

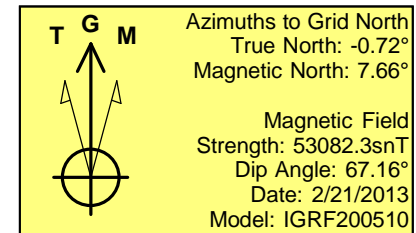
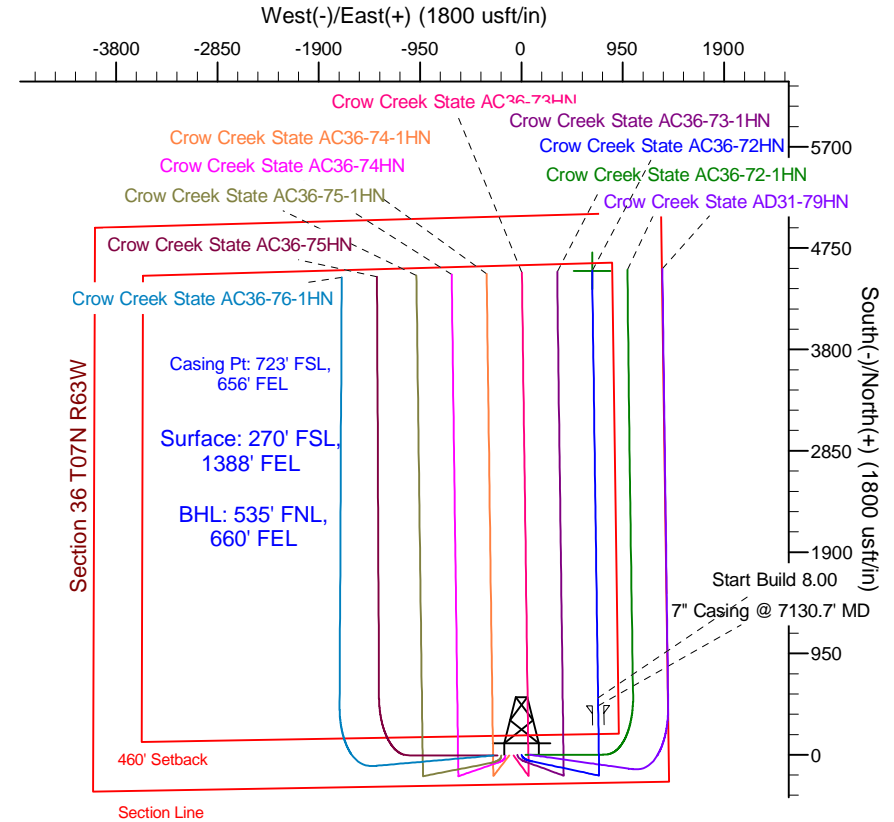
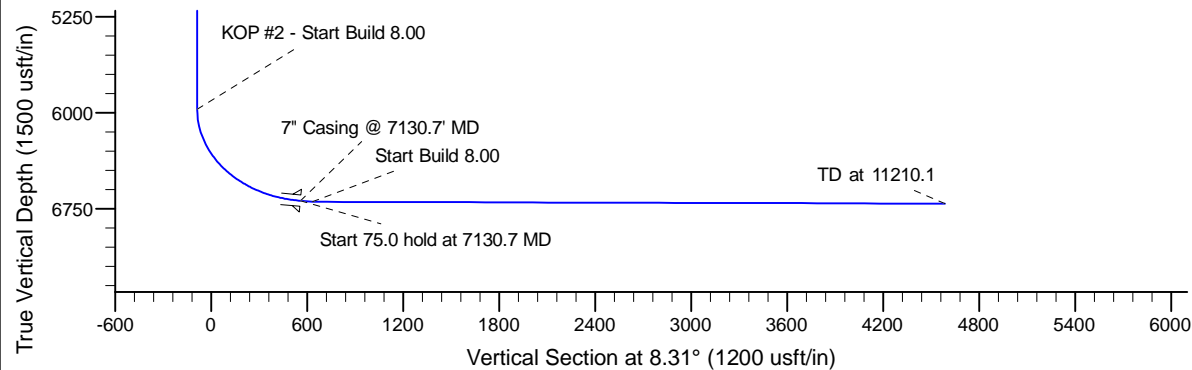
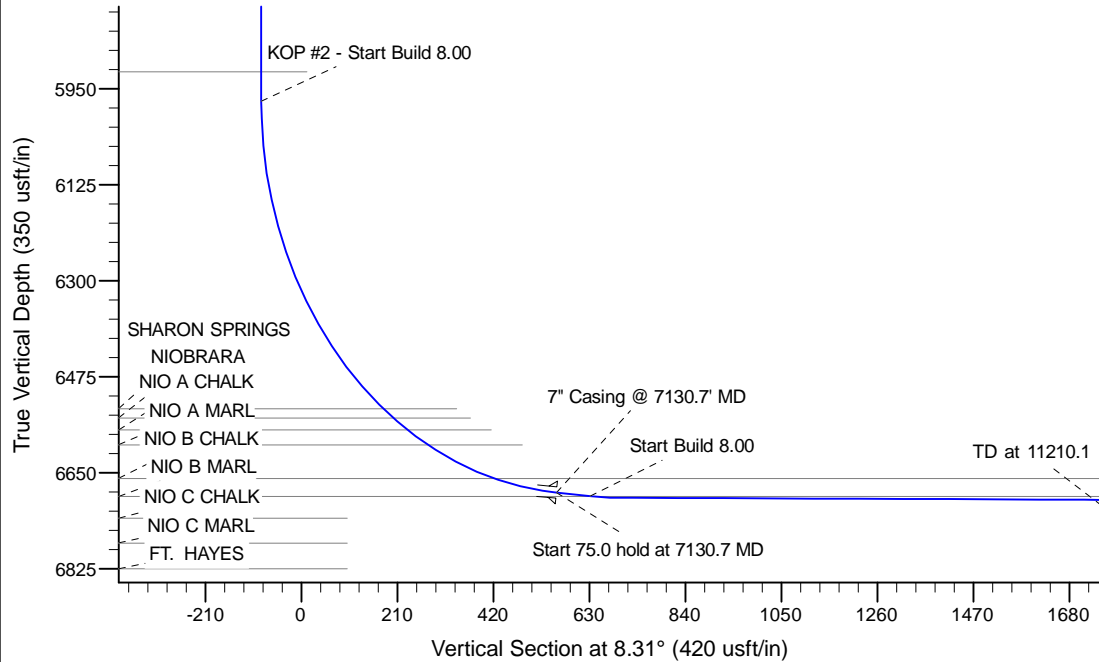
Project: Wattenberg Field
Site: AC (Sec.36-T07N-R63W) Weld County, CO
Well: Crow Creek State AC36-72HN
Wellbore: Original Drilling
Design: APD - Rev 0

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	VSec	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	1300.0	6.00	154.00	1299.5	-14.1	6.9	2.00	154.00	-13.0	
4	1959.2	16.02	101.98	1946.9	-64.2	111.4	2.00	-72.53	-47.4	
5	3839.6	16.02	101.98	3754.3	-171.9	619.1	0.00	0.00	-80.6	
6	4640.7	0.00	0.00	4545.0	-195.0	728.0	2.00	180.00	-87.8	
7	6068.2	0.00	0.00	5972.5	-195.0	728.0	0.00	0.00	-87.8	
8	7130.7	85.00	359.21	6686.0	458.7	719.0	8.00	359.21	557.8	
9	7205.7	85.00	359.21	6692.5	533.4	717.9	0.00	0.00	631.6	
10	7265.7	89.80	359.21	6695.2	593.3	717.1	8.00	0.00	690.7	
11	11210.1	89.80	359.21	6709.0	4537.2	662.7	0.00	0.00	4585.4	Crow Creek State AC36-72HN BHL 535'FNL, 660'FEL



WELL DETAILS: Crow Creek State AC36-72HN

Ground Level: 4850.0			
Northing	Easting	Latitude	Longitude
0.0	0.0	1435562.30	3311401.77
		40.523620	-104.379830

Plan: APD - Rev 0 (Crow Creek State AC36-72HN/Original Drilling)

Created By: Shailey Jewell Date: 14:17, March 08 2013

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region Drilling

Wattenberg Field

AC (07N-63W)

Crow Creek State AC36-72HN

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

08 March, 2013

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Crow Creek State AC36-72HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4880.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4880.0usft (Original Well Elev)
Site:	AC (07N-63W)	North Reference:	Grid
Well:	Crow Creek State AC36-72HN	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	AC (07N-63W)		
Site Position:		Northing:	1,435,093.74 usft
From:	Lat/Long	Easting:	3,291,559.33 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	40.523000
		Longitude:	-104.451220
		Grid Convergence:	0.68 °

Well	Crow Creek State AC36-72HN		
Well Position	+N/-S	468.6 usft	Northing:
	+E/-W	19,843.1 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2/21/2013	8.39	67.16	53,082

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	8.31

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	
1,300.0	6.00	154.00	1,299.5	-14.1	6.9	2.00	2.00	0.00	154.00	
1,959.2	16.02	101.98	1,946.9	-64.2	111.4	2.00	1.52	-7.89	-72.53	
3,839.6	16.02	101.98	3,754.3	-171.9	619.1	0.00	0.00	0.00	0.00	
4,640.7	0.00	0.00	4,545.0	-195.0	728.0	2.00	-2.00	0.00	180.00	
6,068.2	0.00	0.00	5,972.5	-195.0	728.0	0.00	0.00	0.00	0.00	
7,130.7	85.00	359.21	6,686.0	458.7	719.0	8.00	8.00	0.00	359.21	
7,205.7	85.00	359.21	6,692.5	533.4	717.9	0.00	0.00	0.00	0.00	
7,265.7	89.80	359.21	6,695.2	593.3	717.1	8.00	8.00	0.00	0.00	
11,210.1	89.80	359.21	6,709.0	4,537.2	662.7	0.00	0.00	0.00	0.00	Crow Creek State AC

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Crow Creek State AC36-72HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4880.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4880.0usft (Original Well Elev)
Site:	AC (07N-63W)	North Reference:	Grid
Well:	Crow Creek State AC36-72HN	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	154.00	1,050.0	-0.4	0.2	-0.4	2.00	2.00	0.00
1,100.0	2.00	154.00	1,100.0	-1.6	0.8	-1.4	2.00	2.00	0.00
1,150.0	3.00	154.00	1,149.9	-3.5	1.7	-3.2	2.00	2.00	0.00
1,200.0	4.00	154.00	1,199.8	-6.3	3.1	-5.8	2.00	2.00	0.00
1,250.0	5.00	154.00	1,249.7	-9.8	4.8	-9.0	2.00	2.00	0.00
1,300.0	6.00	154.00	1,299.5	-14.1	6.9	-13.0	2.00	2.00	0.00
Start DLS 2.00 TFO -72.53									
1,350.0	6.37	145.37	1,349.2	-18.7	9.6	-17.2	2.00	0.74	-17.26
1,400.0	6.87	137.84	1,398.8	-23.2	13.2	-21.1	2.00	1.00	-15.07
1,450.0	7.47	131.41	1,448.4	-27.6	17.6	-24.8	2.00	1.20	-12.85
1,500.0	8.15	125.99	1,498.0	-31.8	22.9	-28.2	2.00	1.35	-10.84
1,550.0	8.88	121.43	1,547.4	-35.9	29.1	-31.3	2.00	1.48	-9.12
1,600.0	9.67	117.58	1,596.8	-39.9	36.1	-34.3	2.00	1.57	-7.69
1,650.0	10.49	114.32	1,646.0	-43.7	44.0	-36.9	2.00	1.64	-6.52
1,700.0	11.34	111.53	1,695.1	-47.4	52.7	-39.3	2.00	1.70	-5.57
1,750.0	12.21	109.14	1,744.0	-50.9	62.3	-41.4	2.00	1.74	-4.80
1,800.0	13.10	107.06	1,792.8	-54.3	72.7	-43.2	2.00	1.78	-4.16
1,850.0	14.01	105.24	1,841.4	-57.6	83.9	-44.8	2.00	1.81	-3.63
1,900.0	14.92	103.64	1,889.8	-60.7	96.0	-46.2	2.00	1.83	-3.20
1,950.0	15.85	102.22	1,938.1	-63.6	109.0	-47.2	2.00	1.85	-2.84
1,959.2	16.02	101.98	1,946.9	-64.2	111.4	-47.4	2.00	1.86	-2.65
2,000.0	16.02	101.98	1,986.1	-66.5	122.5	-48.1	0.00	0.00	0.00
2,050.0	16.02	101.98	2,034.2	-69.4	136.0	-49.0	0.00	0.00	0.00
2,100.0	16.02	101.98	2,082.2	-72.2	149.5	-49.9	0.00	0.00	0.00
2,150.0	16.02	101.98	2,130.3	-75.1	163.0	-50.8	0.00	0.00	0.00
2,200.0	16.02	101.98	2,178.3	-78.0	176.5	-51.7	0.00	0.00	0.00
2,250.0	16.02	101.98	2,226.4	-80.8	190.0	-52.5	0.00	0.00	0.00
2,300.0	16.02	101.98	2,274.5	-83.7	203.5	-53.4	0.00	0.00	0.00
2,350.0	16.02	101.98	2,322.5	-86.6	217.0	-54.3	0.00	0.00	0.00
2,400.0	16.02	101.98	2,370.6	-89.4	230.5	-55.2	0.00	0.00	0.00
2,450.0	16.02	101.98	2,418.6	-92.3	243.9	-56.1	0.00	0.00	0.00
2,500.0	16.02	101.98	2,466.7	-95.2	257.4	-57.0	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Crow Creek State AC36-72HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4880.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4880.0usft (Original Well Elev)
Site:	AC (07N-63W)	North Reference:	Grid
Well:	Crow Creek State AC36-72HN	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	16.02	101.98	2,514.8	-98.0	270.9	-57.8	0.00	0.00	0.00
2,583.5	16.02	101.98	2,547.0	-99.9	280.0	-58.4	0.00	0.00	0.00
PIERRE									
2,600.0	16.02	101.98	2,562.8	-100.9	284.4	-58.7	0.00	0.00	0.00
2,650.0	16.02	101.98	2,610.9	-103.7	297.9	-59.6	0.00	0.00	0.00
2,700.0	16.02	101.98	2,658.9	-106.6	311.4	-60.5	0.00	0.00	0.00
2,750.0	16.02	101.98	2,707.0	-109.5	324.9	-61.4	0.00	0.00	0.00
2,800.0	16.02	101.98	2,755.0	-112.3	338.4	-62.3	0.00	0.00	0.00
2,850.0	16.02	101.98	2,803.1	-115.2	351.9	-63.1	0.00	0.00	0.00
2,900.0	16.02	101.98	2,851.2	-118.1	365.4	-64.0	0.00	0.00	0.00
2,950.0	16.02	101.98	2,899.2	-120.9	378.9	-64.9	0.00	0.00	0.00
3,000.0	16.02	101.98	2,947.3	-123.8	392.4	-65.8	0.00	0.00	0.00
3,050.0	16.02	101.98	2,995.3	-126.7	405.9	-66.7	0.00	0.00	0.00
3,100.0	16.02	101.98	3,043.4	-129.5	419.4	-67.6	0.00	0.00	0.00
3,150.0	16.02	101.98	3,091.4	-132.4	432.9	-68.4	0.00	0.00	0.00
3,200.0	16.02	101.98	3,139.5	-135.3	446.4	-69.3	0.00	0.00	0.00
3,250.0	16.02	101.98	3,187.6	-138.1	459.9	-70.2	0.00	0.00	0.00
3,300.0	16.02	101.98	3,235.6	-141.0	473.4	-71.1	0.00	0.00	0.00
3,350.0	16.02	101.98	3,283.7	-143.9	486.9	-72.0	0.00	0.00	0.00
3,400.0	16.02	101.98	3,331.7	-146.7	500.4	-72.9	0.00	0.00	0.00
3,450.0	16.02	101.98	3,379.8	-149.6	513.9	-73.8	0.00	0.00	0.00
3,500.0	16.02	101.98	3,427.9	-152.4	527.4	-74.6	0.00	0.00	0.00
3,550.0	16.02	101.98	3,475.9	-155.3	540.9	-75.5	0.00	0.00	0.00
3,600.0	16.02	101.98	3,524.0	-158.2	554.4	-76.4	0.00	0.00	0.00
3,650.0	16.02	101.98	3,572.0	-161.0	567.9	-77.3	0.00	0.00	0.00
3,691.6	16.02	101.98	3,612.0	-163.4	579.2	-78.0	0.00	0.00	0.00
PARKMAN									
3,700.0	16.02	101.98	3,620.1	-163.9	581.4	-78.2	0.00	0.00	0.00
3,750.0	16.02	101.98	3,668.1	-166.8	594.9	-79.1	0.00	0.00	0.00
3,800.0	16.02	101.98	3,716.2	-169.6	608.4	-79.9	0.00	0.00	0.00
3,839.6	16.02	101.98	3,754.3	-171.9	619.1	-80.6	0.00	0.00	0.00
Start Drop -2.00									
3,850.0	15.81	101.98	3,764.3	-172.5	621.9	-80.8	1.99	-1.99	0.00
3,900.0	14.81	101.98	3,812.5	-175.2	634.8	-81.7	2.00	-2.00	0.00
3,950.0	13.81	101.98	3,860.9	-177.8	646.9	-82.5	2.00	-2.00	0.00
4,000.0	12.81	101.98	3,909.6	-180.2	658.2	-83.2	2.00	-2.00	0.00
4,050.0	11.81	101.98	3,958.4	-182.4	668.6	-83.9	2.00	-2.00	0.00
4,100.0	10.81	101.98	4,007.5	-184.4	678.2	-84.5	2.00	-2.00	0.00
4,150.0	9.81	101.98	4,056.7	-186.3	687.0	-85.1	2.00	-2.00	0.00
4,200.0	8.81	101.98	4,106.0	-188.0	694.9	-85.6	2.00	-2.00	0.00
4,250.0	7.81	101.98	4,155.5	-189.5	702.0	-86.1	2.00	-2.00	0.00
4,300.0	6.81	101.98	4,205.1	-190.8	708.2	-86.5	2.00	-2.00	0.00
4,350.0	5.81	101.98	4,254.8	-191.9	713.6	-86.8	2.00	-2.00	0.00
4,400.0	4.81	101.98	4,304.5	-192.9	718.1	-87.1	2.00	-2.00	0.00
4,450.0	3.81	101.98	4,354.4	-193.7	721.8	-87.4	2.00	-2.00	0.00
4,479.7	3.22	101.98	4,384.0	-194.1	723.6	-87.5	2.00	-2.00	0.00
SUSSEX									
4,500.0	2.81	101.98	4,404.3	-194.3	724.6	-87.5	2.00	-2.00	0.00
4,550.0	1.81	101.98	4,454.3	-194.7	726.6	-87.7	2.00	-2.00	0.00
4,600.0	0.81	101.98	4,504.3	-194.9	727.7	-87.7	2.00	-2.00	0.00
4,640.7	0.00	0.00	4,545.0	-195.0	728.0	-87.8	2.00	-2.00	0.00
4,650.0	0.00	0.00	4,554.3	-195.0	728.0	-87.8	0.00	0.00	0.00
4,700.0	0.00	0.00	4,604.3	-195.0	728.0	-87.8	0.00	0.00	0.00

Noble Energy Inc

Planning Report

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Company:	Northern Region Drilling	TVD Reference:	WELL @ 4880.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4880.0usft (Original Well Elev)
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Well:	Crow Creek State AC36-72HN	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)
4,750.0	0.00	0.00	4,654.3	-195.0	728.0	-87.8	0.00	0.00	0.00
4,800.0	0.00	0.00	4,704.3	-195.0	728.0	-87.8	0.00	0.00	0.00
4,850.0	0.00	0.00	4,754.3	-195.0	728.0	-87.8	0.00	0.00	0.00
4,900.0	0.00	0.00	4,804.3	-195.0	728.0	-87.8	0.00	0.00	0.00
4,950.0	0.00	0.00	4,854.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,000.0	0.00	0.00	4,904.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,050.0	0.00	0.00	4,954.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,100.0	0.00	0.00	5,004.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,117.7	0.00	0.00	5,022.0	-195.0	728.0	-87.8	0.00	0.00	0.00
SHANNON									
5,150.0	0.00	0.00	5,054.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,104.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,250.0	0.00	0.00	5,154.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,300.0	0.00	0.00	5,204.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,350.0	0.00	0.00	5,254.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,304.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,450.0	0.00	0.00	5,354.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,500.0	0.00	0.00	5,404.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,550.0	0.00	0.00	5,454.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,504.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,650.0	0.00	0.00	5,554.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,700.0	0.00	0.00	5,604.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,750.0	0.00	0.00	5,654.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,704.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,850.0	0.00	0.00	5,754.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,804.3	-195.0	728.0	-87.8	0.00	0.00	0.00
5,950.0	0.00	0.00	5,854.3	-195.0	728.0	-87.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,904.3	-195.0	728.0	-87.8	0.00	0.00	0.00
6,014.7	0.00	0.00	5,919.0	-195.0	728.0	-87.8	0.00	0.00	0.00
TEEPEE BUTTES									
6,050.0	0.00	0.00	5,954.3	-195.0	728.0	-87.8	0.00	0.00	0.00
6,068.2	0.00	0.00	5,972.5	-195.0	728.0	-87.8	0.00	0.00	0.00
KOP #2 - Start Build 8.00									
6,100.0	2.54	359.21	6,004.2	-194.3	728.0	-87.1	7.99	7.99	0.00
6,150.0	6.54	359.21	6,054.1	-190.3	727.9	-83.2	8.00	8.00	0.00
6,200.0	10.54	359.21	6,103.5	-182.9	727.8	-75.8	8.00	8.00	0.00
6,250.0	14.54	359.21	6,152.3	-172.1	727.7	-65.1	8.00	8.00	0.00
6,300.0	18.54	359.21	6,200.2	-157.8	727.5	-51.1	8.00	8.00	0.00
6,350.0	22.54	359.21	6,247.0	-140.3	727.2	-33.7	8.00	8.00	0.00
6,400.0	26.54	359.21	6,292.5	-119.5	727.0	-13.2	8.00	8.00	0.00
6,450.0	30.54	359.21	6,336.4	-95.7	726.6	10.3	8.00	8.00	0.00
6,500.0	34.54	359.21	6,378.6	-68.8	726.3	36.9	8.00	8.00	0.00
6,550.0	38.54	359.21	6,418.7	-39.0	725.8	66.3	8.00	8.00	0.00
6,600.0	42.54	359.21	6,456.7	-6.5	725.4	98.4	8.00	8.00	0.00
6,650.0	46.54	359.21	6,492.4	28.5	724.9	133.0	8.00	8.00	0.00
6,700.0	50.54	359.21	6,525.5	66.0	724.4	170.0	8.00	8.00	0.00
6,712.0	51.50	359.21	6,533.0	75.3	724.3	179.2	8.00	8.00	0.00
SHARON SPRINGS									
6,740.0	53.74	359.21	6,550.0	97.6	724.0	201.2	8.00	8.00	0.00
NIOBRARA									
6,750.0	54.54	359.21	6,555.9	105.7	723.8	209.2	8.00	8.00	0.00
6,778.6	56.83	359.21	6,572.0	129.3	723.5	232.5	8.00	8.00	0.00
NIO A CHALK									

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Crow Creek State AC36-72HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4880.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4880.0usft (Original Well Elev)
Site:	AC (07N-63W)	North Reference:	Grid
Well:	Crow Creek State AC36-72HN	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)
6,800.0	58.54	359.21	6,583.4	147.4	723.3	250.3	8.00	8.00	0.00
6,830.9	61.02	359.21	6,599.0	174.1	722.9	276.7	8.00	8.00	0.00
NIO A MARL									
6,850.0	62.54	359.21	6,608.0	190.9	722.7	293.3	8.00	8.00	0.00
6,900.0	66.54	359.21	6,629.5	236.0	722.0	337.9	8.00	8.00	0.00
6,950.0	70.54	359.21	6,647.8	282.6	721.4	383.8	8.00	8.00	0.00
6,989.8	73.73	359.21	6,660.0	320.4	720.9	421.2	8.00	8.00	0.00
NIO B CHALK									
7,000.0	74.54	359.21	6,662.8	330.2	720.7	430.9	8.00	8.00	0.00
7,050.0	78.54	359.21	6,674.4	378.9	720.1	478.9	8.00	8.00	0.00
7,100.0	82.54	359.21	6,682.6	428.2	719.4	527.6	8.00	8.00	0.00
7,130.7	85.00	359.21	6,686.0	458.7	719.0	557.7	8.00	8.00	0.00
Start 75.0 hold at 7130.7 MD - 7" Casing @ 7130.7 MD									
7,150.0	85.00	359.21	6,687.7	477.9	718.7	576.7	0.02	0.02	0.00
7,200.0	85.00	359.21	6,692.0	527.7	718.0	625.9	0.00	0.00	0.00
7,205.7	85.00	359.21	6,692.5	533.4	717.9	631.5	0.00	0.00	0.00
Start Build 8.00									
7,211.6	85.47	359.21	6,693.0	539.3	717.9	637.4	7.94	7.94	0.00
NIO B MARL									
7,250.0	88.54	359.21	6,695.0	577.6	717.3	675.2	8.00	8.00	0.00
7,265.7	89.80	359.21	6,695.2	593.3	717.1	690.7	8.00	8.00	0.00
7,300.0	89.80	359.21	6,695.4	627.6	716.6	724.6	0.00	0.00	0.00
7,350.0	89.80	359.21	6,695.5	677.6	716.0	773.9	0.00	0.00	0.00
7,400.0	89.80	359.21	6,695.7	727.6	715.3	823.3	0.00	0.00	0.00
7,450.0	89.80	359.21	6,695.9	777.6	714.6	872.7	0.00	0.00	0.00
7,500.0	89.80	359.21	6,696.0	827.6	713.9	922.0	0.00	0.00	0.00
7,550.0	89.80	359.21	6,696.2	877.6	713.2	971.4	0.00	0.00	0.00
7,600.0	89.80	359.21	6,696.4	927.6	712.5	1,020.8	0.00	0.00	0.00
7,650.0	89.80	359.21	6,696.6	977.6	711.8	1,070.1	0.00	0.00	0.00
7,700.0	89.80	359.21	6,696.7	1,027.5	711.1	1,119.5	0.00	0.00	0.00
7,750.0	89.80	359.21	6,696.9	1,077.5	710.4	1,168.9	0.00	0.00	0.00
7,800.0	89.80	359.21	6,697.1	1,127.5	709.7	1,218.3	0.00	0.00	0.00
7,850.0	89.80	359.21	6,697.3	1,177.5	709.0	1,267.6	0.00	0.00	0.00
7,900.0	89.80	359.21	6,697.4	1,227.5	708.4	1,317.0	0.00	0.00	0.00
7,950.0	89.80	359.21	6,697.6	1,277.5	707.7	1,366.4	0.00	0.00	0.00
8,000.0	89.80	359.21	6,697.8	1,327.5	707.0	1,415.7	0.00	0.00	0.00
8,050.0	89.80	359.21	6,698.0	1,377.5	706.3	1,465.1	0.00	0.00	0.00
8,100.0	89.80	359.21	6,698.1	1,427.5	705.6	1,514.5	0.00	0.00	0.00
8,150.0	89.80	359.21	6,698.3	1,477.5	704.9	1,563.9	0.00	0.00	0.00
8,200.0	89.80	359.21	6,698.5	1,527.5	704.2	1,613.2	0.00	0.00	0.00
8,250.0	89.80	359.21	6,698.7	1,577.5	703.5	1,662.6	0.00	0.00	0.00
8,300.0	89.80	359.21	6,698.8	1,627.5	702.8	1,712.0	0.00	0.00	0.00
8,350.0	89.80	359.21	6,699.0	1,677.5	702.1	1,761.3	0.00	0.00	0.00
8,400.0	89.80	359.21	6,699.2	1,727.5	701.5	1,810.7	0.00	0.00	0.00
8,450.0	89.80	359.21	6,699.4	1,777.5	700.8	1,860.1	0.00	0.00	0.00
8,500.0	89.80	359.21	6,699.5	1,827.5	700.1	1,909.4	0.00	0.00	0.00
8,550.0	89.80	359.21	6,699.7	1,877.5	699.4	1,958.8	0.00	0.00	0.00
8,600.0	89.80	359.21	6,699.9	1,927.5	698.7	2,008.2	0.00	0.00	0.00
8,650.0	89.80	359.21	6,700.1	1,977.5	698.0	2,057.6	0.00	0.00	0.00
8,700.0	89.80	359.21	6,700.2	2,027.4	697.3	2,106.9	0.00	0.00	0.00
8,750.0	89.80	359.21	6,700.4	2,077.4	696.6	2,156.3	0.00	0.00	0.00
8,800.0	89.80	359.21	6,700.6	2,127.4	695.9	2,205.7	0.00	0.00	0.00
8,850.0	89.80	359.21	6,700.8	2,177.4	695.2	2,255.0	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Crow Creek State AC36-72HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4880.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4880.0usft (Original Well Elev)
Site:	AC (07N-63W)	North Reference:	Grid
Well:	Crow Creek State AC36-72HN	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	89.80	359.21	6,700.9	2,227.4	694.6	2,304.4	0.00	0.00	0.00
8,950.0	89.80	359.21	6,701.1	2,277.4	693.9	2,353.8	0.00	0.00	0.00
9,000.0	89.80	359.21	6,701.3	2,327.4	693.2	2,403.1	0.00	0.00	0.00
9,050.0	89.80	359.21	6,701.5	2,377.4	692.5	2,452.5	0.00	0.00	0.00
9,100.0	89.80	359.21	6,701.6	2,427.4	691.8	2,501.9	0.00	0.00	0.00
9,150.0	89.80	359.21	6,701.8	2,477.4	691.1	2,551.3	0.00	0.00	0.00
9,200.0	89.80	359.21	6,702.0	2,527.4	690.4	2,600.6	0.00	0.00	0.00
9,250.0	89.80	359.21	6,702.2	2,577.4	689.7	2,650.0	0.00	0.00	0.00
9,300.0	89.80	359.21	6,702.3	2,627.4	689.0	2,699.4	0.00	0.00	0.00
9,350.0	89.80	359.21	6,702.5	2,677.4	688.3	2,748.7	0.00	0.00	0.00
9,400.0	89.80	359.21	6,702.7	2,727.4	687.6	2,798.1	0.00	0.00	0.00
9,450.0	89.80	359.21	6,702.9	2,777.4	687.0	2,847.5	0.00	0.00	0.00
9,500.0	89.80	359.21	6,703.0	2,827.4	686.3	2,896.9	0.00	0.00	0.00
9,550.0	89.80	359.21	6,703.2	2,877.4	685.6	2,946.2	0.00	0.00	0.00
9,600.0	89.80	359.21	6,703.4	2,927.4	684.9	2,995.6	0.00	0.00	0.00
9,650.0	89.80	359.21	6,703.6	2,977.4	684.2	3,045.0	0.00	0.00	0.00
9,700.0	89.80	359.21	6,703.7	3,027.3	683.5	3,094.3	0.00	0.00	0.00
9,750.0	89.80	359.21	6,703.9	3,077.3	682.8	3,143.7	0.00	0.00	0.00
9,800.0	89.80	359.21	6,704.1	3,127.3	682.1	3,193.1	0.00	0.00	0.00
9,850.0	89.80	359.21	6,704.3	3,177.3	681.4	3,242.4	0.00	0.00	0.00
9,900.0	89.80	359.21	6,704.4	3,227.3	680.7	3,291.8	0.00	0.00	0.00
9,950.0	89.80	359.21	6,704.6	3,277.3	680.1	3,341.2	0.00	0.00	0.00
10,000.0	89.80	359.21	6,704.8	3,327.3	679.4	3,390.6	0.00	0.00	0.00
10,050.0	89.80	359.21	6,705.0	3,377.3	678.7	3,439.9	0.00	0.00	0.00
10,100.0	89.80	359.21	6,705.1	3,427.3	678.0	3,489.3	0.00	0.00	0.00
10,150.0	89.80	359.21	6,705.3	3,477.3	677.3	3,538.7	0.00	0.00	0.00
10,200.0	89.80	359.21	6,705.5	3,527.3	676.6	3,588.0	0.00	0.00	0.00
10,250.0	89.80	359.21	6,705.6	3,577.3	675.9	3,637.4	0.00	0.00	0.00
10,300.0	89.80	359.21	6,705.8	3,627.3	675.2	3,686.8	0.00	0.00	0.00
10,350.0	89.80	359.21	6,706.0	3,677.3	674.5	3,736.2	0.00	0.00	0.00
10,400.0	89.80	359.21	6,706.2	3,727.3	673.8	3,785.5	0.00	0.00	0.00
10,450.0	89.80	359.21	6,706.3	3,777.3	673.1	3,834.9	0.00	0.00	0.00
10,500.0	89.80	359.21	6,706.5	3,827.3	672.5	3,884.3	0.00	0.00	0.00
10,550.0	89.80	359.21	6,706.7	3,877.3	671.8	3,933.6	0.00	0.00	0.00
10,600.0	89.80	359.21	6,706.9	3,927.3	671.1	3,983.0	0.00	0.00	0.00
10,650.0	89.80	359.21	6,707.0	3,977.3	670.4	4,032.4	0.00	0.00	0.00
10,700.0	89.80	359.21	6,707.2	4,027.2	669.7	4,081.7	0.00	0.00	0.00
10,750.0	89.80	359.21	6,707.4	4,077.2	669.0	4,131.1	0.00	0.00	0.00
10,800.0	89.80	359.21	6,707.6	4,127.2	668.3	4,180.5	0.00	0.00	0.00
10,850.0	89.80	359.21	6,707.7	4,177.2	667.6	4,229.9	0.00	0.00	0.00
10,900.0	89.80	359.21	6,707.9	4,227.2	666.9	4,279.2	0.00	0.00	0.00
10,950.0	89.80	359.21	6,708.1	4,277.2	666.2	4,328.6	0.00	0.00	0.00
11,000.0	89.80	359.21	6,708.3	4,327.2	665.6	4,378.0	0.00	0.00	0.00
11,050.0	89.80	359.21	6,708.4	4,377.2	664.9	4,427.3	0.00	0.00	0.00
11,100.0	89.80	359.21	6,708.6	4,427.2	664.2	4,476.7	0.00	0.00	0.00
11,150.0	89.80	359.21	6,708.8	4,477.2	663.5	4,526.1	0.00	0.00	0.00
11,200.0	89.80	359.21	6,709.0	4,527.2	662.8	4,575.5	0.00	0.00	0.00
11,210.1	89.80	359.21	6,709.0	4,537.2	662.7	4,585.4	0.00	0.00	0.00
TD at 11210.1 - Crow Creek State AC36-72HN BHL 535'FNL, 660"FEL									

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Crow Creek State AC36-72HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4880.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4880.0usft (Original Well Elev)
Site:	AC (07N-63W)	North Reference:	Grid
Well:	Crow Creek State AC36-72HN	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									
Crow Creek State AC36	0.00	0.00	6,709.0	4,537.2	662.7	1,440,099.40	3,312,064.40	40.536050	-104.377240
- plan hits target center									
- Point									

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(usft)	(usft)		(")	(")
7,130.7	6,686.0	7" Casing @ 7130.7' MD	7	8-3/4

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
2,583.5	2,547.0	PIERRE		0.00		
3,691.6	3,612.0	PARKMAN		0.00		
4,479.7	4,384.0	SUSSEX		0.00		
5,117.7	5,022.0	SHANNON		0.00		
6,014.7	5,919.0	TEEPEE BUTTES		0.00		
6,712.0	6,533.0	SHARON SPRINGS		0.00		
6,740.0	6,550.0	NIOBRARA		0.00		
6,778.6	6,572.0	NIO A CHALK		0.00		
6,830.9	6,599.0	NIO A MARL		0.00		
6,989.8	6,660.0	NIO B CHALK		0.00		
7,211.6	6,693.0	NIO B MARL		0.00		

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,000.0	1,000.0	0.0	0.0	KOP - Start Build 2.00
1,300.0	1,299.5	-14.1	6.9	Start DLS 2.00 TFO -72.53
3,839.6	3,754.3	-171.9	619.1	Start Drop -2.00
6,068.2	5,972.5	-195.0	728.0	KOP #2 - Start Build 8.00
7,130.7	6,686.0	458.7	719.0	Start 75.0 hold at 7130.7 MD
7,205.7	6,692.5	533.4	717.9	Start Build 8.00
11,210.1	6,709.0	4,537.2	662.7	TD at 11210.1

Northern Region Drilling

Wattenberg Field

AC (07N-63W)

Crow Creek State AC36-72HN

Original Drilling

APD - Rev 0

Anticollision Summary Report

08 March, 2013

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Crow Creek State AC36-72HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4880.0usft (Original Well Elev)
Reference Site:	AC (07N-63W)	MD Reference:	WELL @ 4880.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Crow Creek State AC36-72HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	edm10p
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	3/8/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,210.1	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

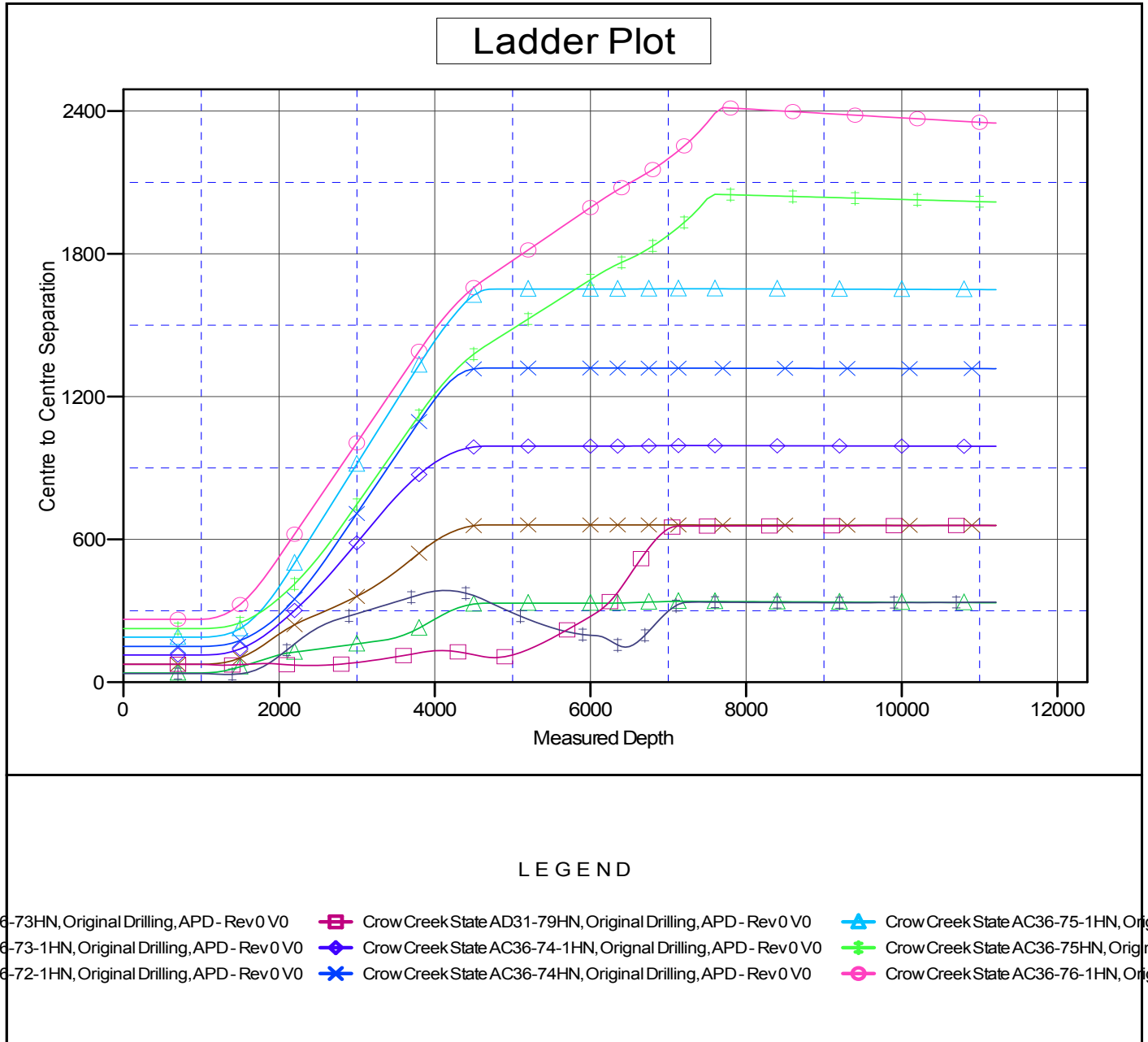
Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AC (07N-63W)						
Crow Creek State AC36-72-1HN - Original Drilling - APD	1,297.5	1,296.9	32.7	27.2	6.009	CC
Crow Creek State AC36-72-1HN - Original Drilling - APD	1,400.0	1,398.8	33.0	27.1	5.590	ES
Crow Creek State AC36-72-1HN - Original Drilling - APD	11,210.9	11,180.7	336.5	165.3	1.965	SF
Crow Creek State AC36-73-1HN - Original Drilling - APD	1,000.0	999.0	38.9	34.7	9.265	CC, ES
Crow Creek State AC36-73-1HN - Original Drilling - APD	11,210.9	11,233.8	333.8	158.0	1.899	SF
Crow Creek State AC36-73HN - Original Drilling - APD -	1,000.0	998.0	75.2	71.0	17.899	CC, ES
Crow Creek State AC36-73HN - Original Drilling - APD -	11,210.9	11,122.0	658.8	481.2	3.708	SF
Crow Creek State AC36-74-1HN - Original Drilling - APD	1,000.0	997.0	114.0	109.8	27.176	CC, ES
Crow Creek State AC36-74-1HN - Original Drilling - APD	11,210.9	11,186.5	991.6	814.4	5.595	SF
Crow Creek State AC36-74HN - Original Drilling - APD -	1,000.0	997.0	150.2	146.0	35.786	CC, ES
Crow Creek State AC36-74HN - Original Drilling - APD -	11,210.9	11,134.9	1,317.7	1,140.4	7.433	SF
Crow Creek State AC36-75-1HN - Original Drilling - APD	1,000.0	997.0	189.1	184.9	45.059	CC, ES
Crow Creek State AC36-75-1HN - Original Drilling - APD	11,210.9	11,256.7	1,650.0	1,472.8	9.313	SF
Crow Creek State AC36-75HN - Original Drilling - APD -	1,000.0	997.0	225.2	221.0	53.670	CC, ES
Crow Creek State AC36-75HN - Original Drilling - APD -	11,210.9	11,069.6	2,018.2	1,840.9	11.380	SF
Crow Creek State AC36-76-1HN - Original Drilling - APD	1,000.0	996.0	264.1	259.9	62.977	CC, ES
Crow Creek State AC36-76-1HN - Original Drilling - APD	11,210.9	11,297.8	2,350.1	2,175.0	13.424	SF
Crow Creek State AD31-79HN - Original Drilling - APD -	2,392.7	2,377.7	70.3	57.2	5.390	CC
Crow Creek State AD31-79HN - Original Drilling - APD -	2,500.0	2,484.7	70.7	56.6	5.016	ES
Crow Creek State AD31-79HN - Original Drilling - APD -	4,800.0	4,773.1	103.4	69.0	3.009	SF

Noble Energy Inc
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Reference Site:	AC (07N-63W)	MD Reference:	WELL @ 4880.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Crow Creek State AC36-72HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	edm10p
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4880.0usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Crow Creek State AC36-72HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.72°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Crow Creek State AC36-72HN
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Reference Well:	Crow Creek State AC36-72HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	edm10p
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4880.0usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Crow Creek State AC36-72HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.72°

