

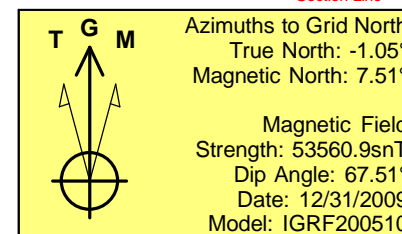
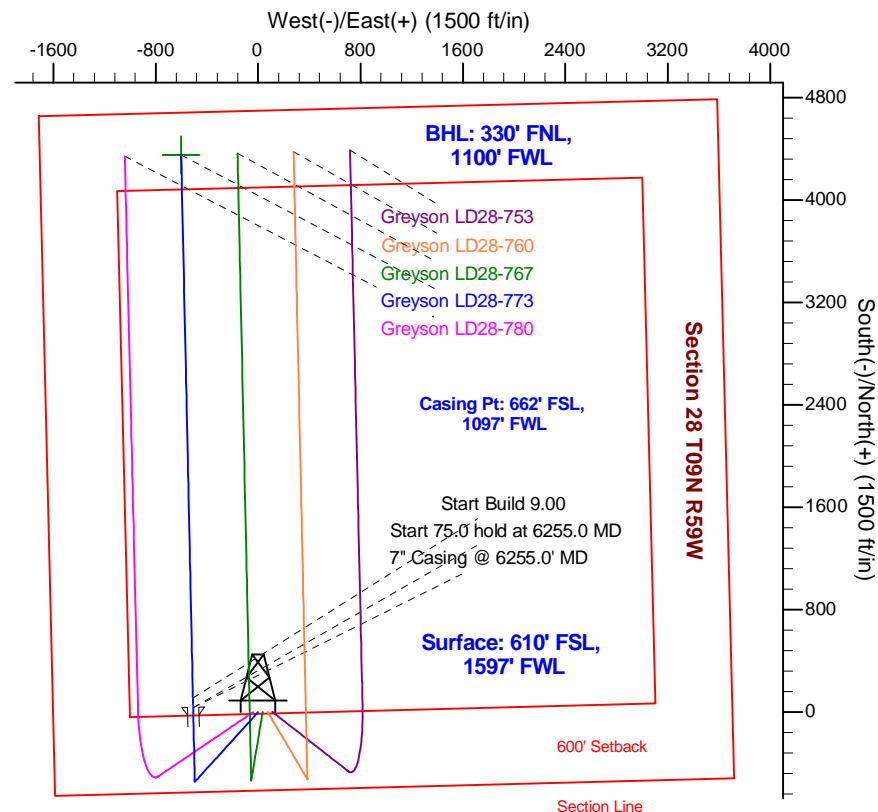
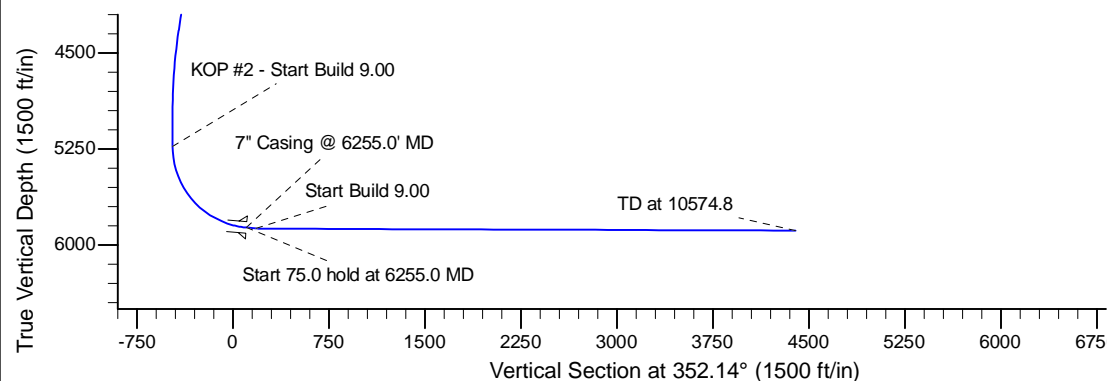
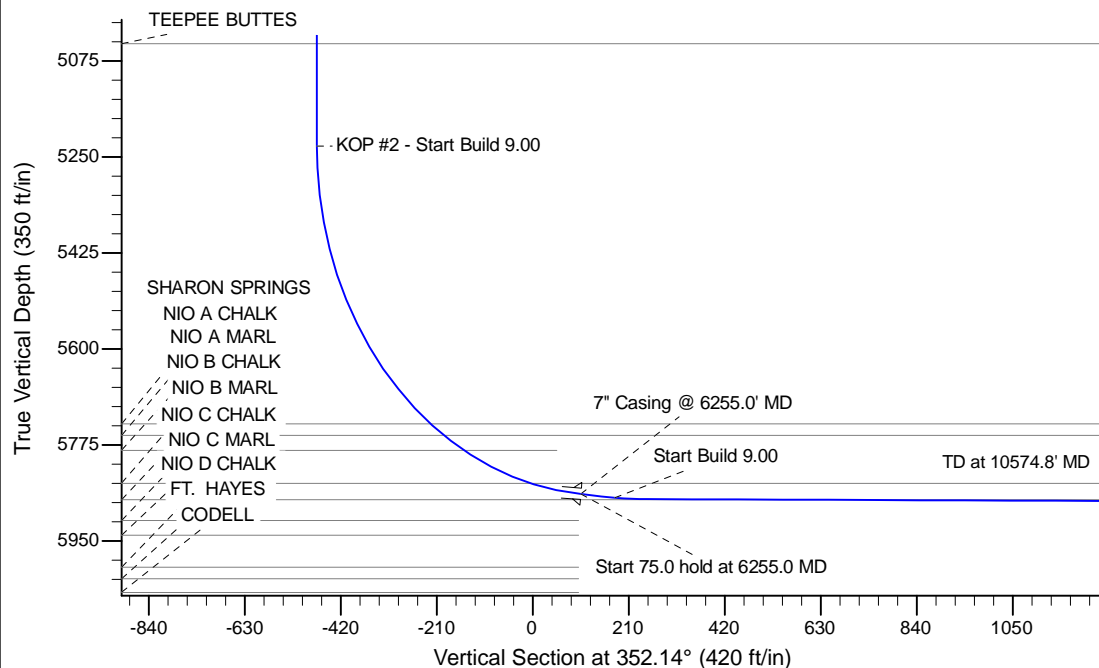
Project: Wattenberg Field
 Site: LD (Sec.28-T09N-R58W) Weld County, CO
 Well: Greyson LD28-773
 Wellbore: Original Drilling
 Design: APD - Rev 0

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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1865.7	13.31	222.25	1859.7	-57.0	-51.8	2.00	222.25	-49.4	
4	4394.2	13.31	222.25	4320.3	-488.0	-443.2	0.00	0.00	-422.8	
5	5059.9	0.00	0.00	4980.0	-545.0	-495.0	2.00	180.00	-472.2	
6	5310.5	0.00	0.00	5230.6	-545.0	-495.0	0.00	0.00	-472.2	
7	6255.0	85.00	358.76	5864.8	36.0	-507.6	9.00	358.76	105.1	
8	6330.0	85.00	358.76	5871.4	110.7	-509.2	0.00	0.00	179.3	
9	6383.3	89.80	358.76	5873.8	163.9	-510.3	9.00	0.00	232.2	
10	10574.8	89.80	358.76	5888.4	4354.4	-601.1	0.00	0.00	4395.7	Greyson LD28-773 BHL 330'FNL, 1100'FWL



WELL DETAILS: Greyson LD28-773					
Ground Level: 4855.0					
0.0	0.0	Northing	Easting	Latitude	Longitude
		1507996.66	3451075.96	40.716480	-103.872710
Plan: APD - Rev 0 (Greyson LD28-773/Original Drilling)					
Created By: Shailey Jewell		Date: 12:16, March 05 2015			
Checked: _____		Date: _____			
Reviewed: _____		Date: _____			
Approved: _____		Date: _____			

Northern Region Drilling - Working

**Wattenberg Field
LD (09N-58W)
Greyson LD28-773**

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 LD28-773
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 LD28-773	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 LD28-773			
Well Position	+N/-S	-15,560.6 ft	Northing:	1,507,996.66 usft
	+E/-W	1,734.7 ft	Easting:	3,451,075.95 usft
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)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	352.14

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,865.7	13.31	222.25	1,859.7	-57.0	-51.8	2.00	2.00	0.00	222.25	
4,394.2	13.31	222.25	4,320.3	-488.0	-443.2	0.00	0.00	0.00	0.00	
5,059.9	0.00	0.00	4,980.0	-545.0	-495.0	2.00	-2.00	0.00	180.00	
5,310.5	0.00	0.00	5,230.6	-545.0	-495.0	0.00	0.00	0.00	0.00	
6,255.0	85.00	358.76	5,864.8	36.0	-507.6	9.00	9.00	0.00	358.76	
6,330.0	85.00	358.76	5,871.4	110.7	-509.2	0.00	0.00	0.00	0.00	
6,383.3	89.80	358.76	5,873.8	163.9	-510.3	9.00	9.00	0.00	0.00	
10,574.8	89.80	358.76	5,888.4	4,354.4	-601.1	0.00	0.00	0.00	0.00	Greyson LD28-773 BI

Noble Energy Inc

Planning Report

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Project:	Wattenberg Field	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-773	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
1,050.0	0.00	0.00	1,050.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,150.0	0.00	0.00	1,150.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,250.0	1.00	222.25	1,250.0	-0.3	-0.3	-0.3	2.00	2.00	0.00
1,300.0	2.00	222.25	1,300.0	-1.3	-1.2	-1.1	2.00	2.00	0.00
1,350.0	3.00	222.25	1,349.9	-2.9	-2.6	-2.5	2.00	2.00	0.00
1,400.0	4.00	222.25	1,399.8	-5.2	-4.7	-4.5	2.00	2.00	0.00
1,450.0	5.00	222.25	1,449.7	-8.1	-7.3	-7.0	2.00	2.00	0.00
1,500.0	6.00	222.25	1,499.5	-11.6	-10.6	-10.1	2.00	2.00	0.00
1,550.0	7.00	222.25	1,549.1	-15.8	-14.4	-13.7	2.00	2.00	0.00
1,600.0	8.00	222.25	1,598.7	-20.6	-18.7	-17.9	2.00	2.00	0.00
1,650.0	9.00	222.25	1,648.2	-26.1	-23.7	-22.6	2.00	2.00	0.00
1,700.0	10.00	222.25	1,697.5	-32.2	-29.3	-27.9	2.00	2.00	0.00
1,750.0	11.00	222.25	1,746.6	-39.0	-35.4	-33.8	2.00	2.00	0.00
1,800.0	12.00	222.25	1,795.6	-46.3	-42.1	-40.2	2.00	2.00	0.00
1,850.0	13.00	222.25	1,844.4	-54.4	-49.4	-47.1	2.00	2.00	0.00
1,865.7	13.31	222.25	1,859.7	-57.0	-51.8	-49.4	2.00	2.00	0.00
1,900.0	13.31	222.25	1,893.1	-62.8	-57.1	-54.4	0.00	0.00	0.00
1,950.0	13.31	222.25	1,941.8	-71.4	-64.8	-61.8	0.00	0.00	0.00
2,000.0	13.31	222.25	1,990.4	-79.9	-72.6	-69.2	0.00	0.00	0.00
2,050.0	13.31	222.25	2,039.1	-88.4	-80.3	-76.6	0.00	0.00	0.00
2,100.0	13.31	222.25	2,087.7	-96.9	-88.0	-84.0	0.00	0.00	0.00
2,150.0	13.31	222.25	2,136.4	-105.5	-95.8	-91.4	0.00	0.00	0.00
2,200.0	13.31	222.25	2,185.0	-114.0	-103.5	-98.8	0.00	0.00	0.00
2,250.0	13.31	222.25	2,233.7	-122.5	-111.3	-106.1	0.00	0.00	0.00
2,300.0	13.31	222.25	2,282.4	-131.0	-119.0	-113.5	0.00	0.00	0.00
2,350.0	13.31	222.25	2,331.0	-139.6	-126.7	-120.9	0.00	0.00	0.00
2,400.0	13.31	222.25	2,379.7	-148.1	-134.5	-128.3	0.00	0.00	0.00
2,430.1	13.31	222.25	2,409.0	-153.2	-139.2	-132.7	0.00	0.00	0.00
PIERRE									
2,450.0	13.31	222.25	2,428.3	-156.6	-142.2	-135.7	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)
Project:	Wattenberg Field	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-773	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)
2,500.0	13.31	222.25	2,477.0	-165.1	-150.0	-143.1	0.00	0.00	0.00
2,550.0	13.31	222.25	2,525.6	-173.6	-157.7	-150.4	0.00	0.00	0.00
2,600.0	13.31	222.25	2,574.3	-182.2	-165.5	-157.8	0.00	0.00	0.00
2,650.0	13.31	222.25	2,623.0	-190.7	-173.2	-165.2	0.00	0.00	0.00
2,700.0	13.31	222.25	2,671.6	-199.2	-180.9	-172.6	0.00	0.00	0.00
2,750.0	13.31	222.25	2,720.3	-207.7	-188.7	-180.0	0.00	0.00	0.00
2,800.0	13.31	222.25	2,768.9	-216.3	-196.4	-187.4	0.00	0.00	0.00
2,850.0	13.31	222.25	2,817.6	-224.8	-204.2	-194.8	0.00	0.00	0.00
2,900.0	13.31	222.25	2,866.2	-233.3	-211.9	-202.1	0.00	0.00	0.00
2,950.0	13.31	222.25	2,914.9	-241.8	-219.6	-209.5	0.00	0.00	0.00
3,000.0	13.31	222.25	2,963.5	-250.3	-227.4	-216.9	0.00	0.00	0.00
3,050.0	13.31	222.25	3,012.2	-258.9	-235.1	-224.3	0.00	0.00	0.00
3,100.0	13.31	222.25	3,060.9	-267.4	-242.9	-231.7	0.00	0.00	0.00
3,150.0	13.31	222.25	3,109.5	-275.9	-250.6	-239.1	0.00	0.00	0.00
3,200.0	13.31	222.25	3,158.2	-284.4	-258.3	-246.4	0.00	0.00	0.00
3,250.0	13.31	222.25	3,206.8	-293.0	-266.1	-253.8	0.00	0.00	0.00
3,300.0	13.31	222.25	3,255.5	-301.5	-273.8	-261.2	0.00	0.00	0.00
3,350.0	13.31	222.25	3,304.1	-310.0	-281.6	-268.6	0.00	0.00	0.00
3,373.5	13.31	222.25	3,327.0	-314.0	-285.2	-272.1	0.00	0.00	0.00
PARKMAN									
3,400.0	13.31	222.25	3,352.8	-318.5	-289.3	-276.0	0.00	0.00	0.00
3,450.0	13.31	222.25	3,401.5	-327.1	-297.1	-283.4	0.00	0.00	0.00
3,500.0	13.31	222.25	3,450.1	-335.6	-304.8	-290.7	0.00	0.00	0.00
3,550.0	13.31	222.25	3,498.8	-344.1	-312.5	-298.1	0.00	0.00	0.00
3,600.0	13.31	222.25	3,547.4	-352.6	-320.3	-305.5	0.00	0.00	0.00
3,650.0	13.31	222.25	3,596.1	-361.1	-328.0	-312.9	0.00	0.00	0.00
3,700.0	13.31	222.25	3,644.7	-369.7	-335.8	-320.3	0.00	0.00	0.00
3,750.0	13.31	222.25	3,693.4	-378.2	-343.5	-327.7	0.00	0.00	0.00
3,800.0	13.31	222.25	3,742.1	-386.7	-351.2	-335.1	0.00	0.00	0.00
3,850.0	13.31	222.25	3,790.7	-395.2	-359.0	-342.4	0.00	0.00	0.00
3,900.0	13.31	222.25	3,839.4	-403.8	-366.7	-349.8	0.00	0.00	0.00
3,950.0	13.31	222.25	3,888.0	-412.3	-374.5	-357.2	0.00	0.00	0.00
4,000.0	13.31	222.25	3,936.7	-420.8	-382.2	-364.6	0.00	0.00	0.00
4,050.0	13.31	222.25	3,985.3	-429.3	-389.9	-372.0	0.00	0.00	0.00
4,067.1	13.31	222.25	4,002.0	-432.3	-392.6	-374.5	0.00	0.00	0.00
SUSSEX									
4,100.0	13.31	222.25	4,034.0	-437.9	-397.7	-379.4	0.00	0.00	0.00
4,150.0	13.31	222.25	4,082.6	-446.4	-405.4	-386.7	0.00	0.00	0.00
4,200.0	13.31	222.25	4,131.3	-454.9	-413.2	-394.1	0.00	0.00	0.00
4,250.0	13.31	222.25	4,180.0	-463.4	-420.9	-401.5	0.00	0.00	0.00
4,300.0	13.31	222.25	4,228.6	-471.9	-428.6	-408.9	0.00	0.00	0.00
4,350.0	13.31	222.25	4,277.3	-480.5	-436.4	-416.3	0.00	0.00	0.00
4,394.2	13.31	222.25	4,320.3	-488.0	-443.2	-422.8	0.00	0.00	0.00
Start Drop -2.00									
4,400.0	13.20	222.25	4,325.9	-489.0	-444.1	-423.7	1.98	-1.98	0.00
4,450.0	12.20	222.25	4,374.7	-497.1	-451.5	-430.7	2.00	-2.00	0.00
4,500.0	11.20	222.25	4,423.7	-504.6	-458.3	-437.2	2.00	-2.00	0.00
4,539.0	10.42	222.25	4,462.0	-510.0	-463.3	-441.9	2.00	-2.00	0.00
SHANNON									
4,550.0	10.20	222.25	4,472.8	-511.5	-464.6	-443.2	2.00	-2.00	0.00
4,600.0	9.20	222.25	4,522.1	-517.7	-470.2	-448.6	2.00	-2.00	0.00
4,650.0	8.20	222.25	4,571.5	-523.3	-475.3	-453.4	2.00	-2.00	0.00
4,700.0	7.20	222.25	4,621.1	-528.3	-479.8	-457.7	2.00	-2.00	0.00

Noble Energy Inc

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Well:	Greyson LD28-773	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)
4,750.0	6.20	222.25	4,670.7	-532.6	-483.7	-461.5	2.00	-2.00	0.00
4,800.0	5.20	222.25	4,720.5	-536.3	-487.1	-464.6	2.00	-2.00	0.00
4,850.0	4.20	222.25	4,770.3	-539.3	-489.8	-467.3	2.00	-2.00	0.00
4,900.0	3.20	222.25	4,820.2	-541.7	-492.0	-469.3	2.00	-2.00	0.00
4,950.0	2.20	222.25	4,870.1	-543.4	-493.6	-470.8	2.00	-2.00	0.00
5,000.0	1.20	222.25	4,920.1	-544.5	-494.6	-471.8	2.00	-2.00	0.00
5,050.0	0.20	222.25	4,970.1	-545.0	-495.0	-472.2	2.00	-2.00	0.00
5,059.9	0.00	0.00	4,980.0	-545.0	-495.0	-472.2	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,020.1	-545.0	-495.0	-472.2	0.00	0.00	0.00
5,123.9	0.00	0.00	5,044.0	-545.0	-495.0	-472.2	0.00	0.00	0.00
TEEPEE BUTTES									
5,150.0	0.00	0.00	5,070.1	-545.0	-495.0	-472.2	0.00	0.00	0.00
5,200.0	0.00	0.00	5,120.1	-545.0	-495.0	-472.2	0.00	0.00	0.00
5,250.0	0.00	0.00	5,170.1	-545.0	-495.0	-472.2	0.00	0.00	0.00
5,300.0	0.00	0.00	5,220.1	-545.0	-495.0	-472.2	0.00	0.00	0.00
5,310.5	0.00	0.00	5,230.6	-545.0	-495.0	-472.2	0.00	0.00	0.00
KOP #2 - Start Build 9.00									
5,350.0	3.55	358.76	5,270.1	-543.8	-495.0	-471.0	8.99	8.99	0.00
5,400.0	8.05	358.76	5,319.8	-538.7	-495.1	-466.0	9.00	9.00	0.00
5,450.0	12.55	358.76	5,369.0	-529.8	-495.3	-457.1	9.00	9.00	0.00
5,500.0	17.05	358.76	5,417.3	-517.0	-495.6	-444.4	9.00	9.00	0.00
5,550.0	21.55	358.76	5,464.5	-500.5	-496.0	-428.0	9.00	9.00	0.00
5,600.0	26.05	358.76	5,510.2	-480.3	-496.4	-407.9	9.00	9.00	0.00
5,650.0	30.55	358.76	5,554.2	-456.6	-496.9	-384.4	9.00	9.00	0.00
5,700.0	35.05	358.76	5,596.3	-429.5	-497.5	-357.5	9.00	9.00	0.00
5,750.0	39.55	358.76	5,636.0	-399.3	-498.2	-327.4	9.00	9.00	0.00
5,800.0	44.05	358.76	5,673.3	-365.9	-498.9	-294.3	9.00	9.00	0.00
5,850.0	48.55	358.76	5,707.8	-329.8	-499.7	-258.4	9.00	9.00	0.00
5,896.0	52.70	358.76	5,737.0	-294.3	-500.4	-223.1	9.00	9.00	0.00
SHARON SPRINGS									
5,900.0	53.05	358.76	5,739.4	-291.1	-500.5	-219.9	8.97	8.97	0.00
5,932.0	55.94	358.76	5,758.0	-265.0	-501.1	-194.0	9.00	9.00	0.00
NIO A CHALK									
5,950.0	57.55	358.76	5,767.9	-250.0	-501.4	-179.1	8.99	8.99	0.00
5,983.3	60.55	358.76	5,785.0	-221.4	-502.0	-150.7	9.00	9.00	0.00
NIO A MARL									
6,000.0	62.05	358.76	5,793.0	-206.8	-502.3	-136.2	8.99	8.99	0.00
6,050.0	66.55	358.76	5,814.7	-161.8	-503.3	-91.4	9.00	9.00	0.00
6,100.0	71.05	358.76	5,832.7	-115.2	-504.3	-45.1	9.00	9.00	0.00
6,141.8	74.81	358.76	5,845.0	-75.3	-505.2	-5.5	9.00	9.00	0.00
NIO B CHALK									
6,150.0	75.55	358.76	5,847.1	-67.3	-505.3	2.4	8.99	8.99	0.00
6,200.0	80.05	358.76	5,857.7	-18.5	-506.4	51.0	9.00	9.00	0.00
6,250.0	84.55	358.76	5,864.4	31.1	-507.5	100.2	9.00	9.00	0.00
6,255.0	85.00	358.76	5,864.8	36.0	-507.6	105.1	8.93	8.93	0.00
Start 75.0 hold at 6255.0 MD - 7" Casing @ 6255.0' MD									
6,300.0	85.00	358.76	5,868.7	80.9	-508.6	149.6	0.00	0.00	0.00
6,330.0	85.00	358.76	5,871.4	110.7	-509.2	179.3	0.00	0.00	0.00
Start Build 9.00									
6,350.0	86.80	358.76	5,872.8	130.7	-509.6	199.2	9.01	9.01	0.00
6,383.3	89.80	358.76	5,873.8	163.9	-510.3	232.2	9.00	9.00	0.00
6,400.0	89.80	358.76	5,873.8	180.7	-510.7	248.8	0.00	0.00	0.00
6,450.0	89.80	358.76	5,874.0	230.6	-511.8	298.5	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-773
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 LD28-773	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	358.76	5,874.2	280.6	-512.9	348.1	0.00	0.00	0.00
6,550.0	89.80	358.76	5,874.4	330.6	-514.0	397.8	0.00	0.00	0.00
6,600.0	89.80	358.76	5,874.5	380.6	-515.0	447.5	0.00	0.00	0.00
6,650.0	89.80	358.76	5,874.7	430.6	-516.1	497.1	0.00	0.00	0.00
6,700.0	89.80	358.76	5,874.9	480.6	-517.2	546.8	0.00	0.00	0.00
6,736.0	89.80	358.76	5,875.0	516.5	-518.0	582.5	0.00	0.00	0.00
NIO B MARL									
6,750.0	89.80	358.76	5,875.0	530.6	-518.3	596.5	0.00	0.00	0.00
6,800.0	89.80	358.76	5,875.2	580.6	-519.4	646.1	0.00	0.00	0.00
6,850.0	89.80	358.76	5,875.4	630.6	-520.5	695.8	0.00	0.00	0.00
6,900.0	89.80	358.76	5,875.6	680.5	-521.5	745.5	0.00	0.00	0.00
6,950.0	89.80	358.76	5,875.7	730.5	-522.6	795.1	0.00	0.00	0.00
7,000.0	89.80	358.76	5,875.9	780.5	-523.7	844.8	0.00	0.00	0.00
7,050.0	89.80	358.76	5,876.1	830.5	-524.8	894.5	0.00	0.00	0.00
7,100.0	89.80	358.76	5,876.3	880.5	-525.9	944.1	0.00	0.00	0.00
7,150.0	89.80	358.76	5,876.4	930.5	-526.9	993.8	0.00	0.00	0.00
7,200.0	89.80	358.76	5,876.6	980.5	-528.0	1,043.5	0.00	0.00	0.00
7,250.0	89.80	358.76	5,876.8	1,030.5	-529.1	1,093.1	0.00	0.00	0.00
7,300.0	89.80	358.76	5,877.0	1,080.4	-530.2	1,142.8	0.00	0.00	0.00
7,350.0	89.80	358.76	5,877.1	1,130.4	-531.3	1,192.5	0.00	0.00	0.00
7,400.0	89.80	358.76	5,877.3	1,180.4	-532.4	1,242.1	0.00	0.00	0.00
7,450.0	89.80	358.76	5,877.5	1,230.4	-533.4	1,291.8	0.00	0.00	0.00
7,500.0	89.80	358.76	5,877.7	1,280.4	-534.5	1,341.5	0.00	0.00	0.00
7,550.0	89.80	358.76	5,877.8	1,330.4	-535.6	1,391.1	0.00	0.00	0.00
7,600.0	89.80	358.76	5,878.0	1,380.4	-536.7	1,440.8	0.00	0.00	0.00
7,650.0	89.80	358.76	5,878.2	1,430.4	-537.8	1,490.5	0.00	0.00	0.00
7,700.0	89.80	358.76	5,878.4	1,480.4	-538.8	1,540.1	0.00	0.00	0.00
7,750.0	89.80	358.76	5,878.5	1,530.3	-539.9	1,589.8	0.00	0.00	0.00
7,800.0	89.80	358.76	5,878.7	1,580.3	-541.0	1,639.5	0.00	0.00	0.00
7,850.0	89.80	358.76	5,878.9	1,630.3	-542.1	1,689.1	0.00	0.00	0.00
7,900.0	89.80	358.76	5,879.1	1,680.3	-543.2	1,738.8	0.00	0.00	0.00
7,950.0	89.80	358.76	5,879.2	1,730.3	-544.3	1,788.5	0.00	0.00	0.00
8,000.0	89.80	358.76	5,879.4	1,780.3	-545.3	1,838.1	0.00	0.00	0.00
8,050.0	89.80	358.76	5,879.6	1,830.3	-546.4	1,887.8	0.00	0.00	0.00
8,100.0	89.80	358.76	5,879.8	1,880.3	-547.5	1,937.5	0.00	0.00	0.00
8,150.0	89.80	358.76	5,879.9	1,930.2	-548.6	1,987.1	0.00	0.00	0.00
8,200.0	89.80	358.76	5,880.1	1,980.2	-549.7	2,036.8	0.00	0.00	0.00
8,250.0	89.80	358.76	5,880.3	2,030.2	-550.8	2,086.5	0.00	0.00	0.00
8,300.0	89.80	358.76	5,880.5	2,080.2	-551.8	2,136.1	0.00	0.00	0.00
8,350.0	89.80	358.76	5,880.6	2,130.2	-552.9	2,185.8	0.00	0.00	0.00
8,400.0	89.80	358.76	5,880.8	2,180.2	-554.0	2,235.5	0.00	0.00	0.00
8,450.0	89.80	358.76	5,881.0	2,230.2	-555.1	2,285.1	0.00	0.00	0.00
8,500.0	89.80	358.76	5,881.2	2,280.2	-556.2	2,334.8	0.00	0.00	0.00
8,550.0	89.80	358.76	5,881.3	2,330.1	-557.2	2,384.5	0.00	0.00	0.00
8,600.0	89.80	358.76	5,881.5	2,380.1	-558.3	2,434.1	0.00	0.00	0.00
8,650.0	89.80	358.76	5,881.7	2,430.1	-559.4	2,483.8	0.00	0.00	0.00
8,700.0	89.80	358.76	5,881.9	2,480.1	-560.5	2,533.5	0.00	0.00	0.00
8,750.0	89.80	358.76	5,882.0	2,530.1	-561.6	2,583.1	0.00	0.00	0.00
8,800.0	89.80	358.76	5,882.2	2,580.1	-562.7	2,632.8	0.00	0.00	0.00
8,850.0	89.80	358.76	5,882.4	2,630.1	-563.7	2,682.5	0.00	0.00	0.00
8,900.0	89.80	358.76	5,882.6	2,680.1	-564.8	2,732.1	0.00	0.00	0.00
8,950.0	89.80	358.76	5,882.7	2,730.1	-565.9	2,781.8	0.00	0.00	0.00
9,000.0	89.80	358.76	5,882.9	2,780.0	-567.0	2,831.5	0.00	0.00	0.00
9,050.0	89.80	358.76	5,883.1	2,830.0	-568.1	2,881.1	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-773
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 LD28-773	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)	
9,100.0	89.80	358.76	5,883.3	2,880.0	-569.2	2,930.8	0.00	0.00	0.00	
9,150.0	89.80	358.76	5,883.4	2,930.0	-570.2	2,980.5	0.00	0.00	0.00	
9,200.0	89.80	358.76	5,883.6	2,980.0	-571.3	3,030.1	0.00	0.00	0.00	
9,250.0	89.80	358.76	5,883.8	3,030.0	-572.4	3,079.8	0.00	0.00	0.00	
9,300.0	89.80	358.76	5,884.0	3,080.0	-573.5	3,129.5	0.00	0.00	0.00	
9,350.0	89.80	358.76	5,884.1	3,130.0	-574.6	3,179.1	0.00	0.00	0.00	
9,400.0	89.80	358.76	5,884.3	3,179.9	-575.6	3,228.8	0.00	0.00	0.00	
9,450.0	89.80	358.76	5,884.5	3,229.9	-576.7	3,278.5	0.00	0.00	0.00	
9,500.0	89.80	358.76	5,884.6	3,279.9	-577.8	3,328.1	0.00	0.00	0.00	
9,550.0	89.80	358.76	5,884.8	3,329.9	-578.9	3,377.8	0.00	0.00	0.00	
9,600.0	89.80	358.76	5,885.0	3,379.9	-580.0	3,427.5	0.00	0.00	0.00	
9,650.0	89.80	358.76	5,885.2	3,429.9	-581.1	3,477.1	0.00	0.00	0.00	
9,700.0	89.80	358.76	5,885.3	3,479.9	-582.1	3,526.8	0.00	0.00	0.00	
9,750.0	89.80	358.76	5,885.5	3,529.9	-583.2	3,576.5	0.00	0.00	0.00	
9,800.0	89.80	358.76	5,885.7	3,579.9	-584.3	3,626.1	0.00	0.00	0.00	
9,850.0	89.80	358.76	5,885.9	3,629.8	-585.4	3,675.8	0.00	0.00	0.00	
9,900.0	89.80	358.76	5,886.0	3,679.8	-586.5	3,725.5	0.00	0.00	0.00	
9,950.0	89.80	358.76	5,886.2	3,729.8	-587.6	3,775.1	0.00	0.00	0.00	
10,000.0	89.80	358.76	5,886.4	3,779.8	-588.6	3,824.8	0.00	0.00	0.00	
10,050.0	89.80	358.76	5,886.6	3,829.8	-589.7	3,874.5	0.00	0.00	0.00	
10,100.0	89.80	358.76	5,886.7	3,879.8	-590.8	3,924.1	0.00	0.00	0.00	
10,150.0	89.80	358.76	5,886.9	3,929.8	-591.9	3,973.8	0.00	0.00	0.00	
10,200.0	89.80	358.76	5,887.1	3,979.8	-593.0	4,023.5	0.00	0.00	0.00	
10,250.0	89.80	358.76	5,887.3	4,029.7	-594.0	4,073.1	0.00	0.00	0.00	
10,300.0	89.80	358.76	5,887.4	4,079.7	-595.1	4,122.8	0.00	0.00	0.00	
10,350.0	89.80	358.76	5,887.6	4,129.7	-596.2	4,172.5	0.00	0.00	0.00	
10,400.0	89.80	358.76	5,887.8	4,179.7	-597.3	4,222.1	0.00	0.00	0.00	
10,450.0	89.80	358.76	5,888.0	4,229.7	-598.4	4,271.8	0.00	0.00	0.00	
10,500.0	89.80	358.76	5,888.1	4,279.7	-599.5	4,321.5	0.00	0.00	0.00	
10,550.0	89.80	358.76	5,888.3	4,329.7	-600.5	4,371.1	0.00	0.00	0.00	
10,574.8	89.80	358.76	5,888.4	4,354.4	-601.1	4,395.7	0.00	0.00	0.00	
TD at 10574.8 - Greyson LD28-773 BHL 330'FNL, 1100'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 LD28-773 BHL	0.00	0.00	5,888.4	4,354.4	-601.1	1,512,351.03	3,450,474.89	40.728460	-103.874590	
- plan hits target center										
- Point										

Casing Points						Casing Diameter (")	Hole Diameter (")
Measured Depth (ft)	Vertical Depth (ft)	Name					
6,255.0	5,864.8	7" Casing @ 6255.0' MD				7	8-3/4

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-773
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 LD28-773	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,430.1	2,409.0	PIERRE		0.00	
3,373.5	3,327.0	PARKMAN		0.00	
4,067.1	4,002.0	SUSSEX		0.00	
4,539.0	4,462.0	SHANNON		0.00	
5,123.9	5,044.0	TEEPEE BUTTES		0.00	
5,896.0	5,737.0	SHARON SPRINGS		0.00	
5,932.0	5,758.0	NIO A CHALK		0.00	
5,983.3	5,785.0	NIO A MARL		0.00	
6,141.8	5,845.0	NIO B CHALK		0.00	
6,736.0	5,875.0	NIO B MARL		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,200.0	1,200.0	0.0	0.0	KOP - Start Build 2.00	
4,394.2	4,320.3	-488.0	-443.2	Start Drop -2.00	
5,310.5	5,230.6	-545.0	-495.0	KOP #2 - Start Build 9.00	
6,255.0	5,864.8	36.0	-507.6	Start 75.0 hold at 6255.0 MD	
6,330.0	5,871.4	110.7	-509.2	Start Build 9.00	
10,574.8	5,888.4	4,354.4	-601.1	TD at 10574.8	

Northern Region Drilling - Working

Wattenberg Field

LD (09N-58W)

Greyson LD28-773

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 LD28-773
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 LD28-773	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	10,574.8	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

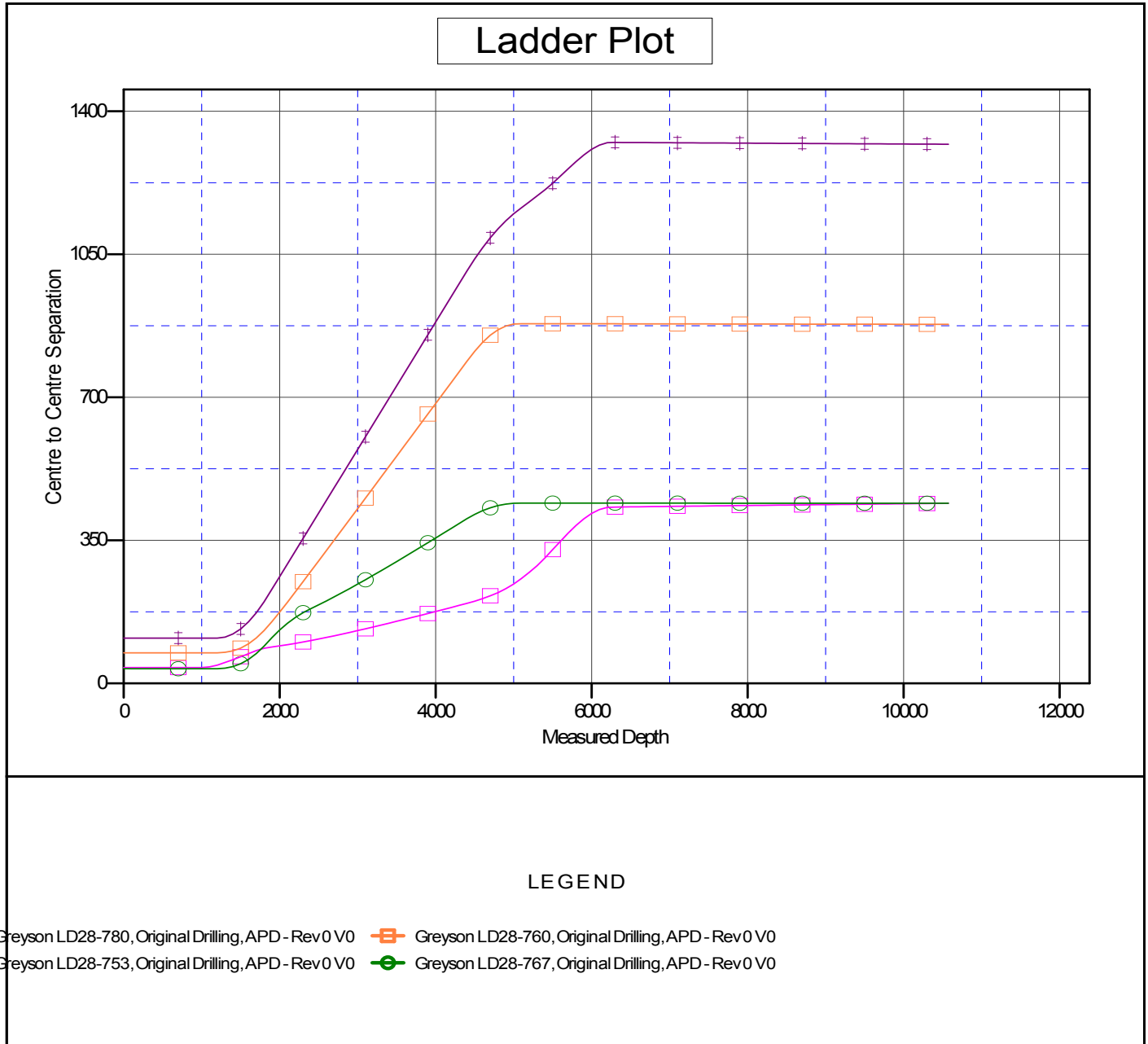
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
LD (09N-58W)						
Greyson LD28-753 - Original Drilling - APD - Rev 0	1,200.0	1,198.0	110.9	105.8	21.695	CC, ES
Greyson LD28-753 - Original Drilling - APD - Rev 0	10,574.8	10,546.8	1,319.3	1,143.9	7.520	SF
Greyson LD28-760 - Original Drilling - APD - Rev 0	1,200.0	1,199.0	74.8	69.7	14.637	CC, ES
Greyson LD28-760 - Original Drilling - APD - Rev 0	10,574.8	10,547.3	878.6	702.9	5.000	SF
Greyson LD28-767 - Original Drilling - APD - Rev 0	1,200.0	1,199.0	36.0	30.9	7.048	CC, ES
Greyson LD28-767 - Original Drilling - APD - Rev 0	10,574.8	10,542.9	440.7	265.1	2.510	SF
Greyson LD28-780 - Original Drilling - APD - Rev 0	1,000.0	1,000.0	38.8	34.6	9.204	CC, ES
Greyson LD28-780 - Original Drilling - APD - Rev 0	10,574.8	10,591.3	440.7	266.7	2.532	SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Greyson LD28-773
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 LD28-773	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 LD28-773
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.05°



Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Greyson LD28-773
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 LD28-773	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 LD28-773
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.05°

