



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

June 2, 2011

Mr. Michael J. Annacone, 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 – EXEMPTION  
FROM THE REQUIREMENTS OF 10 CFR PART 26 WORK HOUR CONTROLS  
DURING PERIODS IMMEDIATELY PRIOR AND SUBSEQUENT TO SEVERE  
WIND CONDITIONS (TAC ME5188 AND ME5189)

Dear Mr. Annacone:

The Nuclear Regulatory Commission has approved the enclosed exemption from specific requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 26, for Brunswick Steam Electric Plant (BSEP), Units 1 and 2. This action is in response to your application dated December 16, 2010, as supplemented by letters dated January 27, March 7, and April 13, 2011.

Pursuant to 10 CFR 26.9, Carolina Power & Light Company requested an exemption from the requirements of 10 CFR 26.205(c) and (d) during declarations of severe weather conditions, such as tropical storm and hurricane force winds, at the BSEP site. The exemption request applies to individuals who perform duties identified in 10 CFR 26.4(a)(1) through (a)(5) who are sequestered onsite during severe weather when travel conditions to the site are potentially hazardous such that storm crew staffing is required.

A copy of the exemption is enclosed. The exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

A handwritten signature in black ink that reads "Farideh E Saba".

Farideh E. Saba, Senior Project Manager,  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-224 and 50-225

Enclosure: Exemption

cc w/encl: Distribution via Listserv

NUCLEAR REGULATORY COMMISSION

[NRC-2011-xxxx]

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

EXEMPTION

1.0 BACKGROUND

Carolina Power & Light Company, et al. (the licensee), is the holder of Facility Operating License Nos. DPR-71 and DRP-62, which authorize operation of the Brunswick Steam Electric Plant (BSEP), Units 1 and 2, respectively. The licenses provide, among other things, that the facility is subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (NRC, Commission) now or hereafter in effect.

The facility consists of two boiling water reactors located in Southport, North Carolina.

2.0 REQUEST/ACTION

By letter dated December 16, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML103630405, as supplemented by letter dated January 27, 2011 (ADAMS Accession No. ML110400193), and pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 26.9, "Specific exemptions," the licensee requested an exemption from the requirements of 10 CFR 26.205(c), "Work hours scheduling," and (d), "Work hour controls," during declarations of severe weather conditions such as tropical storm and hurricane force winds at the BSEP site. Subsequent letters dated March 7 and April 13, 2011 (ADAMS Accession Nos. ML110730275 and ML11110A021, respectively) provided responses to the NRC staff's requests for additional information (RAIs).

The NRC staff has reviewed the licensee's request using the regulations contained in 10 CFR 26.205 and 10 CFR 26.207, and related Statement of Considerations in the 10 CFR Part 26, "Fitness for Duty Programs," Final Rule published in the *Federal Register* on March 31, 2008 (73 FR 16966-17235).

As stated in 10 CFR Part 26, Subpart I, "Managing Fatigue," the requirements in 10 CFR 26.205 apply to individuals identified in 10 CFR 26.4(a)(1) through (a)(5). These individuals' duties are: (1) operating or onsite directing of the operation of structures, systems and components (SSCs) that a risk-informed evaluation process has shown to be significant to public health and safety; (2) performing health physics or chemistry duties required as a member of the onsite emergency response organization's minimum shift complement; (3) performing the duties of a fire brigade member who is responsible for understanding the effects of fire and fire suppressants on safe shutdown capability; (4) performing maintenance or onsite directing of the maintenance of SSCs that a risk-informed evaluation process has shown to be significant to public health and safety; and (5) performing security duties as an armed security force officer, alarm station operator, response team leader, or watchperson.

The regulations in 10 CFR 26.205(c) require that an individual's work hours be scheduled consistent with the objective of preventing impairment from fatigue due to the duration, frequency, or sequencing of successive shifts.

Paragraph 26.205(d) of 10 CFR provides the actual work hour controls, which include a maximum of 16 work hours in any 24-hour period, 26 work hours in any 48-hour period, and 72 work hours in any 7-day period. This section also specifies the minimum break times between work periods and the minimum number of days off that should be provided by a licensee to the identified individuals.

Paragraph 10 CFR 26.205(b) provides the requirement and method to calculate work hours and days worked. Paragraph 10 CFR 26.205(b)(3) provides the requirement to include in the "calculation period" all work hours performed for the licensee prior to beginning or resuming duties subject to work hour controls.

Paragraph 10 CFR 26.207(d) provides an allowance for licensees to not meet the requirements of 10 CFR 26.205(c) and (d) during declared emergencies, as defined in the licensee's emergency plan.

The licensee in its letter dated December 16, 2010, states that the requested exemption applies to individuals who perform duties identified in 10 CFR 26.4(a)(1) through (a)(5) who are designated by BSEP as "covered workers." The requested exemption is to support effective response to severe weather conditions when travel to and from the BSEP site may not be safe or even possible. During these times, the licensee sequesters sufficient individuals, including covered workers, to perform work as a member of the storm crew. The licensee staffs those whom will be sequestered onsite during the severe wind event to perform two 12-hour shifts. The licensee states that the storm crews are augmented by the emergency response organization (ERO) personnel based on the severity category of the storm. Therefore, the exemption request would also apply to members of the ERO who are subject to work hour controls and who will also be sequestered on site during the severe weather conditions. The exemption request specifies that the exemption is not for discretionary maintenance activities.

The licensee requested an exemption from the requirements of 10 CFR 26.206(c) and (d) during the period of time defined by the following entry and exit conditions.

**ENTRY CONDITION:** This is the start time when individuals, designated to the storm crew, performing duties identified in 10 CFR 26.4(a)(1) through (a)(5), will not have to meet the requirements of 10 CFR 26.205(c) and (d). This occurs

when the site enters procedure OAI-68, "Brunswick Nuclear Plant Response to Severe Weather Warnings," and senior plant management determines that travel conditions to the site will potentially become hazardous such that storm crew staffing will be required based on verifiable weather conditions. Verifiable weather conditions are defined as when the site is located within the National Hurricane Center 5-day cone of probability for predicted winds of tropical storm or hurricane force impact.

EXIT CONDITION: This is the time when BSEP personnel must fully comply with the requirements of 10 CFR 26.205(c) and (d) following severe weather involving tropical storm or hurricane force winds. This date and time will be determined by senior plant management and will be when sufficient personnel are available to meet the requirements of 10 CFR 26.205(c) and (d).

The licensee added that upon exiting the exemption the work hour controls will be applied and that the affected individuals will be provided a minimum of a 10-hour break prior to the start of the first shift following exiting the exemption.

The licensee states that there is no need for an exemption for BSEP covered workers during the period of declared emergency when the sustained wind speed is greater than 100 miles per hour (mph), since, in accordance with 10 CFR 26.207(d), licensees are not required to meet the requirements of 10 CFR 26.205(c) and (d) during a declared emergency. The licensee indicated that the exemption will be applied during the period defined by the entry and exit conditions, regardless of whether BSEP enters the period of declared emergency. As a result, there will be only one set of entry and exit conditions.

In its letter dated December 16, 2010, the licensee committed to maintain the following guidance in a site procedure:

- The entry conditions necessary to sequester site personnel that are consistent with the conditions specified in the BSEP exemption request.
- Provisions for ensuring that personnel who are not performing duties are provided an opportunity as well as accommodations for restorative rest.
- The condition for departure from the exemption, consistent with conditions specified in the exemption request.

### 3.0 DISCUSSION

Pursuant to 10 CFR 26.9, the Commission may, upon application of an interested person or on its own initiative, grant exemptions from the requirements of 10 CFR Part 26 when it determines the exemptions are authorized by law and will not endanger life or property or the common defense and security, and are otherwise in the public interest.

#### Authorized by Law

The exemption being requested for BSEP would allow the site to sequester specific individuals on site and to not meet the work hour scheduling and control requirements of 10 CFR 26.205(c) and (d) prior and subsequent to severe weather conditions such as tropical storms and hurricanes. As stated above, 10 CFR 26.9 allows the NRC to grant exemptions from the requirements of 10 CFR Part 26. The NRC staff has determined that granting of the licensee's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, and is authorized by the Commission's regulations. Therefore, the exemption is authorized by law.

#### Will Not Endanger Life or Property or the Common Defense and Security

The fatigue management provisions found in 10 CFR Part 26, Subpart I are designed as an integrated approach to managing both cumulative and acute fatigue by the licensees and individuals employed at licensed facilities. It is the responsibility of the licensees to provide

training to individuals regarding fatigue management. It is also the responsibility of the licensee to provide covered workers with work schedules that are consistent with the objective of preventing impairment from fatigue due to duration, frequency or sequencing of successive shifts. Individuals are required to remain fit-for-duty while at work.

BSEP Units 1 and 2 are located in southeastern North Carolina, at the mouth of the Cape Fear River. As such, the site can be impacted by tropical storms and hurricane force winds, typically from June to November. The proposed exemption would support effective response to severe weather conditions when travel to and from the BSEP site may not be safe or even possible. During these times BSEP plans to sequester sufficient individuals to staff two 12-hour shifts to maintain the safe and secure operation of the facility.

As a tropical storm or hurricane approaches landfall, high wind speeds in excess of wind speeds that create unsafe travel conditions may occur. The National Hurricane Center defines hurricane force winds as sustained winds of 74 mph or higher. Severe wind preparedness activities become difficult once winds reach tropical storm force; a tropical storm warning is issued 36 hours in advance of the anticipated onset of tropical-storm-force winds (39 to 73 mph). Lessons learned that are included in NUREG-1474, "Effect of Hurricane Andrew on the Turkey Point Nuclear Generating Station from August 20-30, 1992," include the acknowledgement that detailed, methodical preparations should be made prior to the onset of hurricane force winds. The NRC staff finds the BSEP proceduralized severe weather actions are consistent with the lessons learned.

The entry condition for the exemption can occur, even though the wind speed necessary for the declaration of an unusual event (defined in the licensee's emergency response plan as when sustained wind speed is greater than 100 mph) is not reached. This circumstance may still require sequestering a storm crew and a recovery period. Also, high winds that make travel

unsafe but that fall below the threshold of a declared emergency, could be present for several days. After the high wind condition has passed, with or without a declared emergency, sufficient numbers of personnel may not be able to access the site to relieve the sequestered individuals. An exemption during these conditions is consistent with the intent of 10 CFR 26.207(d).

The exemption allows the licensee to sequester individuals, who are needed to maintain the safe operation of the facility during storm conditions, to staff two 12-hour shifts of workers consisting of personnel from operations, maintenance, health physics, chemistry and security and augmented by ERO individuals. Sequestered individuals will be allowed a 12-hour break between successive work periods and no worker will be scheduled to work more than 12 consecutive hours. The BSEP site procedure 0AI-68 provides for the establishment of sleeping areas (bunking facilities), that provide an accommodation for restorative rest for the off-crew. A 12-hour break provides each individual with an opportunity for restorative rest. However, the accommodations and potentially stressful circumstances may not be as restful as individuals would otherwise desire. Under the circumstances, these actions are consistent with the acceptable practice of fatigue management.

The exemption allows the licensee to provide for the use of whatever plant staff and resources are necessary to respond to a plant emergency and ensure that the BSEP units achieve and maintain a safe and secure status and can be safely restarted. The exemption also allows that maintenance activities for structures, systems and components that are significant to public health and safety to be performed, if required. However, the exemption does not apply to discretionary maintenance activities. The NRC staff finds the exclusion of discretionary maintenance from the exemption consistent with the intent of the exemption, since it supports the use of necessary plant staff resources to respond to a plant emergency.

Following the severe weather event, BSEP will return to work hour controls when senior plant management determines that sufficient personnel are available to return to the site to make the reinstatement of work hour controls possible. When this determination is made, full compliance with 10 CFR 26.205(c) and (d) is again required.

When the exemption period(s) ends, the licensee is immediately subject to the scheduling requirements of 10 CFR 26.205(c) and the work hour/rest break/days off requirements of 10 CFR 26.205(d), and must ensure that any individual performing covered work complies with these requirements. Paragraph 10 CFR 26.205(b)(3) requires the licensee to "look back" over the calculation period and count the hours the individual has worked and the rest breaks and days off he/she has had, including those that occurred during the licensee-declared emergency. Hours worked must be below the maximum limits and rest breaks must be above the minimum requirements in order for the licensee to allow the individual to perform covered work. Days off and hours and shifts worked during the licensee-declared emergency and the exempted period before and after the declared emergency, would be counted as usual in the establishment of the applicable shift schedule and compliance with the minimum number of days off requirements.

Granting this exemption is consistent with the intent of 10 CFR 26.207(d) that allows the licensee to not meet the requirements of 10 CFR 26.205 (c) and (d) during declared emergencies as defined in the licensee's emergency plan. The 10 CFR Part 26 Final Rule (73 FR 17148) states, "Plant emergencies are extraordinary circumstances that may be most effectively addressed through staff augmentation that can only be practically achieved through the use of work hours in excess of the limits of § 26.205(c) and (d)." The objective of the exemption is to ensure that the control of work hours do not impede a licensee's ability to use whatever staff resources may be necessary to respond to a plant emergency and ensure that the plant reaches and maintains a safe and secure status. The actions described in the

exemption request and submitted procedures are consistent with the recommendations in NUREG-1474, "Effect of Hurricane Andrew on the Turkey Point Nuclear Generating Station from August 20-30, 1992." Consistent with NUREG-1474, NRC staff expects the licensee would have completed a reasonable amount of hurricane preparation prior to the need to sequester personnel, in order to minimize personnel exposure to high winds.

The underlying purposes of 10 CFR 26.205(c) and (d) are to prevent impairment from fatigue due to duration, frequency, or sequencing of successive shifts. Based on the above evaluation, no new accident precursors are created by the licensee maintaining the additional staff on site necessary to respond to a plant emergency during a severe storm to ensure that the plant maintains a safe and secure status; therefore, the probability of postulated accidents is not increased. Even though the licensee will utilize whatever staff resources may be necessary during severe weather preparation and storm crew activation, opportunities for restorative sleep will be maintained. Also, the consequences of postulated accidents are not increased because there is no change in the types of accidents previously evaluated. Further, the exemption supports sequestering enough essential security personnel to provide for shift relief, which is necessary to ensure adequate protection of the plant and personnel safety. Therefore, the exemption will not endanger life or property or the common defense and security.

#### Otherwise in the Public Interest

The proposed exemption would increase the availability of the licensee staff. The exemption would allow licensee staff to remain at or return to the site and perform additional duties to ensure the plant is in a safe configuration during the emergency. Therefore, granting this exemption is in the public interest.

#### 4.0 CONCLUSION

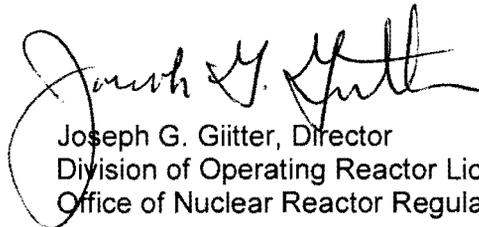
Accordingly, the Commission has determined that, pursuant to 10 CFR 26.9, the exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. Therefore, the Commission hereby grants Carolina Power & Light Company an exemption from the requirements of 10 CFR 26.205(c) and (d) for BSEP, Units 1 and 2 during periods of severe weather conditions such as tropical storm and hurricane force winds at the site.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment (76 FR 28481).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 2<sup>nd</sup> day of June 2011.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read "Joseph G. Giitter". The signature is written in a cursive style with a large initial "J".

Joseph G. Giitter, Director  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

June 2, 2011

Mr. Michael J. Annacone, 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 – EXEMPTION  
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Sincerely,

/RA/

Farideh E. Saba, Senior Project Manager,  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-224 and 50-225

Enclosure: Exemption

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\* By Memo

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