

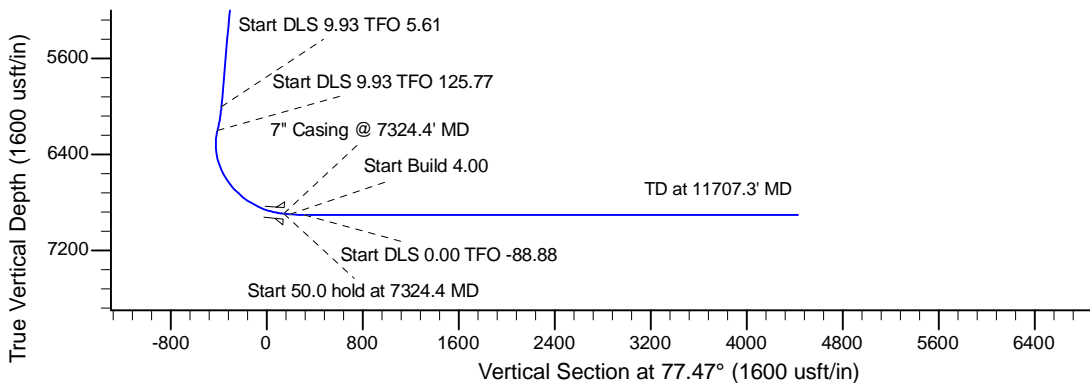
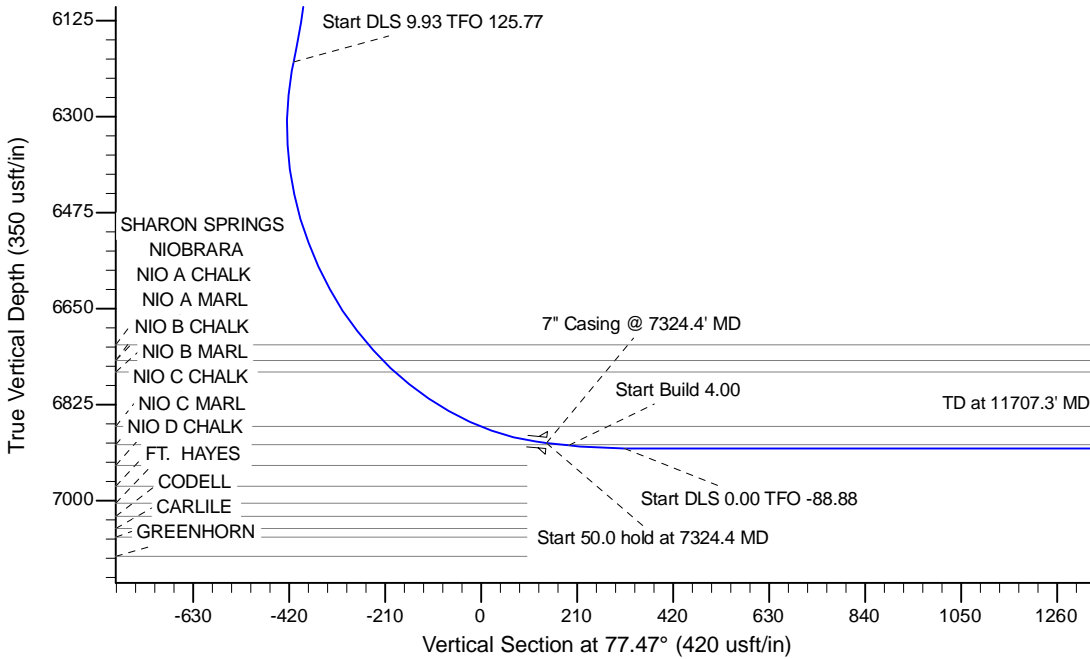
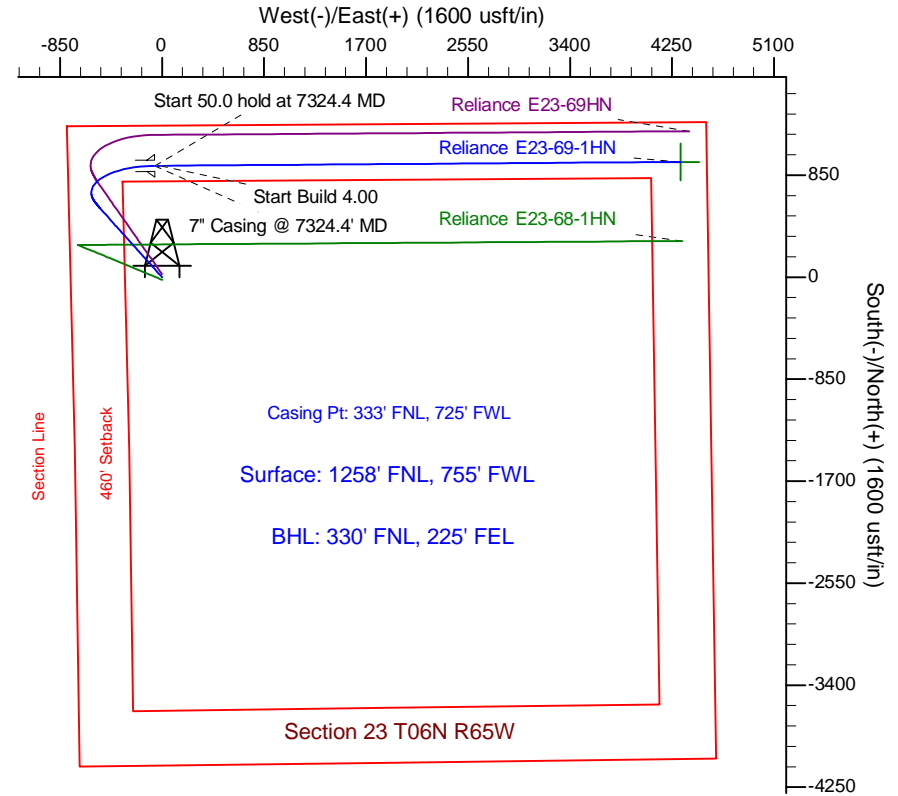
Project: Wattenberg Field
 Site: E (Sec.23-T06N-R65W) Weld County, CO
 Well: Reliance E23-69-1HN
 Wellbore: Original Drilling
 Design: APD - Rev 0

Northern Region Drilling

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	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	1900.0	10.00	318.00	1897.5	32.3	-29.1	2.00	318.00	-21.4	
4	6070.9	10.00	318.00	6005.0	570.6	-513.8	0.00	0.00	-377.7	
5	6280.5	30.79	321.89	6200.4	626.9	-559.5	9.93	5.61	-410.2	
6	7324.4	85.00	89.58	6895.2	928.0	-60.0	9.93	125.77	142.7	
7	7374.4	85.00	89.58	6899.6	928.4	-10.2	0.00	0.00	191.4	
8	7499.4	90.00	89.58	6905.0	929.3	114.6	4.00	0.00	313.5	
9	11707.3	90.00	89.57	6905.0	960.6	4322.4	0.00	-88.88	4427.9	Reliance E23-69-1HN BHL 330'FNL, 225'FEL



T G M

Azimuths to Grid North
 True North: -0.56°
 Magnetic North: 7.94°

Magnetic Field
 Strength: 53010.7snT
 Dip Angle: 67.08°
 Date: 5/9/2013
 Model: IGRF200510

WELL DETAILS: Reliance E23-69-1HN					
Ground Level: 4733.0					
	Northing	Easting	Latitude	Longitude	
0.0	0.0	1417174.27	3240005.64	40.475340	-104.637280
Plan: APD - Rev 0 (Reliance E23-69-1HN/Original Drilling)					
Created By: Shailey Jewell			Date: 11:41, May 10 2013		
Checked: _____			Date: _____		
Reviewed: _____			Date: _____		
Approved: _____			Date: _____		

Northern Region Drilling

Wattenberg Field

E (06N-65W)

Reliance E23-69-1HN

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

10 May, 2013

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Reliance E23-69-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site:	E (06N-65W)	North Reference:	Grid
Well:	Reliance E23-69-1HN	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	E (06N-65W)		
Site Position:		Northing:	1,417,105.06 usft
From:	Lat/Long	Easting:	3,240,006.32 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	40.475150
		Longitude:	-104.637280
		Grid Convergence:	0.56 °

Well	Reliance E23-69-1HN					
Well Position	+N/-S	69.2 usft	Northing:	1,417,174.27 usft	Latitude:	40.475340
	+E/-W	-0.7 usft	Easting:	3,240,005.64 usft	Longitude:	-104.637280
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	4,733.0 usft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	5/9/2013	8.50	67.08	53,011

Design	APD - Rev 0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	77.47

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	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	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,900.0	10.00	318.00	1,897.5	32.3	-29.1	2.00	2.00	0.00	318.00	
6,070.9	10.00	318.00	6,005.0	570.6	-513.8	0.00	0.00	0.00	0.00	
6,280.5	30.79	321.89	6,200.4	626.9	-559.5	9.93	9.92	1.86	5.61	
7,324.4	85.00	89.58	6,895.2	928.0	-60.0	9.93	5.19	12.23	125.77	
7,374.4	85.00	89.58	6,899.6	928.4	-10.2	0.00	0.00	0.00	0.00	
7,499.4	90.00	89.58	6,905.0	929.3	114.6	4.00	4.00	0.00	0.00	
11,707.3	90.00	89.57	6,905.0	960.6	4,322.4	0.00	0.00	0.00	-88.88	Reliance E23-69-1HN

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Reliance E23-69-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site:	E (06N-65W)	North Reference:	Grid
Well:	Reliance E23-69-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	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
984.0	0.00	0.00	984.0	0.0	0.0	0.0	0.00	0.00	0.00
PIERRE									
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
KOP - Start Build 2.00									
1,450.0	1.00	318.00	1,450.0	0.3	-0.3	-0.2	2.00	2.00	0.00
1,500.0	2.00	318.00	1,500.0	1.3	-1.2	-0.9	2.00	2.00	0.00
1,550.0	3.00	318.00	1,549.9	2.9	-2.6	-1.9	2.00	2.00	0.00
1,600.0	4.00	318.00	1,599.8	5.2	-4.7	-3.4	2.00	2.00	0.00
1,650.0	5.00	318.00	1,649.7	8.1	-7.3	-5.4	2.00	2.00	0.00
1,700.0	6.00	318.00	1,699.5	11.7	-10.5	-7.7	2.00	2.00	0.00
1,750.0	7.00	318.00	1,749.1	15.9	-14.3	-10.5	2.00	2.00	0.00
1,800.0	8.00	318.00	1,798.7	20.7	-18.7	-13.7	2.00	2.00	0.00
1,850.0	9.00	318.00	1,848.2	26.2	-23.6	-17.4	2.00	2.00	0.00
1,900.0	10.00	318.00	1,897.5	32.3	-29.1	-21.4	2.00	2.00	0.00
1,950.0	10.00	318.00	1,946.7	38.8	-34.9	-25.7	0.00	0.00	0.00
2,000.0	10.00	318.00	1,995.9	45.2	-40.7	-30.0	0.00	0.00	0.00
2,050.0	10.00	318.00	2,045.2	51.7	-46.6	-34.2	0.00	0.00	0.00
2,100.0	10.00	318.00	2,094.4	58.2	-52.4	-38.5	0.00	0.00	0.00
2,150.0	10.00	318.00	2,143.7	64.6	-58.2	-42.8	0.00	0.00	0.00
2,200.0	10.00	318.00	2,192.9	71.1	-64.0	-47.0	0.00	0.00	0.00
2,250.0	10.00	318.00	2,242.1	77.5	-69.8	-51.3	0.00	0.00	0.00
2,300.0	10.00	318.00	2,291.4	84.0	-75.6	-55.6	0.00	0.00	0.00
2,350.0	10.00	318.00	2,340.6	90.4	-81.4	-59.9	0.00	0.00	0.00
2,400.0	10.00	318.00	2,389.9	96.9	-87.2	-64.1	0.00	0.00	0.00
2,450.0	10.00	318.00	2,439.1	103.3	-93.0	-68.4	0.00	0.00	0.00
2,500.0	10.00	318.00	2,488.3	109.8	-98.8	-72.7	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Reliance E23-69-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site:	E (06N-65W)	North Reference:	Grid
Well:	Reliance E23-69-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
2,550.0	10.00	318.00	2,537.6	116.2	-104.6	-76.9	0.00	0.00	0.00	
2,600.0	10.00	318.00	2,586.8	122.7	-110.5	-81.2	0.00	0.00	0.00	
2,650.0	10.00	318.00	2,636.1	129.1	-116.3	-85.5	0.00	0.00	0.00	
2,700.0	10.00	318.00	2,685.3	135.6	-122.1	-89.8	0.00	0.00	0.00	
2,750.0	10.00	318.00	2,734.6	142.0	-127.9	-94.0	0.00	0.00	0.00	
2,800.0	10.00	318.00	2,783.8	148.5	-133.7	-98.3	0.00	0.00	0.00	
2,850.0	10.00	318.00	2,833.0	154.9	-139.5	-102.6	0.00	0.00	0.00	
2,900.0	10.00	318.00	2,882.3	161.4	-145.3	-106.8	0.00	0.00	0.00	
2,950.0	10.00	318.00	2,931.5	167.8	-151.1	-111.1	0.00	0.00	0.00	
3,000.0	10.00	318.00	2,980.8	174.3	-156.9	-115.4	0.00	0.00	0.00	
3,050.0	10.00	318.00	3,030.0	180.7	-162.7	-119.7	0.00	0.00	0.00	
3,100.0	10.00	318.00	3,079.2	187.2	-168.6	-123.9	0.00	0.00	0.00	
3,150.0	10.00	318.00	3,128.5	193.7	-174.4	-128.2	0.00	0.00	0.00	
3,200.0	10.00	318.00	3,177.7	200.1	-180.2	-132.5	0.00	0.00	0.00	
3,250.0	10.00	318.00	3,227.0	206.6	-186.0	-136.7	0.00	0.00	0.00	
3,300.0	10.00	318.00	3,276.2	213.0	-191.8	-141.0	0.00	0.00	0.00	
3,350.0	10.00	318.00	3,325.4	219.5	-197.6	-145.3	0.00	0.00	0.00	
3,400.0	10.00	318.00	3,374.7	225.9	-203.4	-149.6	0.00	0.00	0.00	
3,450.0	10.00	318.00	3,423.9	232.4	-209.2	-153.8	0.00	0.00	0.00	
3,500.0	10.00	318.00	3,473.2	238.8	-215.0	-158.1	0.00	0.00	0.00	
3,550.0	10.00	318.00	3,522.4	245.3	-220.8	-162.4	0.00	0.00	0.00	
3,600.0	10.00	318.00	3,571.6	251.7	-226.7	-166.6	0.00	0.00	0.00	
3,650.0	10.00	318.00	3,620.9	258.2	-232.5	-170.9	0.00	0.00	0.00	
3,651.1	10.00	318.00	3,622.0	258.3	-232.6	-171.0	0.00	0.00	0.00	
PARKMAN										
3,700.0	10.00	318.00	3,670.1	264.6	-238.3	-175.2	0.00	0.00	0.00	
3,750.0	10.00	318.00	3,719.4	271.1	-244.1	-179.5	0.00	0.00	0.00	
3,800.0	10.00	318.00	3,768.6	277.5	-249.9	-183.7	0.00	0.00	0.00	
3,850.0	10.00	318.00	3,817.8	284.0	-255.7	-188.0	0.00	0.00	0.00	
3,900.0	10.00	318.00	3,867.1	290.4	-261.5	-192.3	0.00	0.00	0.00	
3,950.0	10.00	318.00	3,916.3	296.9	-267.3	-196.5	0.00	0.00	0.00	
4,000.0	10.00	318.00	3,965.6	303.3	-273.1	-200.8	0.00	0.00	0.00	
4,050.0	10.00	318.00	4,014.8	309.8	-278.9	-205.1	0.00	0.00	0.00	
4,100.0	10.00	318.00	4,064.0	316.2	-284.7	-209.4	0.00	0.00	0.00	
4,150.0	10.00	318.00	4,113.3	322.7	-290.6	-213.6	0.00	0.00	0.00	
4,200.0	10.00	318.00	4,162.5	329.1	-296.4	-217.9	0.00	0.00	0.00	
4,222.8	10.00	318.00	4,185.0	332.1	-299.0	-219.9	0.00	0.00	0.00	
SUSSEX										
4,250.0	10.00	318.00	4,211.8	335.6	-302.2	-222.2	0.00	0.00	0.00	
4,300.0	10.00	318.00	4,261.0	342.1	-308.0	-226.4	0.00	0.00	0.00	
4,350.0	10.00	318.00	4,310.2	348.5	-313.8	-230.7	0.00	0.00	0.00	
4,400.0	10.00	318.00	4,359.5	355.0	-319.6	-235.0	0.00	0.00	0.00	
4,450.0	10.00	318.00	4,408.7	361.4	-325.4	-239.3	0.00	0.00	0.00	
4,500.0	10.00	318.00	4,458.0	367.9	-331.2	-243.5	0.00	0.00	0.00	
4,550.0	10.00	318.00	4,507.2	374.3	-337.0	-247.8	0.00	0.00	0.00	
4,600.0	10.00	318.00	4,556.4	380.8	-342.8	-252.1	0.00	0.00	0.00	
4,650.0	10.00	318.00	4,605.7	387.2	-348.7	-256.4	0.00	0.00	0.00	
4,700.0	10.00	318.00	4,654.9	393.7	-354.5	-260.6	0.00	0.00	0.00	
4,750.0	10.00	318.00	4,704.2	400.1	-360.3	-264.9	0.00	0.00	0.00	
4,800.0	10.00	318.00	4,753.4	406.6	-366.1	-269.2	0.00	0.00	0.00	
4,850.0	10.00	318.00	4,802.6	413.0	-371.9	-273.4	0.00	0.00	0.00	
4,900.0	10.00	318.00	4,851.9	419.5	-377.7	-277.7	0.00	0.00	0.00	
4,950.0	10.00	318.00	4,901.1	425.9	-383.5	-282.0	0.00	0.00	0.00	
4,988.5	10.00	318.00	4,939.0	430.9	-388.0	-285.3	0.00	0.00	0.00	

Noble Energy Inc

Planning Report

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Company:	Northern Region Drilling	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site:	E (06N-65W)	North Reference:	Grid
Well:	Reliance E23-69-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHANNON									
5,000.0	10.00	318.00	4,950.4	432.4	-389.3	-286.3	0.00	0.00	0.00
5,050.0	10.00	318.00	4,999.6	438.8	-395.1	-290.5	0.00	0.00	0.00
5,100.0	10.00	318.00	5,048.9	445.3	-400.9	-294.8	0.00	0.00	0.00
5,150.0	10.00	318.00	5,098.1	451.7	-406.8	-299.1	0.00	0.00	0.00
5,200.0	10.00	318.00	5,147.3	458.2	-412.6	-303.3	0.00	0.00	0.00
5,250.0	10.00	318.00	5,196.6	464.6	-418.4	-307.6	0.00	0.00	0.00
5,300.0	10.00	318.00	5,245.8	471.1	-424.2	-311.9	0.00	0.00	0.00
5,350.0	10.00	318.00	5,295.1	477.6	-430.0	-316.2	0.00	0.00	0.00
5,400.0	10.00	318.00	5,344.3	484.0	-435.8	-320.4	0.00	0.00	0.00
5,450.0	10.00	318.00	5,393.5	490.5	-441.6	-324.7	0.00	0.00	0.00
5,500.0	10.00	318.00	5,442.8	496.9	-447.4	-329.0	0.00	0.00	0.00
5,550.0	10.00	318.00	5,492.0	503.4	-453.2	-333.2	0.00	0.00	0.00
5,600.0	10.00	318.00	5,541.3	509.8	-459.0	-337.5	0.00	0.00	0.00
5,650.0	10.00	318.00	5,590.5	516.3	-464.8	-341.8	0.00	0.00	0.00
5,700.0	10.00	318.00	5,639.7	522.7	-470.7	-346.1	0.00	0.00	0.00
5,750.0	10.00	318.00	5,689.0	529.2	-476.5	-350.3	0.00	0.00	0.00
5,800.0	10.00	318.00	5,738.2	535.6	-482.3	-354.6	0.00	0.00	0.00
5,850.0	10.00	318.00	5,787.5	542.1	-488.1	-358.9	0.00	0.00	0.00
5,900.0	10.00	318.00	5,836.7	548.5	-493.9	-363.1	0.00	0.00	0.00
5,950.0	10.00	318.00	5,885.9	555.0	-499.7	-367.4	0.00	0.00	0.00
6,000.0	10.00	318.00	5,935.2	561.4	-505.5	-371.7	0.00	0.00	0.00
6,050.0	10.00	318.00	5,984.4	567.9	-511.3	-376.0	0.00	0.00	0.00
6,070.9	10.00	318.00	6,005.0	570.6	-513.8	-377.7	0.00	0.00	0.00
Start DLS 9.93 TFO 5.61									
6,075.0	10.40	318.22	6,009.0	571.1	-514.2	-378.1	9.93	9.89	5.38
TEEPEE BUTTES									
6,100.0	12.88	319.27	6,033.5	574.9	-517.6	-380.5	9.93	9.90	4.19
6,150.0	17.84	320.50	6,081.7	585.1	-526.1	-386.6	9.93	9.91	2.47
6,200.0	22.80	321.21	6,128.6	598.5	-537.0	-394.4	9.93	9.92	1.42
6,250.0	27.76	321.68	6,173.8	615.2	-550.3	-403.8	9.93	9.93	0.93
6,280.5	30.79	321.89	6,200.4	626.9	-559.5	-410.2	9.93	9.92	0.71
Start DLS 9.93 TFO 125.77									
6,300.0	29.69	325.07	6,217.2	634.8	-565.4	-414.2	9.95	-5.62	16.30
6,350.0	27.27	334.18	6,261.2	655.3	-577.5	-421.6	9.93	-4.83	18.23
6,400.0	25.54	344.67	6,306.0	676.0	-585.3	-424.7	9.93	-3.46	20.97
6,450.0	24.64	356.20	6,351.3	696.8	-588.9	-423.7	9.93	-1.80	23.07
6,500.0	24.67	8.13	6,396.8	717.6	-588.1	-418.4	9.93	0.05	23.85
6,550.0	25.61	19.62	6,442.1	738.1	-583.0	-409.0	9.93	1.89	22.99
6,600.0	27.38	30.04	6,486.9	758.2	-573.6	-395.4	9.93	3.54	20.84
6,650.0	29.83	39.09	6,530.8	777.9	-560.0	-377.9	9.93	4.89	18.09
6,700.0	32.80	46.76	6,573.5	796.8	-542.3	-356.5	9.93	5.94	15.34
6,750.0	36.16	53.22	6,614.7	814.9	-520.6	-331.4	9.93	6.73	12.92
6,800.0	39.83	58.68	6,654.1	832.1	-495.0	-302.8	9.93	7.32	10.92
6,850.0	43.71	63.34	6,691.4	848.2	-465.9	-270.8	9.93	7.76	9.32
6,884.8	46.51	66.20	6,716.0	858.7	-443.6	-246.8	9.93	8.05	8.23
SHARON SPRINGS									
6,900.0	47.75	67.37	6,726.3	863.0	-433.4	-235.8	9.93	8.18	7.68
6,928.4	50.10	69.43	6,745.0	870.9	-413.5	-214.7	9.93	8.29	7.26
NIOBRARA - NIO A CHALK									
6,950.0	51.92	70.91	6,758.6	876.6	-397.7	-198.0	9.93	8.40	6.83
6,962.2	52.95	71.71	6,766.0	879.7	-388.5	-188.5	9.93	8.46	6.57
NIO A MARL									

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Reliance E23-69-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site:	E (06N-65W)	North Reference:	Grid
Well:	Reliance E23-69-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,000.0	56.18	74.06	6,787.9	888.8	-359.1	-157.7	9.93	8.55	6.22
7,050.0	60.51	76.91	6,814.2	899.4	-317.9	-115.2	9.93	8.67	5.70
7,100.0	64.90	79.52	6,837.1	908.5	-274.4	-70.8	9.93	8.78	5.23
7,150.0	69.34	81.96	6,856.5	915.9	-229.0	-24.8	9.93	8.87	4.86
7,175.3	71.60	83.13	6,865.0	918.9	-205.3	-1.0	9.93	8.92	4.65
NIO B CHALK									
7,200.0	73.80	84.25	6,872.3	921.5	-181.9	22.4	9.93	8.94	4.53
7,250.0	78.29	86.44	6,884.4	925.5	-133.5	70.4	9.93	8.98	4.38
7,300.0	82.80	88.56	6,892.6	927.6	-84.3	119.0	9.93	9.01	4.24
7,324.4	85.00	89.58	6,895.2	928.0	-60.0	142.7	9.93	9.03	4.17
Start 50.0 hold at 7324.4 MD - 7" Casing @ 7324.4' MD									
7,350.0	85.00	89.58	6,897.4	928.2	-34.5	167.7	0.01	0.01	0.00
7,356.5	85.00	89.58	6,898.0	928.2	-28.0	174.0	0.00	0.00	0.00
NIO B MARL									
7,374.4	85.00	89.58	6,899.6	928.4	-10.2	191.4	0.00	0.00	0.00
Start Build 4.00									
7,400.0	86.02	89.58	6,901.6	928.6	15.3	216.4	4.00	4.00	0.00
7,450.0	88.02	89.58	6,904.2	928.9	65.2	265.2	4.00	4.00	0.00
7,499.4	90.00	89.58	6,905.0	929.3	114.6	313.5	4.00	4.00	0.00
Start DLS 0.00 TFO -88.88									
7,500.0	90.00	89.58	6,905.0	929.3	115.2	314.1	0.12	0.12	0.00
7,550.0	90.00	89.58	6,905.0	929.7	165.2	363.0	0.00	0.00	0.00
7,600.0	90.00	89.58	6,905.0	930.0	215.2	411.9	0.00	0.00	0.00
7,650.0	90.00	89.58	6,905.0	930.4	265.2	460.7	0.00	0.00	0.00
7,700.0	90.00	89.58	6,905.0	930.8	315.2	509.6	0.00	0.00	0.00
7,750.0	90.00	89.58	6,905.0	931.1	365.2	558.5	0.00	0.00	0.00
7,800.0	90.00	89.58	6,905.0	931.5	415.2	607.4	0.00	0.00	0.00
7,850.0	90.00	89.58	6,905.0	931.9	465.2	656.3	0.00	0.00	0.00
7,900.0	90.00	89.58	6,905.0	932.2	515.2	705.2	0.00	0.00	0.00
7,950.0	90.00	89.58	6,905.0	932.6	565.2	754.1	0.00	0.00	0.00
8,000.0	90.00	89.58	6,905.0	933.0	615.2	803.0	0.00	0.00	0.00
8,050.0	90.00	89.58	6,905.0	933.3	665.2	851.8	0.00	0.00	0.00
8,100.0	90.00	89.58	6,905.0	933.7	715.2	900.7	0.00	0.00	0.00
8,150.0	90.00	89.58	6,905.0	934.1	765.2	949.6	0.00	0.00	0.00
8,200.0	90.00	89.58	6,905.0	934.4	815.2	998.5	0.00	0.00	0.00
8,250.0	90.00	89.58	6,905.0	934.8	865.2	1,047.4	0.00	0.00	0.00
8,300.0	90.00	89.58	6,905.0	935.2	915.2	1,096.3	0.00	0.00	0.00
8,350.0	90.00	89.58	6,905.0	935.5	965.2	1,145.2	0.00	0.00	0.00
8,400.0	90.00	89.58	6,905.0	935.9	1,015.2	1,194.1	0.00	0.00	0.00
8,450.0	90.00	89.58	6,905.0	936.3	1,065.2	1,242.9	0.00	0.00	0.00
8,500.0	90.00	89.58	6,905.0	936.6	1,115.2	1,291.8	0.00	0.00	0.00
8,550.0	90.00	89.58	6,905.0	937.0	1,165.2	1,340.7	0.00	0.00	0.00
8,600.0	90.00	89.58	6,905.0	937.4	1,215.2	1,389.6	0.00	0.00	0.00
8,650.0	90.00	89.58	6,905.0	937.7	1,265.2	1,438.5	0.00	0.00	0.00
8,700.0	90.00	89.58	6,905.0	938.1	1,315.2	1,487.4	0.00	0.00	0.00
8,750.0	90.00	89.58	6,905.0	938.5	1,365.2	1,536.3	0.00	0.00	0.00
8,800.0	90.00	89.58	6,905.0	938.9	1,415.2	1,585.2	0.00	0.00	0.00
8,850.0	90.00	89.58	6,905.0	939.2	1,465.2	1,634.0	0.00	0.00	0.00
8,900.0	90.00	89.58	6,905.0	939.6	1,515.2	1,682.9	0.00	0.00	0.00
8,950.0	90.00	89.58	6,905.0	940.0	1,565.2	1,731.8	0.00	0.00	0.00
9,000.0	90.00	89.58	6,905.0	940.3	1,615.2	1,780.7	0.00	0.00	0.00
9,050.0	90.00	89.58	6,905.0	940.7	1,665.2	1,829.6	0.00	0.00	0.00
9,100.0	90.00	89.58	6,905.0	941.1	1,715.2	1,878.5	0.00	0.00	0.00
9,150.0	90.00	89.58	6,905.0	941.4	1,765.2	1,927.4	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Reliance E23-69-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site:	E (06N-65W)	North Reference:	Grid
Well:	Reliance E23-69-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,200.0	90.00	89.58	6,905.0	941.8	1,815.2	1,976.3	0.00	0.00	0.00
9,250.0	90.00	89.58	6,905.0	942.2	1,865.2	2,025.2	0.00	0.00	0.00
9,300.0	90.00	89.58	6,905.0	942.6	1,915.2	2,074.0	0.00	0.00	0.00
9,350.0	90.00	89.57	6,905.0	942.9	1,965.2	2,122.9	0.00	0.00	0.00
9,400.0	90.00	89.57	6,905.0	943.3	2,015.2	2,171.8	0.00	0.00	0.00
9,450.0	90.00	89.57	6,905.0	943.7	2,065.2	2,220.7	0.00	0.00	0.00
9,500.0	90.00	89.57	6,905.0	944.0	2,115.2	2,269.6	0.00	0.00	0.00
9,550.0	90.00	89.57	6,905.0	944.4	2,165.2	2,318.5	0.00	0.00	0.00
9,600.0	90.00	89.57	6,905.0	944.8	2,215.2	2,367.4	0.00	0.00	0.00
9,650.0	90.00	89.57	6,905.0	945.2	2,265.2	2,416.3	0.00	0.00	0.00
9,700.0	90.00	89.57	6,905.0	945.5	2,315.2	2,465.2	0.00	0.00	0.00
9,750.0	90.00	89.57	6,905.0	945.9	2,365.2	2,514.0	0.00	0.00	0.00
9,800.0	90.00	89.57	6,905.0	946.3	2,415.2	2,562.9	0.00	0.00	0.00
9,850.0	90.00	89.57	6,905.0	946.6	2,465.2	2,611.8	0.00	0.00	0.00
9,900.0	90.00	89.57	6,905.0	947.0	2,515.2	2,660.7	0.00	0.00	0.00
9,950.0	90.00	89.57	6,905.0	947.4	2,565.2	2,709.6	0.00	0.00	0.00
10,000.0	90.00	89.57	6,905.0	947.8	2,615.2	2,758.5	0.00	0.00	0.00
10,050.0	90.00	89.57	6,905.0	948.1	2,665.2	2,807.4	0.00	0.00	0.00
10,100.0	90.00	89.57	6,905.0	948.5	2,715.2	2,856.3	0.00	0.00	0.00
10,150.0	90.00	89.57	6,905.0	948.9	2,765.2	2,905.2	0.00	0.00	0.00
10,200.0	90.00	89.57	6,905.0	949.3	2,815.2	2,954.0	0.00	0.00	0.00
10,250.0	90.00	89.57	6,905.0	949.6	2,865.2	3,002.9	0.00	0.00	0.00
10,300.0	90.00	89.57	6,905.0	950.0	2,915.2	3,051.8	0.00	0.00	0.00
10,350.0	90.00	89.57	6,905.0	950.4	2,965.1	3,100.7	0.00	0.00	0.00
10,400.0	90.00	89.57	6,905.0	950.7	3,015.1	3,149.6	0.00	0.00	0.00
10,450.0	90.00	89.57	6,905.0	951.1	3,065.1	3,198.5	0.00	0.00	0.00
10,500.0	90.00	89.57	6,905.0	951.5	3,115.1	3,247.4	0.00	0.00	0.00
10,550.0	90.00	89.57	6,905.0	951.9	3,165.1	3,296.3	0.00	0.00	0.00
10,600.0	90.00	89.57	6,905.0	952.2	3,215.1	3,345.2	0.00	0.00	0.00
10,650.0	90.00	89.57	6,905.0	952.6	3,265.1	3,394.0	0.00	0.00	0.00
10,700.0	90.00	89.57	6,905.0	953.0	3,315.1	3,442.9	0.00	0.00	0.00
10,750.0	90.00	89.57	6,905.0	953.4	3,365.1	3,491.8	0.00	0.00	0.00
10,800.0	90.00	89.57	6,905.0	953.7	3,415.1	3,540.7	0.00	0.00	0.00
10,850.0	90.00	89.57	6,905.0	954.1	3,465.1	3,589.6	0.00	0.00	0.00
10,900.0	90.00	89.57	6,905.0	954.5	3,515.1	3,638.5	0.00	0.00	0.00
10,950.0	90.00	89.57	6,905.0	954.9	3,565.1	3,687.4	0.00	0.00	0.00
11,000.0	90.00	89.57	6,905.0	955.2	3,615.1	3,736.3	0.00	0.00	0.00
11,050.0	90.00	89.57	6,905.0	955.6	3,665.1	3,785.2	0.00	0.00	0.00
11,100.0	90.00	89.57	6,905.0	956.0	3,715.1	3,834.0	0.00	0.00	0.00
11,150.0	90.00	89.57	6,905.0	956.4	3,765.1	3,882.9	0.00	0.00	0.00
11,200.0	90.00	89.57	6,905.0	956.7	3,815.1	3,931.8	0.00	0.00	0.00
11,250.0	90.00	89.57	6,905.0	957.1	3,865.1	3,980.7	0.00	0.00	0.00
11,300.0	90.00	89.57	6,905.0	957.5	3,915.1	4,029.6	0.00	0.00	0.00
11,350.0	90.00	89.57	6,905.0	957.9	3,965.1	4,078.5	0.00	0.00	0.00
11,400.0	90.00	89.57	6,905.0	958.2	4,015.1	4,127.4	0.00	0.00	0.00
11,450.0	90.00	89.57	6,905.0	958.6	4,065.1	4,176.3	0.00	0.00	0.00
11,500.0	90.00	89.57	6,905.0	959.0	4,115.1	4,225.2	0.00	0.00	0.00
11,550.0	90.00	89.57	6,905.0	959.4	4,165.1	4,274.0	0.00	0.00	0.00
11,600.0	90.00	89.57	6,905.0	959.8	4,215.1	4,322.9	0.00	0.00	0.00
11,650.0	90.00	89.57	6,905.0	960.1	4,265.1	4,371.8	0.00	0.00	0.00
11,700.0	90.00	89.57	6,905.0	960.5	4,315.1	4,420.7	0.00	0.00	0.00
11,707.3	90.00	89.57	6,905.0	960.6	4,322.4	4,427.9	0.00	0.00	0.00
TD at 11707.3 - Reliance E23-69-1HN BHL 330'FNL, 225'FEL									

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Reliance E23-69-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site:	E (06N-65W)	North Reference:	Grid
Well:	Reliance E23-69-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
Reliance E23-69-1HN B	0.00	0.00	6,905.0	960.6	4,322.4	1,418,134.80	3,244,327.93	40.477860	-104.621710
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(usft)	(usft)		(")	(")	
7,324.4	6,895.2	7" Casing @ 7324.4' MD	7	8-3/4	

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
984.0	984.0	PIERRE		0.00		
3,651.1	3,622.0	PARKMAN		0.00		
4,222.8	4,185.0	SUSSEX		0.00		
4,988.5	4,939.0	SHANNON		0.00		
6,075.0	6,009.0	TEEPEE BUTTES		0.00		
6,884.8	6,716.0	SHARON SPRINGS		0.00		
6,928.4	6,745.0	NIOBRARA		0.00		
6,928.4	6,745.0	NIO A CHALK		0.00		
6,962.2	6,766.0	NIO A MARL		0.00		
7,175.3	6,865.0	NIO B CHALK		0.00		
7,356.5	6,898.0	NIO B MARL		0.00		

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S	+E/-W		
		(usft)	(usft)		
1,400.0	1,400.0	0.0	0.0	KOP - Start Build 2.00	
6,070.9	6,005.0	570.6	-513.8	Start DLS 9.93 TFO 5.61	
6,280.5	6,200.4	626.9	-559.5	Start DLS 9.93 TFO 125.77	
7,324.4	6,895.2	928.0	-60.0	Start 50.0 hold at 7324.4 MD	
7,374.4	6,899.6	928.4	-10.2	Start Build 4.00	
7,499.4	6,905.0	929.3	114.6	Start DLS 0.00 TFO -88.88	
11,707.3	6,905.0	960.6	4,322.4	TD at 11707.3	

Northern Region Drilling

Wattenberg Field

E (06N-65W)

Reliance E23-69-1HN

Original Drilling

APD - Rev 0

Anticollision Summary Report

10 May, 2013

Noble Energy Inc

Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Reliance E23-69-1HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Reference Site:	E (06N-65W)	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Reliance E23-69-1HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
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:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	5/10/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,706.7	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

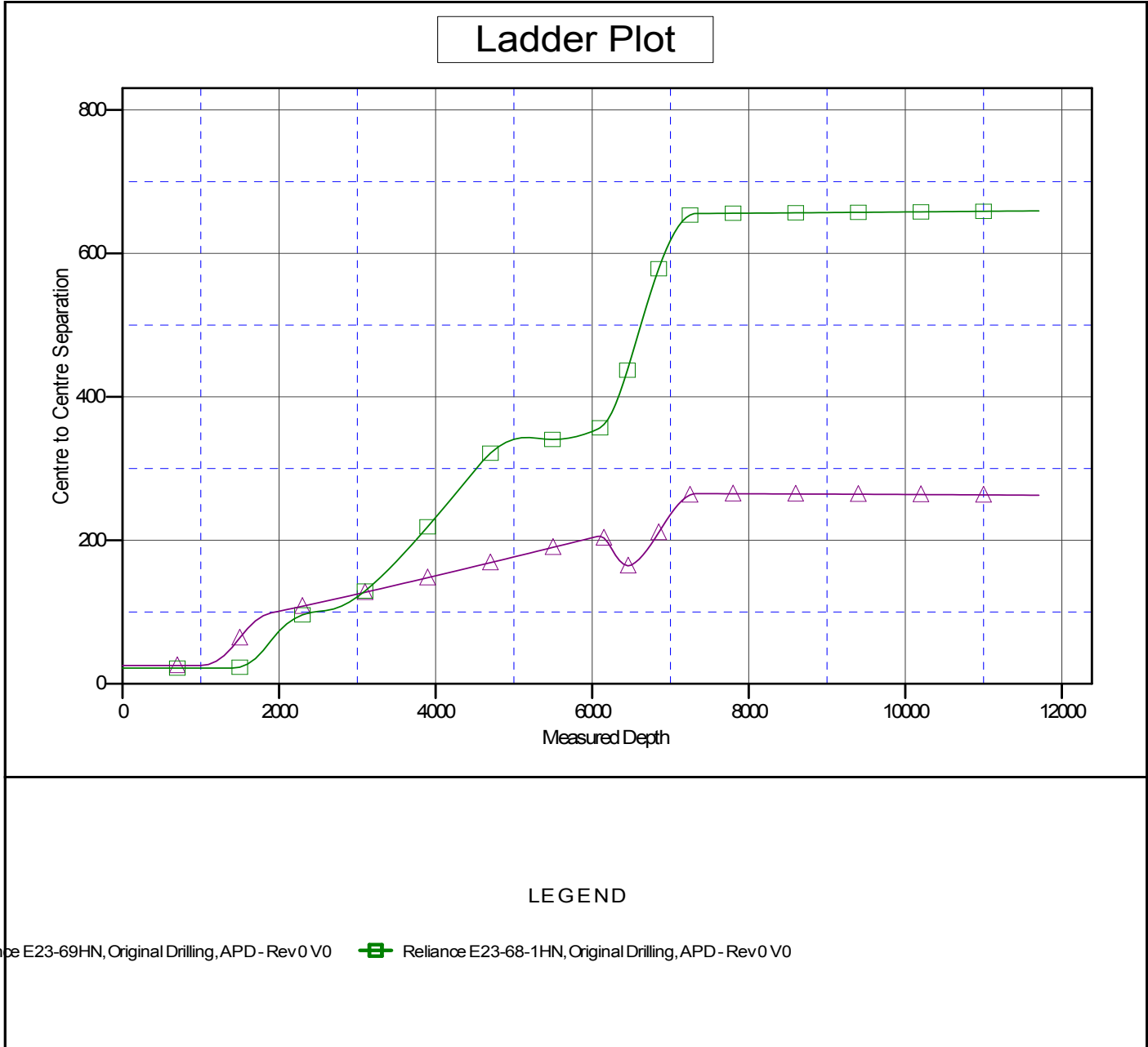
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
E (06N-65W)						
Reliance E23-68-1HN - Original Drilling - APD - Rev 0	1,400.0	1,399.0	21.9	15.8	3.621	CC, ES
Reliance E23-68-1HN - Original Drilling - APD - Rev 0	11,707.3	11,711.1	659.4	392.2	2.468	SF
Reliance E23-69HN - Original Drilling - APD - Rev 0	1,000.0	1,000.0	25.5	21.3	6.013	CC
Reliance E23-69HN - Original Drilling - APD - Rev 0	11,707.3	11,811.6	262.9	6.7	1.026	Level 2, ES, SF

Noble Energy Inc

Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Reliance E23-69-1HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Reference Site:	E (06N-65W)	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Reliance E23-69-1HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

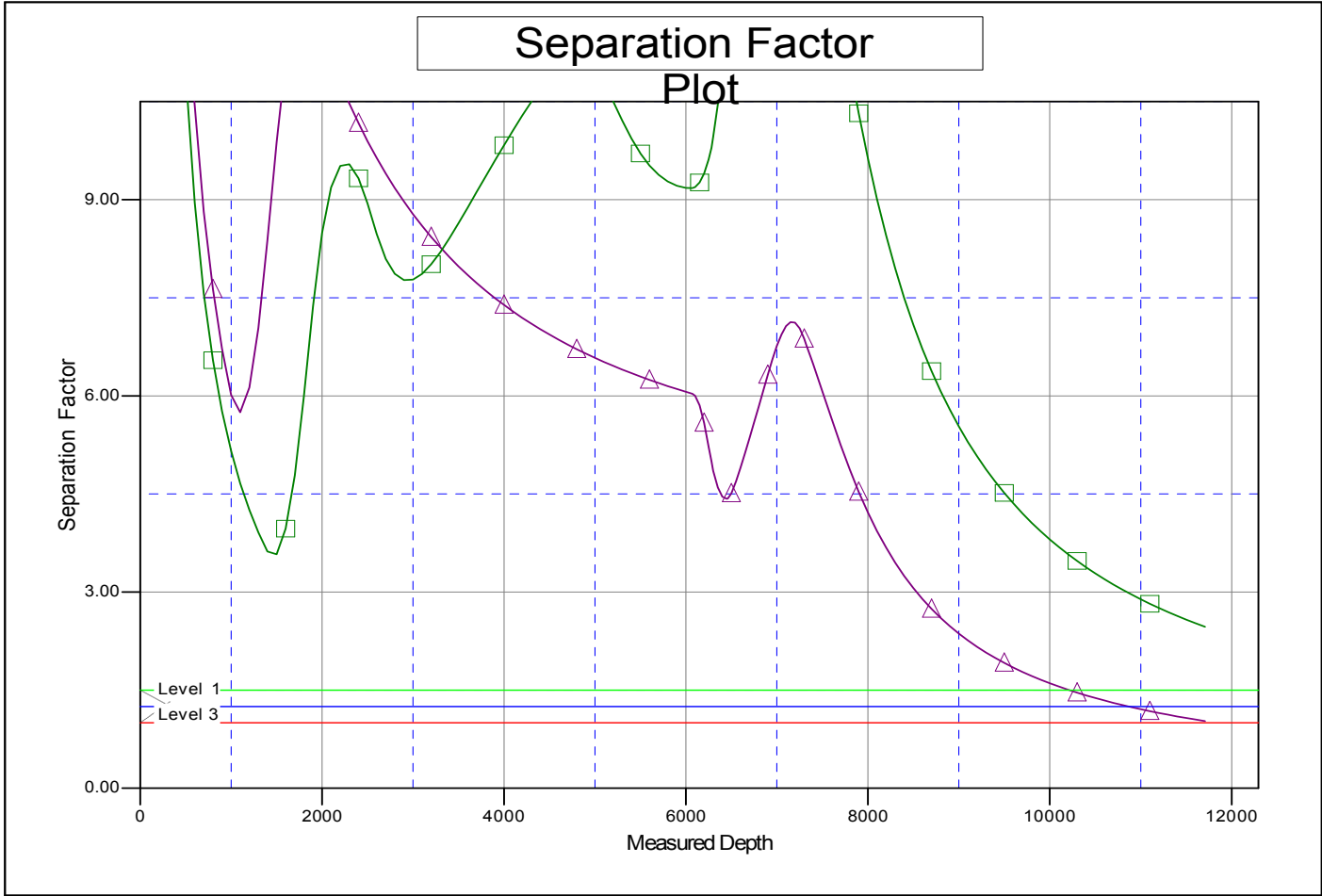
Reference Depths are relative to WELL @ 4746.0usft (Original Well Ele) Coordinates are relative to: Reliance E23-69-1HN
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is -105.500000 Grid Convergence at Surface is: 0.56°



Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Reliance E23-69-1HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4746.0usft (Original Well Elev)
Reference Site:	E (06N-65W)	MD Reference:	WELL @ 4746.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Reliance E23-69-1HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4746.0usft (Original Well Ele) Coordinates are relative to: Reliance E23-69-1HN
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is -105.500000 Grid Convergence at Surface is: 0.56°



LEGEND

ance E23-69HN, Original Drilling, APD - Rev 0 V0 Reliance E23-68-1HN, Original Drilling, APD - Rev 0 V0