February 6, 19

Mr. Leon R. Eliason
Chief Nuclear Officer & President-
Nuclear Business Unit
Public Service Electric & Gas
Company
Post Office Box 236
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 (TAC NOS. M95691 AND M95692)

Dear Mr. Eliason:

The Commission has issued the enclosed Amendment Nos. 190 and 173 to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Nuclear Generating Station, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated June 10, 1996, as supplemented June 24, July 1, August 13, September 20 and October 17, 1996.

These amendments change Technical Specifications 3/4.3.3.1, "Radiation Monitoring Instrumentation," and 3/4.7.6, "Control Room Emergency Air Conditioning System," to reflect a control room design in which the common Unit 1 and Unit 2 control room envelope is supplied by 2 one hundred percent capable Control Room Emergency Air Conditioning System trains.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/S/
Leonard N. Olshan, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-272/311

Enclosures: 1. Amendment No. 190 to License No. DPR-70
2. Amendment No. 173 to License No. DPR-75
3. Safety Evaluation

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9702130049 970206
PDR ADOCK 05000272
P PDR

Re: I concur w/ the comments. The flows need to be revised as indicated

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

February 6, 1997

Mr. Leon R. Eliason
Chief Nuclear Officer & President-
Nuclear Business Unit
Public Service Electric & Gas
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2. Amendment No. 173 to License No. DPR-75
3. Safety Evaluation

cc w/encls: See next page

Mr. Leon R. Eliason
Public Service Electric & Gas
Company

Salem Nuclear Generating Station,
Units 1 and 2

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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-272

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 190
License No. DPR-70

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:

   A. The application for amendment filed by the Public Service Electric & Gas Company, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) dated June 10, 1996, as supplemented June 24, July 1, August 13, September 20, and October 17, 1996, 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 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 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. DPR-70 is hereby amended to read as follows:

9702130051 970206
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P PDR

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 190 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance, to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: February 6, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 190

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Revise Appendix A as follows:

Remove Pages	Insert Pages
3/4 3-36a	3/4 3-36a
3/4 3-37	3/4 3-37
3/4 3-38a	3/4 3-38a
3/4 7-18	3/4 7-18
3/4 7-19	3/4 7-19
3/4 7-20	3/4 7-20
3/4 7-21	3/4 7-21
B 3/4 3-2	B 3/4 3-2
B 3/4 7-5	B 3/4 7-5
-	B 3/4 7-5a
-	B 3/4 7-5b
-	B 3/4 7-5c

TABLE 3.3-6 (Continued)
RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
2. PROCESS MONITORS					
b. Noble Gas Effluent Monitors					
1) Medium Range Auxiliary Building Exhaust System (Plant Vent)	1	1,2,3&4	$\leq 3.0 \times 10^{-2} \mu Ci/cm^3$ (Alarm only)	10^{-3}-$10^{1} \mu Ci/cm^3$	23
2) High Range Auxiliary Building Exhaust System (Plant Vent)	1	1,2,3&4	$\leq 1.0 \times 10^{2} \mu Ci/cm^3$ (Alarm only)	10^{-1}-10^{5} $\mu Ci/cm^3$	23
3) Main Steamline Discharge (Safety Valves and Atmospheric Steam Dumps)	1/ MS Line	1,2,3&4	$\leq$10 mR/hr (Alarm only)	1-10^{4} mR/hr	23
4) Condenser Exhaust System	1	1,2,3&4	$\leq 1.27 \times 10^{4}$ cpm (Alarm only)	1-10^{6} cpm	23
3. CONTROL ROOM					
a. Air Intake - Radiation Level	2/Intake##	**	$\leq 2.48 \times 10^{3}$ cpm	10^{1}-10^{7} cpm	24

Control Room air intakes shared between Unit 1 and 2.

** ALL MODES and during movement of irradiated fuel assemblies and during core alterations.

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 19 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.

ACTION 23 - With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements, initiate the preplanned alternate method of monitoring the appropriate parameter(s), within 72 hours, and:

1) either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or

2) prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

ACTION 24 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel(s) to OPERABLE status within 7 days or initiate and maintain operation of the Control Room Emergency Air Conditioning System (CREACS) in the pressurization or recirculation mode of operation. CORE ALTERATIONS and movement of irradiated fuel assemblies will be suspended during operation in the recirculation mode.

With no channels OPERABLE in a Control Room air intake, immediately initiate and maintain operation of the CREACS in the pressurization or recirculation mode of operation. CORE ALTERATIONS and movement of irradiated fuel assemblies will be suspended during operation in the recirculation mode.

TABLE 4.3-3 (Continued)
RADIATION MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNELS CHECKS	SOURCE CHECKS	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
2. PROCESS MONITORS					
b. Noble Gas Effluent Monitors					
1) Medium Range Auxiliary Building Exhaust System (Plant Vent)	S	M	R	Q	1, 2, 3 & 4
2) High Range Auxiliary Building Exhaust System (Plant Vent)	S	M	R	Q	1, 2, 3 & 4
3) Main Steamline Discharge (Safety Valves and Atmospheric Dumps)	S	M	R	Q	1, 2, 3 & 4
4) Condenser Exh. Sys.	S	M	R	Q	1, 2, 3 & 4
3. CONTROL ROOM					
a. Air Intake - Radiation Level	S	M	R	Q	**

** ALL MODES and during movement of irradiated fuel assemblies and during core alterations.

PLANT SYSTEMS

3/4.7.6 CONTROL ROOM EMERGENCY AIR CONDITIONING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 The common control room emergency air conditioning system (CREACS)* shall be OPERABLE with:

a. Two independent air conditioning filtration trains (one from each unit) consisting of:

1. Two fans and associated outlet dampers,
2. One cooling coil,
3. One charcoal adsorber and HEPA filter array,
4. Return air isolation damper.

b. All other automatic dampers required for operation in the pressurization or recirculation modes.

c. The control room envelope intact.

APPLICABILITY: ALL MODES and during movement of irradiated fuel assemblies and during CORE ALTERATIONS.

ACTION: MODES 1, 2, 3, and 4

a. With one filtration train inoperable, align CREACS for single filtration train operation within 4 hours, and restore the inoperable filtration train to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With CREACS aligned for single filtration train operation and with one of the two remaining fans or associated outlet damper inoperable, restore the inoperable fan or damper to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With the Control Room Envelope inoperable, restore the Control Room Envelope to OPERABLE status within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With one or both series isolation damper(s) on a normal Control Area Air Conditioning System (CAACS) outside air intake or exhaust duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (Refer to ACTION 24 of Table 3.3-6.)

* The CREACS is a shared system with Salem Unit 2

LIMITING CONDITION FOR OPERATION (Continued)

e. With one or both isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position and restore the damper(s) 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.

f. With any isolation damper between the normal CAACS and the CREACS inoperable, secure the damper in the closed position within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6 or during movement of irradiated fuel assemblies and during CORE ALTERATIONS.

a. With one filtration train inoperable, align CREACS for single filtration train operation within 4 hours, or suspend CORE ALTERATIONS and movement of irradiated fuel assemblies.

b. With CREACS aligned for single filtration train operation with one of the two remaining fans or associated outlet damper inoperable, restore the fan or damper to OPERABLE status within 72 hours, or suspend CORE ALTERATIONS and movement of irradiated fuel assemblies.

c. With two filtration trains inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies.

d. With the Control Room Envelope inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies.

e. With one or both series isolation damper(s) on a normal CAACS outside air intake or exhaust duct inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. (Refer to ACTION 24 of Table 3.3-6.)

f. With one or both series isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. To resume CORE ALTERATIONS or movement of irradiated fuel assemblies, at least one emergency air intake duct must be operable on each unit.

g. With any isolation damper between the CAACS and the CREACS inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies until the damper is closed and secured in the closed position.

SURVEILLANCE REQUIREMENTS

4.7.6.1 Each control room emergency air conditioning system filtration train shall be demonstrated OPERABLE:

a. At least once per 31 days by initiating flow through the HEPA filter and charcoal adsorber train(s) and verifying that the train(s) operates with each fan operating for at least 15 minutes.

b. At least once per 18 months or prior to return to service (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system, by:

1. Verifying that the charcoal adsorbers remove ≥99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place while operating the ventilation system at a flow rate of 8000 cfm ± 10%.

2. Verifying that the HEPA filter banks remove ≥99% of the DOP when they are tested in-place while operating the ventilation system at a flow rate of 8000 cfm ± 10%.

3. Verifying within 31 days after removal that a laboratory analysis of a carbon sample from one of the charcoal adsorbers demonstrates a removal efficiency of ≥99% for radioactive methyl iodide when the sample is tested at 30°C, 95% relative humidity.

c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a carbon sample obtained from a test canister demonstrates a removal efficiency of ≥ 99% for radioactive methyl iodide when the sample is tested at 30°C, 95% relative humidity.

d. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filter and charcoal adsorber bank is ≤ 3.5 inches water gauge while operating the ventilation system at a flow rate of 8000 cfm ± 10%.

2. Verifying that on a safety injection test signal or control room intake high radiation test signal, the system automatically actuates in the pressurization mode by opening the outside air supply and diverting air flow through the HEPA filter and charcoal adsorber bank.

3. Verifying that the system can maintain the control room at a positive pressure ≥ 1/8" water gauge relative to the adjacent areas during system operation with makeup air being supplied through the HEPA filters and charcoal adsorbers at the design makeup flow rate of ≤ 2200 cfm.

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying that on a manual actuation signal, the system will actuate to the required pressurization or recirculation operating mode.

5. Verify each CREACS train has the capability to remove the assumed heat load.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove ≥ 99% of the DOP when they are tested in-place while operating the filter system at a flow rate of 8000 cfm ± 10%.

f. After each complete or partial replacement of a charcoal adsorbers bank by verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place while operating the filter system at a flow rate of 8000 cfm ± 10%.

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION (Continued)

CROSS REFERENCE - TABLES 3.3-6 AND 4.3-3

Func Unit	Rad Mon Number	Rad Mon Function
Area Monitors		
1a	1R5/1R9	Fuel Storage Area
1b	1R44	Containment Area
Process Monitors		
2a1	1R12A	Containment Purge & Pressure/Vacuum Relief Gaseous Activity
#	1R41C	Plant Vent Noble Gas Monitor may substitute for 1R12A when the Purge & Pressure/Vacuum Relief Valves are open.
2a2	1R11A	Containment Purge & Pressure/Vacuum Relief Air Particulate Activity
2b1	1R45B	Medium Range Auxiliary Building Exhaust System (Plant Vent) Noble Gas Effluent
2b2	1R45C	High Range Auxiliary Building Exhaust System (Plant Vent) Noble Gas Effluent
2b3	1R46	Main Steamline Discharge (Safety Valves and Atmospheric Dump Valves) Noble Gas Effluent
2b4	1R15	Condenser Exhaust System Noble Gas Effluent
3a	1R1B-1	Unit 1 Control Room Intake Channel 1 (to Unit 1 Monitor)
	2R1B-2	Unit 1 Control Room Intake Channel 2 (to Unit 2 Monitor)
	2R1B-1	Unit 2 Control Room Intake Channel 1 (to Unit 2 Monitor)
	1R1B-2	Unit 2 Control Room Intake Channel 2 (to Unit 1 Monitor)

Immediate action(s), in accordance with the LCO Action Statements, means that the required action should be pursued without delay and in a controlled manner.

3/4.3.3.2 MOVABLE INCORE DETECTORS

The OPERABILITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. The OPERABILITY of this system is demonstrated by irradiating each detector used and normalizing its respective output.

3/4.3.3.3

THIS SECTION DELETED

3/4.3.3.4

THIS SECTION DELETED

3/4.7.5 FLOOD PROTECTION

The limitation on flood protection ensures that facility protective actions will be taken and operation will be terminated in the event of flood conditions. The limit of elevation 10.5' Mean Sea Level is based on the elevation above which facility flood control measures are required to provide protection to safety related equipment.

3/4.7.6 CONTROL ROOM EMERGENCY AIR CONDITIONING SYSTEM

The OPERABILITY of the control room emergency air conditioning system (CREACS) ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and following all credible accident conditions.

The CREACS is a shared system between Unit 1 and 2 supplying a common Control Room Envelope (CRE). During emergency operation following receipt of a Safety Injection or High Radiation actuation signal, for areas inside the CRE, one 100% capacity fan in each Unit's CREACS will operate in a pressurization mode with a constant amount of outside air supplied for continued CRE pressurization to 1/8" water gauge. One fan from each train will automatically start upon receipt of an initiation signal, with one fan in each train in standby. A failure of one fan will result in the standby fan automatically starting.

Each CREACS train has two 100% capacity fans, such that any one of the four fans is sized to provide the required flow for CRE pressurization to 1/8" water gauge positive pressure within the common CRE during an emergency.

A failure of one CREACS filtration train requires manual actions to properly reposition dampers in support of single filtration train operation.

To minimize control room radiological doses, the CREACS outside air is supplied from the non-accident unit's emergency air intake through the cross-connected supply duct (as determined by which unit received an accident signal). Outside air is mixed with recirculated air, passed through each CREACS filter bank (pre-filter, HEPA filter, and charcoal filter) and cooling coil, and distributed to the common CRE.

CREACS will be manually initiated in the recirculation mode only in the event of a fire outside the CRE, a toxic chemical release, delivery of Ammonium Hydroxide or testing.

BASES

A significant contributor to this system's OPERABILITY are the dampers which are required to actuate to their correct positions. The following dampers are associated with the respective LCO*:

a.1 Fan outlet dampers: 1(2)CAA15 and 1(2)CAA16

These dampers ensure that the flow path for CREACS is operable and are required to open upon CREACS initiation. The associated fan outlet damper will open on fan operation.

a.4 Return air isolation damper: 1(2)CAA17

When aligned for single train operation, the associated air return isolation damper will be administratively controlled in the open position.

b. Other dampers required for automatic operation in the pressurization or recirculation modes:

Control Area Air Conditioning System (CAACS) outside air intake isolation dampers: 1(2)CAA40, 1(2)CAA41, 1(2)CAA43 and 1(2)CAA45

The normally open outside air intake dampers 1(2)CAA40 and inlet plenum isolation dampers 1(2)CAA43 will be closed under emergency conditions. The normally closed outside air intake dampers 1(2)CAA41 and inlet plenum isolation dampers 1(2)CAA45 are normally closed and remain closed under emergency conditions.

Control Area Air Conditioning System (CAACS) exhaust isolation dampers: 1(2)CAA18 and 1(2)CAA19.

These dampers are normally closed and are required to remain closed to prevent inleakage from the outside environment in the event of a toxic release.

Control Room Emergency Air Conditioning System (CREACS) air intake dampers: 1(2)CAA48, 1(2)CAA49, 1(2)CAA50 and 1(2)CAA51

CREACS outside air intake dampers are maintained closed during normal and recirculation operation and are opened automatically upon initiation of CREACS pressurization. The control logic will automatically open the CREACS air intake dampers farthest from the radiation source based upon which Unit's Solid State Protection System (SSPS) or Radiation Monitoring System (RMS) signal is received.

* Operability of the CREACS requires that each of the Unit 2 dampers are also operable

CAACS and CREACS interface isolation dampers: 1(2)CAA14 and 1(2)CAA20

These two dampers are normally open and do not have associated redundant dampers. These dampers serve a boundary function by isolating the CREACS from the CAACS during emergency operation of the CREACS.

Note: Dampers 1(2)CAA5, CAACS recirculation damper will receive an accident alignment signal to ensure proper accident configuration of CAACS. This damper, however, is not required for the OPERABILITY of CREACS as defined in the LCO.

The control room envelope is considered intact and able to support operation of the CREACS when the emergency air conditioning system is capable of maintaining a 1/8" water gauge positive pressure with the control room boundary door(s) closed.

Filter testing will be in accordance with the applicable sections of ANSI N510 (1975) with the exception that laboratory testing of activated carbon will be in accordance with ASTM D3803 (1989).

TS Surveillance Requirement verifies that each fan is capable of operating for at least 15 minutes by initiating flow through the HEPA filter and charcoal adsorbers train(s) to ensure that the system is available in a standby mode.

Each CAACS normal air intake ductwork will have an additional radiation detector channel installed for a total of two detectors per intake. The two detector channels from Unit 1 and Unit 2 CAACS air intake provide input to common radiation monitor processors. Each radiation monitor processor (one for 1R1B-1/1R1B-2 and one for 2R1B-1/2R1B-2) provides a signal to initiate CREACS in the pressurization mode should high radiation be detected. A minimum of one out of two detectors in either intake will initiate the pressurization mode. With two detector channels inoperable on a Unit, operation may continue as long as CREACS is placed inservice in the pressurization or recirculation mode. Pressurization mode will be initiated after 7 days with one inoperable detector. Radiological releases during a fuel handling accident while operating in the recirculation mode could result in unacceptable radiation levels in the CRE since the automatic initiation capability has been defeated for high radiation due to isolation of the detectors. Therefore, movement of irradiated fuel assemblies or Core Alterations at either Unit will not be permitted when in the recirculation mode.

Immediate action(s), in accordance with the LCO Action Statements, means that the required action should be pursued without delay and in a controlled manner.

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 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix "A", 10 CFR 50.

3/4.7.7 AUXILIARY BUILDING EXHAUST AIR FILTRATION SYSTEM

The OPERABILITY of the auxiliary building exhaust air filtration system ensures that radioactive materials leaking from the ECCS equipment following a LOCA are filtered prior to reaching the environment. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the accident analyses. ANSI N510-1975 should be used as a procedural guideline for surveillance testing.

3/4.7.8 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values.

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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-311

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 173
License No. DPR-75

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:

   A. The application for amendment filed by the Public Service Electric & Gas Company, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) dated June 10, 1996, as supplemented June 24, July 1, August 13, September 20, and October 17, 1996, 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 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 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. DPR-75 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 173 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance, to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: February 6, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 173

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Revise Appendix A as follows:

Remove Pages	Insert Pages
3/4 3-39a	3/4 3-39a
3/4 3-40	3/4 3-40
3/4 3-41a	3/4 3-41a
3/4 7-15	3/4 7-15
3/4 7-16	3/4 7-16
3/4 7-17	3/4 7-17
-	3/4 7-17a
B 3/4 3-2	B 3/4 3-2
B 3/4 3-3	B 3/4 3-3
B 3/4 3-3a	B 3/4 3-3a
B 3/4 3-4	B 3/4 3-4
-	B 3/4 3-4a
B 3/4 7-5	B 3/4 7-5
-	B 3/4 7-5a
-	B 3/4 7-5b
-	B 3/4 7-5c

TABLE 3.3-6 (Continued)
RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
2. PROCESS MONITORS					
b. Noble Gas Effluent Monitors					
1) Medium Range Auxiliary Building Exhaust System (Plant Vent)	1	1,2,3&4	$\leq 3.0 \times 10^{-2} \mu Ci/cm^3$ (Alarm only)	10^{-3}-10^{1} $\mu Ci/cm^3$	26
2) High Range Auxiliary Building Exhaust System (Plant Vent)	1	1,2,3&4	$\leq 1.0 \times 10^{2} \mu Ci/cm^3$ (Alarm only)	10^{-1}-10^{5} $\mu Ci/cm^3$	26
3) Main Steamline Discharge (Safety Valves and Atmospheric Steam Dumps)	1/ MS Line	1,2,3&4	10 mR/hr (Alarm only)	1-10^{4} mR/hr	26
4) Condenser Exhaust System	1	1,2,3&4	$\leq 7.12 \times 10^{4}$ cpm (Alarm only)	1-10^{6} cpm	26
3. CONTROL ROOM					
a. Air Intake - Radiation Level	2/Intake##	**	$\leq 2.48 \times 10^{3}$ cpm	10^{1}-10^{7} cpm	27

Control Room air intakes shared between Unit 1 and 2.

** ALL MODES and during movement of irradiated fuel assemblies and during core alterations.

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 23 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

ACTION 24 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.7.1.

ACTION 25 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.

ACTION 26 - With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements, initiate the preplanned alternate method of monitoring the appropriate parameter(s), within 72 hours, and:

1) either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or

2) prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

ACTION 27 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel(s) to OPERABLE status within 7 days or initiate and maintain operation of the Control Room Emergency Air Conditioning System (CREACS) in the pressurization or recirculation mode of operation. CORE ALTERATIONS and movement of irradiated fuel assemblies will be suspended during operation in the recirculation mode.

With no channels OPERABLE in a Control Room air intake, immediately initiate and maintain operation of the CREACS in the pressurization or recirculation mode of operation. CORE ALTERATIONS and movement of irradiated fuel assemblies will be suspended during operation in the recirculation mode.

TABLE 4.3-3 (Continued)
RADIATION MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNELS CHECKS	SOURCE CHECKS	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
2. PROCESS MONITORS					
b. Noble Gas Effluent Monitors					
1) Medium Range Auxiliary Building Exhaust System (Plant Vent)	S	M	R	Q	1, 2, 3 & 4
2) High Range Auxiliary Building Exhaust System (Plant Vent)	S	M	R	Q	1, 2, 3 & 4
3) Main Steamline Discharge (Safety Valves and Atmospheric Dumps)	S	M	R	Q	1, 2, 3 & 4
4) Condenser Exh. Sys.	S	M	R	Q	1, 2, 3 & 4
3. CONTROL ROOM					
a. Air Intake - Radiation Level	S	M	R	Q	**

** ALL MODES and during movement of irradiated fuel assemblies and during CORE ALTERATIONS.

3/4.7.6 CONTROL ROOM EMERGENCY AIR CONDITIONING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6 The common control room emergency air conditioning system (CREACS)* shall be OPERABLE with:

a. Two independent air conditioning filtration trains (one from each unit) consisting of:

   1. Two fans and associated outlet dampers,
   2. One cooling coil,
   3. One charcoal adsorber and HEPA filter array,
   4. Return air isolation damper.

b. All other automatic dampers required for operation in the pressurization or recirculation modes.

c. The control room envelope intact.

APPLICABILITY: ALL MODES and during movement of irradiated fuel assemblies and during CORE ALTERATIONS.

ACTION: MODES 1, 2, 3, and 4

a. With one filtration train inoperable, align CREACS for single filtration train operation within 4 hours, and restore the inoperable filtration train to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With CREACS aligned for single filtration train operation and with one of the two remaining fans or associated outlet damper inoperable, restore the inoperable fan or damper to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With the Control Room Envelope inoperable, restore the Control Room Envelope to OPERABLE status within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With one or both series isolation damper(s) on a normal Control Area Air Conditioning System (CAACS) outside air intake or exhaust duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (Refer to ACTION 27 of Table 3.3-6.)

*The CREACS is a shared system with Salem Unit 1

LIMITING CONDITION FOR OPERATION (Continued)

e. With one or both isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position and restore the damper(s) 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.

f. With any isolation damper between the normal CAACS and the CREACS inoperable, secure the damper in the closed position within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6 or during movement of irradiated fuel assemblies and during CORE ALTERATIONS.

a. With one filtration train inoperable, align CREACS for single filtration train operation within 4 hours, or suspend CORE ALTERATIONS and movement of irradiated fuel assemblies.

b. With CREACS aligned for single filtration train operation with one of the two remaining fans or associated outlet damper inoperable, restore the fan or damper to OPERABLE status within 72 hours, or suspend CORE ALTERATIONS and movement of irradiated fuel assemblies.

c. With two filtration trains inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies.

d. With the Control Room Envelope inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies.

e. With one or both series isolation damper(s) on a normal CAACS outside air intake or exhaust duct inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. (Refer to ACTION 27 of Table 3.3-6.)

f. With one or both series isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. To resume CORE ALTERATIONS or movement of irradiated fuel assemblies, at least one emergency air intake duct must be operable on each unit.

g. With any isolation damper between the CAACS and the CREACS inoperable, immediately suspend CORE ALTERATIONS and movement of irradiated fuel assemblies until the damper is closed and secured in the closed position.

SURVEILLANCE REQUIREMENTS

4.7.6.1 The control room emergency air conditioning system shall be demonstrated OPERABLE:

a. At least once per 31 days by initiating flow through the HEPA filter and charcoal adsorber train(s) and verifying that the train(s) operates with each fan operating for at least 15 minutes.

b. At least once per 18 months or prior to return to service (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system, by:

1. Verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place while operating the ventilation system at a flow rate of 8000 cfm ± 10%.

2. Verifying that the HEPA filter banks remove ≥ 99% of the DOP when they are tested in-place while operating the ventilation system at a flow rate of 8000 cfm ± 10%.

3. Verifying within 31 days after removal that a laboratory analysis of a carbon sample from one of the charcoal adsorbers demonstrates a removal efficiency of ≥ 99% for radioactive methyl iodide when the sample is tested at 30°C, 95% relative humidity.

c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a carbon sample obtained from a test canister demonstrates a removal efficiency of ≥ 99% for radioactive methyl iodide when the sample is tested at 30°C, 95% relative humidity.

d. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filter and charcoal adsorber bank is ≤ 3.5 inches Water Gauge while operating the ventilation system at a flow rate of 8000 cfm ± 10%.

2. Verifying that on a safety injection test signal or control room intake high radiation test signal, the system automatically actuates in the pressurization mode by opening the outside air supply and diverting air flow through the HEPA filter and charcoal adsorber bank.

3. Verifying that the system can maintain the control room at a positive pressure ≥ 1/8" water gauge relative to the adjacent areas during system operation with makeup air being supplied through the HEPA filters and charcoal adsorbers at the design makeup flow rate of ≤ 2200 cfm.

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying that on a manual actuation signal, the system will actuate to the required pressurization or recirculation operating mode.

5. Verify each CREACS train has the capability to remove the assumed heat load.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove ≥ 99% of the DOP when they are tested in-place while operating the filter system at a flow rate of 8000 cfm ± 10%.

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place while operating the filter system at a flow rate of 8000 cfm ± 10%.

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION (Continued)

CROSS REFERENCE - TABLES 3.3-6 and 4.3-3

T/S Table Item No.	Instrument Description	Acceptable RMs Channels
1a	Fuel Storage Area	2R5 or 2R9
1b	Containment Area	2R44A and B
2a1a	Containment Gaseous Activity Purge & Pressure/Vacuum Relief Isolation	2R12A or 2R41A, B and D(1) (2)
2a1b	Containment Gaseous Activity RCS Leakage Detection	2R12A
2a2a	Containment Air Particulate Activity Purge & Pressure/Vacuum Relief Isolation	2R11A
2a2b	Containment Air Particulate Activity RCS Leakage Detection	2R11A
2b1	Noble Gas Effluent Medium Range Auxiliary Building Exhaust System (Plant Vent)	2R45B(3)
2b2	Noble Gas Effluent High Range Auxiliary Building Exhaust System (Plant Vent)	2R45C(3)
2b3	Noble Gas Effluent Main Steamline Discharge - Safety Valves and Atmospheric Steam Dumps	2R46
2B4	Noble Gas Effluent Condenser Exhaust System	2R15
3a	Unit 2 Control Room Intake Channel 1 (to Unit 2 Monitor) Unit 2 Control Room Intake Channel 2 (to Unit 1 Monitor) Unit 1 Control Room Intake Channel 1 (to Unit 1 Monitor) Unit 1 Control Room Intake Channel 2 (to Unit 2 Monitor)	2R1B-1 1R1B-2 1R1B-1 2R1B-2

(1) The channels listed are required to be operable to meet a single operable channel for the Technical Specificiation's "Minimum Channels Operable" requirement.

(2) For Mode 6, the setpoint applies to 2R41D using 2 x Background from 2R41A. For Modes 1, 2, 3, 4 & 5, the setpoint applies to 2R41D per Specification 3.3.3.9. The measurement range applies to 2R41A and B which display in uCi/cc using the appropriate channel conversion factor form cpm to uCi/cc.

(3) If 2R45 is out of service 2R41 may be used to meet the technical specificiation action requirement.

Immediate action(s), in accordance with the LCO Action Statements, means that the required action should be pursued without delay and in a controlled manner.

3/4.3.3.2 MOVABLE INCORE DETECTORS

The OPERABILITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. The OPERABILITY of this system is demonstrated by irradiating each detector used and normalizing its respective output.

For the purpose of measuring $F_Q(Z)$ or $F^N_{\Delta H}$, a full incore flux map is used. Quarter-core flux maps, as defined in WCAP-8648, June 1976, may be used in recalibration of the excore neutron flux detection system, and full incore flux maps or symmetric incore thimbles may be used for monitoring the QUADRANT POWER TILT RATIO when one Power Range Channel is inoperable.

3/4.3.3.3

THIS SECTION DELETED

3/4.3.3.4

THIS SECTION DELETED

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criterion 19 of 10 CFR 50.

3/4.3.3.6

THIS SECTION DELETED

3/4.3.3.7 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the Recommendations of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."

3/4.3.3.8 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50. The purpose of tank level indicating devices is to assure the detection and control of leaks that if not controlled could potentially result in the transport of radioactive materials to UNRESTRICTED AREAS.

CROSS REFERENCE - TABLES 3.3-12 and 4.3-12

T/S Table Item No.	Instrument Description	Acceptable RMS Channels
1a	Liquid Radwaste Effluent Line Gross Activity	2R18
1b	Steam Generator Blowdown Line Gross Activity	2R19A,B,C, and D(1)
2a	Containment Fan Coolers - Service Water Line Discharge Gross Activity	2R13A, B and C(1)
2b	Chemical Waste Basin Line Gross Activity	R37

(1) The channels listed are required to be operable to meet a single operable channel for the Technical Specification's "Minimum Channels Operable" requirement.

3/4.3.3.9 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. This instrumentation also includes provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the waste gas holdup system. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

CROSS REFERENCE - TABLES 3.3-13 and 4.3-13

T/S Table Item No.	Instrument Description	Acceptable RMS Channels
1a	Waste Gas Holdup System Noble Gas Activity	2R41A, B and D(1)(2)
2a	Containment Purge and Pressure - Vacuum Relief Noble Gas Activity	2R12A or 2R41A, B and D(1)(2)
3a	Plant Vent Header System Noble Gas Activity	2R16 or 2R41A, B and D(1)(2)

(1) The channels listed are required to be operable to meet a single operable channel for the Technical Specification's "Minimum Channels Operable" requirement.

(2) 2R41D is the setpoint channel. 2R41A and 2R41B are the measurement channels.

3/4.3.4 TURBINE OVERSPEED PROTECTION

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety-related components, equipment or structures.

The overspeed protection instrumentation consists of five solenoid valves and one trip mechanism which can be grouped into three independent systems. These are:

1. Mechanical Overspeed Trip

   The mechanical overspeed trip valve will dump the autostop oil. The dump of the autostop oil will open the oil operated interface valve to dump the emergency electro-hydraulic trip fluid.

2. Electrical Overspeed Trip

   The electrically sensed overspeed will trip two solenoid valves either of which will dump the autostop oil. The dump of the autostop oil will open the oil operated interface valve to dump the emergency electro-hydraulic trip fluid. The solenoid valves associated with the electrical overspeed are also energized by the various generator protections trips.

The dump of the autostop oil will actuate a solenoid to dump the emergency electro-hydraulic trip fluid. This solenoid serves as a backup for both the mechanical and electrical overspeed trips. The backup solenoid is also energized by the various generator protections trips.

3. Overspeed Protection Controller

Either of the two overspeed protection control solenoid dump valves will dump the control electro-hydraulic trip fluid from the governor and intercept valves. When turbine speed decreases, and the overspeed condition clears, the signal is removed and the governor and intercept valves reopen.

Salem Unit 2 turbine is operated at full time, full arc admission. To prevent excessive steam flow induced cyclic stresses of the control stage blading, perform turbine valve testing in accordance with manufacturer's recommendations.

During normal power operation, turbine valve testing is performed at a frequency consistent with the methodology presented in WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency." This report evaluates the contribution of failure or unavailability of the turbine valve safety function to the probability that the turbine will overspeed and eject a missile. It concludes that extended intervals between turbine valve functional tests can be achieved without exceeding the NRC acceptance criteria for the probability of a turbine missile ejection incident. Factors which affect the selected valve test interval include low pressure turbine rotor type and inspection interval; turbine valve type, arrangement and overspeed control; and secondary side water chemistry.

3/4.7.5 FLOOD PROTECTION

The limitation on flood protection ensures that facility protective actions will be taken and operation will be terminated in the event of flood conditions. The limit of elevation 10.5' Mean Sea Level is based on the elevation above which facility flood control measures are required to provide protection to safety-related equipment.

3/4.7.6 CONTROL ROOM EMERGENCY AIR CONDITIONING SYSTEM

The OPERABILITY of the control room emergency air conditioning system (CREACS) ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and following all credible accident conditions.

The CREACS is a shared system between Unit 1 and 2 supplying a common Control Room Envelope (CRE). During emergency operation following receipt of a Safety Injection or High Radiation actuation signal, for areas inside the CRE, one 100% capacity fan in each Unit's CREACS will operate in a pressurization mode with a constant amount of outside air supplied for continued CRE pressurization to 1/8" water gauge. One fan from each train will automatically start upon receipt of an initiation signal, with one fan in each train in standby. A failure of one fan will result in the standby fan automatically starting.

Each CREACS train has two 100% capacity fans, such that any one of the four fans is sized to provide the required flow for CRE pressurization to 1/8" water gauge positive pressure within the common CRE during an emergency.

A failure of one CREACS filtration train requires manual actions to properly reposition dampers in support of single filtration train operation.

To minimize control room radiological doses, the CREACS outside air is supplied from the non-accident unit's emergency air intake through the cross-connected supply duct (as determined by which unit received an accident signal). Outside air is mixed with recirculated air, passed through each CREACS filter bank (pre-filter, HEPA filter, and charcoal filter) and cooling coil, and distributed to the common CRE.

CREACS will be manually initiated in the recirculation mode only in the event of a fire outside the CRE, a toxic chemical release, delivery of Ammonium Hydroxide or testing.

A significant contributor to this system's OPERABILITY are the dampers which are required to actuate to their correct positions. The following dampers are associated with the respective LCO*:

a.1 Fan outlet dampers: 1(2)CAA15 and 1(2)CAA16

These dampers ensure that the flow path for CREACS is operable and are required to open upon CREACS initiation. The associated fan outlet damper will open on fan operation.

a.4 Return air isolation damper: 1(2)CAA17

When aligned for single train operation, the associated air return isolation damper will be administratively controlled in the open position.

b. Other dampers required for automatic operation in the pressurization or recirculation modes:

Control Area Air Conditioning System (CAACS) outside air intake isolation dampers: 1(2)CAA40, 1(2)CAA41, 1(2)CAA43 and 1(2)CAA45

The normally open outside air intake dampers 1(2)CAA40 and inlet plenum isolation dampers 1(2)CAA43 will be closed under emergency conditions. The normally closed outside air intake dampers 1(2)CAA41 and inlet plenum isolation dampers 1(2)CAA45 are normally closed and remain closed under emergency conditions.

Control Area Air Conditioning System (CAACS) exhaust isolation dampers: 1(2)CAA18 and 1(2)CAA19.

These dampers are normally closed and are required to remain closed to prevent inleakage from the outside environment in the event of a toxic release.

Control Room Emergency Air Conditioning System (CREACS) air intake dampers: 1(2)CAA48, 1(2)CAA49, 1(2)CAA50 and 1(2)CAA51

CREACS outside air intake dampers are maintained closed during normal and recirculation operation and are opened automatically upon initiation of CREACS pressurization. The control logic will automatically open the CREACS air intake dampers farthest from the radiation source based upon which Unit's Solid State Protection System (SSPS) or Radiation Monitoring System (RMS) signal is received.

* Operability of the CRECS requires that each of the Unit 1 dampers are also operable

CAACS and CREACS interface isolation dampers: 1(2)CAA14 and 1(2)CAA20

These two dampers are normally open and do not have associated redundant dampers. These dampers serve a boundary function by isolating the CREACS from the CAACS during emergency operation of the CREACS.

Note: Dampers 1(2)CAA5, CAACS recirculation damper will receive an accident alignment signal to ensure proper accident configuration of CAACS. This damper, however, is not required for the OPERABILITY of CREACS as defined in the LCO.

The control room envelope is considered intact and able to support operation of the CREACS when the emergency air conditioning system is capable of maintaining a 1/8" water gauge positive pressure with the control room boundary door(s) closed.

Filter testing will be in accordance with the applicable sections of ANSI N510 (1975) with the exception that laboratory testing of activated carbon will be in accordance with ASTM D3803 (1989).

TS Surveillance Requirement verifies that each fan is capable of operating for at least 15 minutes by initiating flow through the HEPA filter and charcoal adsorber train(s) to ensure that the system is available in a standby mode.

Each CAACS normal air intake ductwork will have an additional radiation detector channel installed for a total of two detectors per intake. The two detector channels from Unit 1 and Unit 2 CAACS air intake provide input to common radiation monitor processors. Each radiation monitor processor (one for 1R1B-1/1R1B-2 and one for 2R1B-1/2R1B-2) provides a signal to initiate CREACS in the pressurization mode should high radiation be detected. A minimum of one out of two detectors in either intake will initiate the pressurization mode. With two detector channels inoperable on a Unit, operation may continue as long as CREACS is placed inservice in the pressurization or recirculation mode. Pressurization mode will be initiated after 7 days with one inoperable detector. Radiological releases during a fuel handling accident while operating in the recirculation mode could result in unacceptable radiation levels in the CRE since the automatic initiation capability has been defeated for high radiation due to isolation of the detectors. Therefore, movement of irradiated fuel assemblies or Core Alterations at either Unit will not be permitted when in the recirculation mode.

Immediate action(s), in accordance with the LCO Action Statements, means that the required action should be pursued without delay and in a controlled manner.

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 rem 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.

3/4.7.7 AUXILIARY BUILDING EXHAUST AIR FILTRATION SYSTEM

The flowrates specified for surveillance testing correspond to the maximum design flow for the charcoal adsorber. This is the limiting condition for system performance under accident conditions. Testing at this flow assures that the charcoal adsorber removal efficiency, and the system bypass leakage are within the assumed values of the accident analysis. Operation at lower flowrates is conservative with respect to the accident analysis assumptions.

3/4.7.8 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. 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 which are frequently handled are required to be tested more often than those which are not. Sealed sources which 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.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 190 AND 173 TO FACILITY OPERATING

LICENSE NOS. DPR-70 AND DPR-75

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-272 AND 50-311

1.0 INTRODUCTION

By letter dated June 10, 1996, as supplemented June 24, July 1, August 13, September 20 and October 17, 1996, the Public Service Electric & Gas Company (the licensee) submitted a request for changes to the Salem Nuclear Generating Station, Unit Nos. 1 and 2, Technical Specifications (TSs). The requested changes would revise TS 3/4.3.3.1, "Radiation Monitoring Instrumentation," and 3/4.7.6, "Control Room Emergency Air Conditioning System," to reflect a control room design in which the common Unit 1 and Unit 2 control room envelope is supplied by 2 one hundred percent capable Control Room Emergency Air Conditioning System trains. The June 24, July 1, August 13, September 20 and October 17, 1996, letters provided clarifying information that did not change the initial proposed no significant hazards consideration determination nor expand the scope of the initial submittal as described in the original Federal Register notice.

2.0 EVALUATION

The licensee performed offsite and Control Room (CR) dose analyses for the following design basis accidents (DBAs); 1) loss of coolant accident (LOCA), 2) fuel handling accident (FHA), 3) locked rotor accident (LRA), and 4) the steam generator tube rupture accident (SGTR). The proposed amendment only changed the design of the control room envelope which would not affect calculations of DBA offsite dose analyses. However, the licensee submitted revised DBA offsite dose analyses along with the CR operator dose analyses. The licensee's calculated doses met the applicable dose acceptance criteria of 10 CFR Part 100, Standard Review Plan (SRP) (NUREG-0800), and General Design Criterion (GDC) 19.

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2.1 Loss of Coolant Accident

The licensee evaluated the CR and offsite doses resulting from a LOCA using the methodologies in Section 15.6.5 of the SRP (NUREG-0800) and Regulatory Guide (RG) 1.4, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss-Of-Coolant Accident for Pressurized Water Reactor." The methodology used to evaluate the CR atmospheric dispersion factors (X/Q values) was based on the ARCON95 computer code, and the dose conversion factors in ICRP 30 were used. Core radionuclide inventory was based on a power level of 3600 MWt which is 105 percent of the license rated power level of 3411 MWt. The revised LOCA calculations used a CR makeup flow of 2200 cfm. The updated CR dose analyses were based on the modified Control Room Envelope (CRE) arrangement, the upgraded Control Room Emergency Air Conditioning System (CREACS) design and performance parameters, selective air intake logic, and a charcoal filter efficiency for radioiodine of 95%.

The staff analyzed offsite and CR operator doses using the licensee's assumptions described above and the methodology of the SRP. For CR operator doses, the staff used a revised version of the ARCON 95 computer code to assess the meteorological factors. The HABIT code was used to calculate the CR operator doses. The doses are within the acceptance criteria of 10 CFR Part 100, SRP (NUREG-0800) and GDC-19. The assumptions used by the staff are presented in Table 1, and the resulting calculated doses are listed in Table 2.

2.2 Fuel Handling Accident

The licensee calculated the radiation doses at the Salem station following a postulated fuel handling accident in the Fuel Handling Building. The CR calculation assumes a simultaneous loss of offsite power (LOOP) following the CR isolation signal generated by the operation of the CR intake radiation monitors of the CR ventilation system. In performing this analysis, the licensee used the assumptions and methodology prescribed by RG 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors." The analysis assumes a decay time of 168 hours and 23 feet of water coverage.

The staff has completed its evaluation of the potential radiological consequences of an FHA at Salem on the basis of the conditions of the proposed TS changes. In addition to reviewing the licensee's submittal, the staff performed an independent analysis to determine conformance with the criteria of 10 CFR Part 100 and GDC-19 of Appendix A to 10 CFR Part 50. The staff analysis utilized the assumptions contained in RG 1.25 and the review procedures specified in SRP Sections 15.7.4 and 6.4. The staff assumed an instantaneous puff release of noble gases and radioiodine from the gap and plenum of the broken fuel rods. These gas bubbles will pass through at least

23 feet of water covering the fuel prior to reaching the containment atmosphere. All airborne activity reaching the containment atmosphere is assumed to exhaust to the environment within 2 hours. As stipulated in the plant TSs, the gap activity is assumed to have decayed for a period of 168 hours.

The staff computed the offsite doses for Salem using the assumptions described above and NRC's ACTICODE computer code. CR operator doses were determined using the methodology in SRP Section 6.4. The computed offsite doses and CR operator doses are within the acceptance criteria given in SRP Section 15.7.4 and GDC-19. The assumptions used in calculating the doses are listed in Table 3, and the resulting calculated dose values are in Table 4.

2.3 Locked Rotor Accident (LRA)

The licensee evaluated the CR and offsite doses resulting from an LRA as specified in Sections 15.3.3-15.3.4 of the SRP (NUREG-0800). In accordance with the SRP, the reactor is initially assumed to be operating at 102 percent of the licensed power level. The licensee assumes a simultaneous LOOP following the high radiation alarm signal generated by the CR intake monitors, with the subsequent delay in switching from the normal operation mode to the emergency operation mode of the CR ventilation system. The calculation utilizes the automatic selection capabilities of the radiation monitor to select the less contaminated CR intake.

The LRA analysis assumes a pre-accident iodine spike and is based on 5 percent failed fuel. This 5 percent of the fuel in the core (briefly) enters departure from nuclear boiling (DNB) during the accident and is therefore assumed to fail. These fuel failures are assumed to occur instantaneously at the start of the accident.

The staff calculated the offsite and CR doses for the LRA by adjusting the license's calculations with staff-evaluated meteorological factors. The computed doses met the acceptance criteria of SRP (NUREG-0800) and GDC-19. Table 5 presents the calculational assumptions used, and Table 6 presents the doses calculated by the staff.

2.4 Steam Generator Tube Rupture

The licensee calculated offsite and CR doses for a steam generator tube rupture using the methodology of SRP 15.6.3. Two assessments were performed for the most limiting scenario, which is an SGTR with a loss of offsite power and fully stuck open atmospheric dump valve. The assessments included an accident-initiated iodine spike and a pre-existing iodine spike. The staff calculated the offsite and CR doses for the SGTR by adjusting the licensee's calculations with staff-evaluated meteorological factors. The computed doses met the acceptance criteria of 10 CFR Part 100, SRP (NUREG-0800) and GDC-19. The parameters used by the staff are presented in Table 7, and the doses computed by the staff are presented in Table 8.

TABLE 1

INPUT PARAMETERS FOR SALEM UNITS 1 AND 2, EVALUATION OF A LOSS-OF-COOLANT ACCIDENT

Power level, (Mwt)		3600
Fraction of core inventory available for leakage, (%)		
Iodines		25
Noble Gases		100
Initial iodine composition in containment, (%)		
Elemental		91
Organic		4
Particulate		5
Primary Containment volumes, (ft^3)		
Sprayed	1.56×10^6	
Unsprayed	1.04×10^6	
Primary containment leak rate, (%)		
0-24 hours after accident	0.1	
After 24 hours	0.05	
Containment spray iodine removal efficiencies, (hr^{-1})		
Elemental (main sprayed region)	20	
Organic	0	
Particulate (main sprayed region)	6.7	
Decontamination factor		
Elemental iodine	6.51	
Particulate iodine	50	
ESF leak rate, (cc/hr)		3840
Volume sump water (gallon)		295,000
Atmospheric dispersion factors, (sec/m^3)		
Exclusion area boundary (0-2 hrs)		2.4×10^{-4}
Low population zone (0-8 hrs)		2.2×10^{-5}
Control room		
Unit 1 intake (0-2 hrs)		1.98×10^{-3}
Unit 2 intake (0-2 hrs)		9.52×10^{-4}

Control room parameters

Volume (ft^3)	81,420
Makeup flow (cfm)	2,200
Makeup and recirculation flow (cfm)	
One fan operational	5,000
Two fan operational	12,200
Makeup and recirculation filter efficiency (%)	
elemental, organic iodines	95
particulate iodine	99
Unfiltered inleakage (cfm)	60

TABLE 2

CALCULATED DOSES FOR SALEM UNIT 1 AND 2
LOSS-OF-COOLANT ACCIDENT

LOCATION	Thyroid Dose	Whole Body
Exclusion Area Boundary (EAB)	42.0 rem*	0.8 rem**
Low Population Zone (LPZ)	15.0 rem*	0.1 rem**
Control Room Operators	27.0 rem***	1.7 rem****

* 10 CFR 100 Acceptance Criteria = 300 rem
** 10 CFR 100 Acceptance Criteria Whole Body = 25 rem
*** GDC-19 Acceptance Criteria = 30 rem
**** GDC-19 Acceptance Criteria Whole Body= 5 rem

TABLE 3

INPUT PARAMETERS FOR SALEM UNIT 1 AND 2
EVALUATION OF A FUEL HANDLING ACCIDENT

Power Level (MWt)	3600
Number of Fuel Rods Damaged	204
Total number of Fuel Rods	39,372
Power Peaking Factor	1.7
Fission Product Release Duration	2 hours
Release Fraction*	
Iodine	12%
Noble gas	10%
Krypton gas	30%
Iodine Forms	
Elemental	75%
Organic	25%
Receptor Point Variables	
Exclusion Area Boundary	
Atmospheric Relative Concentration, X/Q (sec/m^3)	
0-2 hours	2.4×10^{-4}
Control Room	
Atmospheric Relative Concentration, X/Q (sec/m^3)	
Unit 1 intake	1.98×10^{-3}
Unit 2 intake	9.52×10^{-4}
Control Room volume cubic feet	8.1×10^{5}
Filter Recirculation Flow (cfm)	5,000
Unfiltered inleakage (cfm)	60
Pressurization Air Filtration (cfm)	2200
Iodine Protection Factor (IPF)	41

* RG 1.25

TABLE 4

CALCULATED DOSES FOR SALEM UNIT 1 AND 2 FUEL HANDLING ACCIDENT

LOCATION	Thyroid Dose	Whole Body Dose
Exclusion Area Boundary	47.6 rem *	> 0.1 rem **
Control Room Doses	5.6 rem ***	> 0.1 rem****

* NUREG-0800 Acceptance Criteria = 75 rem
** NUREG-0800 Acceptance Criteria Whole Body = 6 rem
*** GDC-19 Acceptance Criteria = 30 rem
**** GDC-19 Acceptance Criteria Whole Body= 5 rem

TABLE 5

INPUT PARAMETERS FOR SALEM UNITS 1 AND 2 EVALUATION OF A LOCKED ROTOR ACCIDENT

Steam Releases (lbs)	
0-2 hr	654,600
2-8 hr	540,300
8-32 hr	2,161,200
Primary to Secondary Leak Rate (gpm)	1
Primary Coolant Mass (lbs)	493,000
Steam Generator Liquid Mass (lbs)	106,860
Iodine Fraction after the accident (%)	5
Control Room Parameters	
Atmospheric Dispersion X/Q (s/m^3)	
Unit 1 intake (0-2 hrs)	1.94×10^{-3}
Unit 2 intake (0-2 hrs)	3.45×10^{-3}

TABLE 6

CALCULATED DOSES FOR SALEM UNIT 1 AND 2
LOCKED ROTOR ACCIDENT

LOCATION	Thyroid	Whole Body
Exclusion Area Boundary	0.29 rem*	0.05**
Low Population Zone	0.51 rem*	0.04**
Control Room Doses	21 rem***	1.7 rem****

* 10% of 10 CFR 100 Acceptance Criteria = 30 rem
** 10% of 10 CFR 100 Acceptance Criteria Whole Body = 2.5 rem
*** GDC-19 Acceptance Criteria = 30 rem
**** GDC-19 Acceptance Criteria Whole Body = 5 rem

TABLE 7
INPUT PARAMETERS FOR SALEM UNITS 1 AND 2
EVALUATION OF A STEAM GENERATOR TUBE RUPTURE ACCIDENT

Power level (MWt)		3600
Primary coolant concentration of dose equivalent ^{131}I		
Pre-existing Spike Value (μCi)		
^{131}I = 31.9		
^{132}I = 63.0		
^{133}I = 71.6		
^{134}I = 83.6		
^{135}I = 64.5		
Volume of primary coolant		
Primary coolant mass (lbs)		493,000
TS limits for dose equivalent (DE) ^{131}I in the primary and secondary coolant		
Primary coolant DE ^{131}I concentration (μCi/g)		1.0
Secondary coolant DE ^{131}I concentration (μCi/g)		0.1
Post-accident steam generator liquid mass (lbs/per SG)		106,860
Steam releases (lbs)		
Faulted SG:	0-55 minutes	56,460
Intact SG:	0- 2 hrs	465,130
Release rate for 1μCi/g of dose equivalent ^{131}I (μCi/g)		
^{131}I = 0.07		
^{132}I = 0.12		
^{133}I = 0.16		
^{134}I = 0.19		
^{135}I = 0.14		
Atmospheric dispersion factor (s/m^3)		
Exclusion Area Boundary	(0-2 hrs)	2.4×10^{-4}
Low population zone	(0-8 hrs)	2.2×10^{-5}
Control Room		1.8×10^{-3}
Control room parameters		
Volume (ft^3)		81,420
Makeup flow (cfm)		2,200
Recirculation flow (cfm)		12,200
Makeup and recirculation filter efficiency (%)		95
Unfiltered inleakage (cfm)		60
Occupancy factor		1

TABLE 8
CALCULATED DOSES FOR SALEM UNITS 1 AND 2
STEAM GENERATOR TUBE RUPTURE ACCIDENT

LOCATION	Thyroid Pre-accident Spike	Thyroid Accident Initiated Spike	Whole Body
Exclusion Area Boundary	2.40 rem*	0.53***	0.03 rem**
Low Population Zone	0.66 rem*	0.25 rem***	0.01 rem****
Control Room	3.5 rem*****	2.57 rem*****	>.01rem******

* 10 CFR 100 Acceptance Criteria = 300 rem
** 10 CFR 100 Acceptance Criteria Whole Body = 25 rem
*** 10 CFR 100 Acceptance Criteria = 30 rem
**** 10 CFR 100 Acceptance Criteria = 2.5 rem
***** GDC-19 Acceptance Criteria = 30 rem
****** GDC-19 Acceptance Criteria Whole Body= 5 rem

2.5 The licensee proposed to rewrite the Limiting Condition for Operation (LCO) in TS 3.7.6.1 as follows:

The common control room emergency air condition system (CREACS)* shall be operable with:

a. Two independent air conditioning filtration trains (one from each unit) each consisting of:

   1. Two fans and associated outlet dampers,
   2. One cooling coil,
   3. One charcoal absorber and HEPA filter array,
   4. One return air isolation damper.

b. All other automatic dampers required for operation in the pressurization or recirculation modes.

c. The Control Room Envelope intact.

The proposed LCO reflects the CREACS design changes. The licensee added an asterisk (*) on the CREACS to clarify that the CREACS is a shared system with both plant units. Each unit's CREACS fans are replaced with two redundant 100% capacity fans, such that any one of the four fans is capable of providing 100% of the required CRE pressurization air to 1/8" water gauge (w.g.) positive pressure within the CRE. There are dampers installed on the makeup

air supply and return ducts with failure positions consistent with isolation of the CRE. The CRE is considered intact when the CREACS is capable of maintaining a pressurized CRE with all boundary doors closed.

The proposed LCO will protect the CR operators against any hazardous conditions by either pressurizing or recirculating the CRE with the redundant systems. The design changes are based on the licensee's revised design bases which will restore the CR operation to satisfy GDC 19. The proposed LCO has corrected the plant design deficiency and improved operation safety and is, therefore, acceptable.

2.6 The licensee proposed to revise the Applicability Statement by adding "during movement of irradiated fuel assemblies and during core alterations". The current LCO is applicable to Modes 1 thru 6.

The change is required to maintain the control room integrity during fuel handling operation and is consistent with the Westinghouse Standard Technical Specifications (STS).

2.7 The licensee proposed to rewrite the Action Statement as follows:

Modes 1, 2, 3, and 4

a. With one filtration train inoperable, align CREACS for single filtration train operation within 4 hours, and restore the inoperable filtration train to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With CREACS aligned for single filtration train operation and with one of the two remaining fans or associated outlet dampers inoperable, restore the inoperable fan or damper to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With the control room envelope inoperable, restore the control room envelope to OPERABLE status within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With one or both series isolation damper(s) on a normal CAACS outside air intake or exhaust duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (Refer to ACTION 24 [27 for Unit 2] of Table 3.3-6.)

e. With one or both isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, close the affected duct within 4 hours by use of at least one isolation damper secured in the closed position and restore the damper(s) 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.

f. With any isolation damper between the normal CAACS and the CREACS inoperable, secure the damper in the closed position within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

With one filtration train inoperable, the Action Statement requires the inoperable filtration train to be restored to operable status within 30 days, which is not specified in the current TS. The licensee stated that with a single filtration train in operation two fans will be available to start in the pressurization mode or recirculation mode. Should a fan fail to start on an initiation signal in the train with two fans operable, the second fan in standby will automatically start. Since any one of the four fans is sized to provide the required air flow for maintaining the CRE pressurization at 1/8" w.g. during an emergency, the required redundancy for the system has been preserved with single train operation. The staff's review concludes that the 30-day outage time is acceptable because the redundant train is not required to be in operation for the Action Statement and the time required for restoring the inoperable filtration train is consistent with the TS requirements for other similar redundant systems.

With one of the two remaining fans or associated outlet dampers inoperable during the single train operation, the Action Statement requires restoration of the inoperable fan or damper to operable status within 72 hours. Each CREACS train has two fans, two outlet dampers, and one air return isolation damper (which will fail in the open position upon loss of control power). The air return isolation damper will be administratively controlled in the open position when operating in single train alignment. The CREACS is designed with the capability of maintaining the CRE pressurization or recirculation with one fan in operation. The staff finds that the 72 hours for restoring the inoperable fan is acceptable because it is less than the current TS requirement of 7 days and is consistent with TSs for similar redundant systems.

Completion times for other Action Statements are consistent with the current TSs and are considered reasonable for its field operation practices and are, therefore, acceptable.

MODES 5 and 6 or during movement of irradiated fuel assemblies and during core alterations.

a. With one filtration train inoperable, align CREACS for single filtration train operation within 4 hours, or suspend core alterations and movement of irradiated fuel assemblies.

b. With CREACS aligned for single filtration train operation with one of the two remaining fans or associated outlet damper inoperable, restore the fan or damper to OPERABLE status within 72 hours, or suspend core alterations and movement of irradiated fuel assemblies.

c. With two filtration trains inoperable, immediately suspend core alterations and movement of irradiated fuel assemblies.

d. With the Control Room Envelope inoperable, immediately suspend core alterations and movement of irradiated fuel assemblies.

e. With one or both series isolation damper(s) on a normal CAACS outside air intake or exhaust duct inoperable, immediately suspend core alterations and movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. (Refer to ACTION 24 {27 for Unit 2} of Table 3.3-6.)

f. With one or both series isolation damper(s) on an outside emergency air conditioning air intake duct inoperable, immediately suspend core alterations and movement of irradiated fuel assemblies until the affected duct is closed by use of at least one isolation damper secured in the closed position. To resume core alterations or movement of irradiated fuel assemblies, at least one emergency air intake duct must be operable in each unit.

g. With any isolation damper between the CAACS and the CREACS inoperable, immediately suspend core alterations and movement of irradiated fuel assemblies until the damper is closed and secured in the closed position.

With one filtration train inoperable during Modes 5 and 6, the Action Statements require the system to be aligned for single filtration train operation or that movement of irradiated fuel assemblies or core alterations be suspended if the Action Statements are not satisfied within the specified time frame. The licensee stated that the allowed outage times in the Action Statement were specified for inoperable filtration trains and dampers based on safety significance and are consistent with the STS.

With one or both isolation dampers on an outside emergency air conditioning air intake duct inoperable, the Action Statements require immediate suspension of core alterations and movement of irradiated fuel assemblies. These requirements are consistent with the current TSs and are, therefore, acceptable.

2.8 The licensee proposed to rewrite TS 4.7.6.1, Surveillance Requirements, as follows:

Each control room emergency air conditioning system filtration train shall be demonstrated operable:

a. At least once per 31 days by initiating flow through the HEPA filter and charcoal adsorber trains and verifying that the trains operate with each fan operating for at least 15 minutes.

b. At least once per 18 months or prior to return to service (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system, by:

1. verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place while operating the ventilation system at a flow rate of 8000 cfm ± 10%.

2. verifying that the HEPA filter banks remove ≥ 99% of the DOP when they are tested in-place while operating the ventilation system at a flow rate of 8000 cfm ± 10%.

3. verifying within 31 days after removal that a laboratory analysis of a carbon sample from one of the charcoal adsorbers demonstrates a removal efficiency of ≥ 99% for radioactive methyle iodide when the sample is tested at 30°C, 95% relative humidity.

c. After every 720 hours of charcoal adsorber operation by either:

1. verifying within 31 days after removal that a laboratory analysis of a carbon sample obtained from a test canister demonstrates a removal efficiency of ≥ 99% for radioactive methyl iodide when the sample is tested at 30°C, 95% relative humidity; or

d. At least once per 18 months by:

1. verifying that the pressure drop across the combined HEPA filter and charcoal adsorber bank is ≤ 3.5" w.g. while operating the ventilation system at a flow rate of 8000 cfm ± 10%.

2. verifying that on a safety injection test signal or control room intake high radiation test signal, the system automatically actuates in the pressurization mode by opening the outside air supply and diverting air flow through the HEPA filter and charcoal adsorber bank.

3. verifying that the system can maintain the control room at a positive pressure ≥ 1/8" w.g. relative to the adjacent areas during system operation with makeup air being supplied through the HEPA filters and charcoal adsorbers at the design makeup flow rate of ≤ 2200 cfm.

4. verifying that on a manual actuation signal, the system will actuate to the required pressurization or recirculation operating mode.

5. verifying that each CREACS train has the capability to remove the assumed heat load.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter bank remove ≥ 99% of the DOP when they are tested in-place while operating the filter system at a flow rate of 8000 cfm ± 10%.

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place while operating the filter system at a flow rate of 8000 cfm ± 10%.

The licensee has performed control room dose analyses for all design basis accidents (DBA) based on the new CRE arrangement with the upgraded CREACS design. The revised performance parameters for the system and the improved efficiencies for the HEPA and charcoal filters are specified in the proposed Surveillance Requirements.

As a result of the change in control area ventilation system configuration, the air flow rate specified in the Surveillance Requirements has been changed from 7410 cfm ± 10% to 8000 cfm ± 10%. Within the new flow rate, two CREACS trains for accident alignment or one CREACS train for the TS Action Statement are required in operation. This requirement is based on the licensee's safety analyses ensuring that the doses to the control room personnel be within the GDC 19 limits. The Surveillance Requirement will verify that each fan is capable of operating for at least 15 minutes by initiating flow through the HEPA filter and charcoal adsorber trains. This requirement ensures that the system is available in a standby mode.

The licensee proposed the addition of an 18-month Surveillance Requirement to verify that CREACS will actuate to the required operating mode on a manual actuation signal including proper damper alignment. This is because control room personnel are required to manually initiate CREACS in the recirculation mode in the event of a fire outside the control area or toxic chemical release, or to manually initiate CREACS in the pressurization mode in the event of a radiological emergency. The change is consistent with the STS for control room actuation instrumentation.

2.9 The licensee proposed to revise TS Table 3.3-6, "Radiation Monitoring Instrumentation," by adding the control room air intake radiation level monitor and by adding the following to the Table Notation

ACTION 24(27) - With the number of channels operable one less than required by the minimum channels operable requirement, restore the inoperable channel(s) to operable status within 7 days or initiate and maintain operation of the CREACS in the pressurization or recirculation mode of operation. Core alterations and movement of irradiated fuel assemblies will be suspended during operation in the recirculation mode.

With no channels operable in a control room air intake, immediately initiate and maintain operation of the CREACS in the pressurization or recirculation mode of operation. Core alterations and movement of irradiated fuel assemblies will be suspended during operation in the recirculation mode.

TS Table 3.3-6 was revised to include the requirement of having two detector channels per air intake operable during all modes of operation and during movement of irradiated fuel or core alterations. Each CAACS air intake ductwork will have two radiation detectors, which provide input to common radiation monitor processors. One out of two detectors in either intake will initiate a pressurization mode. Action 24(27) provides TS action with the control logic for initiating CREACS operation that is consistent with the Action Statement in TS 3.7.6. The 7-day allowed outage time for the inoperable channel is acceptable because it has the same outage time as the dampers with the same safety significance.

With no channels operable in a control room air intake, the automatic initiation capability is not available for high radiation detection due to isolation of the detectors. Action 24(27) provides TS action to place the CREACS in the pressurization or recirculation mode of operation. Additionally, core alterations and movement of irradiated fuel assemblies at either Unit is not permitted when in a recirculation mode. This change places the system in a safe condition on the loss of intake radiation monitors and is acceptable.

2.10 The licensee proposed to revise TS Table 4.3.3, "Radiation Monitoring Instrumentation Surveillance Requirements" by adding the control room air intake radiation level monitors and specifies that surveillance is required for all modes and during movement of irradiated fuel assemblies and core alterations.

The licensee stated that the surveillance intervals proposed for performing channel checks, source checks, channel calibration, and channel functional testing were developed based on the guidance of the STS for control room actuation instrumentation.

2.11 The licensee proposed to add applicable bases for TS 3/4.7.6 to support the CREACS design changes. The revised bases address the CRE and CREACS modifications, the changes in CREACS operation, the revised surveillance requirements, and clarify the proposed TS. Therefore, the staff concurs with the revised bases.

Based on the above review of the licensee's submittal concerning the CREACS, the staff concludes that the proposed TS changes are acceptable. This approval is based on the following:

- The licensee has performed control room dose analyses for all postulated design basis accidents to support the TS changes based on the modified control room configuration and CREACS.

- The proposed TS change is needed for the control room modification, which corrects the design deficiency that has caused the thyroid dose limit for control room habitability to exceed the GDC 19 limit.

- The changes improve the TS allowing safer plant operation, and they have also followed the guidance of the Westinghouse Standard Technical Specifications.

- Some of the TS License Conditions for Operation Action completion times are plant specific and are similar to the time frames of other operating plant TSs. These are considered reasonable for field operation practice.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State official was notified of the proposed issuance of the amendments. In letters dated July 22 and October 21, 1996, the State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 change the surveillance requirements. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (61 FR 32468). Accordingly, the amendments meet 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 amendments.

5.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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