



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

DUKE POWER COMPANY
NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION
SALUDA RIVER ELECTRIC COOPERATIVE, INC.
DOCKET NO. 50-413
CATAWBA NUCLEAR STATION, UNIT 1
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 45
License No. NPF-35

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Catawba Nuclear Station, Unit 1 (the facility) Facility Operating License No. NPF-35 filed by the Duke Power Company acting for itself, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative, Inc., (licensees) dated March 23, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachments to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-35 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 45, are hereby incorporated into the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:

David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects-I/II

Attachment:
Technical Specification Changes

Date of Issuance: May 27, 1988

OFFICIAL RECORD COPY

LA:PDII-3
MRood
5/12/88

KNJ
PM:PDII-3
KJabbour:pw
5/12/88

OGC
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5/16/88

[Signature]
D:PDII-3
DMatthews
5/19/88



UNITED STATES
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WASHINGTON, D. C. 20555

DUKE POWER COMPANY

NORTH CAROLINA MUNICIPAL POWER AGENCY NO. 1

PIEDMONT MUNICIPAL POWER AGENCY

DOCKET NO. 50-414

CATAWBA NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 38
License No. NPF-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Catawba Nuclear Station, Unit 2 (the facility) Facility Operating License No. NPF-52 filed by the Duke Power Company acting for itself, North Carolina Municipal Power Agency No. 1 and Piedmont Municipal Power Agency, (licensees) dated March 23, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachments to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 38, are hereby incorporated into the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:

David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects-I/II

Attachment:
Technical Specification Changes

Date of Issuance: May 27, 1988

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LA:PDII-3
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OGC
5/16/88

D:PDII-3
DMatthews
5/19/88

ATTACHMENT TO LICENSE AMENDMENT NO. 45

FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

AND

TO LICENSE AMENDMENT NO. 38

FACILITY OPERATING LICENSE NO. NPF-52

DOCKET NO. 50-414

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

<u>Amended Page</u>	<u>Overleaf Page</u>
3/4 3-81	3/4 3-82
3/4 3-83	3/4 3-84
3/4 3-87	3/4 3-88
3/4 3-91	3/4 3-92
3/4 11-2	3/4 11-1
3/4 11-10a (new page)	
5-5	

TABLE 3.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ACTION</u>
1. Radioactivity Monitors Providing Alarm and Automatic Termination of Release		
a. Waste Liquid Discharge Monitor (Low Range - EMF-49)	1 per station	40
b. Turbine Building Sump Monitor (Low Range - EMF-31)	1	42
c. Steam Generator Water Sample Monitor (Low Range - EMF-34)	1	43
d. Monitor Tank Building Liquid Discharge Monitor (EMF-57)	1 per station	40
2. Continuous Composite Samplers and Sampler Flow Monitor Conventional Waste Water Treatment Line	1 per station	42
3. Flow Rate Measurement Devices		
a. Waste Liquid Effluent Line	1 per station	41
b. Conventional Waste Water Treatment Line	1 per station	41
c. Low Pressure Service Water Minimum Flow Interlock	1 per station	41
d. Monitor Tank Building Waste Liquid Effluent Line	1 per station	41

CATAMBA - UNITS 1 & 2

3/4 3-81

Amendment No. 45 (Unit 1)
Amendment No. 38 (Unit 2)

TABLE 3.3-12 (Continued)

ACTION STATEMENTS

- ACTION 40 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 14 days provided that prior to initiating a release:
- a. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.1, and
 - b. At least two technically qualified members of the facility staff independently verify:
 1. The discharge line valving, and
 2. The manual portion of the computer input for the release rate calculations performed on the computer, or the entire release rate calculations if such calculations are performed manually.Otherwise, suspend release of radioactive effluents via this pathway.
- ACTION 41 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours during actual releases. Pump performance curves generated in place may be used to estimate flow.
- ACTION 42 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are analyzed for radioactivity at a lower limit of detection of no more than 10^{-7} microCurie/ml:
- a. At least once per 12 hours when the specific activity of the secondary coolant is greater than 0.01 microCurie/gram DOSE EQUIVALENT I-131, or
 - b. At least once per 24 hours when the specific activity of the secondary coolant is less than or equal to 0.01 microCurie/gram DOSE EQUIVALENT I-131.
- ACTION 43 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, gaseous effluent releases via the atmospheric vent valves (off-normal mode) may continue provided grab samples of steam generator water are analyzed for radioactivity for up to 30 days at a lower limit of detection of no more than 10^{-7} microCurie/ml:
- a. At least once per 12 hours when the specific activity of the secondary coolant is greater than 0.01 microCurie/gram DOSE EQUIVALENT I-131, or
 - b. At least once per 24 hours when the specific activity of the secondary coolant is less than or equal to 0.01 microCurie/gram DOSE EQUIVALENT I-131.

TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>ANALOG CHANNEL OPERATIONAL TEST</u>
1. Radioactivity Monitors Providing Alarm and Automatic Termination of Release				
a. Waste Liquid Discharge Monitor (Low Range - EMF-49)	D	P	R(2)	Q(1)
b. Turbine Building Sump Monitor (Low Range - EMF-31)	D	M	R(2)	Q(1)
c. Steam Generator Water Sample Monitor (Low Range - EMF-34)	D	M	R(2)	Q(1)
d. Monitor Tank Building Liquid Discharge Monitor (EMF-57)	D	P	R(2)	Q(1)
2. Continuous Composite Samplers and Sampler Flow Monitor				
Conventional Waste Water Treatment Line	D(3)	N.A.	R	N.A.
3. Flow Rate Measurement Devices				
a. Waste Liquid Effluent Line	D(3)	N.A.	R	N.A.
b. Conventional Waste Water Treatment Line	D(3)	N.A.	R	N.A.
c. Low Pressure Service Water Minimum Flow Interlock	D(3)	N.A.	R	Q
d. Monitor Tank Building Waste Liquid Effluent Line	D(3)	N.A.	R	Q

CATAWBA - UNITS 1 & 2

3/4 3-83

Amendment No. 45 (Unit 1)
Amendment No. 38 (Unit 2)

TABLE 4.3-8 (Continued)

TABLE NOTATIONS

- (1) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occur if any of the following conditions exist:
 - a. Instrument indicates measured levels above the Alarm/Trip Setpoint,
or
 - b. Circuit failure (Alarm only), or
 - c. Instrument indicates a downscale failure (Alarm only).
- (2) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.
- (3) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic, or batch releases are made.

TABLE 3.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

	<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABILITY</u>	<u>ACTION</u>
5.	Containment Purge System			
	Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (Low Range - EMF-39)	1	***	48
6.	Containment Air Release and Addition System			
	Noble Gas Activity Monitor - Providing Alarm (Low Range - EMF-39)	1	*	45
7.	Monitor Tank Building HVAC			
a.	Noble Gas Activity Monitor - Providing Alarm (EMF-58)	1 per station	***	47
b.	Monitor Tank Building Effluent Flow Rate Measuring Device	1 per station	***	46

CATAWBA - UNITS 1 & 2

3/4 3-87

Amendment No. 45 (Unit 1)
Amendment No. 38 (Unit 2)

TABLE 3.3-13 (Continued)

TABLE NOTATIONS

- * At all times except when the isolation valve is closed and locked.
- ** During WASTE GAS HOLDUP SYSTEM operation.
- *** At all times.

ACTION STATEMENTS

ACTION 45 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank(s) may be released to the environment for up to 14 days provided that prior to initiating the release either:

- a. Vent system noble gas activity monitor providing alarm and automatic termination of release (Low Range - EMF-36) has at least one channel OPERABLE, or
- b. At least two independent samples of the tank's contents are analyzed, and at least two technically qualified members of the facility staff independently verify:
 - 1. The discharge valve lineup, and
 - 2. The manual portion of the computer input for the release rate calculations performed on the computer, or the entire release rate calculations if such calculations are performed manually.

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 46 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours.

ACTION 47 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are taken at least once per 12 hours and these samples are analyzed for radioactivity within 24 hours.

ACTION 48 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, immediately suspend PURGING of radioactive effluents via this pathway.

TABLE 4.3-9 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>ANALOG CHANNEL OPERATIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE IS REQUIRED</u>
4. Vent System (Continued)					
c. Particulate Sampler (EMF-35)	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	N.A.	*
e. Sampler Flow Rate Monitor	D	N.A.	R	N.A.	*
5. Containment Purge System					
Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (Low Range - EMF-39)	D	P	R(3)	Q(1)	***
6. Containment Air Release and Addition System					
Noble Gas Activity Monitor- Providing Alarm (Low Range - EMF-39)	D	P	R(3)	Q(1)	*
7. Monitor Tank Building HVAC					
a. Noble Gas Activity Monitor - Providing Alarm (EMF-58)	D	M	R(3)	Q(2)	***
b. Discharge Flow Instrumentation	D	N.A.	R	N.A.	***

CATAWBA - UNITS 1 & 2

3/4 3-91

Amendment No. 45 (Unit 1)
Amendment No. 38 (Unit 2)

TABLE 4.3-9 (Continued)

TABLE NOTATIONS

- * At all times except when the isolation valve is closed and locked.
 - ** During WASTE GAS HOLDUP SYSTEM operation.
 - *** At all times.
- (1) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occur if any of the following conditions exists:
 - a. Instrument indicates measured levels above the Alarm/Trip Setpoint, or
 - b. Circuit failure (Alarm only), or
 - c. Instrument indicates a downscale failure (Alarm only).
 - (2) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:
 - a. Instrument indicates measured levels above the Alarm Setpoint, or
 - b. Circuit failure, or
 - c. Instrument indicates a downscale failure.
 - (3) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.
 - (4) The CHANNEL CALIBRATION shall include the use of standard gas samples in accordance with the manufacturer's recommendations. In addition, a standard gas sample of nominal four volume percent hydrogen, balance nitrogen, shall be used in the calibration to check linearity of the hydrogen analyzer.
 - (5) The CHANNEL CALIBRATION shall include the use of standard gas samples in accordance with the manufacturer's recommendations. In addition, a standard gas sample of nominal four percent oxygen, balance nitrogen, shall be used in the calibration to check linearity of the oxygen analyzer.

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 LIQUID EFFLUENTS

CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.11.1.1 The concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS (see Figure 5.1-3) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} microCurie/ml total activity.

APPLICABILITY: At all times.

ACTION:

With the concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS exceeding the above limits, immediately restore the concentration to within the above limits.

SURVEILLANCE REQUIREMENTS

4.11.1.1.1 Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analysis program of Table 4.11-1.

4.11.1.1.2 The results of the radioactivity analyses shall be used in accordance with the methodology and parameters in the ODCM to assure that the concentrations at the point of release are maintained within the limits of Specification

3.11.1.1.

TABLE 4.11-1

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE	SAMPLING FREQUENCY	MINIMUM ANALYSIS FREQUENCY	TYPE OF ACTIVITY ANALYSIS	LOWER LIMIT OF DETECTION (LLD) ⁽¹⁾ ($\mu\text{Ci/ml}$)
1. Batch Waste Release Tanks ⁽²⁾ Any tank which discharges liquid wastes by either liquid effluent monitor, EMF-49 or EMF-58	P Each Batch	P Each Batch	Principal Gamma Emitters ⁽³⁾	5×10^{-7}
			I-131	1×10^{-6}
	P One Batch/M	M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
			P Each Batch	M Composite ⁽⁴⁾
	Gross Alpha	1×10^{-7}		
	P Each Batch	Q Composite ⁽⁴⁾	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}
	2. Continuous Releases ⁽⁵⁾ Conventional Waste Water Treatment Line	Continuous ⁽⁶⁾	W Composite ⁽⁶⁾	Principal Gamma Emitters ⁽³⁾
I-131				1×10^{-6}
M Grab Sample		M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
			Continuous ⁽⁶⁾	M Composite ⁽⁶⁾
Gross Alpha		1×10^{-7}		
Continuous ⁽⁶⁾		Q Composite ⁽⁶⁾	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}

Table 4.11-2 (Continued)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

GASEOUS RELEASE TYPE	SAMPLING FREQUENCY	MINIMUM ANALYSIS FREQUENCY	TYPE OF ACTIVITY ANALYSIS	LOWER LIMIT OF DETECTION (LLD) ⁽¹⁾ ($\mu\text{Ci/ml}$)
6. Waste Monitor Tank Building Ventilation Exhaust	W Grab Sample	W	Principal Gamma Emitters ⁽²⁾	1×10^{-4}
			H-3 (oxide)	1×10^{-6}
	Continuous ⁽⁶⁾	W Charcoal Sample	I-131	1×10^{-11}
			I-133	1×10^{-9}
	Continuous ⁽⁶⁾	W Particulate Sample	Principal Gamma Emitters ⁽²⁾	1×10^{-10}
	Continuous ⁽⁶⁾	M Composite Particulate Sample	Gross Alpha	1×10^{-11}
Continuous ⁽⁶⁾	Q Composite Particulate Sample	Sr-89, Sr-90	1×10^{-11}	

CATAWBA - UNITS 1 & 2

3/4 11-10a

Amendment No. 45 (Unit 1)
Amendment No. 38 (Unit 2)

SITE BOUNDARY/
PERIMETER FENCE

NSW
DAM

NUCLEAR SERVICE
WATER POND

2500 FT. R.
EXCLUSION
BOUNDARY

MONITOR TANK BUILDING
(GASEOUS RELEASE POINT)

INTAKE STRUCTURE

REACTOR
BLDG.

STATION VENTS
(GASEOUS RELEASE
POINTS EL. 718.75)

SWITCH
YARD

AUX.
BLDG.

ACCESS ROAD

TRAINING
CENTER

DISCHARGE
STRUCTURE
(LIQUID RELEASE
POINT)

COOLING TOWER
YARD

CO RD 1132

FIGURE 5-1-4

UNRESTRICTED AREA AND SITE BOUNDARY FOR RADIOACTIVE GASEOUS EFFLUENTS