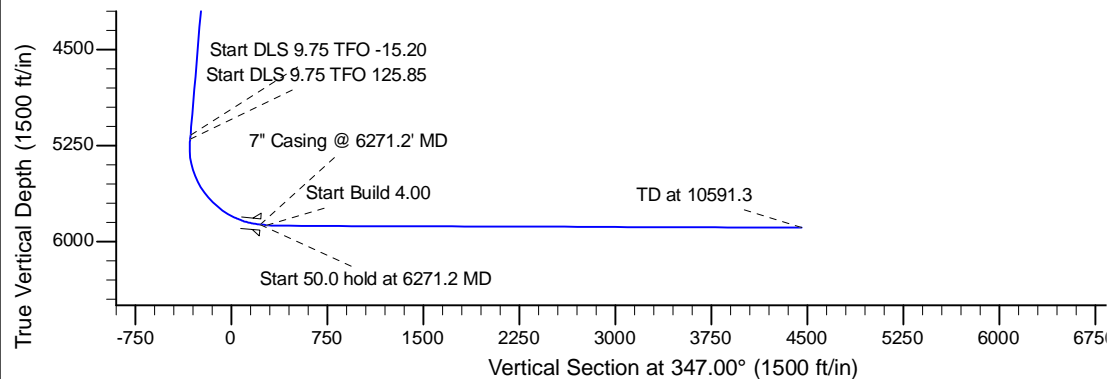
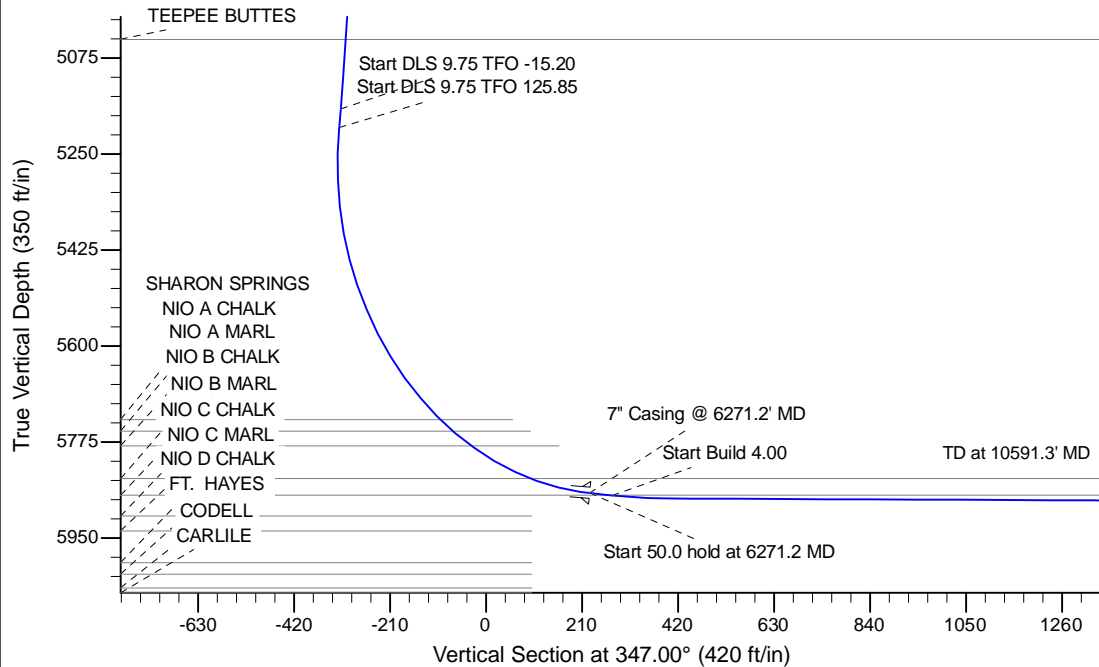
Project: Wattenberg Field
Site: LD (Sec.28-T09N-R58W) Weld County, CO
Well: Greyson LD28-780
Wellbore: Original Drilling
Design: APD - Rev 0

Northern Region Drilling - Working

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	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1650.0	13.00	236.00	1644.4	-41.1	-60.9	2.00	236.00	-26.3	
4	5266.2	13.00	236.00	5168.0	-495.9	-735.3	0.00	0.00	-317.8	
5	5301.1	16.30	232.83	5201.7	-501.1	-742.4	9.75	-15.20	-321.2	
6	6271.2	85.00	358.63	5868.3	25.0	-900.0	9.75	125.85	226.8	
7	6321.2	85.00	358.63	5872.7	74.8	-901.2	0.00	0.00	275.6	
8	6441.2	89.80	358.63	5878.1	194.6	-904.1	4.00	0.00	393.0	
9	10591.3	89.80	358.64	5892.6	4343.4	-1002.8	0.00	91.76	4457.7	Greyson LD28-780 BHL 330'FNL, 660'FWL



WELL DETAILS: Greyson LD28-780

Ground Level: 4855.0		Northing	Easting	Latitude	Longitude
0.0	0.0	1507995.94	3451037.15	40.716480	-103.872850

Plan: APD - Rev 0 (Greyson LD28-780/Original Drilling)

Created By: Shailey Jewell Date: 11:47, March 05 2015

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region Drilling - Working

**Wattenberg Field
LD (09N-58W)
Greyson LD28-780**

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

05 March, 2015

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-780
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-780	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Project	Wattenberg Field, Weld County CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		LD (09N-58W)			
Site Position:		Northing:	1,523,557.18 usft	Latitude:	40.759270
From:	Lat/Long	Easting:	3,449,341.23 usft	Longitude:	-103.877940
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	1.05 °

Well	Greyson LD28-780					
Well Position	+N/-S	-15,561.3 ft	Northing:	1,507,995.95 usft	Latitude:	40.716480
	+E/-W	1,695.9 ft	Easting:	3,451,037.15 usft	Longitude:	-103.872850
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,855.0 ft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	8.56	67.51	53,561

Design	APD - Rev 0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	347.00

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,650.0	13.00	236.00	1,644.4	-41.1	-60.9	2.00	2.00	0.00	236.00	
5,266.2	13.00	236.00	5,168.0	-495.9	-735.3	0.00	0.00	0.00	0.00	
5,301.1	16.30	232.83	5,201.7	-501.1	-742.4	9.75	9.48	-9.11	-15.20	
6,271.2	85.00	358.63	5,868.3	25.0	-900.0	9.75	7.08	12.97	125.85	
6,321.2	85.00	358.63	5,872.7	74.8	-901.2	0.00	0.00	0.00	0.00	
6,441.2	89.80	358.63	5,878.1	194.6	-904.1	4.00	4.00	0.00	0.00	
10,591.3	89.80	358.64	5,892.6	4,343.4	-1,002.8	0.00	0.00	0.00	91.76	Greyson LD28-780 BI

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-780
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-780	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
50.0	0.00	0.00	50.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
950.0	0.00	0.00	950.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,050.0	1.00	236.00	1,050.0	-0.2	-0.4	-0.2	2.00	2.00	0.00
1,100.0	2.00	236.00	1,100.0	-1.0	-1.4	-0.6	2.00	2.00	0.00
1,150.0	3.00	236.00	1,149.9	-2.2	-3.3	-1.4	2.00	2.00	0.00
1,200.0	4.00	236.00	1,199.8	-3.9	-5.8	-2.5	2.00	2.00	0.00
1,250.0	5.00	236.00	1,249.7	-6.1	-9.0	-3.9	2.00	2.00	0.00
1,300.0	6.00	236.00	1,299.5	-8.8	-13.0	-5.6	2.00	2.00	0.00
1,350.0	7.00	236.00	1,349.1	-11.9	-17.7	-7.7	2.00	2.00	0.00
1,400.0	8.00	236.00	1,398.7	-15.6	-23.1	-10.0	2.00	2.00	0.00
1,450.0	9.00	236.00	1,448.2	-19.7	-29.2	-12.6	2.00	2.00	0.00
1,500.0	10.00	236.00	1,497.5	-24.3	-36.1	-15.6	2.00	2.00	0.00
1,550.0	11.00	236.00	1,546.6	-29.4	-43.6	-18.9	2.00	2.00	0.00
1,600.0	12.00	236.00	1,595.6	-35.0	-51.9	-22.4	2.00	2.00	0.00
1,650.0	13.00	236.00	1,644.4	-41.1	-60.9	-26.3	2.00	2.00	0.00
1,700.0	13.00	236.00	1,693.2	-47.3	-70.2	-30.3	0.00	0.00	0.00
1,750.0	13.00	236.00	1,741.9	-53.6	-79.5	-34.4	0.00	0.00	0.00
1,800.0	13.00	236.00	1,790.6	-59.9	-88.8	-38.4	0.00	0.00	0.00
1,850.0	13.00	236.00	1,839.3	-66.2	-98.2	-42.4	0.00	0.00	0.00
1,900.0	13.00	236.00	1,888.0	-72.5	-107.5	-46.5	0.00	0.00	0.00
1,950.0	13.00	236.00	1,936.8	-78.8	-116.8	-50.5	0.00	0.00	0.00
2,000.0	13.00	236.00	1,985.5	-85.1	-126.1	-54.5	0.00	0.00	0.00
2,050.0	13.00	236.00	2,034.2	-91.4	-135.5	-58.6	0.00	0.00	0.00
2,100.0	13.00	236.00	2,082.9	-97.7	-144.8	-62.6	0.00	0.00	0.00
2,150.0	13.00	236.00	2,131.6	-104.0	-154.1	-66.6	0.00	0.00	0.00
2,200.0	13.00	236.00	2,180.3	-110.2	-163.4	-70.6	0.00	0.00	0.00
2,250.0	13.00	236.00	2,229.1	-116.5	-172.8	-74.7	0.00	0.00	0.00
2,300.0	13.00	236.00	2,277.8	-122.8	-182.1	-78.7	0.00	0.00	0.00
2,350.0	13.00	236.00	2,326.5	-129.1	-191.4	-82.7	0.00	0.00	0.00
2,400.0	13.00	236.00	2,375.2	-135.4	-200.7	-86.8	0.00	0.00	0.00
2,431.6	13.00	236.00	2,406.0	-139.4	-206.6	-89.3	0.00	0.00	0.00
PIERRE									
2,450.0	13.00	236.00	2,423.9	-141.7	-210.1	-90.8	0.00	0.00	0.00
2,500.0	13.00	236.00	2,472.7	-148.0	-219.4	-94.8	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-780
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-780	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,550.0	13.00	236.00	2,521.4	-154.3	-228.7	-98.9	0.00	0.00	0.00
2,600.0	13.00	236.00	2,570.1	-160.6	-238.0	-102.9	0.00	0.00	0.00
2,650.0	13.00	236.00	2,618.8	-166.8	-247.4	-106.9	0.00	0.00	0.00
2,700.0	13.00	236.00	2,667.5	-173.1	-256.7	-111.0	0.00	0.00	0.00
2,750.0	13.00	236.00	2,716.2	-179.4	-266.0	-115.0	0.00	0.00	0.00
2,800.0	13.00	236.00	2,765.0	-185.7	-275.3	-119.0	0.00	0.00	0.00
2,850.0	13.00	236.00	2,813.7	-192.0	-284.7	-123.0	0.00	0.00	0.00
2,900.0	13.00	236.00	2,862.4	-198.3	-294.0	-127.1	0.00	0.00	0.00
2,950.0	13.00	236.00	2,911.1	-204.6	-303.3	-131.1	0.00	0.00	0.00
3,000.0	13.00	236.00	2,959.8	-210.9	-312.6	-135.1	0.00	0.00	0.00
3,050.0	13.00	236.00	3,008.6	-217.2	-322.0	-139.2	0.00	0.00	0.00
3,100.0	13.00	236.00	3,057.3	-223.5	-331.3	-143.2	0.00	0.00	0.00
3,150.0	13.00	236.00	3,106.0	-229.7	-340.6	-147.2	0.00	0.00	0.00
3,200.0	13.00	236.00	3,154.7	-236.0	-349.9	-151.3	0.00	0.00	0.00
3,250.0	13.00	236.00	3,203.4	-242.3	-359.3	-155.3	0.00	0.00	0.00
3,300.0	13.00	236.00	3,252.2	-248.6	-368.6	-159.3	0.00	0.00	0.00
3,350.0	13.00	236.00	3,300.9	-254.9	-377.9	-163.4	0.00	0.00	0.00
3,373.7	13.00	236.00	3,324.0	-257.9	-382.3	-165.3	0.00	0.00	0.00
PARKMAN									
3,400.0	13.00	236.00	3,349.6	-261.2	-387.2	-167.4	0.00	0.00	0.00
3,450.0	13.00	236.00	3,398.3	-267.5	-396.6	-171.4	0.00	0.00	0.00
3,500.0	13.00	236.00	3,447.0	-273.8	-405.9	-175.4	0.00	0.00	0.00
3,550.0	13.00	236.00	3,495.7	-280.1	-415.2	-179.5	0.00	0.00	0.00
3,600.0	13.00	236.00	3,544.5	-286.4	-424.5	-183.5	0.00	0.00	0.00
3,650.0	13.00	236.00	3,593.2	-292.6	-433.9	-187.5	0.00	0.00	0.00
3,700.0	13.00	236.00	3,641.9	-298.9	-443.2	-191.6	0.00	0.00	0.00
3,750.0	13.00	236.00	3,690.6	-305.2	-452.5	-195.6	0.00	0.00	0.00
3,800.0	13.00	236.00	3,739.3	-311.5	-461.8	-199.6	0.00	0.00	0.00
3,850.0	13.00	236.00	3,788.1	-317.8	-471.2	-203.7	0.00	0.00	0.00
3,900.0	13.00	236.00	3,836.8	-324.1	-480.5	-207.7	0.00	0.00	0.00
3,950.0	13.00	236.00	3,885.5	-330.4	-489.8	-211.7	0.00	0.00	0.00
4,000.0	13.00	236.00	3,934.2	-336.7	-499.1	-215.8	0.00	0.00	0.00
4,050.0	13.00	236.00	3,982.9	-343.0	-508.5	-219.8	0.00	0.00	0.00
4,066.5	13.00	236.00	3,999.0	-345.0	-511.5	-221.1	0.00	0.00	0.00
SUSSEX									
4,100.0	13.00	236.00	4,031.7	-349.2	-517.8	-223.8	0.00	0.00	0.00
4,150.0	13.00	236.00	4,080.4	-355.5	-527.1	-227.8	0.00	0.00	0.00
4,200.0	13.00	236.00	4,129.1	-361.8	-536.4	-231.9	0.00	0.00	0.00
4,250.0	13.00	236.00	4,177.8	-368.1	-545.8	-235.9	0.00	0.00	0.00
4,300.0	13.00	236.00	4,226.5	-374.4	-555.1	-239.9	0.00	0.00	0.00
4,350.0	13.00	236.00	4,275.2	-380.7	-564.4	-244.0	0.00	0.00	0.00
4,400.0	13.00	236.00	4,324.0	-387.0	-573.7	-248.0	0.00	0.00	0.00
4,450.0	13.00	236.00	4,372.7	-393.3	-583.1	-252.0	0.00	0.00	0.00
4,500.0	13.00	236.00	4,421.4	-399.6	-592.4	-256.1	0.00	0.00	0.00
4,538.6	13.00	236.00	4,459.0	-404.4	-599.6	-259.2	0.00	0.00	0.00
SHANNON									
4,550.0	13.00	236.00	4,470.1	-405.9	-601.7	-260.1	0.00	0.00	0.00
4,600.0	13.00	236.00	4,518.8	-412.1	-611.0	-264.1	0.00	0.00	0.00
4,650.0	13.00	236.00	4,567.6	-418.4	-620.4	-268.1	0.00	0.00	0.00
4,700.0	13.00	236.00	4,616.3	-424.7	-629.7	-272.2	0.00	0.00	0.00
4,750.0	13.00	236.00	4,665.0	-431.0	-639.0	-276.2	0.00	0.00	0.00
4,800.0	13.00	236.00	4,713.7	-437.3	-648.3	-280.2	0.00	0.00	0.00
4,850.0	13.00	236.00	4,762.4	-443.6	-657.7	-284.3	0.00	0.00	0.00

Noble Energy Inc

Planning Report

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Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
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Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-780	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,900.0	13.00	236.00	4,811.1	-449.9	-667.0	-288.3	0.00	0.00	0.00
4,950.0	13.00	236.00	4,859.9	-456.2	-676.3	-292.3	0.00	0.00	0.00
5,000.0	13.00	236.00	4,908.6	-462.5	-685.6	-296.4	0.00	0.00	0.00
5,050.0	13.00	236.00	4,957.3	-468.7	-694.9	-300.4	0.00	0.00	0.00
5,100.0	13.00	236.00	5,006.0	-475.0	-704.3	-304.4	0.00	0.00	0.00
5,135.9	13.00	236.00	5,041.0	-479.6	-711.0	-307.3	0.00	0.00	0.00
TEEPEE BUTTES									
5,150.0	13.00	236.00	5,054.7	-481.3	-713.6	-308.5	0.00	0.00	0.00
5,200.0	13.00	236.00	5,103.5	-487.6	-722.9	-312.5	0.00	0.00	0.00
5,250.0	13.00	236.00	5,152.2	-493.9	-732.2	-316.5	0.00	0.00	0.00
5,266.2	13.00	236.00	5,168.0	-495.9	-735.3	-317.8	0.00	0.00	0.00
Start DLS 9.75 TFO -15.20									
5,300.0	16.20	232.91	5,200.7	-500.9	-742.2	-321.1	9.74	9.46	-9.15
5,301.1	16.30	232.83	5,201.7	-501.1	-742.4	-321.2	9.71	9.49	-7.31
Start DLS 9.75 TFO 125.85									
5,350.0	14.04	248.95	5,248.9	-507.4	-753.4	-324.9	9.75	-4.63	32.97
5,400.0	13.15	269.46	5,297.6	-509.6	-764.8	-324.5	9.75	-1.77	41.02
5,450.0	13.98	290.05	5,346.2	-507.6	-776.2	-320.0	9.75	1.67	41.18
5,500.0	16.27	306.64	5,394.5	-501.3	-787.5	-311.3	9.75	4.58	33.18
5,550.0	19.51	318.56	5,442.1	-490.9	-798.6	-298.6	9.75	6.48	23.84
5,600.0	23.31	326.97	5,488.6	-476.3	-809.5	-282.0	9.75	7.59	16.82
5,650.0	27.44	333.05	5,533.8	-457.7	-820.2	-261.5	9.75	8.25	12.17
5,700.0	31.76	337.63	5,577.3	-435.3	-830.4	-237.3	9.75	8.65	9.15
5,750.0	36.21	341.19	5,618.7	-409.1	-840.2	-209.6	9.75	8.90	7.13
5,800.0	40.75	344.07	5,657.9	-379.4	-849.4	-178.6	9.75	9.07	5.75
5,850.0	45.34	346.45	5,694.4	-346.4	-858.1	-144.5	9.75	9.19	4.77
5,900.0	49.98	348.49	5,728.1	-310.4	-866.1	-107.6	9.75	9.28	4.07
5,909.3	50.85	348.83	5,734.0	-303.3	-867.5	-100.4	9.76	9.33	3.74
SHARON SPRINGS									
5,943.8	54.07	350.05	5,755.0	-276.5	-872.5	-73.1	9.75	9.34	3.53
NIO A CHALK									
5,950.0	54.65	350.26	5,758.6	-271.5	-873.3	-68.1	9.73	9.34	3.35
5,992.5	58.64	351.61	5,782.0	-236.4	-878.9	-32.6	9.75	9.38	3.18
NIO A MARL									
6,000.0	59.34	351.84	5,785.9	-230.1	-879.9	-26.3	9.73	9.38	3.02
6,050.0	64.05	353.27	5,809.6	-186.4	-885.5	17.5	9.75	9.42	2.86
6,100.0	68.77	354.59	5,829.6	-140.9	-890.4	63.0	9.75	9.44	2.64
6,137.3	72.30	355.53	5,842.0	-105.8	-893.4	97.9	9.75	9.46	2.50
NIO B CHALK									
6,150.0	73.50	355.83	5,845.7	-93.8	-894.3	109.8	9.74	9.46	2.43
6,200.0	78.24	357.01	5,857.9	-45.4	-897.3	157.6	9.75	9.48	2.36
6,250.0	82.98	358.15	5,866.1	3.9	-899.4	206.1	9.75	9.49	2.28
6,271.2	85.00	358.63	5,868.3	25.0	-900.0	226.8	9.76	9.50	2.24
Start 50.0 hold at 6271.2 MD - 7" Casing @ 6271.2' MD									
6,300.0	85.00	358.63	5,870.8	53.6	-900.7	254.9	0.02	0.02	0.00
6,313.7	85.00	358.63	5,872.0	67.3	-901.0	268.3	0.00	0.00	0.00
NIO B MARL									
6,321.2	85.00	358.63	5,872.7	74.7	-901.2	275.6	0.00	0.00	0.00
Start Build 4.00									
6,350.0	86.15	358.63	5,874.9	103.5	-901.9	303.7	3.99	3.99	0.00
6,400.0	88.15	358.63	5,877.4	153.4	-903.1	352.6	4.00	4.00	0.00
6,441.2	89.80	358.63	5,878.1	194.6	-904.1	393.0	4.00	4.00	0.00
6,450.0	89.80	358.63	5,878.1	203.4	-904.3	401.6	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-780
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-780	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,500.0	89.80	358.63	5,878.3	253.3	-905.5	450.6	0.00	0.00	0.00
6,550.0	89.80	358.63	5,878.5	303.3	-906.7	499.5	0.00	0.00	0.00
6,600.0	89.80	358.63	5,878.7	353.3	-907.9	548.5	0.00	0.00	0.00
6,650.0	89.80	358.63	5,878.8	403.3	-909.0	597.5	0.00	0.00	0.00
6,700.0	89.80	358.63	5,879.0	453.3	-910.2	646.4	0.00	0.00	0.00
6,750.0	89.80	358.63	5,879.2	503.3	-911.4	695.4	0.00	0.00	0.00
6,800.0	89.80	358.63	5,879.4	553.3	-912.6	744.4	0.00	0.00	0.00
6,850.0	89.80	358.63	5,879.5	603.2	-913.8	793.4	0.00	0.00	0.00
6,900.0	89.80	358.63	5,879.7	653.2	-915.0	842.3	0.00	0.00	0.00
6,950.0	89.80	358.63	5,879.9	703.2	-916.2	891.3	0.00	0.00	0.00
7,000.0	89.80	358.63	5,880.1	753.2	-917.4	940.3	0.00	0.00	0.00
7,050.0	89.80	358.63	5,880.2	803.2	-918.6	989.3	0.00	0.00	0.00
7,100.0	89.80	358.63	5,880.4	853.2	-919.8	1,038.2	0.00	0.00	0.00
7,150.0	89.80	358.63	5,880.6	903.2	-921.0	1,087.2	0.00	0.00	0.00
7,200.0	89.80	358.63	5,880.7	953.1	-922.2	1,136.2	0.00	0.00	0.00
7,250.0	89.80	358.63	5,880.9	1,003.1	-923.4	1,185.1	0.00	0.00	0.00
7,300.0	89.80	358.63	5,881.1	1,053.1	-924.6	1,234.1	0.00	0.00	0.00
7,350.0	89.80	358.63	5,881.3	1,103.1	-925.8	1,283.1	0.00	0.00	0.00
7,400.0	89.80	358.63	5,881.4	1,153.1	-927.0	1,332.1	0.00	0.00	0.00
7,450.0	89.80	358.63	5,881.6	1,203.1	-928.1	1,381.0	0.00	0.00	0.00
7,500.0	89.80	358.63	5,881.8	1,253.1	-929.3	1,430.0	0.00	0.00	0.00
7,550.0	89.80	358.63	5,882.0	1,303.0	-930.5	1,479.0	0.00	0.00	0.00
7,600.0	89.80	358.63	5,882.1	1,353.0	-931.7	1,528.0	0.00	0.00	0.00
7,650.0	89.80	358.63	5,882.3	1,403.0	-932.9	1,576.9	0.00	0.00	0.00
7,700.0	89.80	358.63	5,882.5	1,453.0	-934.1	1,625.9	0.00	0.00	0.00
7,750.0	89.80	358.63	5,882.7	1,503.0	-935.3	1,674.9	0.00	0.00	0.00
7,800.0	89.80	358.63	5,882.8	1,553.0	-936.5	1,723.8	0.00	0.00	0.00
7,850.0	89.80	358.63	5,883.0	1,603.0	-937.7	1,772.8	0.00	0.00	0.00
7,900.0	89.80	358.63	5,883.2	1,652.9	-938.9	1,821.8	0.00	0.00	0.00
7,950.0	89.80	358.63	5,883.4	1,702.9	-940.1	1,870.8	0.00	0.00	0.00
8,000.0	89.80	358.63	5,883.5	1,752.9	-941.3	1,919.7	0.00	0.00	0.00
8,050.0	89.80	358.63	5,883.7	1,802.9	-942.5	1,968.7	0.00	0.00	0.00
8,100.0	89.80	358.64	5,883.9	1,852.9	-943.6	2,017.7	0.00	0.00	0.00
8,150.0	89.80	358.64	5,884.1	1,902.9	-944.8	2,066.7	0.00	0.00	0.00
8,200.0	89.80	358.64	5,884.2	1,952.9	-946.0	2,115.6	0.00	0.00	0.00
8,250.0	89.80	358.64	5,884.4	2,002.8	-947.2	2,164.6	0.00	0.00	0.00
8,300.0	89.80	358.64	5,884.6	2,052.8	-948.4	2,213.6	0.00	0.00	0.00
8,350.0	89.80	358.64	5,884.8	2,102.8	-949.6	2,262.5	0.00	0.00	0.00
8,400.0	89.80	358.64	5,884.9	2,152.8	-950.8	2,311.5	0.00	0.00	0.00
8,450.0	89.80	358.64	5,885.1	2,202.8	-952.0	2,360.5	0.00	0.00	0.00
8,500.0	89.80	358.64	5,885.3	2,252.8	-953.2	2,409.5	0.00	0.00	0.00
8,550.0	89.80	358.64	5,885.5	2,302.8	-954.4	2,458.4	0.00	0.00	0.00
8,600.0	89.80	358.64	5,885.6	2,352.7	-955.5	2,507.4	0.00	0.00	0.00
8,650.0	89.80	358.64	5,885.8	2,402.7	-956.7	2,556.4	0.00	0.00	0.00
8,700.0	89.80	358.64	5,886.0	2,452.7	-957.9	2,605.3	0.00	0.00	0.00
8,750.0	89.80	358.64	5,886.2	2,502.7	-959.1	2,654.3	0.00	0.00	0.00
8,800.0	89.80	358.64	5,886.3	2,552.7	-960.3	2,703.3	0.00	0.00	0.00
8,850.0	89.80	358.64	5,886.5	2,602.7	-961.5	2,752.3	0.00	0.00	0.00
8,900.0	89.80	358.64	5,886.7	2,652.7	-962.7	2,801.2	0.00	0.00	0.00
8,950.0	89.80	358.64	5,886.9	2,702.6	-963.9	2,850.2	0.00	0.00	0.00
9,000.0	89.80	358.64	5,887.0	2,752.6	-965.1	2,899.2	0.00	0.00	0.00
9,050.0	89.80	358.64	5,887.2	2,802.6	-966.2	2,948.1	0.00	0.00	0.00
9,100.0	89.80	358.64	5,887.4	2,852.6	-967.4	2,997.1	0.00	0.00	0.00
9,150.0	89.80	358.64	5,887.6	2,902.6	-968.6	3,046.1	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-780
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-780	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,200.0	89.80	358.64	5,887.7	2,952.6	-969.8	3,095.1	0.00	0.00	0.00	
9,250.0	89.80	358.64	5,887.9	3,002.6	-971.0	3,144.0	0.00	0.00	0.00	
9,300.0	89.80	358.64	5,888.1	3,052.5	-972.2	3,193.0	0.00	0.00	0.00	
9,350.0	89.80	358.64	5,888.3	3,102.5	-973.4	3,242.0	0.00	0.00	0.00	
9,400.0	89.80	358.64	5,888.4	3,152.5	-974.6	3,290.9	0.00	0.00	0.00	
9,450.0	89.80	358.64	5,888.6	3,202.5	-975.8	3,339.9	0.00	0.00	0.00	
9,500.0	89.80	358.64	5,888.8	3,252.5	-976.9	3,388.9	0.00	0.00	0.00	
9,550.0	89.80	358.64	5,889.0	3,302.5	-978.1	3,437.9	0.00	0.00	0.00	
9,600.0	89.80	358.64	5,889.1	3,352.5	-979.3	3,486.8	0.00	0.00	0.00	
9,650.0	89.80	358.64	5,889.3	3,402.4	-980.5	3,535.8	0.00	0.00	0.00	
9,700.0	89.80	358.64	5,889.5	3,452.4	-981.7	3,584.8	0.00	0.00	0.00	
9,750.0	89.80	358.64	5,889.7	3,502.4	-982.9	3,633.7	0.00	0.00	0.00	
9,800.0	89.80	358.64	5,889.8	3,552.4	-984.1	3,682.7	0.00	0.00	0.00	
9,850.0	89.80	358.64	5,890.0	3,602.4	-985.2	3,731.7	0.00	0.00	0.00	
9,900.0	89.80	358.64	5,890.2	3,652.4	-986.4	3,780.7	0.00	0.00	0.00	
9,950.0	89.80	358.64	5,890.4	3,702.4	-987.6	3,829.6	0.00	0.00	0.00	
10,000.0	89.80	358.64	5,890.5	3,752.3	-988.8	3,878.6	0.00	0.00	0.00	
10,050.0	89.80	358.64	5,890.7	3,802.3	-990.0	3,927.6	0.00	0.00	0.00	
10,100.0	89.80	358.64	5,890.9	3,852.3	-991.2	3,976.5	0.00	0.00	0.00	
10,150.0	89.80	358.64	5,891.1	3,902.3	-992.4	4,025.5	0.00	0.00	0.00	
10,200.0	89.80	358.64	5,891.2	3,952.3	-993.5	4,074.5	0.00	0.00	0.00	
10,250.0	89.80	358.64	5,891.4	4,002.3	-994.7	4,123.5	0.00	0.00	0.00	
10,300.0	89.80	358.64	5,891.6	4,052.3	-995.9	4,172.4	0.00	0.00	0.00	
10,350.0	89.80	358.64	5,891.8	4,102.2	-997.1	4,221.4	0.00	0.00	0.00	
10,400.0	89.80	358.64	5,891.9	4,152.2	-998.3	4,270.4	0.00	0.00	0.00	
10,450.0	89.80	358.64	5,892.1	4,202.2	-999.5	4,319.3	0.00	0.00	0.00	
10,500.0	89.80	358.64	5,892.3	4,252.2	-1,000.7	4,368.3	0.00	0.00	0.00	
10,550.0	89.80	358.64	5,892.5	4,302.2	-1,001.8	4,417.3	0.00	0.00	0.00	
10,591.3	89.80	358.64	5,892.6	4,343.4	-1,002.8	4,457.7	0.00	0.00	0.00	
TD at 10591.3 - Greyson LD28-780 BHL 330'FNL, 660'FWL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Greyson LD28-780 BHL	0.00	0.00	5,892.6	4,343.4	-1,002.8	1,512,339.31	3,450,034.34	40.728450	-103.876180	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,271.2	5,868.3	7" Casing @ 6271.2' MD	7	8-3/4	

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-780
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-780	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,431.6	2,406.0	PIERRE		0.00	
3,373.7	3,324.0	PARKMAN		0.00	
4,066.5	3,999.0	SUSSEX		0.00	
4,538.6	4,459.0	SHANNON		0.00	
5,135.9	5,041.0	TEEPEE BUTTES		0.00	
5,909.3	5,734.0	SHARON SPRINGS		0.00	
5,943.8	5,755.0	NIO A CHALK		0.00	
5,992.5	5,782.0	NIO A MARL		0.00	
6,137.3	5,842.0	NIO B CHALK		0.00	
6,313.7	5,872.0	NIO B MARL		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,000.0	1,000.0	0.0	0.0	KOP - Start Build 2.00	
5,266.2	5,168.0	-495.9	-735.3	Start DLS 9.75 TFO -15.20	
5,301.1	5,201.7	-501.1	-742.4	Start DLS 9.75 TFO 125.85	
6,271.2	5,868.3	25.0	-900.0	Start 50.0 hold at 6271.2 MD	
6,321.2	5,872.7	74.7	-901.2	Start Build 4.00	
10,591.3	5,892.6	4,343.4	-1,002.8	TD at 10591.3	

Northern Region Drilling - Working

Wattenberg Field

LD (09N-58W)

Greyson LD28-780

Original Drilling

APD - Rev 0

Anticollision Summary Report

05 March, 2015

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Greyson LD28-780
Project:	Wattenberg Field	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Greyson LD28-780	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM01P
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference	APD - Rev 0		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	3/5/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,591.3	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

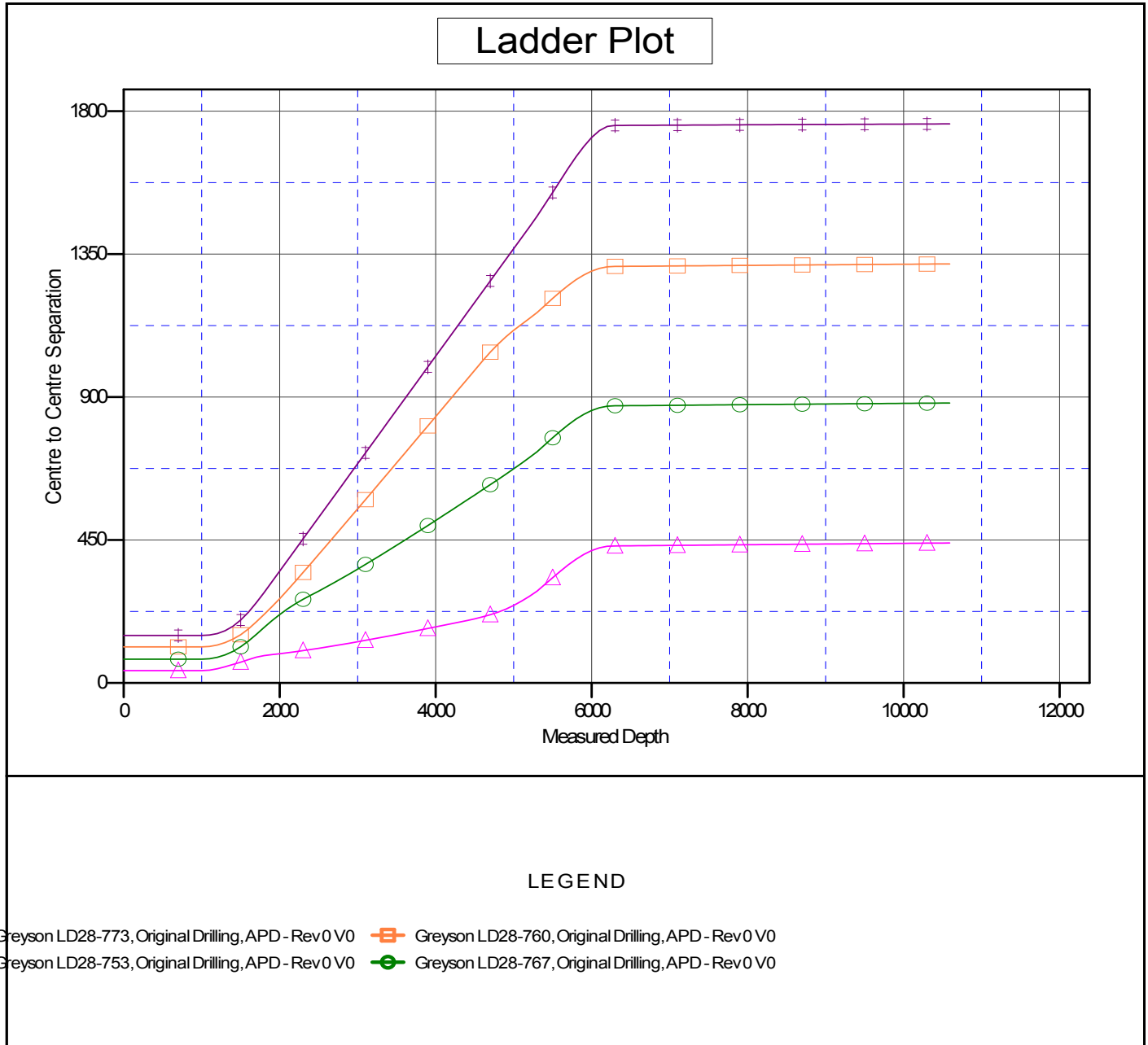
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
LD (09N-58W)						
Greyson LD28-753 - Original Drilling - APD - Rev 0	1,000.0	998.0	149.7	145.5	35.539	CC, ES
Greyson LD28-753 - Original Drilling - APD - Rev 0	10,591.3	10,545.1	1,760.0	1,585.8	10.102	SF
Greyson LD28-760 - Original Drilling - APD - Rev 0	1,000.0	999.0	113.7	109.4	26.969	CC, ES
Greyson LD28-760 - Original Drilling - APD - Rev 0	10,591.3	10,545.3	1,319.4	1,144.8	7.560	SF
Greyson LD28-767 - Original Drilling - APD - Rev 0	1,000.0	999.0	74.8	70.6	17.760	CC, ES
Greyson LD28-767 - Original Drilling - APD - Rev 0	10,591.3	10,540.8	881.4	707.0	5.055	SF
Greyson LD28-773 - Original Drilling - APD - Rev 0	1,000.0	1,000.0	38.8	34.6	9.204	CC, ES
Greyson LD28-773 - Original Drilling - APD - Rev 0	10,591.3	10,572.6	440.7	266.7	2.532	SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Greyson LD28-780
Project:	Wattenberg Field	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Greyson LD28-780	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM01P
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4879.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Greyson LD28-780
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.05°



Noble Energy Inc
Anticollision Summary Report

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Offset Depths are relative to Offset Datum
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Coordinates are relative to: Greyson LD28-780
Coordinate System is US State Plane 1983, Colorado Northern Zone
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