

September 19, 2001

Mr. Harold W. Keiser  
Chief Nuclear Officer & President  
PSEG Nuclear LLC - X04  
Post Office Box 236  
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2, ISSUANCE OF  
AMENDMENT RE: CHARCOAL FILTER TESTING REQUIREMENTS IN  
RESPONSE TO GENERIC LETTER 99-02 (TAC NOS. MA9105 AND MA9106)

Dear Mr. Keiser:

The Commission has issued the enclosed Amendment Nos. 245 and 226 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 May 31, 2000, as supplemented on August 2, 2001.

These amendments revise the Salem TS Surveillance Requirements for: (1) the Control Room Envelope Air Conditioning System (CREACS), (2) the Auxiliary Building Ventilation System (ABVS), and (3) the Fuel Handling Building Ventilation System (FHVS). These changes were submitted in response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999.

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

Sincerely,

**/RA/**

Robert J. Fretz, Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosures: 1. Amendment No. 245 to  
License No. DPR-70  
2. Amendment No. 226 to  
License No. DPR-75  
3. Safety Evaluation

cc w/encls: See next page

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License No. DPR-70  
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cc w/encls: See next page

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ACCESSION NUMBER: ML012390231

OFFICE	PDI-2/PM	PDI-2/LA	SPLB/SC	OGC	PDI-2/SC
NAME	RFretz	TlClark	GHubbard	MO'Neill	JClifford
DATE	9/18/01	9/18/01	8/31/01	9/12/01	9/18/01

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PSEG NUCLEAR LLC

EXELON GENERATION COMPANY, LLC

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-272

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 245

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 PSEG Nuclear LLC, Exelon Generation Company, LLC, and Atlantic City Electric Company (the licensees) dated May 31, 2000, as supplemented on August 2, 2001, 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:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 245, 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 and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

James W. Clifford, Chief, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: September 19, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 245

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

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

Remove Pages

3/4 7-20  
3/4 7-23  
3/4 7-24  
3/4 9-13  
3/4 9-14

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

Insert Pages

3/4 7-20  
3/4 7-23  
3/4 7-24  
3/4 9-13  
3/4 9-14

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

PSEG NUCLEAR LLC  
EXELON GENERATION COMPANY, LLC  
ATLANTIC CITY ELECTRIC COMPANY  
DOCKET NO. 50-311  
SALEM NUCLEAR GENERATING STATION, UNIT NO. 2  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 226  
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 PSEG Nuclear LLC, Exelon Generation Company, LLC, and Atlantic City Electric Company (the licensees) dated May 31, 2000, as supplemented on August 2, 2001, 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. 226, 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 and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

James W. Clifford, Chief, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: September 19, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 226

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

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

Remove Pages

3/4 7-17

3/4 7-19

3/4 9-14

B 3/4 7-5b

B 3/4 7-5d

B 3/4 9-4

Insert Pages

3/4 7-17

3/4 7-19

3/4 9-14

B 3/4 7-5b

B 3/4 7-5d

B 3/4 9-4



SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NOS. 245 AND 226 TO FACILITY OPERATING  
LICENSE NOS. DPR-70 AND DPR-75  
PSEG NUCLEAR LLC  
EXELON GENERATION COMPANY, LLC  
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 May 31, 2000, as supplemented on August 2, 2001, PSEG Nuclear LLC (the licensee) submitted a request for changes to the Salem Nuclear Generating Station, Unit Nos. 1 and 2 (Salem), Technical Specifications (TSs). The requested changes would revise the Salem TS Surveillance Requirements (SR) Sections 4.7.6, 4.7.7, and 4.9.12 for: (1) the Control Room Envelope Air Conditioning System (CREACS), (2) the Auxiliary Building Ventilation System (ABVS), and (3) the Fuel Handling Building Ventilation System (FHVS). The proposed changes were submitted in response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999. The August 2, 2001, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

## 2.0 BACKGROUND

Safety-related air-cleaning units used in the engineered safety features (ESF) ventilation systems of nuclear power plants reduce the potential onsite and offsite consequences of a radiological accident by filtering radioiodine. Analyses of design basis accidents assume particular safety-related charcoal adsorption efficiencies when calculating offsite and control room operator doses. To ensure that the charcoal filters used in these systems will perform in a manner that is consistent with the licensing basis of a facility, licensees have requirements in their TSs to periodically perform a laboratory test (in accordance with a test standard) of charcoal samples taken from these ventilation systems.

In GL 99-02, the Nuclear Regulatory Commission (NRC) staff alerted licensees about an issue regarding testing of nuclear-grade activated charcoal. Specifically, GL 99-02 informed licensees that testing nuclear-grade activated charcoal to standards other than American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-

Grade Activated Carbon,” does not provide assurance for complying with current licensing bases with respect to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR) and Subpart A of 10 CFR Part 100.

GL 99-02 requested that all licensees determine whether or not their TSs referenced ASTM D3803-1989 for charcoal filter laboratory testing. Licensees whose TSs do not reference ASTM D3803-1989 were requested to either amend their TSs to reference ASTM D3803-1989 or propose an alternative test protocol.

The NRC received a letter from ASTM in response to a March 8, 2000, *Federal Register* notice (65 FR 12286) related to revising testing standards in accordance with ASTM D3803-1989 for laboratory testing of activated charcoal, in response to GL 99-02. ASTM notified the NRC that the 1989 standard is out of date and should be replaced by ASTM D3803-1991 (1998). The staff acknowledges that the most current version of ASTM D3803 is ASTM D3803-1991 (reaffirmed in 1998). However, for consistency purposes, it is preferable to have all nuclear power reactors test to the same standard (ASTM D3803-1989) because, prior to the issuance of GL 99-02, about one third of the nuclear reactors had TSs that referenced ASTM D3803-1989 and there were no substantive changes between the 1989 and 1998 versions. Because the NRC staff considers ASTM D3803-1989 to be the most accurate and most realistic protocol for testing charcoal in safety-related ventilation systems, the NRC staff finds that the proposed TS revisions satisfy the actions requested in GL 99-02, and are acceptable.

### 3.0 EVALUATION

#### 3.1 Laboratory Charcoal Sample Testing Surveillance Requirements

Table 1 on page 4 of this Safety Evaluation describes the current laboratory charcoal sample TS surveillance requirements for the ABVS, CREACS, and FHVS systems for Salem Unit Nos. 1 and 2. Table 2 on page 5 summarizes the proposed TS changes for these systems.

##### *ASTM D3803-1989 Test Protocol*

PSEG proposes to use ASTM D3803-1989 as the test protocol to evaluate charcoal samples from the ABVS, CREACS, and FHVS systems. Since the current TS for the CREACS requires that laboratory charcoal testing be performed in accordance with ASTM D3803-1989, this system is considered as a Group 1 plant under GL 99-02. If there were no other changes for the CREACS, a TS amendment would not be required. However, PSEG proposed to change the methyl iodide penetration from less than 1% to less than 2.5% by applying a minimum safety factor of two in accordance with the GL 99-02. As a result, the CREACS was included within the scope of the TS change.

Studies have shown that laboratory test results (methyl iodide penetration) using various versions of ASTM D3803, and varying temperature, RH, face velocity, bed depth, test protocol, and impregnate, demonstrated that the 1989 version is the only acceptable test method for TS applications. Accordingly, the staff finds that the use of ASTM D3803-1989 for Salem's ESF ventilation systems is acceptable because it provides the sufficiently accurate and reproducible test results. In addition, PSEG proposed using a test temperature of 30 °C and relative humidity of 95% for all three systems. The staff finds this acceptable because these

requirements more accurately reflect accident conditions, and are also consistent with ASTM D3803-1989.

#### *Credited Charcoal Filter Efficiencies*

In its application dated May 31, 2000, the licensee stated that it credited removal efficiencies for radioactive organic iodine in Salem's dose calculations as follows: 70% for the ABVS, 95% for the CREACS, and 90% for the FHVS. Therefore, the licensee proposed the following test penetration values for radioactive methyl iodide: 15% for the ABVS, 2.5% for the CREACS, and 5% for the FHVS. The proposed test penetrations (TP) were obtained by applying a safety factor of two to the credited efficiency ( $TP = (100\% - \text{credited filter efficiency}) \div \text{safety factor}$ ). The staff considers a safety factor of two to be acceptable because it will ensure that the efficiency credited in a licensee's accident analysis will still be valid at the end of the surveillance interval.

#### *Specified Filter Face Velocities*

The August 23, 1999, errata to GL 99-02 clarified that if the maximum actual face velocity is greater than 110% of 40 feet per minute (fpm), then the test face velocity should be specified in the TS. By letter dated May 31, 2000, the licensee stated that the maximum face velocity for the ABVS is 74 fpm, which is specified in the TS. For the CREACS and FHVS, the actual maximum face velocities are 44 and 43 fpm, respectively. The proposed testing of the charcoal adsorbers for these two systems will be performed in accordance with ASTM D3803-1989, which specifies a test face velocity of 40 fpm with appropriate margins. The staff finds that the proposed face velocities are acceptable since testing will be consistent with the operation of the ventilation system during accident conditions.

### 3.2 Evaluation Summary

On the basis of its review, the staff finds the proposed changes to Salem's ESF ventilation systems to be acceptable because the use of ASTM D3803-1989 as the test protocol for charcoal samples will provide accurate and reproducible test results, the proposed testing parameters are consistent with the test's requirements, and the specified radioactive methyl iodide penetration values will provide sufficient margins to ensure that Salem's accident analysis will remain valid through the entire surveillance test interval.

SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2

TABLE 1 - CURRENT TS REQUIREMENTS											
System Description						Current TS Requirements					
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency (% organic iodine) ***	Test Penetration (% methyl iodide)	Safety Factor **	Test Standard	Test Temp (°C)	Test RH (%)	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velocity (fpm)							
Unit 1: 4.7.7.1.b.4 4.7.7.1.c Unit 2: 4.7.7.b.3 4.7.7.c	Auxiliary Building Ventilation System (ABVS)	1	0.0625	74	90/70	<10	1	Unit 1 ANSI N510-1975  Unit 2 RG 1.52, rev.2, 1978 ANSI N510-1975	Unit 1 130  Unit 2 80	95	74
Units 1&2: 4.7.6.1.b.3 4.7.6.1.c	Control Room Emergency Air Conditioning System (CREACS)*	2	0.25	44	95/95	<1	5	ASTM D3803-1989	30	95	44
Unit 1: 4.9.12.b.4 Unit 2: 4.9.12.b.3 Units 1&2: 4.9.12.c	Fuel Handling Building Ventilation (FHVS)	2	0.233	43	90/90	<10	1	Unit 1 ANSI N510-1975  Unit 2 RG 1.52, rev.2, 1978 ANSI N510-1975	Unit 1 130  Unit 2 80	95	43

\* With respect to the Control Room Emergency Air Conditioning System, Salem is considered as a Group 1 plant under GL 99-02.

\*\* Safety factor is calculated based on the credited efficiency and test penetration.

\*\*\* The first value corresponds to the current and the second value corresponds to the proposed credited efficiencies.

SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2

TABLE 2 - PROPOSED TS REQUIREMENTS											
System Description						Proposed TS Requirements					
TS Section	System	Bed Thick-ness (inches)	Actual Charcoal		Credited Efficiency (% organic iodine) ***	Test Penetration (% methyl iodide)	Safety Factor **	Test Standard	Test Temp (°C)	Test RH (%)	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velo-city (fpm)							
Unit 1: 4.7.7.1.b.4 4.7.7.1.c Unit 2: 4.7.7.b.3 4.7.7.c	Auxiliary Building Ventilation System (ABVS)	1	0.0625	74	90/70	<15	2	ASTM D3803-1989	30	95	74
Units 1&2: 4.7.6.1.b.3 4.7.6.1.c	Control Room Emergency Air Conditioning System (CREACS)*	2	0.25	44	95/95	<2.5	2	ASTM D3803-1989	30	95	44
Unit 1: 4.9.12.b.4 Unit 2: 4.9.12.b.3 Units 1&2: 4.9.12.c	Fuel Handling Building Ventilation (FHVS)	2	0.233	43	90/90	<5	2	ASTM D3803-1989	30	95	43

\* With respect to the Control Room Emergency Air Conditioning System, Salem is considered as a Group 1 plant under GL 99-02.

\*\* Safety factor is calculated based on the credited efficiency and test penetration.

\*\*\* The first value corresponds to the current and the second value corresponds to the proposed credited efficiencies.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State official was notified of the proposed issuance of the amendments. The State official had no comments.

#### 5.0 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 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 (65 FR 46014). 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.

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

Attachment: BNL Technical Evaluation Report

Principal Contributors: H. Walker  
R. Fretz

Date: September 19, 2001

TECHNICAL EVALUATION REPORT  
BROOKHAVEN NATIONAL LABORATORY  
FOR THE OFFICE OF NUCLEAR REACTOR REGULATION  
DIVISION OF SYSTEMS SAFETY AND ANALYSIS  
PLANT SYSTEMS BRANCH  
RELATED TO AMENDMENT TO FACILITY OPERATING  
LICENSE NOS. DPR-70 and DPR-75  
PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
SALEM GENERATING STATION, UNITS 1 AND 2  
DOCKET NOS. 50 - 272 AND 50-311

## **1.0 INTRODUCTION**

By letter dated November 24, 1999 (LR-N990466), Public Service Electric and Gas Company (PSE&G) submitted its response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, for the Salem Generating Station, Units 1 and 2. By a separate letter also dated November 24, 1999 (LR-N99501), PSE&G requested changes to the Technical Specifications (TS) Surveillance Requirements in TS Sections 4.7.6, 4.7.7, and 4.9.12 for the (1) Control Room Envelope Air Conditioning System (CREACS), (2) Auxiliary Building Ventilation System (ABVS), and the (3) Fuel Handling Building Ventilation System (FHVS) for the Salem Generating Station, Units 1 and 2. Later, PSE&G submitted a letter dated February 10, 2000 (LR-N000002, LCR S99-21, Sup. 1), which provided additional justification for the revision to the dose analysis associated with the ABVS and CREACS. In addition to the TS changes identified in letter LR-N99501, a change to surveillance requirement in Sections 4.7.6.1.b.1 and 2 was proposed to revise the in-place testing acceptance criteria for CREACS. On May 10, 2000 and May 25, 2000, meetings were held between the members of the NRC staff and representatives of PSE&G to discuss issues related to the license amendment requests dated November 24, 1999.

On the basis of the above discussions between the staff and the licensee, PSE&G submitted a letter dated May 31, 2000 (LRN-00-0198 and LCR S99-21 Revision 1). By this letter, PSE&G withdrew the proposed TS changes contained in the November 24, 1999 and February 10, 2000, submittals. By the same letter, PSE&G requested changes to the TS and bases associated with the TS Surveillance Requirements 4.7.6.1.b.3, 4.7.6.1.c, 4.7.7.1.b.4 (Unit 1), 4.7.7.b.3 (Unit 2), 4.7.7.1.c (Unit 1), 4.7.7.c (Unit 2), 4.9.12.b.4 (Unit 1), 4.9.12.b.3 (Unit 2) and 4.9.12.c for the above three ventilation systems. The proposed changes would revise the TS surveillance testing of the safety related ventilation system charcoal filters to meet the requested actions of GL 99-02.

## **2.0 BACKGROUND**

Safety-related air-cleaning units used in the engineered safety features (ESF) ventilation systems of nuclear power plants reduce the potential onsite and offsite consequences of a radiological accident by filtering radioiodine. Analyses of design basis accidents assume particular safety related charcoal adsorption efficiencies when calculating offsite and control room operator doses. To ensure that the charcoal filters used in these systems will perform in a manner that is consistent with the licensing basis of a facility, licensees have requirements in their TS to periodically perform a laboratory test (in accordance with a test standard) of charcoal samples taken from these ventilation systems.

In GL 99-02, the staff alerted licensees that testing nuclear-grade activated charcoal to standards other than American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," does not provide assurance for complying with their current licensing bases with respect to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and Subpart A of 10 CFR Part 100.

GL 99-02 requested that all licensees determine whether their TS reference ASTM D3803-1989 for charcoal filter laboratory testing. Licensees whose TS do not reference ASTM D3803-1989 were requested to either amend their TS to reference ASTM D3803-1989 or propose an alternative test protocol.

### **3.0 EVALUATION**

#### **3.1 Laboratory Charcoal Sample Testing Surveillance Requirements**

The current and proposed laboratory charcoal sample testing TS surveillance requirements for the Auxiliary Building Ventilation System (ABVS) and the Fuel Handling Building Ventilation (FHVS) are shown in Table 1 and Table 2, respectively, for both Units 1 and 2 of the Salem Generating Station.

With respect to the Control Room Emergency Air Conditioning System (CREACS), since the current TS calls for laboratory charcoal testing in accordance with ASTM D3803-1989, this system is considered as a Group 1 plant under GL 99-02. Therefore, no TS amendment is warranted. However, by letter dated May 31, 2000, the PSE&G has proposed to change the methyl iodide penetration from less than 1% to less than 2.5% by applying a minimum safety factor of 2 in accordance with the GL 99-02. On the basis of the information provided, the TS surveillance requirements for this system is also included in Table 1 and Table 2.

The proposed use of ASTM D3803-1989 is acceptable because it provides accurate and reproducible test results. The proposed test temperature of 30°C and relative humidity of 95% for all three systems are acceptable because it is consistent with ASTM D3803-1989. This is consistent with the actions requested in GL 99-02.

By letter dated May 31, 2000, the credited removal efficiencies for radioactive organic iodine for the ABVS, CREACS, and FHVS are 70%, 95%, and 90%, respectively. The proposed test penetration for radioactive methyl iodide for the ABVS, CREACS, and FHVS are less than 15%, 2.5%, and 5%, respectively. The proposed test penetration was obtained by applying a safety factor of 2 to the credited efficiency. The proposed safety factor of 2 for all systems is acceptable because it ensures that the efficiency credited in the accident analysis is still valid at the end of the surveillance interval. This is consistent with the minimum safety factor of 2 specified in GL 99-02.

The August 23, 1999 errata to GL 99-02 clarified that if the maximum actual face velocity is greater than 110% of 40 fpm, then the test face velocity should be specified in the TS. By letter dated May 31, 2000, the maximum face velocity for the ABVS is 74 fpm which is specified in the TS. For the CREACS and FHVS, the actual maximum face velocities are 44 and 43 fpm, respectively. The proposed testing of the charcoal adsorbers for these two systems will be



performed in accordance with ASTM D3803-1989 which specifies a test face velocity of 40 fpm with appropriate margins. This is acceptable because it ensures that the testing will be consistent with the operation of the ventilation system during accident conditions. Therefore, it is not necessary to specify the face velocity in the proposed TS change. This is consistent with the errata to GL 99-02 dated August 23, 1999.

#### **4.0 CONCLUSION**

On the basis of its evaluation, BNL recommends that the NRC staff consider the proposed TS changes to be acceptable.

Principal Contributor: Mano Subudhi

Date: February 23, 2001

## SALEM GENERATING STATION, UNITS 1 AND 2

TABLE 1 - CURRENT TS REQUIREMENTS											
System Description						Current TS Requirements					
TS Section	System	Bed Thick-ness (inches)	Actual Charcoal		Credited Efficiency (% organic iodine) ***	Test Penetration (% methyl iodide)	Safety Factor **	Test Standard	Test Temp (°C)	Test RH (%)	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velo-city (fpm)							
Unit 1: 4.7.7.1.b.4 4.7.7.1.c Unit 2: 4.7.7.b.3 4.7.7.c	Auxiliary Building Ventilation System (ABVS)	1	0.0625	74	90/70	<10	1	Unit 1 ANSI N510-1975  Unit 2 RG 1.52, rev.2, 1978 ANSI N510-1975	Unit 1 130  Unit 2 80	95	74
Units 1&2: 4.7.6.1.b.3 4.7.6.1.c	Control Room Emer-gency Air Conditioning System (CREACS)*	2	0.25	44	95/95	<1	5	ASTM D3803-1989	30	95	44
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\* With respect to the Control Room Emergency Air Conditioning System, Salem Units are considered as a Group 1 plant under GL 99-02.

\*\* Safety factor is calculated based on the credited efficiency and test penetration.

\*\*\* The first value corresponds to the current and the second value corresponds to the proposed credited efficiencies.

## SALEM GENERATING STATION, UNITS 1 AND 2

TABLE 2 - PROPOSED TS REQUIREMENTS											
System Description						Proposed TS Requirements					
TS Section	System	Bed Thick-ness (inches)	Actual Charcoal		Credited Efficiency (% organic iodine) ***	Test Penetration (% methyl iodide)	Safety Factor **	Test Standard	Test Temp (°C)	Test RH (%)	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velo-city (fpm)							
Unit 1: 4.7.7.1.b.4 4.7.7.1.c Unit 2: 4.7.7.b.3 4.7.7.c	Auxiliary Building Ventilation System (ABVS)	1	0.0625	74	90/70	<15	2	ASTM D3803-1989	30	95	74
Units 1&2: 4.7.6.1.b.3 4.7.6.1.c	Control Room Emer-gency Air Conditioning System (CREACS)*	2	0.25	44	95/95	<2.5	2	ASTM D3803-1989	30	95	44
Unit 1: 4.9.12.b.4 Unit 2: 4.9.12.b.3 Units 1&2: 4.9.12.c	Fuel Handling Building Ventilation (FHVS)	2	0.233	43	90/90	<5	2	ASTM D3803-1989	30	95	43

\* With respect to the Control Room Emergency Air Conditioning System, Salem Units are considered as a Group 1 plant under GL 99-02.

\*\* Safety factor is calculated based on the credited efficiency and test penetration.

\*\*\* The first value corresponds to the current and the second value corresponds to the proposed credited efficiencies.

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