

February 26, 2004

Mr. C. J. Gannon  
Vice President  
Brunswick Steam Electric Plant  
Carolina Power & Light Company  
Post Office Box 10429  
Southport, North Carolina 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 - ISSUANCE OF  
AMENDMENT RE: TURBINE BUILDING VENTILATION SYSTEM UPDATED  
FINAL SAFETY ANALYSIS REPORT CHANGE (TAC NOS. MC0034 AND  
MC0035)

Dear Mr. Gannon:

The Commission has issued the enclosed Amendment No. 230 to Facility Operating License No. DPR-71 and Amendment No. 258 to Facility Operating License No. DPR-62 for Brunswick Steam Electric Plant, Units 1 and 2. The amendments are in response to your application dated July 21, 2003, as supplemented on February 5, 2004.

The amendments approve changes to the Updated Final Safety Analysis Report to allow the turbine building ventilation system to be operated in a once-through configuration in support of outage activities.

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

Sincerely,

*/RA/*

Margaret H. Chernoff, Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325  
and 50-324

Enclosures:

1. Amendment No. to  
License No. DPR-71
2. Amendment No. to  
License No. DPR-62
3. Safety Evaluation

cc w/enclosures: See next page

Mr. C. J. Gannon  
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Brunswick Steam Electric Plant  
Units 1 and 2

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February 26, 2004

Mr. C. J. Gannon  
Vice President  
Brunswick Steam Electric Plant  
Carolina Power & Light Company  
Post Office Box 10429  
Southport, North Carolina 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT RE: TURBINE BUILDING VENTILATION SYSTEM UPDATED FINAL SAFETY ANALYSIS REPORT CHANGE (TAC NOS. MC0034 AND MC0035)

Dear Mr. Gannon:

The Commission has issued the enclosed Amendment No. 230 to Facility Operating License No. DPR-71 and Amendment No. 258 to Facility Operating License No. DPR-62 for Brunswick Steam Electric Plant, Units 1 and 2. The amendments are in response to your application dated July 21, 2003, as supplemented on February 5, 2004.

The amendments approve changes to the Updated Final Safety Analysis Report to allow the turbine building ventilation system to be operated in a once-through configuration in support of outage activities.

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

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Docket Nos. 50-325 and 50-324

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1. Amendment No. to License No. DPR-71
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3. Safety Evaluation

cc w/enclosures: See next page

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ADAMS Accession No. ML040580358

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CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 230  
License No. DPR-71

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by Carolina Power & Light Company (the licensee), dated July 21, 2003, as supplemented by letter dated February 5, 2004, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Brunswick Steam Electric Plant, Unit 1, Updated Final Safety Analysis Report (UFSAR) Sections 9.4.5, 6.4.4.1, and 15.6.3. These changes reflect temporary operation of the turbine building ventilation system in the once-through configuration during outages as set forth in the application for amendment by Carolina Power & Light Company dated July 21, 2003, as supplemented by letter dated February 5, 2004.
3. This license amendment is effective as of the date of its issuance. Implementation of the amendment is the incorporation into the next UFSAR update, made in accordance with 10 CFR 50.71(e), of the changes to the description of the facility as described in Carolina Power & Light Company's application dated July 21, 2003, as supplemented by letter dated February 5, 2004, and evaluated in the staff's Safety Evaluation dated

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

William F. Burton, Acting Chief, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Date of Issuance: February 26, 2004

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 258  
License No. DPR-62

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by Carolina Power & Light Company (the licensee), dated July 21, 2003, as supplemented by letter dated February 5, 2004, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Brunswick Steam Electric Plant, Unit 2, Updated Final Safety Analysis Report (UFSAR) Sections 9.4.5, 6.4.4.1, and 15.6.3. These changes reflect temporary operation of the turbine building ventilation system in the once-through configuration during outages as set forth in the application for amendment by Carolina Power & Light Company dated July 21, 2003, as supplemented by letter dated February 5, 2004.
3. This license amendment is effective as of the date of its issuance. Implementation of the amendment is the incorporation into the next UFSAR update, made in accordance with 10 CFR 50.71(e), of the changes to the description of the facility as described in Carolina Power & Light Company's application dated July 21, 2003, as supplemented by letter dated February 5, 2004, and evaluated in the staff's Safety Evaluation dated

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

William F. Burton, Acting Chief, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Date of Issuance: February 26, 2004

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 230 TO FACILITY OPERATING LICENSE NO. DPR-71  
AND AMENDMENT NO. 258 TO FACILITY OPERATING LICENSE NO. DPR-62  
CAROLINA POWER & LIGHT COMPANY  
BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
DOCKET NOS. 50-325 AND 50-324

## 1.0 INTRODUCTION

By letter dated July 21, 2003 (ADAMS Accession No. ML032090442), as supplemented by letter dated February 5, 2004 (ADAMS Accession No. ML040430052), the Carolina Power & Light Company (the licensee) submitted a request for changes to the Brunswick Steam Electric Plant, Units 1 and 2, Technical Specifications (TS). The requested changes would allow temporary operation of the turbine building ventilation system in a once-through configuration in support of outage activities. The February 5, 2004, letter provided clarifying information only and did not change the initial proposed no significant hazards consideration determination or expand the scope of the initial application.

## 2.0 REGULATORY EVALUATION

The regulatory requirements that are applicable to routine effluents affected by the proposed amendment are Title 10 of the *Code of Federal Regulations* (10 CFR) Section 20.1301, "Dose limits for individual members of the public"; 10 CFR 50.34a, "Design objectives for equipment to control releases of radioactive materials in effluents - nuclear power reactors"; 10 CFR 50.36a, "Technical specifications on effluents from nuclear power reactors"; and Appendix I to 10 CFR Part 50, "Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents." In part, 10 CFR 20.1301 states that licensees shall conduct operations so that the total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem in a year, and that the dose in any unrestricted area from external sources does not exceed 0.002 rem in any one hour. The regulations in 10 CFR 50.34a specify that radioactive material in effluents to unrestricted areas be kept as low as is reasonably achievable. The guides set out in Appendix I to 10 CFR Part 50 provide numerical guidance on design objectives for light-water-cooled nuclear power reactors to meet the requirements that radioactive material in effluents released to unrestricted areas be kept as low as is reasonably achievable. The regulations in 10 CFR 50.36a specify, in part, that each licensee shall submit a report annually that specifies the quantity of each of the principal radionuclides released to unrestricted areas in liquid and gaseous effluents.

The regulations applicable to the design-basis accident radiological consequences potentially affected by the proposed amendment are 10 CFR 50.67, "Accident source term," and 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 19, "Control Room." The regulations in 10 CFR 50.67 contain requirements for the use of an alternate source term and contain dose limits for design-basis accidents. Guidance for implementation of the regulations of 10 CFR 50.67 is provided in Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design-Basis Accidents at Nuclear Power Reactors." GDC 19 contains requirements for Control Room access and habitability, and specifies that radiation exposures shall not exceed 5 rem total effective dose equivalent for the duration of an accident. Sections 6.4 and 15.0.1 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," were used as guidance in the review of this proposed amendment.

### 3.0 TECHNICAL EVALUATION

The licensee has proposed to revise the Updated Final Analysis Report (UFSAR) Section 9.4.5 to allow the ventilation system to be operated in a once-through versus recirculation configuration. Specifically, the following paragraph will be added to UFSAR Section 9.4.5:

To support outage activities, it is acceptable to operate the turbine building ventilation system as a once-through in combination with the installed recirculating air system. To accomplish this, a temporary modification of the shutdown unit's turbine building ventilation system ductwork, completed in accordance with plant procedures, is implemented. The temporary modification redirects the exhaust fans' discharge; bypassing the supply air system and discharging to the atmosphere via the heater bay roof and installs temporary radiation monitoring of the effluent release path. During the time the turbine building ventilation system is operated in the once-through configuration, effluent monitoring will be performed in accordance with the methodology in the Offsite Dose Calculation Manual to ensure that doses due to gaseous effluents remain within acceptable limits. If necessary, the operating supply and exhaust fans can be shut down from the control room to terminate the release from this pathway.

The licensee stated that this modification would be a temporary change, implemented during outages, on either unit, to enhance working conditions for personnel performing activities in the turbine building. Additionally, it would allow maintenance on the turbine building heating, ventilating, and air conditioning system that cannot be accomplished with the system in operation in the recirculation mode. In its supplemental letter of February 5, 2004, the licensee provided clarification on the use of the temporary monitoring instrumentation.

#### 3.1 Effects During Normal Operation

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed this change as a “temporary change that would be implemented only during outages.” The NRC staff focused its review in three areas: (1) compliance with routine effluent limitation requirements, (2) system operation and control requirements for service in the temporary “once-through” mode, and (3) the impact on the design-basis accident analysis for a main steamline break (MSLB) of the operating unit with turbine building ventilation system of the shutdown unit operating in the temporary once-through mode.

### 3.1.1 Compliance with routine effluent limitation requirements

The proposed operation of the turbine building ventilation system as a once-through design could impact offsite doses due to normal operation; however, the licensee’s existing controls are expected to ensure that this impact is minimal. The primary factors impacting the offsite doses will be establishment of an unfiltered release pathway and reduced decay time due to the higher exhaust flow. The licensee has evaluated the overall impact that the proposed modification would have had on past gaseous effluents release for the year 2002. The licensee compared the actual calculated annual dose of 0.0157 millirem from the existing recirculating configuration to the proposed once-through configuration calculated annual dose of 0.022 millirem. Both of these values are well below the ALARA dose criterion of 30 millirem to an organ from iodine and particulate effluents contained in Appendix I to 10 CFR Part 50. The NRC staff finds, with respect to routine effluent releases, that the licensee’s proposed modification to allow the turbine building ventilation system on the shutdown unit to be operated in a once-through configuration in support of outage activities has an acceptable small impact on doses to members of the public in unrestricted areas and is within regulatory limits.

### 3.1.2 System operation and control requirements for service in the temporary “once-through” mode

The NRC staff reviewed the operation of the turbine building ventilation system with the proposed temporary modification to allow exhaust flow to bypass the supply system and be released directly to the environment. Operation of a turbine building ventilation system in a once-through mode is not uncommon in the industry but does impose some considerations that the licensee has addressed.

The first consideration is the monitoring of the releases to the environment. The licensee proposes to use portable radiation-monitoring instrumentation at the once-through release point. There are three major differences in the capability of the portable radiation-monitoring instrumentation and the permanently installed radiation-monitoring equipment at the normal effluent release point. These capabilities are: (1) control room annunciation, (2) effluent flow measurement, and (3) remote timed samples. The portable monitor does not have a control room alarm capability. It does have a local annunciation on high radiation. The licensee states that during an outage there is full-time health physics coverage that would be available in the turbine building. In addition, the permanent radiation monitors would be available to alarm in

the control room. Thus, during the outage there would be sufficient awareness of radiological conditions to take actions to isolate the turbine building ventilation system if it were required. The NRC staff finds that there is reasonable assurance that control room personnel would be alerted to abnormal conditions during the use of the temporary once-through system during outages.

The portable monitor does not have the capability of measuring effluent flow rates that are required to develop an estimate of total dose release to the environment for compliance with 10 CFR 50.36a. The licensee states that the flow measurement for the temporary once-through system will be estimated by using the measured fan flow plus 10 percent for measurement inaccuracy. The NRC staff finds that this method of estimating flow is acceptable for the temporary once-through system. The NRC staff affirms that the volumetric flow rate estimated in this fashion along with the activity measured by the portable monitor on the once-through temporary system provides sufficient capability to determine total dose release per the requirements of 10 CFR 50.36a.

The portable monitor does not have the capability to take timed particulate and iodine grab samples. The licensee states that while operating the turbine building ventilation system in accordance with the temporary modification, portable radiation monitoring will be established at the once-through release point; and, in addition, the outage unit's filtration pathway will be operating and the operating unit's turbine building ventilation system will be operating in the recirculating mode, both having their permanently installed radiation monitoring functioning. The licensee states that the timed particulate and iodine grab samples will be provided by both units' filtration pathway permanent monitoring system. Given the shared nature of the turbine building, these samples should be representative of the effluent from the once-through temporary ventilation system. The NRC staff accepts the use of samples taken from the permanent monitoring system on the basis that there is reasonable assurance that the samples would be reflective of samples taken on the once-through temporary ventilation system.

The second consideration is the ability to isolate the system upon high radiation alarm. The licensee stated that procedure EOP-04-RRCP, "Radiological Release Control," provides instructions to isolate the release path if possible and that this would be accomplished by shutting off the shutdown unit's turbine building supply and exhaust fans. There are spring-actuated back draft dampers that would close on the exhaust, and there are air actuated isolation dampers on the supply that would close. The NRC staff finds this method acceptable for achieving isolation on the once-through temporary outage ventilation system.

### 3.2 Effects on Accident Analysis

The only design-basis accident that assumes a release into the turbine building is the MSLB accident. The majority of the change to the dose analysis of the design-basis MSLB accident is due to the change in the release point to the environment. The licensee does not take credit for isolation of the turbine building at any time during the duration of the accident. The licensee's

analysis has shown that for a postulated MSLB accident that occurs when the turbine building ventilation system is operating in the once-through configuration, the radiological consequences remain within 10 CFR 50.67 and GDC-19 dose criteria, as well as the RG 1.183 dose acceptance criteria. The following sections discuss the NRC staff's review of the licensee's calculated atmospheric dispersion estimates for the release location and the licensee's analysis of the MSLB accident radiological consequences.

### 3.2.1 Meteorological Data

The licensee used 4 years of hourly onsite meteorological data collected during calendar years 1996 through 1999 to generate new Control Room MSLB atmospheric dispersion factors ( $\chi/Q$  values) for this license amendment request. These are the same data used in the analyses performed in support of the adoption of the Alternative Source Term (AST) for the Brunswick Steam Electric Plant. (The Safety Evaluation for License Amendments 221 and 246 for Units 1 and 2, respectively, was issued May 30, 2002 (ADAMS Accession No. ML0214804830).) The data were used to generate  $\chi/Q$  values for the two temporary turbine building ventilation system modification release points, which are exhaust vents on the north and south ends of the heater bay roof.

The NRC staff previously performed a qualitative review of these meteorological data as part of the Safety Evaluation of the AST license amendment. On the basis of that review, the NRC staff concluded that the 1996 through 1999 onsite data provided an acceptable basis for making estimates of atmospheric dispersion for design-basis accident assessments.

### 3.2.2 Control Room Atmospheric Dispersion Factors

The licensee calculated control room air intake  $\chi/Q$  values to evaluate releases from the two temporary modification release points using the 1996 through 1999 onsite meteorological data and the ARCON96 computer code (NUREG/CR-6331, Revision 1, "Atmospheric Relative Concentrations in Building Wakes"). The NRC staff qualitatively reviewed the inputs to the ARCON96 calculations and found them generally consistent with site configuration drawings and staff practice. Specific areas of note are as follows:

1. The temporary modification releases were modeled as ground-level point sources with the release height set equal to the height of the exhaust vents. The source-to-receptor distance was based on the stretched-string distance between the exhaust vents and the control room air intake. The resulting  $\chi/Q$  values were used to model releases for the MSLB accident.
2. Not all the default data values specified in Regulatory Guide 1.194 ("Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants") were used by the licensee in their analyses (i.e., surface roughness length, minimum wind speed, and averaging sector width constant values of

0.10 m, 0.3 m/s, and 4.0 were used in lieu of RG 1.194 specified values of 0.20 m, 0.5 m/s, and 4.3, respectively). Nonetheless, the NRC staff did make a comparison evaluation that supported the acceptability of the licensee's  $\chi/Q$  values.

3. It appears that invalid meteorological data in the 1996 through 1999 onsite meteorological database were inappropriately identified by using values of zero instead of a field of "9"s as suggested in the ARCON96 User's Guide (Section 4.6.5 of NUREG/CR-6331, Revision 1). Although ARCON96 interprets values of zero for wind direction and stability as invalid data, values of zero for wind speed are interpreted as valid input. Consequently, the NRC staff reassigned all the lower level and upper level wind speed values of zero to "9999" and reran ARCON96. The NRC staff's resulting  $\chi/Q$  values supported the acceptability of the licensee's  $\chi/Q$  values.

In summary, the NRC staff has reviewed the licensee's assessments of control room post-accident dispersion conditions generated from the licensee's meteorological data and atmospheric dispersion modeling. The resulting control room  $\chi/Q$  values are presented in Table 1. On the basis of this review, the NRC staff concludes that these control room  $\chi/Q$  values are acceptable for modeling temporary turbine building ventilation system modification releases for the MSLB accident.

### 3.2.3 Exclusion Area Boundary and Low-Population Zone Atmospheric Dispersion Factors

The licensee used the ground-level release offsite  $\chi/Q$  values presented in its August 1, 2001, AST submittal to evaluate exclusion area boundary (EAB) and low-population zone (LPZ) doses for the MSLB accident from the temporary modification release pathway. These atmospheric dispersion factors, presented in Table 2, were based on the 1996 through 1999 onsite meteorological data using the PAVAN computer code (NUREG/CR-2858, "PAVAN: An Atmospheric Dispersion Program for Evaluating Design Basis Accidental Releases of Radioactive Materials from Nuclear Power Plants"). PAVAN is based on the methodology described in Regulatory Guide 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants." The NRC staff considers these  $\chi/Q$  values appropriate for the temporary modification release pathways because these pathways are in relatively close proximity to the other AST design-basis accident release points as compared to the EAB and LPZ distances of 3,000 ft (914 m) and 2 miles (3.2 km), respectively.

The NRC staff previously performed a qualitative review of the licensee's inputs to the PAVAN code and found them to be consistent with site configuration drawings and other information in the Brunswick UFSAR and staff practice. On the basis of that review, the NRC staff concludes that the offsite  $\chi/Q$  values presented in Table 2 are acceptable for modeling releases from the temporary turbine building ventilation system modification for the MSLB accident.

### 3.3 Dose Consequences Analyses

The licensee performed an analysis of the radiological consequences of the design-basis MSLB occurring with the turbine building ventilation system operating in the once-through configuration. The revised analysis is consistent with the analyses done in support of the licensee's previous implementation of an AST. The analysis is performed for two activity release cases based on the maximum equilibrium and pre-accident iodine spike concentrations of 0.2 mCi/gm and 4 mCi/gm dose equivalent I-131, respectively. All of the accident activity was assumed released within 5.5 seconds following the accident as a ground-level release, with no credit for turbine building holdup or dilution. The licensee assumed a control room unfiltered inleakage of 0 cfm. This is a conservative assumption for the MSLB because of the essentially instantaneous nature of the release (5.5 seconds) and the effect of the higher inleakage of less-contaminated air following the release, which sweeps out the contaminated air within the control room envelope. These assumptions are in accordance with RG 1.183 guidance. All analysis inputs and assumptions are the same as previously approved, with the exception of the atmospheric dispersion factors. The atmospheric dispersion factors used for the analysis are discussed above. The licensee's analysis results, listed in Table 3 below, are within the dose acceptance criteria in RG 1.183 and meet the dose criteria of 10 CFR 50.67 and GDC-19.

The NRC staff reviewed the licensee's dose analysis inputs and assumptions and found them acceptable. The NRC staff also performed independent analyses that confirmed the licensee's dose results. The licensee's analysis of a postulated MSLB at the operating unit while the turbine building ventilation system is in the temporary once-through line-up shows that Brunswick Units 1 and 2 continue to meet the dose criteria of 10 CFR 50.67 and GDC-19. Based on its review, the NRC staff concludes that the requested change is acceptable with respect to the radiological consequences of design-basis accidents.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of North Carolina official was notified of the proposed issuance of the 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. 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 (68 FR 46241). 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.

Principal Contributors: E. B. Forrest  
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Date: February 26, 2004

**TABLE 1**  
**Control Room Atmospheric Dispersion Factors**

<u>Time Interval</u>	<u>Unit 1 χ/Q Values (sec/m<sup>3</sup>)</u>	<u>Unit 2 χ/Q Values (sec/m<sup>3</sup>)</u>
0-2 hrs	1.35E-3	1.43E-3
2-8 hrs	1.22E-3	1.25E-3
8-24 hrs	6.54E-4	5.96E-4
1-4 days	4.52E-4	4.80E-4
4-30 days	3.07E-4	3.33E-4

**TABLE 2**  
**EAB and LPZ Atmospheric Dispersion Factors**

<u>Time Interval</u>	<u>EAB χ/Q Values (sec/m<sup>3</sup>)</u>	<u>LPZ χ/Q Values (sec/m<sup>3</sup>)</u>
0-2 hrs	2.20E-3	7.77E-4
2-8 hrs	-	3.36E-4
8-24 hrs	-	2.21E-4
1-4 days	-	8.90E-5
4-30 days	-	2.41E-5

**TABLE 3**  
**Licensee-Calculated MSLB Dose Results (rem TEDE)**  
**Turbine Building Ventilation System in Temporary Once-Through Operation**

MSLB, Brunswick Unit 1 Temporary Modification Release Point

<u>Case</u>	0-2 hr <u>EAB</u>	30-day <u>LPZ</u>	30-day <u>CR</u>
Equilibrium Activity	0.127	0.045	0.060
<i>Acceptance Criterion</i>	2.5	2.5	5
Pre-incident Spike	2.53	0.897	1.19
<i>Acceptance Criterion</i>	25	25	5

MSLB, Brunswick Unit 2 Temporary Modification Release Point

<u>Case</u>	0-2 hr <u>EAB</u>	30-day <u>LPZ</u>	30-day <u>CR</u>
Equilibrium Activity	0.127	0.045	0.063
<i>Acceptance Criterion</i>	2.5	2.5	5
Pre-incident Spike	2.54	0.897	1.26
<i>Acceptance Criterion</i>	25	25	5