



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

October 30, 2000

Mr. James Scarola, Vice President
Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
Post Office Box 165, Mail Code: Zone 1
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 - ISSUANCE OF
AMENDMENT REGARDING EMERGENCY VENTILATION SYSTEMS
(TAC NO. MA8620)

Dear Mr. Scarola:

The Nuclear Regulatory Commission has issued Amendment No. 102 to Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit No. 1 (HNP), in response to your request dated April 7, 2000, as supplemented June 14 and September 11, 2000. This amendment revises Technical Specification (TS) 3/4.7.6, "Control Room Emergency Filtration System," TS 3/4.7.7, "Reactor Auxiliary Building Emergency Exhaust System," and TS 3/4.9.12, "Fuel Handling Building Emergency Exhaust System." The associated TS Bases are also being changed in accordance with the amendment. Specifically, these TS have been revised to provide an action when the Control Room Emergency Filtration System or Reactor Auxiliary Building Emergency Exhaust System ventilation boundary is inoperable, and a note that allows an applicable ventilation boundary to be open intermittently under administrative controls.

In addition, TS 3/4.3.3.1, "Radiation Monitoring for Plant Operations," has been modified to provide consistency between the applicability of the Control Room Emergency Filtration System and the radiation monitors that initiate a control room isolation signal.

A copy of the Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,

Richard J. Laufer, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosures:

1. Amendment No. 102 to NPF-63
2. Safety Evaluation

cc w/enclosures:
See next page

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NRR-058

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Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
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/RA/

Richard J. Laufer, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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cc w/enclosures:

See next page

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*see previous concurrence

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AMENDMENT NO. 102 TO FACILITY OPERATING LICENSE NO. NPF-63 - HARRIS, UNIT 1

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-400

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 102
License No. NPF-63

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Carolina Power & Light Company, (the licensee), dated April 7, 2000, as supplemented June 14 and September 11, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations 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;
 - 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 amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-63 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. 102, are hereby incorporated into this license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 30, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 102

FACILITY OPERATING LICENSE NO. NPF-63

DOCKET NO. 50-400

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

3/4 3-51
3/4 3-52
3/4 3-55
3/4 7-14
3/4 7-15
3/4 7-16
3/4 7-17
3/4 7-18
3/4 9-14
B 3/4 7-3

B 3/4 7-4
B 3/4 7-5
B 3/4 9-3

Insert Pages

3/4 3-51
3/4 3-52
3/4 3-55
3/4 7-14
3/4 7-15
3/4 7-16
3/4 7-17
3/4 7-18
3/4 9-14
B 3/4 7-3
B 3/4 7-3a
B 3/4 7-4
B 3/4 7-5
B 3/4 9-3

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS

<u>INSTRUMENT</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ALARM/TRIP SETPOINT</u>	<u>ACTION</u>
1. Containment Radioactivity--					
a. Containment Ventilation Isolation Signal Area Monitors	2	3	1, 2, 3, 4, 6	#	27
b. Airborne Gaseous Radioactivity					
1) RCS Leakage Detection	1	1	1, 2, 3, 4	$\leq 1.0 \times 10^{-3} \mu\text{Ci/ml}$	26, 27
2) Pre-entry Purge	1	1	##	$\leq 2.0 \times 10^{-3} \mu\text{Ci/ml}$	30
c. Airborne Particulate Radioactivity					
1) RCS Leakage Detection	1	1	1, 2, 3, 4	$\leq 4.0 \times 10^{-8} \mu\text{Ci/ml}$	26, 27
2) Pre-entry Purge	1	1	##	$\leq 1.5 \times 10^{-8} \mu\text{Ci/ml}$	30
2. Spent Fuel Pool Area-- Fuel Handling Building Emergency Exhaust Actuation					
a. Fuel Handling Building Operating Floor--South Network	1/train***	1/train 2 trains	**	$\leq 100 \text{ mR/hr}$	28
b. Fuel Handling Building Operating Floor--North Network	1/train***	1/train 2 trains	*	$\leq 100 \text{ mR/hr}$	28
3. Control Room Outside Air Intakes--					
a. Normal Outside Air Intake Isolation	1	2	1,2,3,4,5,6 and during movement of irradiated fuel assemblies and movement of loads over spent fuel pools.	$\leq 4.9 \times 10^{-6} \mu\text{Ci/ml}$	29

TABLE 3.3-6 (Continued)

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS

<u>INSTRUMENT</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ALARM/TRIP SETPOINT</u>	<u>ACTION</u>
3. Control Room Outside Air Intakes-- (Continued)					
b. Emergency Outside Air Intake Isolation--South Intake	1	2	1,2,3,4,5,6 and during movement of irradiated fuel assemblies and movement of loads over spent fuel pools.	$\leq 4.9 \times 10^{-6} \mu\text{Ci/ml}$	29
c. Emergency Outside Air Intake Isolation--North Intake	1	2	1,2,3,4,5,6 and during movement of irradiated fuel assemblies and movement of loads over spent fuel pools.	$\leq 4.9 \times 10^{-6} \mu\text{Ci/ml}$	29

TABLE 4.3-3 (Continued)

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>DIGITAL CHANNEL OPERATIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE IS REQUIRED</u>
3. Control Room Outside Air Intakes				
a. Normal Outside Air Intake Isolation	S	R	Q	1,2,3,4,5,6 and during movement of irradiated fuel assemblies and movement of loads over spent fuel pools.
b. Emergency Outside Air Intake Isolation--South Intake	S	R	Q	1,2,3,4,5,6 and during movement of irradiated fuel assemblies and movement of loads over spent fuel pools.
c. Emergency Outside Air Intake Isolation--North Intake	S	R	Q	1,2,3,4,5,6 and during movement of irradiated fuel assemblies and movement of loads over spent fuel pools.

TABLE NOTATIONS

- * With irradiated fuel in the Northend Spent Fuel Pool or transfer of irradiated fuel from or to a spent fuel shipping cask.
- ** With irradiated fuel in the Southend Spent Fuel Pool or New Fuel Pool.
- # Whenever pre-entry purge system is to be used.
- ## Prior to operation of pre-entry purge unless performed within the last 92 days.

PLANT SYSTEMS

3/4.7.6 CONTROL ROOM EMERGENCY FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6 Two independent Control Room Emergency Filtration Systems shall be OPERABLE.*

APPLICABILITY:

- a. MODES 1, 2, 3, and 4
- b. MODES 5 and 6
- c. During movement of irradiated fuel assemblies and movement of loads over spent fuel pools

ACTION:

a. MODES 1, 2, 3 and 4:

-----NOTE-----
In addition to the Actions below, perform Action c. if applicable.

- 1. With one Control Room Emergency Filtration System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- 2. With two Control Room Emergency Filtration Systems inoperable due to an inoperable control room boundary, restore the control room boundary to OPERABLE status within 24 hours. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. MODES 5 and 6

-----NOTE-----
In addition to the Actions below, perform Action c. if applicable.

- 1. With one Control Room Emergency Filtration System inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE Control Room Emergency Filtration System in the recirculation mode.
- 2. With both Control Room Emergency Filtration Systems inoperable, or with the OPERABLE Control Room Emergency Filtration System required to be in the recirculation mode by ACTION b.1., not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel.

* The control room boundary may be opened intermittently under administrative controls.

PLANT SYSTEMS

3/4.7.6 CONTROL ROOM EMERGENCY FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION (Continued)

- c. During movement of irradiated fuel assemblies or movement of loads over spent fuel pools.
 1. With one Control Room Emergency Filtration System inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE Control Room Emergency Filtration System in the recirculation mode.
 2. With both Control Room Emergency Filtration Systems inoperable, or with the OPERABLE Control Room Emergency Filtration System required to be in the recirculation mode by Action c.1., not capable of being powered by an OPERABLE emergency power source, suspend all operations involving movement of irradiated fuel assemblies or movement of loads over spent fuel pools.

SURVEILLANCE REQUIREMENTS

4.7.6 Each Control Room Emergency Filtration System shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;
- b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following significant painting, fire, or chemical release in any ventilation zone communicating with the system by:
 1. Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Position C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 4000 cfm \pm 10% during system operation when tested in accordance with ANSI N510-1980; and
 2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of \leq 0.5% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.

PLANT SYSTEMS

CONTROL ROOM EMERGENCY FILTRATION SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

- c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of $\leq 0.5\%$ when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.
- d. At least once per 18 months by:
 - 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5.1 inches water gauge while operating the system at a flow rate of $4000\text{ cfm} \pm 10\%$;
 - 2. Verifying that, on either a Safety Injection or a High Radiation test signal, the system automatically switches into an isolation with recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks;
 - 3. Verifying that the system maintains the control room at a positive pressure of greater than or equal to $1/8$ inch Water Gauge at less than or equal to a pressurization flow of 315 cfm relative to adjacent areas during system operation;
 - 4. Verifying that the heaters dissipate $14 \pm 1.4\text{ kW}$ when tested in accordance with ANSI N510-1980; and
 - 5. Deleted.
- e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of $4000\text{ cfm} \pm 10\%$; and
- f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of $4000\text{ cfm} \pm 10\%$.

PLANT SYSTEMS

3/4.7.7 REACTOR AUXILIARY BUILDING (RAB) EMERGENCY EXHAUST SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent RAB Emergency Exhaust Systems shall be OPERABLE.*

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With one RAB Emergency Exhaust System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With two RAB Emergency Exhaust Systems inoperable due to an inoperable RAB Emergency Exhaust System boundary, restore the RAB Emergency Exhaust System boundary to OPERABLE status within 24 hours. Otherwise, be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.7 Each RAB Emergency Exhaust System shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;
- b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following significant painting, fire, or chemical release in any ventilation zone communicating with the system by:
 1. Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the unit flow rate is 6800 cfm \pm 10% during system operation when tested in accordance with ANSI N510-1980;
 2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodine penetration of \leq 2.5% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.

* The RAB Emergency Exhaust Systems boundary may be opened intermittently under administrative controls.

PLANT SYSTEMS

REACTOR AUXILIARY BUILDING (RAB) EMERGENCY EXHAUST SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

- c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, has a methyl iodide penetration of $\leq 2.5\%$ when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803-1989.
- d. At least once per 18 months by:
 - 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber bank is less than 4.1 inches water gauge while operating the unit at a flow rate of $6800 \text{ cfm} \pm 10\%$,
 - 2. Verifying that the system starts on a Safety Injection test signal,
 - 3. Verifying that the system maintains the areas served by the exhaust system at a negative pressure of greater than or equal to $1/8$ inch water gauge relative to the outside atmosphere,
 - 4. Verifying that the filter cooling bypass valve is locked in the balanced position, and
 - 5. Verifying that the heaters dissipate $40 \pm 4 \text{ kW}$ when tested in accordance with ANSI N510-1980.
- e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the unit at a flow rate of $6800 \text{ cfm} \pm 10\%$; and
- f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the unit at a flow rate of $6800 \text{ cfm} \pm 10\%$.

REFUELING OPERATIONS

3/4.9.12 FUEL HANDLING BUILDING EMERGENCY EXHAUST SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.12 Two independent Fuel Handling Building Emergency Exhaust System Trains shall be OPERABLE.*

APPLICABILITY: Whenever irradiated fuel is in a storage pool.

ACTION:

- a. With one Fuel Handling Building Emergency Exhaust System Train inoperable, fuel movement within the storage pool or crane operation with loads over the storage pool may proceed provided the OPERABLE Fuel Handling Building Emergency Exhaust System Train is capable of being powered from an OPERABLE emergency power source and is in operation and discharging through at least one train of HEPA filters and charcoal adsorber.
- b. With no Fuel Handling Building Emergency Exhaust System Trains OPERABLE, suspend all operations involving movement of fuel within the storage pool or crane operation with loads over the storage pool until at least one Fuel Handling Building Emergency Exhaust System Train is restored to OPERABLE status.
- c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12 The above required Fuel Handling Building Emergency Exhaust System trains shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;
- b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following significant painting, fire, or chemical release in any ventilation zone communicating with the system by:
 1. Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the unit flow rate is 6600 cfm \pm 10% during system operation when tested in accordance with ANSI N510-1980.

* The Fuel Handling Building Emergency Exhaust System boundary may be opened intermittently under administrative controls.

PLANT SYSTEMS

BASES

3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the Component Cooling Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

3/4.7.4 EMERGENCY SERVICE WATER SYSTEM

The OPERABILITY of the Emergency Service Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

3/4.7.5 ULTIMATE HEAT SINK

The limitations on the ultimate heat sink level and temperature ensure that sufficient cooling capacity is available either: (1) provide normal cooldown of the facility or (2) mitigate the effects of accident conditions within acceptable limits.

The limitations on minimum water level and maximum temperature are based on providing a 30-day cooling water supply to safety-related equipment without exceeding its design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," Rev. 2, January 1976.

3/4.7.6 CONTROL ROOM EMERGENCY FILTRATION SYSTEM

The OPERABILITY of the Control Room Emergency Filtration System ensures that the control room will remain habitable for operations personnel during and following all credible accident conditions. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rems or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50. ANSI N510-1980 will be used as a procedural guide for surveillance testing. Criteria for laboratory testing of charcoal and for in-place testing of HEPA filters and charcoal adsorbers is based upon a removal efficiency of 99% for elemental, particulate and organic forms of radioiodine. The filter pressure drop was chosen to be half-way between the estimated clean and dirty pressure drops for these components. This assures the full functionality of the filters for a prolonged period, even at the Technical Specification limit.

The LCO is modified by a note allowing the control room boundary to be opened intermittently under administrative controls. For entry and exit through doors, the administrative control of opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

PLANT SYSTEMS

BASES

CONTROL ROOM EMERGENCY FILTRATION SYSTEM (Continued)

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the CREFS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns. HNP will have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into this condition. The 24 hour allowed out of service time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary. The 24 hour allowed out of service time is reasonable based on the low probability of a DBA occurring during this time period, and the availability of compensatory measures.

3/4.7.7 REACTOR AUXILIARY BUILDING EMERGENCY EXHAUST SYSTEM

The OPERABILITY of the Reactor Auxiliary Building Emergency Exhaust System ensures that radioactive materials leaking from the ECCS equipment within the pump room following a LOCA are filtered prior to reaching the environment. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing. Criteria for laboratory testing of charcoal and for in-place testing of HEPA filters and charcoal adsorbers is based upon removal efficiencies of 95% for organic and elemental forms of radioiodine and 99% for particulate forms. The filter pressure drop was chosen to be half-way between the estimated clean and dirty pressure drops for these components. This assures the full functionality of the filters for a prolonged period, even at the Technical Specification limit.

The LCO is modified by a note allowing the Reactor Auxiliary Building Emergency Exhaust System (RABEES) ventilation boundary to be opened intermittently under administrative controls. For entry and exit through doors, the administrative control of opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for RABEES isolation is indicated.

If the RABEES boundary is inoperable in MODES 1, 2, 3, and 4, the RABEES trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE RABEES boundary within 24 hours. During the period that the RABEES boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19, 60, 64, and 10 CFR Part 100) should be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns. HNP will have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into this condition. The 24 hour allowed out of service time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the RABEES boundary. The 24 hour allowed out of service time is reasonable based on the low probability of a DBA occurring during this time period, and the availability of compensatory measures.

PLANT SYSTEMS

BASES

3/4.7.8 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads.

Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined and approved by the Manager-Technical Support. The determination shall be based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g., temperature, atmosphere, location, etc.), and the recommendations of Regulatory Guides 8.8 and 8.10. The addition or deletion of any hydraulic or mechanical snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

Surveillance to demonstrate OPERABILITY is by performance of an augmented inservice inspection program.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Commission if a justifiable basis for exemption is presented and, if applicable, snubber life destructive testing was performed to qualify the snubbers for the applicable design conditions at either the completion of their fabrication or at a subsequent date. Snubbers so exempted shall be listed in the list of individual snubbers indicating the extent of the exemptions.

The service life of a snubber is established via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records (newly installed snubbers, seal replaced, spring replaced, in high radiation area, in high temperature area, etc.). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life.

PLANT SYSTEMS

BASES

3/4.7.9 SEALED SOURCE CONTAMINATION

The sources requiring leak tests are specified in 10 CFR 31.5(c)(2)(ii). The limitation on removable contamination is required by 10 CFR 31.5(c)5. This limitation will ensure that leakage from Byproduct, Source, and Special Nuclear Material sources will not exceed allowable intake values.

Sealed sources are classified into three groups according to their use, with Surveillance Requirements commensurate with the probability of damage to a source in that group. Those sources that are frequently handled are required to be tested more often than those that are not. Sealed sources that are continuously enclosed within a shielded mechanism (i.e., sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shielded mechanism.

3/4.7.10 DELETED

3/4.7.11 DELETED

3/4.7.12 DELETED

3.4.7.13 ESSENTIAL SERVICES CHILLED WATER SYSTEM

The OPERABILITY of the Emergency Service Chilled Water System ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

REFUELING OPERATIONS

BASES

3/4.9.10 AND 3/4.9.11 WATER LEVEL - REACTOR VESSEL AND NEW AND SPENT FUEL POOLS

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed iodine gas activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the safety analysis.

According to Regulatory Guide 1.25, Revision 0, there is 23 feet of water between the top of the damaged fuel bundle and the fuel pool surface during a fuel handling accident. With 23 feet of water, the assumptions of Regulatory Guide 1.25, Revision 0, can be used directly. In practice, this LCO preserves this assumption for the bulk of the fuel in the storage racks. In the case of a single bundle dropped and lying horizontal on top of the spent fuel racks; however, there may be <23 feet of water above the top of the fuel bundle and the surface, indicated by the width of the bundle. To offset this small nonconservatism, the analysis assumes that all fuel rods fail.

3/4.9.12 FUEL HANDLING BUILDING EMERGENCY EXHAUST SYSTEM

The limitations on the Fuel Handling Building Emergency Exhaust System ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing. Criteria for laboratory testing of charcoal and for in-place testing of HEPA filters and charcoal adsorbers is based upon removal efficiencies of 95% for organic and elemental forms of radioiodine and 99% for particulate forms. The filter pressure drop was chosen to be half-way between the estimated clean and dirty pressure drops for these components. This assures the full functionality of the filters for a prolonged period, even at the Technical Specification limit.

The LCO is modified by a note allowing the Fuel Handling Building Emergency Exhaust System (FHBEES) ventilation boundary to be opened intermittently under administrative controls. For entry and exit through doors, the administrative control of opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for FHBEES isolation is indicated.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

1.0 INTRODUCTION

By letter dated April 7, 2000, as supplemented June 14 and September 11, 2000, Carolina Power & Light Company (CP&L, the licensee) requested a change to the Technical Specifications (TS) for the Shearon Harris Nuclear Power Plant, Unit 1. The proposed amendment would revise TS 3/4.7.6, "Control Room Emergency Filtration System [CREFS]," TS 3/4.7.7, "Reactor Auxiliary Building Emergency Exhaust System [RABEES]," and TS 3/4.9.12, "Fuel Handling Building Emergency Exhaust System [FHBEES]." The associated Bases would also be changed in accordance with the amendment. Specifically, the licensee proposed to revise these TS to provide an action when the CREFS, RABEES or FHBEES ventilation boundary is inoperable, and a Limiting Condition for Operation (LCO) note that allows an applicable ventilation boundary to be open intermittently under administrative controls. These changes are based on TSTF-287 to the Standard Technical Specifications. Additionally, the licensee proposes to modify TS 3/4.3.3.1, "Radiation Monitoring for Plant Operations," to provide consistency between the applicability of the CREFS and the radiation monitors that initiate a control room isolation signal.

The June 14 and September 11, 2000 supplements provided clarifying information that did not expand the application beyond the scope of the initial Federal Register notice, or change the staff's initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

The CREFS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity. The RABEES limits the post-accident radiological releases from certain potentially contaminated areas of the reactor auxiliary building. The FHBEES mitigates the consequences of a fuel handling accident by removing airborne radioactivity from the fuel handling building exhaust air prior to release to the atmosphere. Each of these systems consists of two 100-percent capacity redundant fan and filter subsystems.

The existing LCO 4.7.6 surveillance requirements (SRs) that test the integrity of the control room boundary require a positive pressure limit to be satisfied with one ventilation train operating. The existing LCO 4.7.7 SRs that test the integrity of the reactor auxiliary building (RAB) and LCO 4.9.12 SRs that test the integrity of the fuel handling building have similar requirements regarding a positive pressure limit. While other SRs in these same specifications test the operability and function of the ventilation trains, the pressure tests ensure that the ventilation pressure boundary leaktightness is adequate to meet design assumptions for personnel post-accident doses (the LCO 4.7.6 SRs are for control room personnel doses only).

Currently, there are no corresponding conditions, required actions, or completion times specified in these three LCOs should the pressure boundary surveillances not be met. Therefore, any boundary breach of a ventilation area which renders both trains inoperable requires entry into TS 3.0.3 (an orderly shutdown of the unit) if in a mode requiring the system(s) to be operable, or requires immediate action to suspend fuel movement.

The proposed changes are similar to Standard TS LCOs for secondary containment (at boiling water reactors) and shield building (at pressurized water reactors), which allow 24 hours to restore the secondary containment or shield building envelope to operable status before requiring an orderly shutdown from operating conditions.

3.0 EVALUATION

3.1 Radiation Monitoring Instrumentation

- (a) The licensee has proposed changes to TS Table 3.3-6, "Radiation Monitoring Instrumentation for Plant Operations," and TS Table 4.3-3, "Radiation Monitoring Instrumentation for Plant Operations Surveillance Requirements." The condition "and during movement of irradiated fuel assemblies and movement of loads over spent fuel pools" is being added to the applicable modes for normal and emergency control room outside air intake isolation instrumentation.

These changes are acceptable because they provide added assurance that instrumentation will be available to activate the CREFS if there is a fuel handling and/or load movement accident.

3.2 CREFS LCOs

- (a) The condition "During movement of irradiated fuel assemblies or movement of loads over spent fuel pools" is being added to the applicable modes. Actions are specified for one (7 days to initiate operable train in recirculation mode) and two (suspend fuel handling and/or load movement over the spent fuel pool) CREFS trains inoperable.

This change is acceptable because it provides added assurance that CREFS will be available if there is a fuel handling and/or load movement accident.

- (b) The LCOs are being modified by a note which states "The control room boundary may be opened intermittently under administrative controls." The Bases state that, for entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for control room area isolation is indicated.

The administrative controls associated with the opening of the control room boundary provide reasonable assurance that actions can be taken to restore the boundary in the event of an accident requiring CREFS actuation. Therefore, this change is acceptable.

- (c) An LCO action is being added which will be applicable in Modes 1, 2, 3 and 4 when both trains of CREFS are inoperable due to an inoperable control room boundary. This action allows 24 hours to restore the boundary before an orderly shutdown of the unit must be initiated. The 24 hours provides the time necessary to diagnose, plan, restore and conduct a system test due to most problems that result in an inoperable boundary, thus avoiding a plant shutdown. The Bases provide details of the administrative controls that are required to minimize the consequences of an inoperable boundary.

The 24-hour Completion Time is reasonable based on the low probability of a design basis accident occurring during this time period and on the compensatory measures available to the operator to minimize the consequences of potential hazards.

The proposed change is in conformance with TSTF-287. During the period that the control building boundary is inoperable, appropriate compensatory measures consistent with the intent of 10 CFR 50 Appendix A, General Design Criteria (GDC) 19 would be utilized to protect the control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature, and relative humidity, and to ensure physical security. These preplanned measures will be available to address these concerns for intentional and unintentional entry into the condition. For example, when the control room boundary is opened for other than entry through doors, the proposed Bases state that, in addition to other necessary measures, a dedicated individual will be stationed in the area in continuous contact with the control room to rapidly restore the boundary.

Based on the low probability of an event occurring in this time, and the availability of compensatory measures consistent with GDC 19 to minimize the consequences during an event, the proposed change is acceptable.

3.3 RABEES LCOs

- (a) The LCOs are being modified by a note which states "The RAB Emergency Exhaust Systems boundary may be opened intermittently under administrative controls." The Bases state that, for entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for RABEES isolation is indicated.

The administrative controls associated with the opening of the RABEES boundary provide reasonable assurance that actions can be taken to restore the boundary in the event of an accident requiring RABEES actuation. Therefore, this change is acceptable.

- (b) An LCO action is being added which will be applicable in Modes 1, 2, 3 and 4 when both trains of RABEES are inoperable due to an inoperable RABEES boundary. This action allows 24 hours to restore the boundary before an orderly shutdown of the unit must be initiated. The 24 hours provides the time necessary to diagnose, plan, restore and conduct a system test due to most problems that result in an inoperable boundary, thus

avoiding a plant shutdown. The Bases provide details of the administrative controls that are required to minimize the consequences of an inoperable boundary.

The 24-hour Completion Time is reasonable based on the low probability of a design basis accident occurring during this time period and on the compensatory measures available to the operator to minimize the consequences of potential hazards.

The proposed change is in conformance with TSTF-287. During the period that the RAB boundary is inoperable, appropriate compensatory measures consistent with the intent of 10 CFR 50 Appendix A, GDC 19, 60 and 64 and 10 CFR Part 100 would be utilized to protect plant personnel from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature, and relative humidity, and to ensure physical security. These preplanned measures will be available to address these concerns for intentional and unintentional entry into the condition. For example, when the RAB boundary is opened for other than entry through doors, the proposed Bases state that, in addition to other necessary measures, a dedicated individual will be stationed in the area in continuous contact with the control room to rapidly restore the boundary. Additionally, there is a low probability of an event requiring an intact RAB boundary occurring during the 24-hour allowed time.

Based on the low probability of an event occurring in this time and the availability of compensatory measures consistent with GDCs 60 and 64 and 10 CFR Part 100 to minimize the consequences during an event, the proposed changes are acceptable.

3.4 FHBEES LCOs

- (a) The LCOs are being modified by a note which states "The Fuel Handling Building Emergency Exhaust System boundary may be opened intermittently under administrative controls." The Bases state that, for entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for FHBEES isolation is indicated.

The administrative controls associated with the opening of the FHBEES boundary provide reasonable assurance that actions can be taken to restore the boundary in the event of an accident requiring FHBEES actuation. Therefore, this change is acceptable.

3.5 Bases Changes

- (a) The licensee also proposed changes to the Bases for the above TS. These Bases changes are consistent with the proposed TS changes and therefore are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of North Carolina official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration (65 FR 25762). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: October 30, 2000

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