

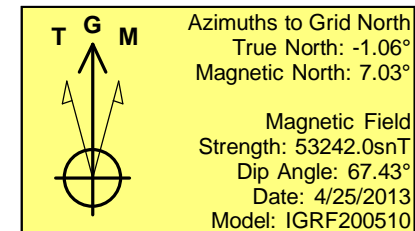
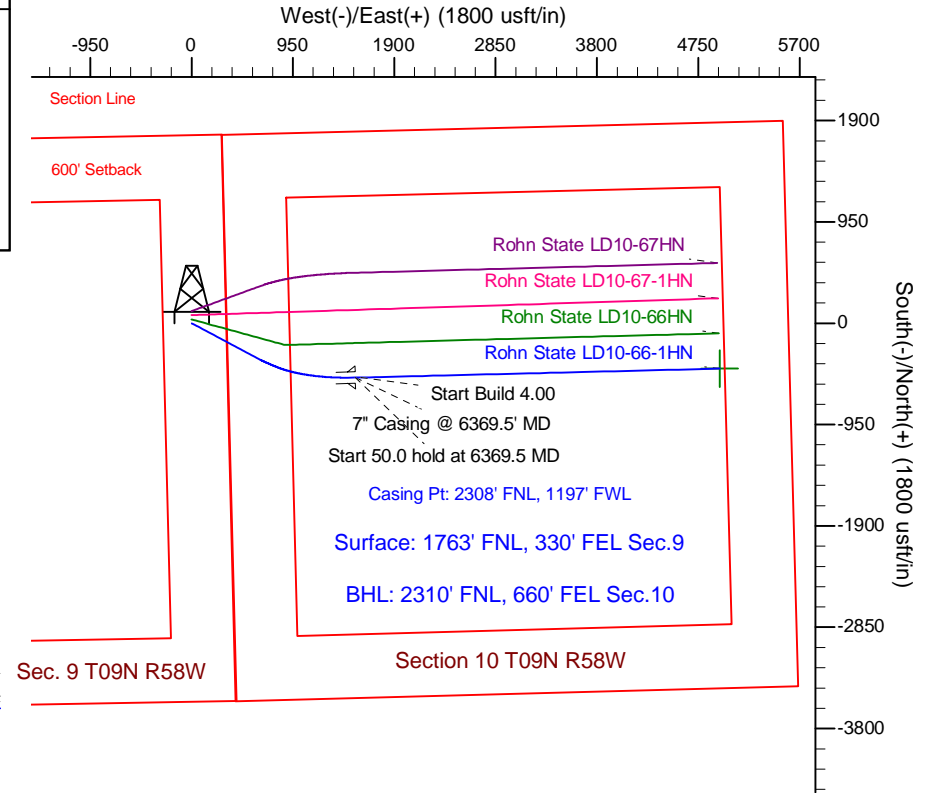
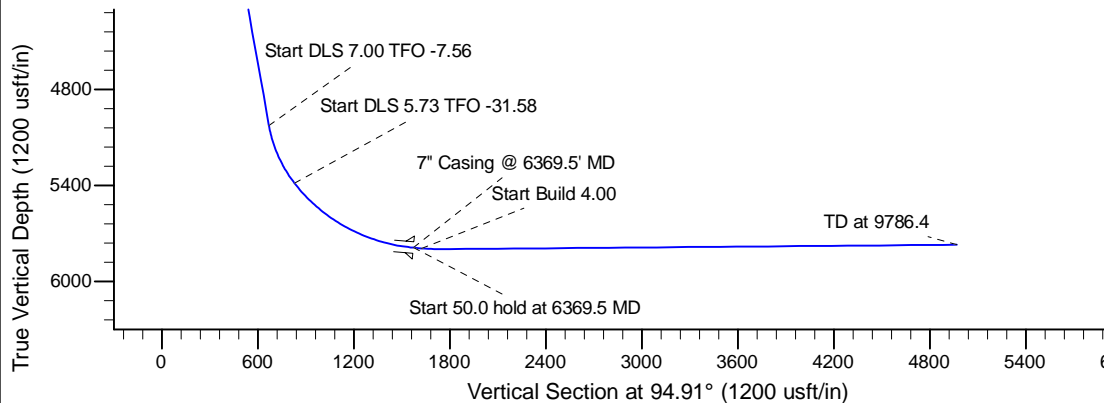
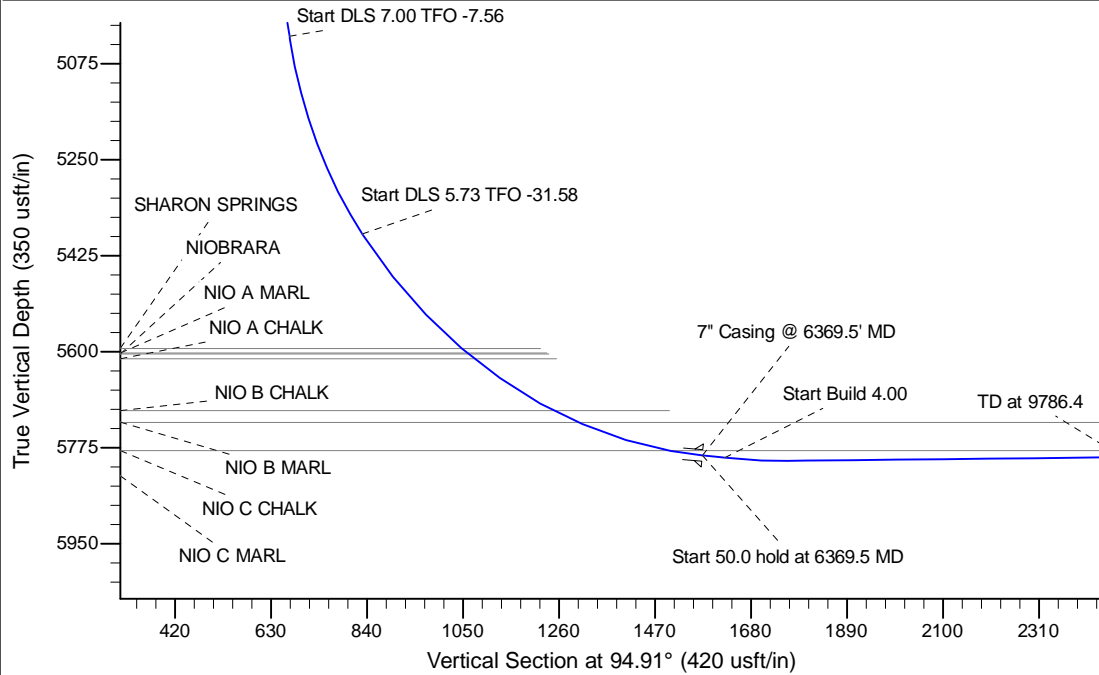
Project: Wattenberg Field
Site: LD (Sec.9-T09N-R58W) Weld County, CO
Well: Rohn State LD10-66-1HN
Wellbore: Original Drilling
Design: APD - Rev 0

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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1550.0	11.00	118.00	1546.6	-24.7	46.5	2.00	118.00	48.4	
4	5093.5	11.00	118.00	5025.0	-342.1	643.5	0.00	0.00	670.4	
5	5495.2	39.05	112.35	5385.4	-409.6	797.4	7.00	-7.56	829.6	
6	6369.5	85.00	88.58	5789.0	-510.0	1535.0	5.73	-31.58	1573.0	
7	6419.5	85.00	88.58	5793.4	-508.8	1584.8	0.00	0.00	1622.5	
8	6557.0	90.50	88.58	5798.8	-505.4	1722.1	4.00	0.00	1759.0	
9	9786.4	90.50	88.58	5770.6	-425.4	4950.5	0.00	105.15	4968.7	Rohn State LD10-66-1HN BHL 2310'FNL, 660'FEL



WELL DETAILS: Rohn State LD10-66-1HN				
Ground Level: 4728.0				
0.0	0.0	Northing	Easting	Latitude
		1526939.40	3453933.69	40.768320
				Longitude
				-103.861140
Plan: APD - Rev 0 (Rohn State LD10-66-1HN/Original Drilling)				
Created By: Shailey Jewell		Date: 10:27, May 02 2013		
Checked: _____		Date: _____		
Reviewed: _____		Date: _____		
Approved: _____		Date: _____		

Northern Region Drilling

Wattenberg Field

LD (09N-58W)

Rohn State LD10-66-1HN

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

02 May, 2013

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Rohn State LD10-66-1HN	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		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 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.05 °

Well	Rohn State LD10-66-1HN					
Well Position	+N/-S	3,382.2 usft	Northing:	1,526,939.40 usft	Latitude:	40.768320
	+E/-W	4,592.5 usft	Easting:	3,453,933.69 usft	Longitude:	-103.861140
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	4,728.0 usft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	4/25/2013	8.09	67.43	53,242

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	94.91

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,550.0	11.00	118.00	1,546.6	-24.7	46.5	2.00	2.00	0.00	118.00	
5,093.5	11.00	118.00	5,025.0	-342.1	643.5	0.00	0.00	0.00	0.00	
5,495.2	39.05	112.35	5,385.4	-409.6	797.4	7.00	6.98	-1.41	-7.56	
6,369.5	85.00	88.58	5,789.0	-510.0	1,535.0	5.73	5.26	-2.72	-31.58	
6,419.5	85.00	88.58	5,793.4	-508.8	1,584.8	0.00	0.00	0.00	0.00	
6,557.0	90.50	88.58	5,798.8	-505.4	1,722.1	4.00	4.00	0.00	0.00	
9,786.4	90.50	88.58	5,770.6	-425.4	4,950.5	0.00	0.00	0.00	105.15	Rohn State LD10-66-

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Rohn State LD10-66-1HN	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
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	118.00	1,050.0	-0.2	0.4	0.4	2.00	2.00	0.00
1,100.0	2.00	118.00	1,100.0	-0.8	1.5	1.6	2.00	2.00	0.00
1,150.0	3.00	118.00	1,149.9	-1.8	3.5	3.6	2.00	2.00	0.00
1,200.0	4.00	118.00	1,199.8	-3.3	6.2	6.4	2.00	2.00	0.00
1,250.0	5.00	118.00	1,249.7	-5.1	9.6	10.0	2.00	2.00	0.00
1,300.0	6.00	118.00	1,299.5	-7.4	13.9	14.4	2.00	2.00	0.00
1,350.0	7.00	118.00	1,349.1	-10.0	18.9	19.6	2.00	2.00	0.00
1,400.0	8.00	118.00	1,398.7	-13.1	24.6	25.6	2.00	2.00	0.00
1,450.0	9.00	118.00	1,448.2	-16.6	31.1	32.4	2.00	2.00	0.00
1,500.0	10.00	118.00	1,497.5	-20.4	38.4	40.0	2.00	2.00	0.00
1,550.0	11.00	118.00	1,546.6	-24.7	46.5	48.4	2.00	2.00	0.00
Start 3543.5 hold at 1550.0 MD									
1,600.0	11.00	118.00	1,595.7	-29.2	54.9	57.2	0.00	0.00	0.00
1,650.0	11.00	118.00	1,644.8	-33.7	63.3	66.0	0.00	0.00	0.00
1,700.0	11.00	118.00	1,693.9	-38.1	71.7	74.7	0.00	0.00	0.00
1,750.0	11.00	118.00	1,743.0	-42.6	80.2	83.5	0.00	0.00	0.00
1,800.0	11.00	118.00	1,792.0	-47.1	88.6	92.3	0.00	0.00	0.00
1,850.0	11.00	118.00	1,841.1	-51.6	97.0	101.1	0.00	0.00	0.00
1,900.0	11.00	118.00	1,890.2	-56.1	105.4	109.9	0.00	0.00	0.00
1,950.0	11.00	118.00	1,939.3	-60.5	113.9	118.6	0.00	0.00	0.00
2,000.0	11.00	118.00	1,988.4	-65.0	122.3	127.4	0.00	0.00	0.00
2,050.0	11.00	118.00	2,037.4	-69.5	130.7	136.2	0.00	0.00	0.00
2,100.0	11.00	118.00	2,086.5	-74.0	139.1	145.0	0.00	0.00	0.00
2,150.0	11.00	118.00	2,135.6	-78.5	147.6	153.7	0.00	0.00	0.00
2,200.0	11.00	118.00	2,184.7	-82.9	156.0	162.5	0.00	0.00	0.00
2,229.9	11.00	118.00	2,214.0	-85.6	161.0	167.8	0.00	0.00	0.00
PIERRE									
2,250.0	11.00	118.00	2,233.8	-87.4	164.4	171.3	0.00	0.00	0.00
2,300.0	11.00	118.00	2,282.8	-91.9	172.8	180.1	0.00	0.00	0.00
2,350.0	11.00	118.00	2,331.9	-96.4	181.3	188.8	0.00	0.00	0.00
2,400.0	11.00	118.00	2,381.0	-100.9	189.7	197.6	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Rohn State LD10-66-1HN	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)
2,450.0	11.00	118.00	2,430.1	-105.3	198.1	206.4	0.00	0.00	0.00
2,500.0	11.00	118.00	2,479.2	-109.8	206.5	215.2	0.00	0.00	0.00
2,550.0	11.00	118.00	2,528.3	-114.3	214.9	223.9	0.00	0.00	0.00
2,600.0	11.00	118.00	2,577.3	-118.8	223.4	232.7	0.00	0.00	0.00
2,650.0	11.00	118.00	2,626.4	-123.2	231.8	241.5	0.00	0.00	0.00
2,700.0	11.00	118.00	2,675.5	-127.7	240.2	250.3	0.00	0.00	0.00
2,750.0	11.00	118.00	2,724.6	-132.2	248.6	259.0	0.00	0.00	0.00
2,800.0	11.00	118.00	2,773.7	-136.7	257.1	267.8	0.00	0.00	0.00
2,850.0	11.00	118.00	2,822.7	-141.2	265.5	276.6	0.00	0.00	0.00
2,900.0	11.00	118.00	2,871.8	-145.6	273.9	285.4	0.00	0.00	0.00
2,950.0	11.00	118.00	2,920.9	-150.1	282.3	294.2	0.00	0.00	0.00
3,000.0	11.00	118.00	2,970.0	-154.6	290.8	302.9	0.00	0.00	0.00
3,050.0	11.00	118.00	3,019.1	-159.1	299.2	311.7	0.00	0.00	0.00
3,100.0	11.00	118.00	3,068.1	-163.6	307.6	320.5	0.00	0.00	0.00
3,150.0	11.00	118.00	3,117.2	-168.0	316.0	329.3	0.00	0.00	0.00
3,200.0	11.00	118.00	3,166.3	-172.5	324.5	338.0	0.00	0.00	0.00
3,250.0	11.00	118.00	3,215.4	-177.0	332.9	346.8	0.00	0.00	0.00
3,289.3	11.00	118.00	3,254.0	-180.5	339.5	353.7	0.00	0.00	0.00
PARKMAN									
3,300.0	11.00	118.00	3,264.5	-181.5	341.3	355.6	0.00	0.00	0.00
3,350.0	11.00	118.00	3,313.6	-186.0	349.7	364.4	0.00	0.00	0.00
3,400.0	11.00	118.00	3,362.6	-190.4	358.2	373.1	0.00	0.00	0.00
3,450.0	11.00	118.00	3,411.7	-194.9	366.6	381.9	0.00	0.00	0.00
3,500.0	11.00	118.00	3,460.8	-199.4	375.0	390.7	0.00	0.00	0.00
3,550.0	11.00	118.00	3,509.9	-203.9	383.4	399.5	0.00	0.00	0.00
3,600.0	11.00	118.00	3,559.0	-208.3	391.8	408.2	0.00	0.00	0.00
3,650.0	11.00	118.00	3,608.0	-212.8	400.3	417.0	0.00	0.00	0.00
3,700.0	11.00	118.00	3,657.1	-217.3	408.7	425.8	0.00	0.00	0.00
3,750.0	11.00	118.00	3,706.2	-221.8	417.1	434.6	0.00	0.00	0.00
3,800.0	11.00	118.00	3,755.3	-226.3	425.5	443.3	0.00	0.00	0.00
3,850.0	11.00	118.00	3,804.4	-230.7	434.0	452.1	0.00	0.00	0.00
3,900.0	11.00	118.00	3,853.5	-235.2	442.4	460.9	0.00	0.00	0.00
3,930.1	11.00	118.00	3,883.0	-237.9	447.5	466.2	0.00	0.00	0.00
SUSSEX									
3,950.0	11.00	118.00	3,902.5	-239.7	450.8	469.7	0.00	0.00	0.00
4,000.0	11.00	118.00	3,951.6	-244.2	459.2	478.5	0.00	0.00	0.00
4,050.0	11.00	118.00	4,000.7	-248.7	467.7	487.2	0.00	0.00	0.00
4,100.0	11.00	118.00	4,049.8	-253.1	476.1	496.0	0.00	0.00	0.00
4,150.0	11.00	118.00	4,098.9	-257.6	484.5	504.8	0.00	0.00	0.00
4,200.0	11.00	118.00	4,147.9	-262.1	492.9	513.6	0.00	0.00	0.00
4,250.0	11.00	118.00	4,197.0	-266.6	501.4	522.3	0.00	0.00	0.00
4,300.0	11.00	118.00	4,246.1	-271.1	509.8	531.1	0.00	0.00	0.00
4,350.0	11.00	118.00	4,295.2	-275.5	518.2	539.9	0.00	0.00	0.00
4,374.3	11.00	118.00	4,319.0	-277.7	522.3	544.1	0.00	0.00	0.00
SHANNON									
4,400.0	11.00	118.00	4,344.3	-280.0	526.6	548.7	0.00	0.00	0.00
4,450.0	11.00	118.00	4,393.3	-284.5	535.0	557.4	0.00	0.00	0.00
4,500.0	11.00	118.00	4,442.4	-289.0	543.5	566.2	0.00	0.00	0.00
4,550.0	11.00	118.00	4,491.5	-293.4	551.9	575.0	0.00	0.00	0.00
4,600.0	11.00	118.00	4,540.6	-297.9	560.3	583.8	0.00	0.00	0.00
4,650.0	11.00	118.00	4,589.7	-302.4	568.7	592.5	0.00	0.00	0.00
4,700.0	11.00	118.00	4,638.8	-306.9	577.2	601.3	0.00	0.00	0.00
4,750.0	11.00	118.00	4,687.8	-311.4	585.6	610.1	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Rohn State LD10-66-1HN	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)
4,800.0	11.00	118.00	4,736.9	-315.8	594.0	618.9	0.00	0.00	0.00
4,850.0	11.00	118.00	4,786.0	-320.3	602.4	627.6	0.00	0.00	0.00
4,900.0	11.00	118.00	4,835.1	-324.8	610.9	636.4	0.00	0.00	0.00
4,950.0	11.00	118.00	4,884.2	-329.3	619.3	645.2	0.00	0.00	0.00
4,960.0	11.00	118.00	4,894.0	-330.2	621.0	647.0	0.00	0.00	0.00
TEEPEE BUTTES									
5,000.0	11.00	118.00	4,933.2	-333.8	627.7	654.0	0.00	0.00	0.00
5,050.0	11.00	118.00	4,982.3	-338.2	636.1	662.8	0.00	0.00	0.00
5,093.5	11.00	118.00	5,025.0	-342.1	643.5	670.4	0.00	0.00	0.00
Start DLS 7.00 TFO -7.56									
5,100.0	11.45	117.70	5,031.4	-342.7	644.6	671.6	7.00	6.94	-4.64
5,150.0	14.93	115.98	5,080.1	-347.9	654.8	682.1	7.00	6.96	-3.43
5,200.0	18.42	114.90	5,128.0	-354.0	667.7	695.6	7.00	6.97	-2.16
5,250.0	21.91	114.16	5,174.9	-361.2	683.4	711.8	7.00	6.98	-1.49
5,300.0	25.40	113.61	5,220.7	-369.3	701.8	730.8	7.00	6.99	-1.10
5,350.0	28.90	113.18	5,265.2	-378.3	722.7	752.4	7.00	6.99	-0.85
5,400.0	32.39	112.84	5,308.2	-388.3	746.1	776.6	7.00	6.99	-0.68
5,450.0	35.89	112.56	5,349.6	-399.1	772.0	803.4	7.00	6.99	-0.56
5,495.2	39.05	112.35	5,385.4	-409.6	797.4	829.6	7.00	6.99	-0.48
Start DLS 5.73 TFO -31.58									
5,500.0	39.28	112.12	5,389.1	-410.8	800.2	832.5	5.73	4.88	-4.74
5,550.0	41.75	109.88	5,427.2	-422.4	830.6	863.7	5.73	4.93	-4.48
5,600.0	44.26	107.85	5,463.7	-433.4	862.8	896.8	5.73	5.01	-4.06
5,650.0	46.79	105.99	5,498.7	-443.8	897.0	931.7	5.73	5.08	-3.71
5,700.0	49.36	104.29	5,532.2	-453.5	932.9	968.3	5.73	5.13	-3.41
5,750.0	51.95	102.71	5,563.9	-462.5	970.5	1,006.5	5.73	5.18	-3.16
5,800.0	54.56	101.23	5,593.8	-470.8	1,009.7	1,046.3	5.73	5.22	-2.94
5,800.4	54.58	101.22	5,594.0	-470.8	1,010.0	1,046.6	5.73	5.23	-2.85
SHARON SPRINGS									
5,814.3	55.31	100.83	5,602.0	-473.0	1,021.2	1,057.9	5.73	5.24	-2.82
NIO A MARL									
5,817.8	55.49	100.73	5,604.0	-473.6	1,024.0	1,060.8	5.73	5.25	-2.79
NIOBRARA									
5,833.9	56.33	100.29	5,613.0	-476.0	1,037.1	1,074.0	5.73	5.25	-2.75
NIO A CHALK									
5,850.0	57.18	99.85	5,621.8	-478.3	1,050.3	1,087.4	5.73	5.26	-2.70
5,900.0	59.82	98.55	5,647.9	-485.2	1,092.4	1,129.9	5.73	5.28	-2.60
5,950.0	62.47	97.32	5,672.1	-491.2	1,135.8	1,173.7	5.73	5.30	-2.46
6,000.0	65.13	96.15	5,694.1	-496.5	1,180.3	1,218.5	5.73	5.32	-2.35
6,031.6	66.82	95.43	5,707.0	-499.4	1,209.0	1,247.4	5.73	5.34	-2.26
NIO B CHALK									
6,050.0	67.81	95.03	5,714.1	-500.9	1,226.0	1,264.3	5.73	5.35	-2.22
6,091.4	70.02	94.13	5,729.0	-504.0	1,264.5	1,303.0	5.73	5.36	-2.17
NIO B MARL									
6,100.0	70.48	93.94	5,731.9	-504.6	1,272.5	1,311.1	5.73	5.36	-2.13
6,150.0	73.17	92.90	5,747.5	-507.4	1,320.0	1,358.5	5.73	5.37	-2.09
6,200.0	75.86	91.88	5,760.8	-509.4	1,368.1	1,406.7	5.73	5.38	-2.03
6,250.0	78.55	90.89	5,771.9	-510.6	1,416.8	1,455.3	5.73	5.39	-1.99
6,295.6	81.01	90.00	5,780.0	-510.9	1,461.7	1,500.0	5.73	5.39	-1.95
NIO C CHALK									
6,300.0	81.25	89.91	5,780.7	-510.9	1,466.1	1,504.4	5.73	5.40	-1.94
6,350.0	83.95	88.95	5,787.1	-510.4	1,515.6	1,553.8	5.73	5.40	-1.92
6,369.5	85.00	88.58	5,789.0	-510.0	1,535.0	1,573.1	5.72	5.39	-1.90

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Rohn State LD10-66-1HN	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)
Start 50.0 hold at 6369.5 MD - 7" Casing @ 6369.5' MD									
6,400.0	85.00	88.58	5,791.7	-509.2	1,565.4	1,603.3	0.00	0.00	0.00
6,419.5	85.00	88.58	5,793.4	-508.8	1,584.8	1,622.5	0.00	0.00	0.00
Start Build 4.00									
6,450.0	86.22	88.58	5,795.7	-508.0	1,615.2	1,652.8	4.00	4.00	0.00
6,500.0	88.22	88.58	5,798.1	-506.8	1,665.2	1,702.4	4.00	4.00	0.00
6,550.0	90.22	88.58	5,798.8	-505.5	1,715.1	1,752.1	4.00	4.00	0.00
6,557.0	90.50	88.58	5,798.8	-505.4	1,722.1	1,759.0	4.00	4.00	0.00
6,600.0	90.50	88.58	5,798.4	-504.3	1,765.1	1,801.8	0.00	0.00	0.00
6,650.0	90.50	88.58	5,797.9	-503.1	1,815.1	1,851.5	0.00	0.00	0.00
6,700.0	90.50	88.58	5,797.5	-501.8	1,865.1	1,901.2	0.00	0.00	0.00
6,750.0	90.50	88.58	5,797.1	-500.6	1,915.1	1,950.9	0.00	0.00	0.00
6,800.0	90.50	88.58	5,796.6	-499.3	1,965.0	2,000.6	0.00	0.00	0.00
6,850.0	90.50	88.58	5,796.2	-498.1	2,015.0	2,050.3	0.00	0.00	0.00
6,900.0	90.50	88.58	5,795.8	-496.9	2,065.0	2,100.0	0.00	0.00	0.00
6,950.0	90.50	88.58	5,795.3	-495.6	2,115.0	2,149.7	0.00	0.00	0.00
7,000.0	90.50	88.58	5,794.9	-494.4	2,165.0	2,199.3	0.00	0.00	0.00
7,050.0	90.50	88.58	5,794.5	-493.1	2,215.0	2,249.0	0.00	0.00	0.00
7,100.0	90.50	88.58	5,794.0	-491.9	2,264.9	2,298.7	0.00	0.00	0.00
7,150.0	90.50	88.58	5,793.6	-490.7	2,314.9	2,348.4	0.00	0.00	0.00
7,200.0	90.50	88.58	5,793.1	-489.4	2,364.9	2,398.1	0.00	0.00	0.00
7,250.0	90.50	88.58	5,792.7	-488.2	2,414.9	2,447.8	0.00	0.00	0.00
7,300.0	90.50	88.58	5,792.3	-487.0	2,464.9	2,497.5	0.00	0.00	0.00
7,350.0	90.50	88.58	5,791.8	-485.7	2,514.9	2,547.2	0.00	0.00	0.00
7,400.0	90.50	88.58	5,791.4	-484.5	2,564.8	2,596.9	0.00	0.00	0.00
7,450.0	90.50	88.58	5,791.0	-483.2	2,614.8	2,646.6	0.00	0.00	0.00
7,500.0	90.50	88.58	5,790.5	-482.0	2,664.8	2,696.3	0.00	0.00	0.00
7,550.0	90.50	88.58	5,790.1	-480.8	2,714.8	2,746.0	0.00	0.00	0.00
7,600.0	90.50	88.58	5,789.7	-479.5	2,764.8	2,795.7	0.00	0.00	0.00
7,650.0	90.50	88.58	5,789.2	-478.3	2,814.7	2,845.4	0.00	0.00	0.00
7,700.0	90.50	88.58	5,788.8	-477.1	2,864.7	2,895.1	0.00	0.00	0.00
7,750.0	90.50	88.58	5,788.3	-475.8	2,914.7	2,944.7	0.00	0.00	0.00
7,800.0	90.50	88.58	5,787.9	-474.6	2,964.7	2,994.4	0.00	0.00	0.00
7,850.0	90.50	88.58	5,787.5	-473.3	3,014.7	3,044.1	0.00	0.00	0.00
7,900.0	90.50	88.58	5,787.0	-472.1	3,064.7	3,093.8	0.00	0.00	0.00
7,950.0	90.50	88.58	5,786.6	-470.9	3,114.6	3,143.5	0.00	0.00	0.00
8,000.0	90.50	88.58	5,786.2	-469.6	3,164.6	3,193.2	0.00	0.00	0.00
8,050.0	90.50	88.58	5,785.7	-468.4	3,214.6	3,242.9	0.00	0.00	0.00
8,100.0	90.50	88.58	5,785.3	-467.1	3,264.6	3,292.6	0.00	0.00	0.00
8,150.0	90.50	88.58	5,784.9	-465.9	3,314.6	3,342.3	0.00	0.00	0.00
8,200.0	90.50	88.58	5,784.4	-464.7	3,364.6	3,392.0	0.00	0.00	0.00
8,250.0	90.50	88.58	5,784.0	-463.4	3,414.5	3,441.7	0.00	0.00	0.00
8,300.0	90.50	88.58	5,783.6	-462.2	3,464.5	3,491.4	0.00	0.00	0.00
8,350.0	90.50	88.58	5,783.1	-461.0	3,514.5	3,541.1	0.00	0.00	0.00
8,400.0	90.50	88.58	5,782.7	-459.7	3,564.5	3,590.8	0.00	0.00	0.00
8,450.0	90.50	88.58	5,782.2	-458.5	3,614.5	3,640.5	0.00	0.00	0.00
8,500.0	90.50	88.58	5,781.8	-457.3	3,664.5	3,690.1	0.00	0.00	0.00
8,550.0	90.50	88.58	5,781.4	-456.0	3,714.4	3,739.8	0.00	0.00	0.00
8,600.0	90.50	88.58	5,780.9	-454.8	3,764.4	3,789.5	0.00	0.00	0.00
8,650.0	90.50	88.58	5,780.5	-453.5	3,814.4	3,839.2	0.00	0.00	0.00
8,700.0	90.50	88.58	5,780.1	-452.3	3,864.4	3,888.9	0.00	0.00	0.00
8,750.0	90.50	88.58	5,779.6	-451.1	3,914.4	3,938.6	0.00	0.00	0.00
8,800.0	90.50	88.58	5,779.2	-449.8	3,964.4	3,988.3	0.00	0.00	0.00
8,850.0	90.50	88.58	5,778.8	-448.6	4,014.3	4,038.0	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Rohn State LD10-66-1HN	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)
8,900.0	90.50	88.58	5,778.3	-447.4	4,064.3	4,087.7	0.00	0.00	0.00
8,950.0	90.50	88.58	5,777.9	-446.1	4,114.3	4,137.4	0.00	0.00	0.00
9,000.0	90.50	88.58	5,777.5	-444.9	4,164.3	4,187.1	0.00	0.00	0.00
9,050.0	90.50	88.58	5,777.0	-443.6	4,214.3	4,236.8	0.00	0.00	0.00
9,100.0	90.50	88.58	5,776.6	-442.4	4,264.3	4,286.5	0.00	0.00	0.00
9,150.0	90.50	88.58	5,776.1	-441.2	4,314.2	4,336.2	0.00	0.00	0.00
9,200.0	90.50	88.58	5,775.7	-439.9	4,364.2	4,385.9	0.00	0.00	0.00
9,250.0	90.50	88.58	5,775.3	-438.7	4,414.2	4,435.6	0.00	0.00	0.00
9,300.0	90.50	88.58	5,774.8	-437.5	4,464.2	4,485.2	0.00	0.00	0.00
9,350.0	90.50	88.58	5,774.4	-436.2	4,514.2	4,534.9	0.00	0.00	0.00
9,400.0	90.50	88.58	5,774.0	-435.0	4,564.1	4,584.6	0.00	0.00	0.00
9,450.0	90.50	88.58	5,773.5	-433.8	4,614.1	4,634.3	0.00	0.00	0.00
9,500.0	90.50	88.58	5,773.1	-432.5	4,664.1	4,684.0	0.00	0.00	0.00
9,550.0	90.50	88.58	5,772.7	-431.3	4,714.1	4,733.7	0.00	0.00	0.00
9,600.0	90.50	88.58	5,772.2	-430.0	4,764.1	4,783.4	0.00	0.00	0.00
9,650.0	90.50	88.58	5,771.8	-428.8	4,814.1	4,833.1	0.00	0.00	0.00
9,700.0	90.50	88.58	5,771.4	-427.6	4,864.0	4,882.8	0.00	0.00	0.00
9,750.0	90.50	88.58	5,770.9	-426.3	4,914.0	4,932.5	0.00	0.00	0.00
9,786.4	90.50	88.58	5,770.6	-425.4	4,950.4	4,968.7	0.00	0.00	0.00
TD at 9786.4 - Rohn State LD10-66-1HN BHL 2310°FNL, 660°FEL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Rohn State LD10-66-1H	0.00	0.00	5,770.6	-425.4	4,950.5	1,526,513.97	3,458,884.13	40.766900	-103.843300
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,369.5	5,789.0	7" Casing @ 6369.5' MD	7	8-3/4	

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Rohn State LD10-66-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,229.9	2,214.0	PIERRE		0.00		
3,289.3	3,254.0	PARKMAN		0.00		
3,930.1	3,883.0	SUSSEX		0.00		
4,374.3	4,319.0	SHANNON		0.00		
4,960.0	4,894.0	TEEPEE BUTTES		0.00		
5,800.4	5,594.0	SHARON SPRINGS		0.00		
5,814.3	5,602.0	NIO A MARL		0.00		
5,817.8	5,604.0	NIOBRARA		0.00		
5,833.9	5,613.0	NIO A CHALK		0.00		
6,031.6	5,707.0	NIO B CHALK		0.00		
6,091.4	5,729.0	NIO B MARL		0.00		
6,295.6	5,780.0	NIO C CHALK		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,000.0	1,000.0	0.0	0.0	KOP - Start Build 2.00	
1,550.0	1,546.6	-24.7	46.5	Start 3543.5 hold at 1550.0 MD	
5,093.5	5,025.0	-342.1	643.5	Start DLS 7.00 TFO -7.56	
5,495.2	5,385.4	-409.6	797.4	Start DLS 5.73 TFO -31.58	
6,369.5	5,789.0	-510.0	1,535.0	Start 50.0 hold at 6369.5 MD	
6,419.5	5,793.4	-508.8	1,584.8	Start Build 4.00	
9,786.4	5,770.6	-505.4	1,722.1	TD at 9786.4	

Northern Region Drilling

Wattenberg Field

LD (09N-58W)

Rohn State LD10-66-1HN

Original Drilling

APD - Rev 0

Anticollision Summary Report

02 May, 2013

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Rohn State LD10-66-1HN	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	5/2/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	9,786.4	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

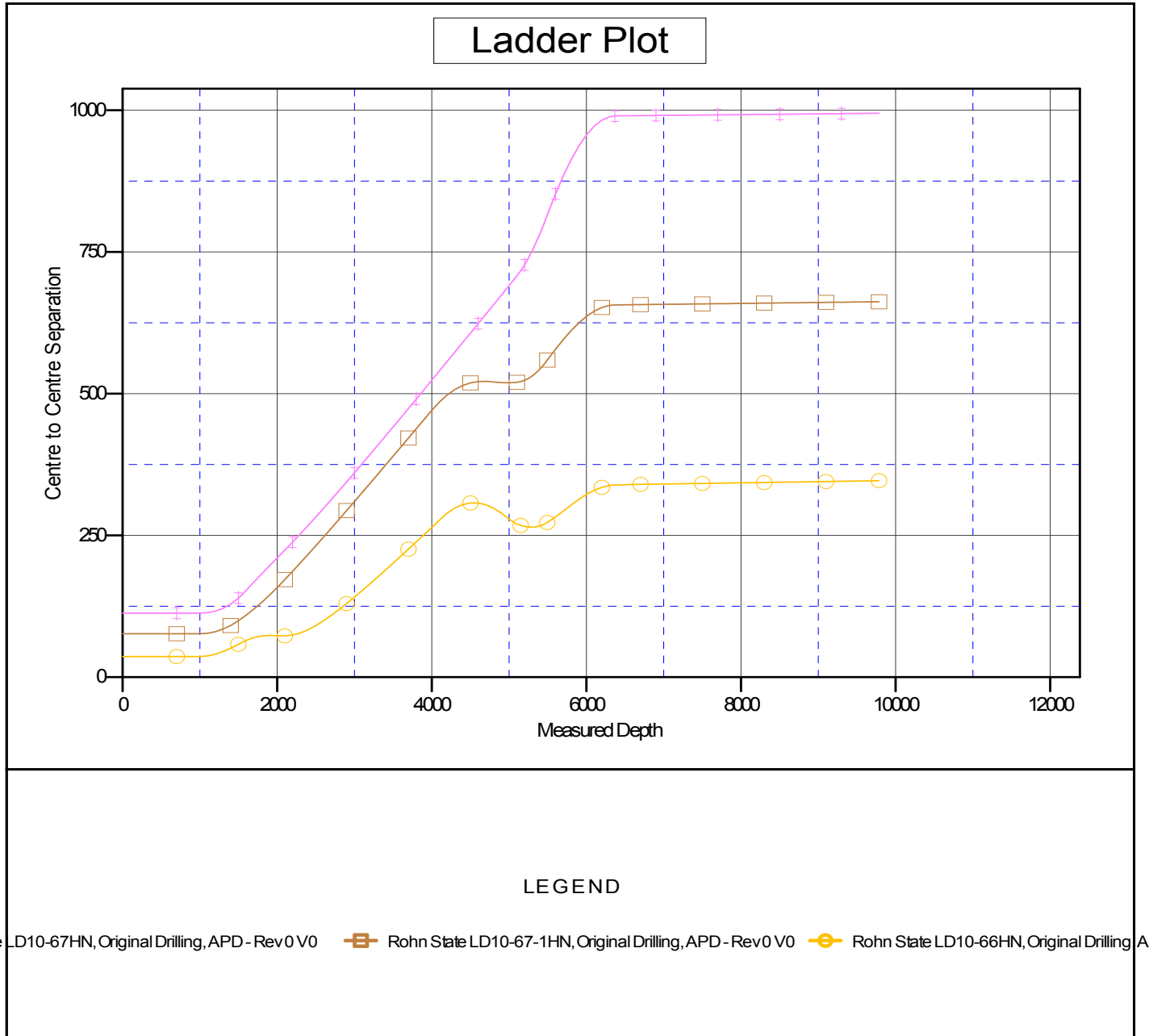
Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
LD (09N-58W)						
Rohn State LD10-66HN - Original Drilling - APD - Rev 0	1,000.0	1,001.0	36.4	32.2	8.663	CC, ES
Rohn State LD10-66HN - Original Drilling - APD - Rev 0	9,787.4	9,583.2	346.5	101.8	1.416	Level 3, SF
Rohn State LD10-67-1HN - Original Drilling - APD - Rev	966.0	968.0	76.5	72.5	18.869	CC
Rohn State LD10-67-1HN - Original Drilling - APD - Rev	1,000.0	1,002.0	76.5	72.3	18.185	ES
Rohn State LD10-67-1HN - Original Drilling - APD - Rev	9,787.4	9,611.2	662.2	408.0	2.605	SF
Rohn State LD10-67HN - Original Drilling - APD - Rev 0	1,000.0	1,002.0	112.9	108.7	26.843	CC, ES
Rohn State LD10-67HN - Original Drilling - APD - Rev 0	9,787.4	9,636.8	994.9	739.5	3.895	SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Rohn State LD10-66-1HN	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 @ 4758.0usft (Original Well Ele)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Rohn State LD10-66-1HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.06°



Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Rohn State LD10-66-1HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4758.0usft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4758.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Rohn State LD10-66-1HN	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 @ 4758.0usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

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