



December 16, 2010

Serial: BSEP 10-0111

10 CFR 26.9

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2  
Renewed Facility Operating License Nos. DPR-71 and DPR-62  
Docket Nos. 50-325 and 50-324  
Request for Exemption from Certain Requirements of the Fitness for Duty Rule  
for Managing Fatigue

Ladies and Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Part 26.9, Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., is requesting an exemption from certain requirements of the Fitness for Duty Rule for Managing Fatigue for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. Specifically, the letter requests exemption from the requirements of 10 CFR 26.205(c) and (d) for meeting work hour controls during declarations of severe weather conditions involving tropical storm or hurricane force winds. During these conditions, adherence to all work hour control requirements could impede the ability to respond to a plant emergency and ensure that the plant reaches and maintains a safe and secure status.

Enclosure 1 to this letter provides the detailed evaluation for exemption from the requirements of 10 CFR 26.205(c) and (d).

Regulatory commitments contained in this submittal are provided in Enclosure 2.

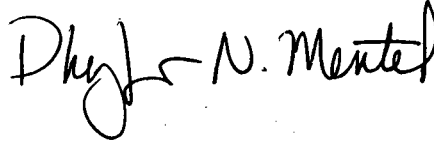
BSEP is most vulnerable to tropical storms and hurricane force winds from June to November. Consequently, CP&L requests that the NRC approve this request by May 31, 2011.

Progress Energy Carolinas, Inc.  
Brunswick Nuclear Plant  
PO Box 10429  
Southport, NC 28461

AD21  
NRC

Please refer any questions regarding this submittal to Mr. Lee Grzeck, Acting Supervisor - Licensing/Regulatory Programs, at (910) 457-2487.

Sincerely,

A handwritten signature in black ink, reading "Phyllis N. Mentel". The signature is fluid and cursive, with the first name "Phyllis" being more prominent and the last name "Mentel" following in a similar style.

Phyllis N. Mentel  
Manager - Support Services  
Brunswick Steam Electric Plant

MAT/mat

Enclosure:

1. Request for Exemption from 10 CFR 26.205(c) and (d)
2. List of Regulatory Commitments

cc (with enclosures):

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## **Request for Exemption from 10 CFR 26.205(c) and (d)**

### **1.0 Purpose**

This enclosure provides supporting justification, pursuant to 10 CFR 26.9, for an exemption from the requirements of 10 CFR 26.205(c) and (d) from meeting work hour controls during severe weather conditions involving tropical storm or hurricane force winds.

Specifically, the exemption would only apply to severe weather conditions where tropical storm or hurricane force winds are predicted onsite; requiring the sequestering of the Brunswick Steam Electric Plant (BSEP) personnel. BSEP personnel would not need to meet the requirements of 10 CFR 26.205(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 0AI-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).

Upon exiting the exemption, the work hour controls of 10 CFR 26.205(c) and (d) will apply. 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.

### **2.0 Background**

BSEP Units 1 and 2 are located in Brunswick County, in southeastern North Carolina, at the mouth of the Cape Fear River. As such, the site can be impacted by tropical storms and hurricanes. BSEP is most vulnerable to tropical storms and hurricane force winds from June to November.

The Fitness for Duty Rule for Managing Fatigue, Subpart I to 10 CFR 26, which includes Sections 26.205(c) and (d), was implemented in 2009. Parts 26.205(c) and (d) to 10 CFR establish requirements for work hour scheduling and work hour controls for any individual who performs duties identified in Parts 26.4(a)(1) through (a)(5). The individuals performing these

duties are referred to as "covered workers." Part 26.205(c) requires licensees to schedule the work hours of covered workers with the objective of preventing impairment from fatigue due to the duration, frequency, or sequencing of successive shifts.

The proposed exemption is needed 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, BSEP plans to sequester sufficient individuals, including covered workers, to staff two 12-hour shifts to maintain the safe and secure operation of the facility. The duties identified in 10 CFR 26.4(a)(1) through (a)(5) performed by these individuals 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 requested exemption provides for use of whatever plant staff resources may be necessary to respond to a plant emergency and ensure that the units achieve and maintain a safe and secure status and can be safely restarted, if shutdown was required. Maintenance activities for SSCs that are significant to public health and safety will be performed, if required, to maintain the plant in a safe and secure status or to assure the ability to safely restart. The exemption is not for discretionary maintenance. Work necessary to maintain the plant in a safe and secure condition, or to protect equipment required for safety or power generation from potential storm damage, may be performed during periods when the exemption applies. Because of the importance and high priority assigned to restoration of power to the area affected by the storm, BSEP does not consider work required to allow the plant to restart after the storm to be discretionary. Examples of activities involving the SSCs which may be performed include:

- Surveillances.
- Maintenance needed to assure SSCs required by the Technical Specifications are operable.
- Maintenance needed to assure SSCs needed for reliable operation are functional.
- Protecting SSCs required for safety or power generation from potential storm damage.
- Post-storm corrective maintenance to repair damage to safety-related SSCs to support restart of the units.
- Post-storm maintenance to restore the units to operable status to support restoration of power to the grid.

During the period that BSEP is requesting to be exempt from 10 CFR 26.205(c) and (d), BSEP may meet the conditions for entering the Emergency Response Plan (ERP). The declaration of a wind-related Unusual Event occurs when the sustained wind speed is greater than 100 mph. An Alert would be declared if the sustained wind speed is greater than 100 mph and it resulted in visible damage to any area containing safe shutdown equipment or components; or Control Room indication of degraded performance of those safety systems. Since 10 CFR 26.207(d) already states that licensees need not meet the requirements of 10 CFR 26.205(c) and (d) during declared emergencies, there is no need for exemption for BSEP covered workers during the period of the declared emergency. However, this exemption should be applied to the period established by the entry and exit conditions defined above, regardless of whether the ERP is entered or not. The proposed exemption period bounds the period for declared emergency condition due to wind-related conditions. As a result, it establishes one set of entry and exit conditions rather than multiple entry and exit conditions when transitioning from pre-ERP declared emergency exempted periods to post-ERP declared emergency exempted periods.

### **3.0     Discussion**

BSEP procedure 0AOP-13.0, "Operation During Hurricane, Flood Conditions, Tornado or Earthquake," presents plant operational requirements when hurricane watches and warnings are issued. It requires that the units be in Mode 3 at least two hours prior to the anticipated arrival of the hurricane at the site. This is consistent with the guidance of NUMARC 87-00, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors," Revision 1, Section 4.2.3 and is the basis for the NRC's acceptance of BSEP as a four-hour coping duration facility as stated in the safety evaluation report on BSEP's conformance with 10 CFR 50.63, "Loss of all alternating current power" (i.e., Station Blackout), dated October 4, 1990.

BSEP procedure 0AI-68, "Brunswick Nuclear Plant Response to Severe Weather Warnings," provides guidance for preparing the plant due to impending severe weather. 0AI-68 provides specific guidance for staffing levels and for the process of sequestering the storm crews and includes provisions for augmented storm crew manning at the facility including the Emergency Response Organization (ERO) to ensure the safe operation of the BSEP units during storm conditions. During preparations for a storm, the designated storm crew is released to prepare their homes and families for the approaching storm. During this time, non-storm crew members are preparing the site for the storm. The storm crew then returns to the site in sufficient time to staff the emergency facilities. At this time, personnel that are not part of the storm crew are released from the site. However, a fast moving storm or a storm that unpredictably changes direction may not allow storm crew members time off prior to sequestering.

The storm crew is activated upon the direction of the Director - Site Operations. The storm crew consists of enough individuals to man two 12-hour shifts of workers (i.e., including covered workers) to maintain the safe and secure operation of the facility. These crews are augmented by ERO personnel based on the severity category of the storm. 0AI-68 provides for bunking facilities in the emergency response facilities that allows restorative sleep for the off-crew.

After the storm has passed, it is difficult to predict when relief personnel could return to the site based on the degree of surrounding infrastructure damage caused by the storm and the different locations that personnel chose to evacuate to avoid the storm. Typically, access to the area following storm damage is controlled by local government officials. The goal is to provide relief as soon as circumstances allow. When enough personnel are available to support meeting the requirements of 10 CFR 26.205(c) and (d), full compliance with the work hour rule can be met. Senior plant management will make this decision.

Based on the circumstances, BSEP is primarily concerned with the ability to meet requirements specified in 10 CFR 26.205(d)(2)(ii) and 26.205(d)(3). 10 CFR 26.205(d)(2)(ii) requires that licensees ensure that covered individuals have, at a minimum, a 34-hour break in any 9-day period. 10 CFR 26.205(d)(3) requires that licensees ensure that covered individuals have, at a minimum, the number of days off specified. Although efforts will be made to give storm crews time off prior to sequestering the crews, this may not always be achieved based on the unpredictability of storm development and movement.

Although an exemption from meeting all the requirements of 10 CFR 26.205(c) and (d) during implementation of the BSEP procedure OAI-68 is requested, opportunities for restorative sleep will be maintained. OAI-68 provides for bunking facilities in the emergency facilities for the off-crew. Hence, it is expected that crews will be allowed a 12-hour break between successive work periods, thereby meeting the work hour limits of 10 CFR 26.205(d)(1). While meeting rule requirements specified in 10 CFR 26.205(d)(2)(ii) and 26.205(d)(3) is considered the primary challenge, the storm crew may be faced with unforeseen challenges where it is prudent to request that BSEP be exempt from meeting all the requirements of 10 CFR 26.205(c) and (d) during storm crew activation to ensure that the plant reaches and maintains a safe and secure status.

#### **4.0     Analysis**

##### ***Comparison to Existing Regulation***

The NRC recognizes that there are special circumstances where the requirements of 10 CFR 26.205(c) and (d) cannot be met. Regarding plant emergencies, the NRC stated the following when publishing the Final Fitness for Duty Rule (i.e., Federal Register, Volume 73, Number 62, Page 17148, March 31, 2008):

Section 26.207(d) [Plant emergencies] adds the potential to temporarily waive the requirements of § 26.205(c) and (d) during declared emergencies, as defined in the licensee's emergency plan. ... 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 temporary exemption is to ensure that the control of work hours and management of worker fatigue 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. At the conclusion of the declared emergency, the rule would require licensees to again comply with the work hour controls.

The proposed exemption is consistent with the intent of existing regulation 10 CFR 26.207(d). The objective of the exemption is to ensure that the control of work hours do not impede BSEP's ability to use whatever staff resources may be necessary to respond to a plant emergency and ensure that the plant maintains a safe and secure status. As previously stated, the entry condition for the purposes of this exemption is defined as follows:

**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 0AI-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.

Consistent with entry into a declared emergency, the proposed entry condition is clearly defined; being based on a predicted forecast by the National Weather Service. This allows the storm crew to sequester on-site, since travel to and from the site during high wind conditions may be hazardous or not possible.

Similarly, the proposed exit condition is also consistent with the intent of existing regulation 10 CFR 26.207(d). The proposed exit condition states:

**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 exit condition is clearly defined as the condition when sufficient personnel are available to meet the work hour requirements. The time that this condition occurs cannot be based on such conditions as: (1) a period of time after the storm has passed, (2) the plant is ready to restart, or (3) roads and surrounding infrastructure support a return to the area by relief personnel. The station will be making every effort to re-establish this condition working through many possible variables. Senior plant management is in the best position to make this determination.

#### ***Conformance to 10 CFR 26.9, "Specific exemptions"***

10 CFR 26.9 provides the NRC authority to grant exceptions to the requirements of 10 CFR 26. Specifically, 10 CFR 26.9 states:



Upon application of any interested person or on its own initiative, the Commission may grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security, and are otherwise in the public interest

The proposed exemption meets the criteria for exemption defined by 10 CFR 26.9 as demonstrated below.

*The exemption is authorized by law.*

10 CFR 26.9 allows the NRC to grant exemptions from the requirements of 10 CFR 26.205(c) and (d). Additionally, granting of the proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations. Therefore, the exemption is authorized by law.

*The exemption will not endanger life or property or the common defense and security.*

10 CFR 26 currently allows for licensees not meeting the requirements of Parts 26.205(c) and (d) during declared emergencies, as defined in the Emergency Response Plan. The proposed exemption expands that allowance for severe weather conditions involving tropical storm or hurricane force winds that may or may not result in the declaration of an emergency. Such an allowance supports sequestering enough essential personnel to provide for shift relief, which is necessary to ensure adequate protection of the plant and personnel safety. As such, the proposed exemption maintains protection of health and safety of the public, and does not adversely affect the common defense and security.

*The exemption is in the public interest.*

This exemption request will only expand an exception already provided in 10 CFR 26 during declared emergencies to circumstances where severe weather conditions due to tropical storm or hurricane force winds require the manning of facility storm crews. The exemption is needed for a unique set of circumstances to ensure that the control of work hours and management of worker fatigue does not impede the ability to use whatever staff resources may be necessary to respond to the severe weather threat and ensure that the plant reaches and maintains a safe and secure status. Therefore, the focus will be on nuclear safety and security and thus in the interest of public health and safety.

#### ***Alternatives to Proposed Exemption***

BSEP considered other options in addition to the proposed exemption. These options included the following.

- Completing waivers for the storm crew in accordance with 10 CFR 26.207(a).
- Increasing the number of personnel on the storm crew to sufficient levels to meet 10 CFR 26.205(c) and (d) requirements.

The storm crew including the ERO is already a large population of individuals. Excluding Security, the total number of personnel staffing the facilities in response to a storm is typically in excess of 140 people. Granting waivers for covered workers on the storm team is not feasible. The process for granting individual waivers is time consuming and requires face-to-face supervisor assessments which may not be performed more than four hours before the individual begins performing work under the waiver. There is no specified time for how long a waiver is effective, but from the requirements it is clear it is intended for a specific work activity, and not intended for large groups of personnel performing a number of activities.

Similarly, neither increasing the number of personnel on the storm crew nor allowing additional time off for the storm crew during sequestering is practical. Onsite bunking and sanitary facilities, while adequate for the existing storm crew, would be significantly challenged by adding sufficient personnel to meet 10 CFR 26.205(c) and (d) requirements.

Based on the above, BSEP commits to maintain the following information in site procedures:

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

## **5.0 Precedence**

The proposed exemption is very similar to an exemption approved for the South Texas Project, Units 1 and 2, on July 2, 2010 (ADAMS Accession Numbers ML101690107 and ML101690114).

## **6.0 Environmental Assessment**

The proposed action does not involve any physical changes to the reactor, fuel, plant structures, support structures, water, or land at BSEP. As such, the proposed exemption is administrative, and would have no effect on the environment. The proposed exemption would not significantly increase the probability or consequences of an accident, change the types or quantities of radiological effluents that may be released offsite, or result in a significant increase in public or occupational radiation exposure since there would be no change to facility operations that could create a new accident or affect a previously analyzed accident or release path.

Because the proposed exemption is administrative and will not affect the environment, it will not affect the maintenance and enhancement of long-term productivity.

Because the proposed exemption is administrative and will not affect the environment, it will not involve any irreversible and irretrievable commitment of resources.

Since the proposed exemption will not have any adverse environmental effects, there are no alternatives available for reducing or avoiding adverse environmental effects.

With regard to non-radiological impacts, no changes would be made to non-radiological plant effluents and there would be no changes in activities that would adversely affect the environment. Therefore, no significant non-radiological impacts are associated with the proposed exemption.

There are no Federal permits, licenses, approvals and other entitlements which must be obtained in connection with the proposed exemption. The proposed exemption is not subject to any environmental quality standards or requirements imposed by Federal, State, regional, or local agencies having responsibility for environmental protection.

Based on the above, BSEP has determined that the proposed amendment will not have a significant effect on the quality of the human environment.

## **8.0 Conclusion**

The requested exemption from meeting the requirements of 10 CFR 26.205(c) and (d) during storm crew activation in response to a tropical storm or hurricane force winds threatening the site is justified to ensure that work hour controls do not impede a licensee's ability to use whatever staff resources may be necessary to respond to a severe weather threat and ensure that the plant reaches and maintains a safe and secure status. Entry into and exit from the condition where the exemption will apply will be determined by senior plant management. Upon de-activation of the storm crew, BSEP would again comply with the work hour controls.

As required by 10 CFR 26.9, the requested exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. There are no significant environmental impacts associated with the proposed action.

**List of Regulatory Commitments**

The following table identifies the actions in this document to which the Brunswick Steam Electric Plant has committed. Statements in this submittal, with the exception of those in the table below, are provided for information purposes and are not considered commitments. Please direct questions regarding these commitments to Mr. Lee Grzeck, Acting Supervisor - Licensing/Regulatory Programs, at (910) 457-2487.

<b>Commitment</b>	<b>Completion Date</b>
BSEP will maintain the following information in site procedures: <ul style="list-style-type: none"><li>• The entry conditions necessary to sequester site personnel, consistent with the conditions specified in the exemption request.</li><li>• Provisions for ensuring that personnel who are not performing duties are provided an opportunity, as well as accommodations, for restorative rest.</li><li>• The exit conditions for departure from the exemption, consistent with the conditions specified in the exemption request.</li></ul>	30 days after exemption approval