

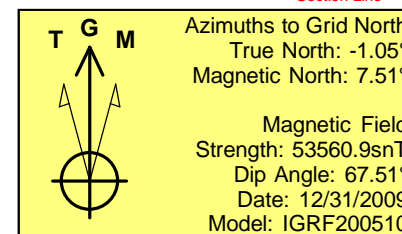
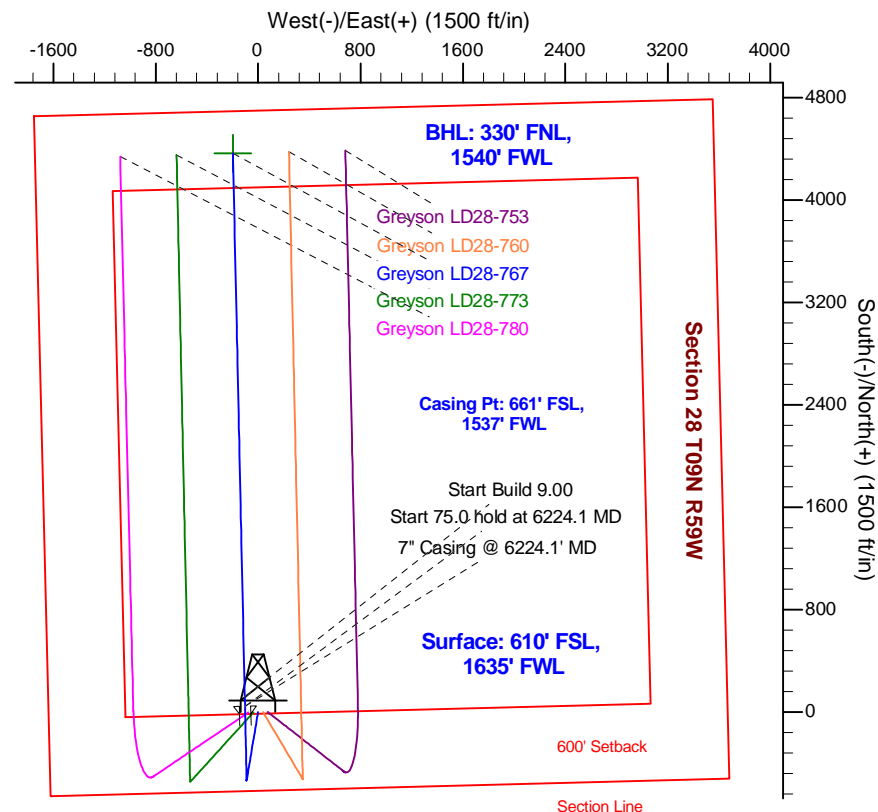
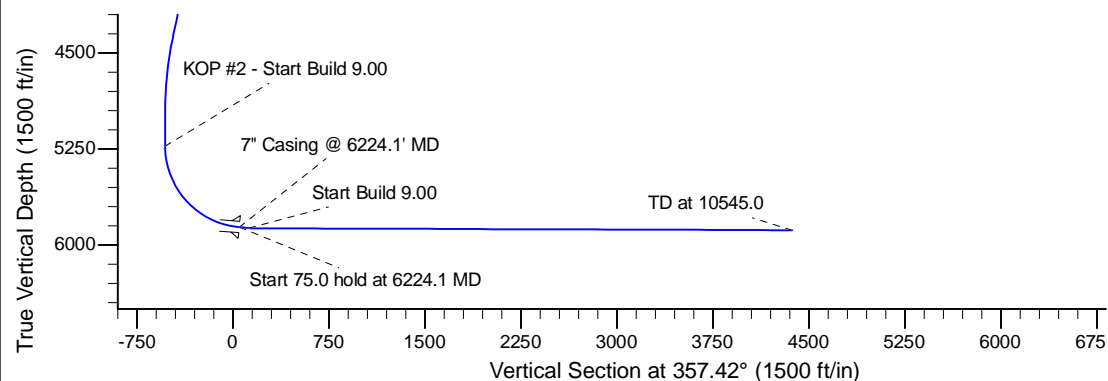
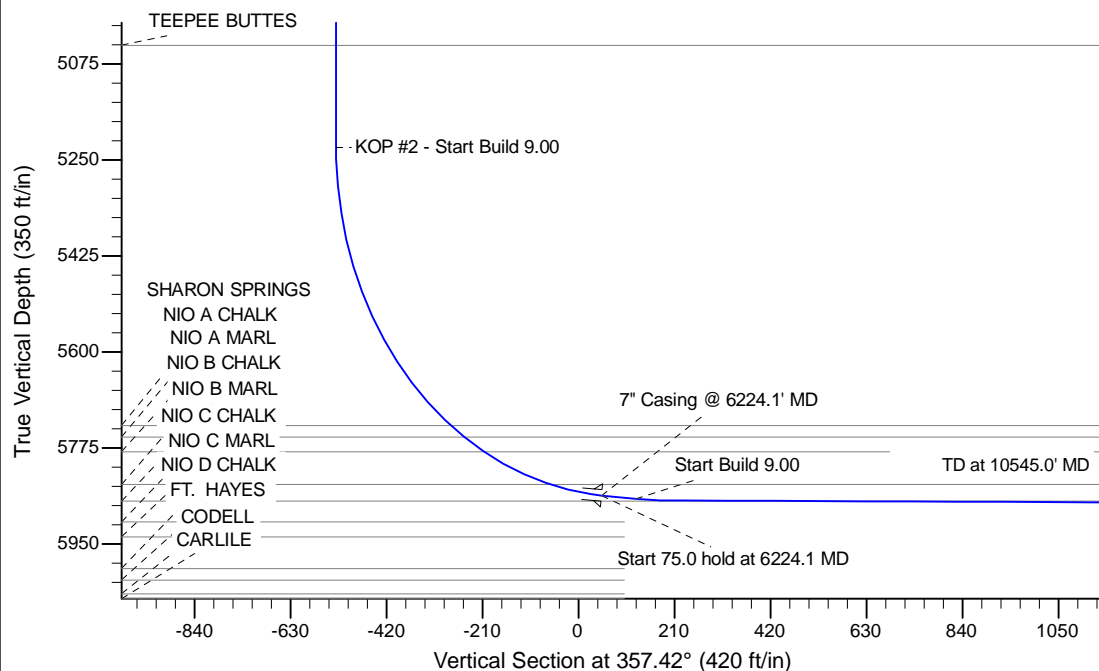
Project: Wattenberg Field
 Site: LD (Sec.28-T09N-R58W) Weld County, CO
 Well: Greyson LD28-767
 Wellbore: Original Drilling
 Design: APD - Rev 0

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	1800.0	0.00	0.00	1800.0	0.0	0.0	0.00	0.00	0.0	
3	2394.0	11.88	189.55	2389.8	-60.5	-10.2	2.00	189.55	-60.0	
4	4433.2	11.88	189.55	4385.2	-474.5	-79.8	0.00	0.00	-470.4	
5	5027.2	0.00	0.00	4975.0	-535.0	-90.0	2.00	180.00	-530.4	
6	5279.7	0.00	0.00	5227.5	-535.0	-90.0	0.00	0.00	-530.4	
7	6224.1	85.00	358.75	5861.7	46.0	-102.6	9.00	358.75	50.6	
8	6299.1	85.00	358.75	5868.2	120.7	-104.3	0.00	0.00	125.3	
9	6352.5	89.80	358.75	5870.7	173.9	-105.4	9.00	0.00	178.5	
10	10545.0	89.80	358.75	5885.3	4365.5	-196.6	0.00	0.00	4369.9	Greyson LD28-767 BHL 330'FNL, 1540'FWL



WELL DETAILS: Greyson LD28-767					
Ground Level: 4854.0					
0.0	0.0	Northing	Easting	Latitude	Longitude
		1507997.32	3451111.99	40.716480	-103.872580
Plan: APD - Rev 0 (Greyson LD28-767/Original Drilling)					
Created By: Shailey Jewell		Date: 12:25, March 05 2015			
Checked: _____		Date: _____			
Reviewed: _____		Date: _____			
Approved: _____		Date: _____			

Northern Region Drilling - Working

**Wattenberg Field
LD (09N-58W)
Greyson LD28-767**

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 LD28-767
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-767	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 LD28-767			
Well Position	+N/-S	-15,560.0 ft	Northing:	1,507,997.32 usft
	+E/-W	1,770.8 ft	Easting:	3,451,111.98 usft
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft
			Ground Level:	4,854.0 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	357.42

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	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,394.0	11.88	189.55	2,389.8	-60.5	-10.2	2.00	2.00	0.00	189.55	
4,433.2	11.88	189.55	4,385.2	-474.5	-79.8	0.00	0.00	0.00	0.00	
5,027.2	0.00	0.00	4,975.0	-535.0	-90.0	2.00	-2.00	0.00	180.00	
5,279.7	0.00	0.00	5,227.5	-535.0	-90.0	0.00	0.00	0.00	0.00	
6,224.1	85.00	358.75	5,861.7	46.0	-102.6	9.00	9.00	0.00	358.75	
6,299.1	85.00	358.75	5,868.2	120.7	-104.3	0.00	0.00	0.00	0.00	
6,352.5	89.80	358.75	5,870.7	173.9	-105.4	9.00	9.00	0.00	0.00	
10,545.0	89.80	358.75	5,885.3	4,365.5	-196.6	0.00	0.00	0.00	0.00	Greyson LD28-767 BI

Noble Energy Inc

Planning Report

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Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-767	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
1,250.0	0.00	0.00	1,250.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,350.0	0.00	0.00	1,350.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,450.0	0.00	0.00	1,450.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,550.0	0.00	0.00	1,550.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,650.0	0.00	0.00	1,650.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,750.0	0.00	0.00	1,750.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,850.0	1.00	189.55	1,850.0	-0.4	-0.1	-0.4	2.00	2.00	0.00
1,900.0	2.00	189.55	1,900.0	-1.7	-0.3	-1.7	2.00	2.00	0.00
1,950.0	3.00	189.55	1,949.9	-3.9	-0.7	-3.8	2.00	2.00	0.00
2,000.0	4.00	189.55	1,999.8	-6.9	-1.2	-6.8	2.00	2.00	0.00
2,050.0	5.00	189.55	2,049.7	-10.8	-1.8	-10.7	2.00	2.00	0.00
2,100.0	6.00	189.55	2,099.5	-15.5	-2.6	-15.3	2.00	2.00	0.00
2,150.0	7.00	189.55	2,149.1	-21.1	-3.5	-20.9	2.00	2.00	0.00
2,200.0	8.00	189.55	2,198.7	-27.5	-4.6	-27.3	2.00	2.00	0.00
2,250.0	9.00	189.55	2,248.2	-34.8	-5.9	-34.5	2.00	2.00	0.00
2,300.0	10.00	189.55	2,297.5	-42.9	-7.2	-42.6	2.00	2.00	0.00
2,350.0	11.00	189.55	2,346.6	-51.9	-8.7	-51.5	2.00	2.00	0.00
2,394.0	11.88	189.55	2,389.8	-60.5	-10.2	-60.0	2.00	2.00	0.00
2,400.0	11.88	189.55	2,395.6	-61.7	-10.4	-61.2	0.00	0.00	0.00
2,410.6	11.88	189.55	2,406.0	-63.9	-10.7	-63.3	0.00	0.00	0.00
PIERRE									
2,450.0	11.88	189.55	2,444.6	-71.9	-12.1	-71.3	0.00	0.00	0.00

Noble Energy Inc

Planning Report

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Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-767	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	11.88	189.55	2,493.5	-82.0	-13.8	-81.3	0.00	0.00	0.00
2,550.0	11.88	189.55	2,542.4	-92.2	-15.5	-91.4	0.00	0.00	0.00
2,600.0	11.88	189.55	2,591.3	-102.3	-17.2	-101.5	0.00	0.00	0.00
2,650.0	11.88	189.55	2,640.3	-112.5	-18.9	-111.5	0.00	0.00	0.00
2,700.0	11.88	189.55	2,689.2	-122.6	-20.6	-121.6	0.00	0.00	0.00
2,750.0	11.88	189.55	2,738.1	-132.8	-22.3	-131.6	0.00	0.00	0.00
2,800.0	11.88	189.55	2,787.1	-142.9	-24.0	-141.7	0.00	0.00	0.00
2,850.0	11.88	189.55	2,836.0	-153.1	-25.8	-151.8	0.00	0.00	0.00
2,900.0	11.88	189.55	2,884.9	-163.2	-27.5	-161.8	0.00	0.00	0.00
2,950.0	11.88	189.55	2,933.8	-173.4	-29.2	-171.9	0.00	0.00	0.00
3,000.0	11.88	189.55	2,982.8	-183.5	-30.9	-182.0	0.00	0.00	0.00
3,050.0	11.88	189.55	3,031.7	-193.7	-32.6	-192.0	0.00	0.00	0.00
3,100.0	11.88	189.55	3,080.6	-203.8	-34.3	-202.1	0.00	0.00	0.00
3,150.0	11.88	189.55	3,129.6	-214.0	-36.0	-212.2	0.00	0.00	0.00
3,200.0	11.88	189.55	3,178.5	-224.1	-37.7	-222.2	0.00	0.00	0.00
3,250.0	11.88	189.55	3,227.4	-234.3	-39.4	-232.3	0.00	0.00	0.00
3,300.0	11.88	189.55	3,276.4	-244.4	-41.1	-242.3	0.00	0.00	0.00
3,348.7	11.88	189.55	3,324.0	-254.3	-42.8	-252.1	0.00	0.00	0.00
PARKMAN									
3,350.0	11.88	189.55	3,325.3	-254.6	-42.8	-252.4	0.00	0.00	0.00
3,400.0	11.88	189.55	3,374.2	-264.7	-44.5	-262.5	0.00	0.00	0.00
3,450.0	11.88	189.55	3,423.1	-274.9	-46.2	-272.5	0.00	0.00	0.00
3,500.0	11.88	189.55	3,472.1	-285.0	-48.0	-282.6	0.00	0.00	0.00
3,550.0	11.88	189.55	3,521.0	-295.2	-49.7	-292.7	0.00	0.00	0.00
3,600.0	11.88	189.55	3,569.9	-305.3	-51.4	-302.7	0.00	0.00	0.00
3,650.0	11.88	189.55	3,618.9	-315.5	-53.1	-312.8	0.00	0.00	0.00
3,700.0	11.88	189.55	3,667.8	-325.6	-54.8	-322.9	0.00	0.00	0.00
3,750.0	11.88	189.55	3,716.7	-335.8	-56.5	-332.9	0.00	0.00	0.00
3,800.0	11.88	189.55	3,765.6	-345.9	-58.2	-343.0	0.00	0.00	0.00
3,850.0	11.88	189.55	3,814.6	-356.1	-59.9	-353.0	0.00	0.00	0.00
3,900.0	11.88	189.55	3,863.5	-366.2	-61.6	-363.1	0.00	0.00	0.00
3,950.0	11.88	189.55	3,912.4	-376.4	-63.3	-373.2	0.00	0.00	0.00
4,000.0	11.88	189.55	3,961.4	-386.6	-65.0	-383.2	0.00	0.00	0.00
4,038.5	11.88	189.55	3,999.0	-394.4	-66.3	-391.0	0.00	0.00	0.00
SUSSEX									
4,050.0	11.88	189.55	4,010.3	-396.7	-66.7	-393.3	0.00	0.00	0.00
4,100.0	11.88	189.55	4,059.2	-406.9	-68.4	-403.4	0.00	0.00	0.00
4,150.0	11.88	189.55	4,108.1	-417.0	-70.2	-413.4	0.00	0.00	0.00
4,200.0	11.88	189.55	4,157.1	-427.2	-71.9	-423.5	0.00	0.00	0.00
4,250.0	11.88	189.55	4,206.0	-437.3	-73.6	-433.6	0.00	0.00	0.00
4,300.0	11.88	189.55	4,254.9	-447.5	-75.3	-443.6	0.00	0.00	0.00
4,350.0	11.88	189.55	4,303.9	-457.6	-77.0	-453.7	0.00	0.00	0.00
4,400.0	11.88	189.55	4,352.8	-467.8	-78.7	-463.7	0.00	0.00	0.00
4,433.2	11.88	189.55	4,385.3	-474.5	-79.8	-470.4	0.00	0.00	0.00
Start Drop -2.00									
4,450.0	11.54	189.55	4,401.7	-477.9	-80.4	-473.8	2.00	-2.00	0.00
4,500.0	10.54	189.55	4,450.8	-487.3	-82.0	-483.1	2.00	-2.00	0.00
4,508.3	10.38	189.55	4,459.0	-488.8	-82.2	-484.6	2.00	-2.00	0.00
SHANNON									
4,550.0	9.54	189.55	4,500.0	-495.9	-83.4	-491.6	2.00	-2.00	0.00
4,600.0	8.54	189.55	4,549.4	-503.7	-84.7	-499.3	2.00	-2.00	0.00
4,650.0	7.54	189.55	4,598.9	-510.6	-85.9	-506.2	2.00	-2.00	0.00
4,700.0	6.54	189.55	4,648.5	-516.6	-86.9	-512.2	2.00	-2.00	0.00

Noble Energy Inc

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Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
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Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-767	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	5.54	189.55	4,698.3	-521.8	-87.8	-517.3	2.00	-2.00	0.00
4,800.0	4.54	189.55	4,748.1	-526.1	-88.5	-521.6	2.00	-2.00	0.00
4,850.0	3.54	189.55	4,797.9	-529.6	-89.1	-525.1	2.00	-2.00	0.00
4,900.0	2.54	189.55	4,847.9	-532.2	-89.5	-527.7	2.00	-2.00	0.00
4,950.0	1.54	189.55	4,897.8	-534.0	-89.8	-529.4	2.00	-2.00	0.00
5,000.0	0.54	189.55	4,947.8	-534.9	-90.0	-530.3	2.00	-2.00	0.00
5,027.2	0.00	0.00	4,975.0	-535.0	-90.0	-530.4	2.00	-2.00	0.00
5,050.0	0.00	0.00	4,997.8	-535.0	-90.0	-530.4	0.00	0.00	0.00
5,093.2	0.00	0.00	5,041.0	-535.0	-90.0	-530.4	0.00	0.00	0.00
TEEPEE BUTTES									
5,100.0	0.00	0.00	5,047.8	-535.0	-90.0	-530.4	0.00	0.00	0.00
5,150.0	0.00	0.00	5,097.8	-535.0	-90.0	-530.4	0.00	0.00	0.00
5,200.0	0.00	0.00	5,147.8	-535.0	-90.0	-530.4	0.00	0.00	0.00
5,250.0	0.00	0.00	5,197.8	-535.0	-90.0	-530.4	0.00	0.00	0.00
5,279.7	0.00	0.00	5,227.5	-535.0	-90.0	-530.4	0.00	0.00	0.00
KOP #2 - Start Build 9.00									
5,300.0	1.83	358.75	5,247.8	-534.7	-90.0	-530.1	9.00	9.00	0.00
5,350.0	6.33	358.75	5,297.7	-531.1	-90.1	-526.5	9.00	9.00	0.00
5,400.0	10.83	358.75	5,347.1	-523.7	-90.2	-519.1	9.00	9.00	0.00
5,450.0	15.33	358.75	5,395.8	-512.4	-90.5	-507.8	9.00	9.00	0.00
5,500.0	19.83	358.75	5,443.5	-497.3	-90.8	-492.7	9.00	9.00	0.00
5,550.0	24.33	358.75	5,489.8	-478.5	-91.2	-473.9	9.00	9.00	0.00
5,600.0	28.83	358.75	5,534.5	-456.1	-91.7	-451.5	9.00	9.00	0.00
5,650.0	33.33	358.75	5,577.3	-430.3	-92.3	-425.7	9.00	9.00	0.00
5,700.0	37.83	358.75	5,618.0	-401.2	-92.9	-396.7	9.00	9.00	0.00
5,750.0	42.33	358.75	5,656.2	-369.1	-93.6	-364.5	9.00	9.00	0.00
5,800.0	46.83	358.75	5,691.8	-334.0	-94.4	-329.4	9.00	9.00	0.00
5,850.0	51.33	358.75	5,724.6	-296.2	-95.2	-291.6	9.00	9.00	0.00
5,865.4	52.71	358.75	5,734.0	-284.1	-95.5	-279.5	9.01	9.01	0.00
SHARON SPRINGS									
5,900.0	55.83	358.75	5,754.2	-256.0	-96.1	-251.4	9.00	9.00	0.00
5,901.4	55.95	358.75	5,755.0	-254.9	-96.1	-250.3	9.08	9.08	0.00
NIO A CHALK									
5,950.0	60.33	358.75	5,780.7	-213.6	-97.0	-209.0	9.00	9.00	0.00
5,952.7	60.57	358.75	5,782.0	-211.2	-97.0	-206.7	9.04	9.04	0.00
NIO A MARL									
6,000.0	64.83	358.75	5,803.7	-169.2	-98.0	-164.7	9.00	9.00	0.00
6,050.0	69.33	358.75	5,823.2	-123.2	-99.0	-118.6	9.00	9.00	0.00
6,100.0	73.83	358.75	5,838.9	-75.8	-100.0	-71.2	9.00	9.00	0.00
6,111.3	74.85	358.75	5,842.0	-64.9	-100.2	-60.3	9.01	9.01	0.00
NIO B CHALK									
6,150.0	78.33	358.75	5,851.0	-27.3	-101.0	-22.7	9.00	9.00	0.00
6,200.0	82.83	358.75	5,859.2	22.0	-102.1	26.6	9.00	9.00	0.00
6,224.1	85.00	358.75	5,861.7	46.0	-102.6	50.5	9.00	9.00	0.00
Start 75.0 hold at 6224.1 MD - 7" Casing @ 6224.1' MD									
6,250.0	85.00	358.75	5,864.0	71.8	-103.2	76.3	0.01	0.01	0.00
6,299.1	85.00	358.75	5,868.2	120.7	-104.3	125.2	0.00	0.00	0.00
Start Build 9.00									
6,300.0	85.08	358.75	5,868.3	121.6	-104.3	126.1	8.70	8.70	0.00
6,350.0	89.58	358.75	5,870.7	171.5	-105.4	176.1	9.00	9.00	0.00
6,352.5	89.80	358.75	5,870.7	173.9	-105.4	178.5	9.00	9.00	0.00
6,400.0	89.80	358.75	5,870.8	221.5	-106.4	226.0	0.00	0.00	0.00
6,450.0	89.80	358.75	5,871.0	271.5	-107.5	276.0	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-767
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-767	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	358.75	5,871.2	321.5	-108.6	326.0	0.00	0.00	0.00
6,550.0	89.80	358.75	5,871.4	371.4	-109.7	376.0	0.00	0.00	0.00
6,600.0	89.80	358.75	5,871.5	421.4	-110.8	426.0	0.00	0.00	0.00
6,650.0	89.80	358.75	5,871.7	471.4	-111.9	476.0	0.00	0.00	0.00
6,700.0	89.80	358.75	5,871.9	521.4	-113.0	526.0	0.00	0.00	0.00
6,734.8	89.80	358.75	5,872.0	556.2	-113.7	560.8	0.00	0.00	0.00
NIO B MARL									
6,750.0	89.80	358.75	5,872.1	571.4	-114.1	576.0	0.00	0.00	0.00
6,800.0	89.80	358.75	5,872.2	621.4	-115.1	625.9	0.00	0.00	0.00
6,850.0	89.80	358.75	5,872.4	671.4	-116.2	675.9	0.00	0.00	0.00
6,900.0	89.80	358.75	5,872.6	721.4	-117.3	725.9	0.00	0.00	0.00
6,950.0	89.80	358.75	5,872.8	771.4	-118.4	775.9	0.00	0.00	0.00
7,000.0	89.80	358.75	5,872.9	821.3	-119.5	825.9	0.00	0.00	0.00
7,050.0	89.80	358.75	5,873.1	871.3	-120.6	875.9	0.00	0.00	0.00
7,100.0	89.80	358.75	5,873.3	921.3	-121.7	925.9	0.00	0.00	0.00
7,150.0	89.80	358.75	5,873.4	971.3	-122.8	975.8	0.00	0.00	0.00
7,200.0	89.80	358.75	5,873.6	1,021.3	-123.8	1,025.8	0.00	0.00	0.00
7,250.0	89.80	358.75	5,873.8	1,071.3	-124.9	1,075.8	0.00	0.00	0.00
7,300.0	89.80	358.75	5,874.0	1,121.3	-126.0	1,125.8	0.00	0.00	0.00
7,350.0	89.80	358.75	5,874.1	1,171.3	-127.1	1,175.8	0.00	0.00	0.00
7,400.0	89.80	358.75	5,874.3	1,221.2	-128.2	1,225.8	0.00	0.00	0.00
7,450.0	89.80	358.75	5,874.5	1,271.2	-129.3	1,275.8	0.00	0.00	0.00
7,500.0	89.80	358.75	5,874.7	1,321.2	-130.4	1,325.7	0.00	0.00	0.00
7,550.0	89.80	358.75	5,874.8	1,371.2	-131.4	1,375.7	0.00	0.00	0.00
7,600.0	89.80	358.75	5,875.0	1,421.2	-132.5	1,425.7	0.00	0.00	0.00
7,650.0	89.80	358.75	5,875.2	1,471.2	-133.6	1,475.7	0.00	0.00	0.00
7,700.0	89.80	358.75	5,875.4	1,521.2	-134.7	1,525.7	0.00	0.00	0.00
7,750.0	89.80	358.75	5,875.5	1,571.2	-135.8	1,575.7	0.00	0.00	0.00
7,800.0	89.80	358.75	5,875.7	1,621.1	-136.9	1,625.7	0.00	0.00	0.00
7,850.0	89.80	358.75	5,875.9	1,671.1	-138.0	1,675.6	0.00	0.00	0.00
7,900.0	89.80	358.75	5,876.1	1,721.1	-139.1	1,725.6	0.00	0.00	0.00
7,950.0	89.80	358.75	5,876.2	1,771.1	-140.1	1,775.6	0.00	0.00	0.00
8,000.0	89.80	358.75	5,876.4	1,821.1	-141.2	1,825.6	0.00	0.00	0.00
8,050.0	89.80	358.75	5,876.6	1,871.1	-142.3	1,875.6	0.00	0.00	0.00
8,100.0	89.80	358.75	5,876.8	1,921.1	-143.4	1,925.6	0.00	0.00	0.00
8,150.0	89.80	358.75	5,876.9	1,971.1	-144.5	1,975.6	0.00	0.00	0.00
8,200.0	89.80	358.75	5,877.1	2,021.1	-145.6	2,025.6	0.00	0.00	0.00
8,250.0	89.80	358.75	5,877.3	2,071.0	-146.7	2,075.5	0.00	0.00	0.00
8,300.0	89.80	358.75	5,877.5	2,121.0	-147.8	2,125.5	0.00	0.00	0.00
8,350.0	89.80	358.75	5,877.6	2,171.0	-148.8	2,175.5	0.00	0.00	0.00
8,400.0	89.80	358.75	5,877.8	2,221.0	-149.9	2,225.5	0.00	0.00	0.00
8,450.0	89.80	358.75	5,878.0	2,271.0	-151.0	2,275.5	0.00	0.00	0.00
8,500.0	89.80	358.75	5,878.2	2,321.0	-152.1	2,325.5	0.00	0.00	0.00
8,550.0	89.80	358.75	5,878.3	2,371.0	-153.2	2,375.5	0.00	0.00	0.00
8,600.0	89.80	358.75	5,878.5	2,421.0	-154.3	2,425.4	0.00	0.00	0.00
8,650.0	89.80	358.75	5,878.7	2,470.9	-155.4	2,475.4	0.00	0.00	0.00
8,700.0	89.80	358.75	5,878.9	2,520.9	-156.4	2,525.4	0.00	0.00	0.00
8,750.0	89.80	358.75	5,879.0	2,570.9	-157.5	2,575.4	0.00	0.00	0.00
8,800.0	89.80	358.75	5,879.2	2,620.9	-158.6	2,625.4	0.00	0.00	0.00
8,850.0	89.80	358.75	5,879.4	2,670.9	-159.7	2,675.4	0.00	0.00	0.00
8,900.0	89.80	358.75	5,879.6	2,720.9	-160.8	2,725.4	0.00	0.00	0.00
8,950.0	89.80	358.75	5,879.7	2,770.9	-161.9	2,775.3	0.00	0.00	0.00
9,000.0	89.80	358.75	5,879.9	2,820.9	-163.0	2,825.3	0.00	0.00	0.00
9,050.0	89.80	358.75	5,880.1	2,870.8	-164.1	2,875.3	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-767
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-767	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	358.75	5,880.3	2,920.8	-165.1	2,925.3	0.00	0.00	0.00	
9,150.0	89.80	358.75	5,880.4	2,970.8	-166.2	2,975.3	0.00	0.00	0.00	
9,200.0	89.80	358.75	5,880.6	3,020.8	-167.3	3,025.3	0.00	0.00	0.00	
9,250.0	89.80	358.75	5,880.8	3,070.8	-168.4	3,075.3	0.00	0.00	0.00	
9,300.0	89.80	358.75	5,881.0	3,120.8	-169.5	3,125.3	0.00	0.00	0.00	
9,350.0	89.80	358.75	5,881.1	3,170.8	-170.6	3,175.2	0.00	0.00	0.00	
9,400.0	89.80	358.75	5,881.3	3,220.8	-171.7	3,225.2	0.00	0.00	0.00	
9,450.0	89.80	358.75	5,881.5	3,270.8	-172.8	3,275.2	0.00	0.00	0.00	
9,500.0	89.80	358.75	5,881.7	3,320.7	-173.8	3,325.2	0.00	0.00	0.00	
9,550.0	89.80	358.75	5,881.8	3,370.7	-174.9	3,375.2	0.00	0.00	0.00	
9,600.0	89.80	358.75	5,882.0	3,420.7	-176.0	3,425.2	0.00	0.00	0.00	
9,650.0	89.80	358.75	5,882.2	3,470.7	-177.1	3,475.2	0.00	0.00	0.00	
9,700.0	89.80	358.75	5,882.4	3,520.7	-178.2	3,525.1	0.00	0.00	0.00	
9,750.0	89.80	358.75	5,882.5	3,570.7	-179.3	3,575.1	0.00	0.00	0.00	
9,800.0	89.80	358.75	5,882.7	3,620.7	-180.4	3,625.1	0.00	0.00	0.00	
9,850.0	89.80	358.75	5,882.9	3,670.7	-181.4	3,675.1	0.00	0.00	0.00	
9,900.0	89.80	358.75	5,883.0	3,720.6	-182.5	3,725.1	0.00	0.00	0.00	
9,950.0	89.80	358.75	5,883.2	3,770.6	-183.6	3,775.1	0.00	0.00	0.00	
10,000.0	89.80	358.75	5,883.4	3,820.6	-184.7	3,825.1	0.00	0.00	0.00	
10,050.0	89.80	358.75	5,883.6	3,870.6	-185.8	3,875.0	0.00	0.00	0.00	
10,100.0	89.80	358.75	5,883.7	3,920.6	-186.9	3,925.0	0.00	0.00	0.00	
10,150.0	89.80	358.75	5,883.9	3,970.6	-188.0	3,975.0	0.00	0.00	0.00	
10,200.0	89.80	358.75	5,884.1	4,020.6	-189.1	4,025.0	0.00	0.00	0.00	
10,250.0	89.80	358.75	5,884.3	4,070.6	-190.1	4,075.0	0.00	0.00	0.00	
10,300.0	89.80	358.75	5,884.4	4,120.5	-191.2	4,125.0	0.00	0.00	0.00	
10,350.0	89.80	358.75	5,884.6	4,170.5	-192.3	4,175.0	0.00	0.00	0.00	
10,400.0	89.80	358.75	5,884.8	4,220.5	-193.4	4,224.9	0.00	0.00	0.00	
10,450.0	89.80	358.75	5,885.0	4,270.5	-194.5	4,274.9	0.00	0.00	0.00	
10,500.0	89.80	358.75	5,885.1	4,320.5	-195.6	4,324.9	0.00	0.00	0.00	
10,545.0	89.80	358.75	5,885.3	4,365.5	-196.6	4,369.9	0.00	0.00	0.00	
TD at 10545.0 - Greyson LD28-767 BHL 330'FNL, 1540'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 LD28-767 BHL	0.00	0.00	5,885.3	4,365.5	-196.6	1,512,362.75	3,450,915.43	40.728470	-103.873000	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,224.1	5,861.7	7" Casing @ 6224.1' MD	7	8-3/4	

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Greyson LD28-767
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Greyson LD28-767	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,410.6	2,406.0	PIERRE		0.00	
3,348.7	3,324.0	PARKMAN		0.00	
4,038.5	3,999.0	SUSSEX		0.00	
4,508.3	4,459.0	SHANNON		0.00	
5,093.2	5,041.0	TEEPEE BUTTES		0.00	
5,865.4	5,734.0	SHARON SPRINGS		0.00	
5,901.4	5,755.0	NIO A CHALK		0.00	
5,952.7	5,782.0	NIO A MARL		0.00	
6,111.3	5,842.0	NIO B CHALK		0.00	
6,734.8	5,872.0	NIO B MARL		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,800.0	1,800.0	0.0	0.0	KOP - Start Build 2.00
4,433.2	4,385.3	-474.5	-79.8	Start Drop -2.00
5,279.7	5,227.5	-535.0	-90.0	KOP #2 - Start Build 9.00
6,224.1	5,861.7	46.0	-102.6	Start 75.0 hold at 6224.1 MD
6,299.1	5,868.2	120.7	-104.3	Start Build 9.00
10,545.0	5,885.3	4,365.5	-196.6	TD at 10545.0

Northern Region Drilling - Working

Wattenberg Field

LD (09N-58W)

Greyson LD28-767

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 LD28-767
Project:	Wattenberg Field	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Greyson LD28-767	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	10,545.0	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

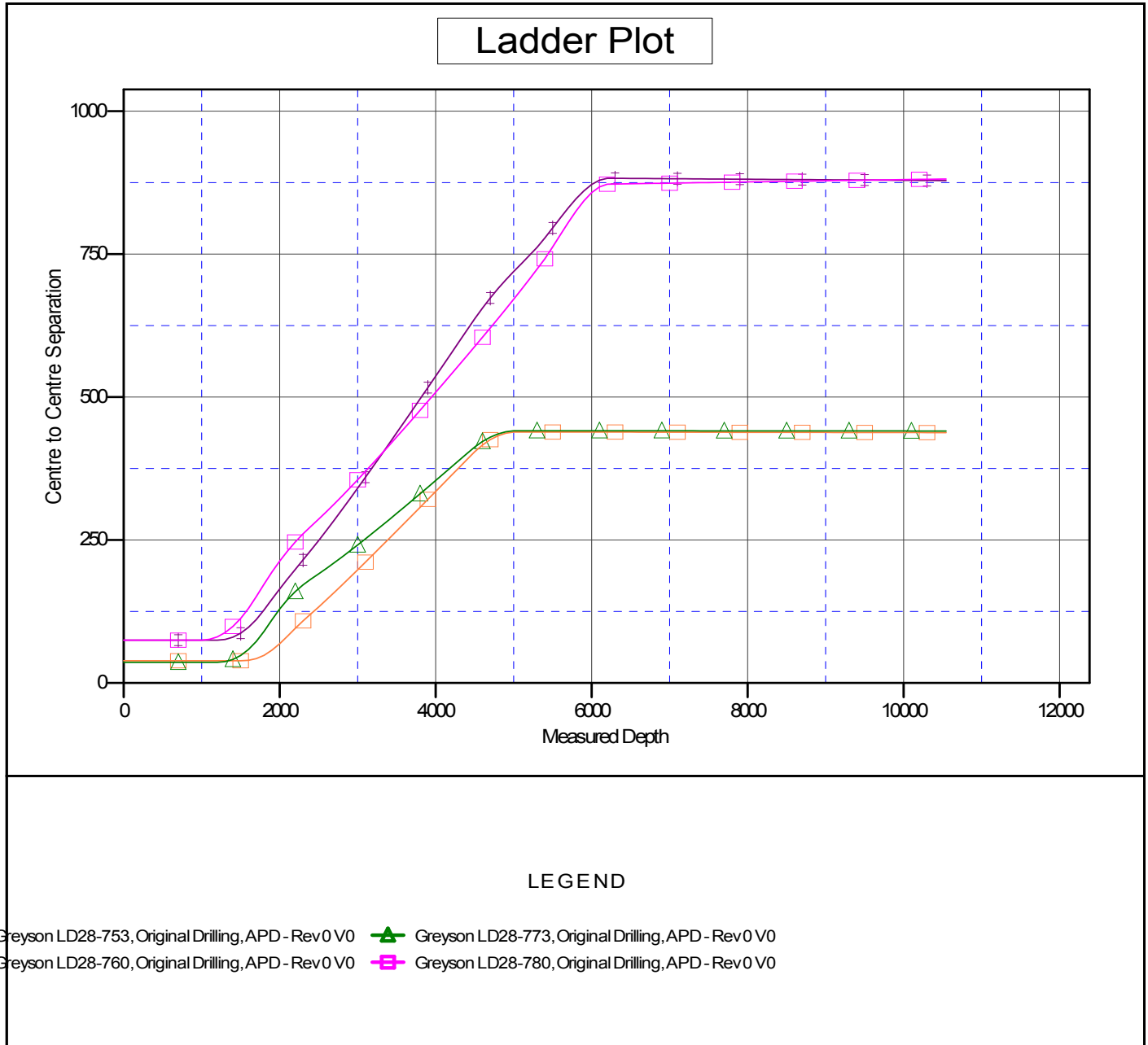
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
LD (09N-58W)						
Greyson LD28-753 - Original Drilling - APD - Rev 0	1,200.0	1,199.0	74.8	69.7	14.637	CC, ES
Greyson LD28-753 - Original Drilling - APD - Rev 0	10,545.0	10,548.6	878.6	702.8	4.997	SF
Greyson LD28-760 - Original Drilling - APD - Rev 0	1,500.0	1,500.0	38.8	32.3	6.004	CC, ES
Greyson LD28-760 - Original Drilling - APD - Rev 0	10,545.0	10,549.3	437.9	261.8	2.486	SF
Greyson LD28-773 - Original Drilling - APD - Rev 0	1,166.3	1,167.3	36.0	31.1	7.256	CC
Greyson LD28-773 - Original Drilling - APD - Rev 0	1,200.0	1,201.0	36.0	30.9	7.042	ES
Greyson LD28-773 - Original Drilling - APD - Rev 0	10,545.0	10,574.8	440.7	265.1	2.509	SF
Greyson LD28-780 - Original Drilling - APD - Rev 0	966.3	967.3	74.8	70.8	18.401	CC
Greyson LD28-780 - Original Drilling - APD - Rev 0	1,000.0	1,000.0	74.9	70.6	17.752	ES
Greyson LD28-780 - Original Drilling - APD - Rev 0	10,545.0	10,591.3	881.4	707.0	5.053	SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Greyson LD28-767
Project:	Wattenberg Field	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Greyson LD28-767	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 @ 4878.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Greyson LD28-767
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 LD28-767
Project:	Wattenberg Field	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Greyson LD28-767	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 @ 4878.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Greyson LD28-767
Coordinate System is US State Plane 1983, Colorado Northern Zone
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