July 27, 2005

Mr. J. W. Moyer, Vice President
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2, EXEMPTION FROM THE REQUIREMENTS OF 10 CFR PART 50, SECTION 50.68(b)(1) (TAC NO. MC6225)

Dear Mr. Moyer:

The Commission has approved the enclosed exemption from specific requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.68(b)(1) for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBRSEP2). This action is in response to your letter dated February 22, 2005, as supplemented by letters dated May 10, July 6, and July 14, 2005, requesting an exemption from the requirements of 10 CFR 50.68(b)(1) for loading, unloading, and handling of the Transnuclear NUHOMS®-24PTH dry shielded canisters at HBRSEP2.

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

Sincerely,

/RA/

Chandu P. Patel, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure: As stated

cc w/enclosure:
See next page

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Unit No. 2
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Dear Mr. Moyer:

The Commission has approved the enclosed exemption from specific requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.68(b)(1) for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBRSEP2). This action is in response to your letter dated February 22, 2005, as supplemented by letters dated May 10, July 6, and July 14, 2005, requesting an exemption from the requirements of 10 CFR 50.68(b)(1) for loading, unloading, and handling of the Transnuclear NUHOMS®-24PTH dry shielded canisters at HBRSEP2.

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-261

EXEMPTION

1.0 BACKGROUND

Carolina Power & Light Company (CP&L or the licensee) is the holder of Renewed Facility Operating License No. DPR-23, which authorizes operation of the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBRSEP2). The license provides, among other things, that the facility is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (NRC, the Commission) now or hereafter in effect.

The facility consists of a pressurized-water reactor located in Darlington County, South Carolina.

2.0 REQUEST/ACTION

By letter dated February 22, 2005, as supplemented by letters dated May 10, July 6, and July 14, 2005, the licensee submitted a request for an exemption from the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.68(b)(1) during the spent fuel pool (SFP) activities related to the underwater handling, loading, and unloading of the dry shielded canister (DSC) NUHOMS®-24PTH, as described in proposed Amendment No. 8 to Certificate of Compliance No. 1004 listed in 10 CFR 72.214 at HBRSEP2.

Section 50.68(b)(1) of 10 CFR sets forth the following requirement that must be met, in lieu of a monitoring system capable of detecting criticality events.

> Plant procedures shall prohibit the handling and storage at any one time of more fuel assemblies than have been determined to

> be safely subcritical under the most adverse moderation conditions feasible by unborated water.

The licensee is unable to satisfy the above requirement for handling of the Transnuclear (TN) NUHOMS®-24PTH DSC authorized by 10 CFR Part 72 at HBRSEP2. Section 50.12(a) allows licensees to apply for an exemption from the requirements of 10 CFR Part 50 if the application of the regulation is not necessary to achieve the underlying purpose of the rule and special conditions are met. The licensee stated in the application that compliance with 10 CFR 50.68(b)(1) is not necessary for handling the TN NUHOMS®-24PTH DSC system to achieve the underlying purpose of the rule.

3.0 DISCUSSION

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 50 when (1) the exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security; and (2) when special circumstances are present. Therefore, in determining the acceptability of the licensee's exemption request, the staff has performed the following regulatory, technical, and legal evaluations to satisfy the requirements of 10 CFR 50.12 for granting the exemption.

3.1 Regulatory Evaluation

The HBRSEP2 Technical Specifications (TS) currently permit the licensee to store spent fuel assemblies in high-density storage racks in its SFP. In accordance with the provisions of 10 CFR 50.68(b)(4), the licensee takes credit for soluble boron for criticality control and ensures that the effective multiplication factor (k_{eff}) of the SFP does not exceed 0.95, if flooded with borated water. Section 50.68(b)(4) of 10 CFR also requires that if credit is taken for soluble boron, the k_{eff} must remain below 1.0 (subcritical) if flooded with unborated water. However, the licensee is unable to satisfy the requirement to maintain the k_{eff} below 1.0 (subcritical) with unborated water, which is also the requirement of 10 CFR 50.68(b)(1), during cask handling

operations in the SFP. Therefore, the licensee's request for exemption from 10 CFR 50.68(b)(1) proposes to permit the licensee to perform spent fuel loading, unloading, and handling operations related to dry cask storage without being subcritical under the most adverse moderation conditions feasible by unborated water.

Title 10 of the *Code of Federal Regulations*, Part 50, Appendix A, "General Design Criteria (GDC) for Nuclear Power Plants," provides a list of the minimum design requirements for nuclear power plants. According to GDC 62, "Prevention of criticality in fuel storage and handling," the licensee must limit the potential for criticality in the fuel handling and storage system by physical systems or processes. HBRSEP2 was licensed prior to the issuance of the GDC listed in 10 CFR 50, Appendix A; therefore, GDC 62 is not directly applicable. However, HBRSEP2 has committed to a plant-specific version of the 1967 draft GDC as discussed in its Updated Final Safety Analysis Report (FSAR), Section 3.1.2. The comparable GDC is Criterion 66, "Prevention of Fuel Storage Criticality," that states: "Criticality in the new and spent fuel storage pits shall be prevented by physical systems or processes. Such means as geometrically safe configurations shall be emphasized over procedural controls."

Section 50.68 of 10 CFR Part 50, "Criticality accident requirements," provides the NRC requirements for maintaining subcritical conditions in SFPs. Section 50.68 provides criticality control requirements that, if satisfied, ensure that an inadvertent criticality in the SFP is an extremely unlikely event. These requirements ensure that the licensee has appropriately conservative criticality margins during handling and storage of spent fuel. Section 50.68(b)(1) states, "Plant procedures shall prohibit the handling and storage at any one time of more fuel assemblies than have been determined to be safely subcritical under the most adverse moderation conditions feasible by unborated water." Specifically, 10 CFR 50.68(b)(1) ensures that the licensee will maintain the pool in a subcritical condition during handling and storage operations without crediting the soluble boron in the SFP water.

The licensee is authorized under general license to construct and operate an Independent Spent Fuel Storage Installation (ISFSI) at HBRSEP2. The ISFSI permits the licensee to store spent fuel assemblies in large concrete dry storage casks. As part of its ISFSI loading campaigns, the licensee transfers spent fuel assemblies to a DSC in the cask pit area of the SFP. The licensee performed criticality analyses of the DSC fully loaded with fuel having the highest permissible reactivity and determined that a soluble boron credit was necessary to ensure that the DSC would remain subcritical in the SFP. Since the licensee is unable to satisfy the requirement of 10 CFR 50.68(b)(1) to ensure subcritical conditions during handling and storage of spent fuel assemblies in the pool with unborated water, the licensee identified the need for an exemption from the 10 CFR 50.68(b)(1) requirement to support DSC loading, unloading, and handling operations without being subcritical under the most adverse moderation conditions feasible by unborated water.

The NRC staff evaluated the possibility of an inadvertent criticality of the spent nuclear fuel at HBRSEP2 during DSC loading, unloading, and handling. The NRC staff has established a set of acceptance criteria that, if met, satisfy the underlying intent of 10 CFR 50.68(b)(1). In lieu of complying with 10 CFR 50.68(b)(1), the staff determined that an inadvertent criticality accident is unlikely to occur if the licensee meets the following five criteria:

1. The cask criticality analyses are based on the following conservative assumptions:
    a. All fuel assemblies in the cask are unirradiated and at the highest permissible enrichment,
    b. Only 75 percent of the Boron-10 in the fixed poison panel inserts is credited,
    c. No credit is taken for fuel-related burnable absorbers, and
    d. The cask is assumed to be flooded with moderator at the temperature and density corresponding to optimum moderation.
2. The licensee's ISFSI TS require the soluble boron concentration to be equal to or greater than the level assumed in the criticality analysis, and surveillance

requirements necessitate the periodic verification of the concentration both prior to and during loading and unloading operations.

3. Radiation monitors, as required by GDC 63, "Monitoring Fuel and Waste Storage," are provided in fuel storage and handling areas to detect excessive radiation levels and to initiate appropriate safety actions.
4. The quantity of other forms of special nuclear material, such as sources, detectors, etc., to be stored in the cask will not increase the effective multiplication factor above the limit calculated in the criticality analysis.
5. Sufficient time exists for plant personnel to identify and terminate a boron dilution event prior to achieving a critical boron concentration in the DSC. To demonstrate that it can safely identify and terminate a boron dilution event, the licensee must provide the following:
    a. A plant-specific criticality analysis to identify the critical boron concentration in the cask based on the highest reactivity loading pattern.
    b. A plant-specific boron dilution analysis to identify all potential dilution pathways, their flowrates, and the time necessary to reach a critical boron concentration.
    c. A description of all alarms and indications available to promptly alert operators of a boron dilution event.
    d. A description of plant controls that will be implemented to minimize the potential for a boron dilution event.
    e. A summary of operator training and procedures that will be used to ensure that operators can quickly identify and terminate a boron dilution event.

On March 23, 2005, the NRC issued Regulatory Issue Summary (RIS) 2005-05, “Regulatory Issues Regarding Criticality Analyses for Spent Fuel Pools and Independent Spent Fuel Storage Installations.” In RIS 2005-05, the NRC identified an acceptable methodology for demonstrating compliance with the 10 CFR 50.68(b)(1) requirements during cask loading,

unloading, and handling operations in pressurized-water reactor SFPs. The NRC staff has determined that implementation of this methodology by licensees will eliminate the need to grant future exemptions for cask storage and handling evolutions. However, since the licensee submitted its exemption request prior to issuance of the RIS and identification of an NRC-acceptable methodology for compliance with the regulations, the NRC staff has determined that it is still appropriate to consider the exemption request.

3.2 Technical Evaluation

In determining the acceptability of the licensee's exemption request, the staff reviewed three aspects of the licensee's analyses: (1) criticality analyses submitted to support the ISFSI license application and its exemption request, (2) boron dilution analysis, and (3) legal basis for approving the exemption. For each of the aspects, the staff evaluated whether the licensee's analyses and methodologies provide reasonable assurance that adequate safety margins are developed and can be maintained in the HBRSEP2 SFP during loading of spent fuel into canisters for dry cask storage.

3.2.1 Criticality Analyses

For evaluation of the acceptability of the licensee's exemption request, the NRC staff reviewed the criticality analyses provided by the licensee in support of its ISFSI license application. First, the NRC staff reviewed the methodology and assumptions used by the licensee in its criticality analysis to determine if Criterion 1 was satisfied. The licensee stated that it took no credit in the criticality analyses for burnup or fuel-related burnable neutron absorbers. The licensee also stated that all assemblies were analyzed at the highest permissible enrichment. Additionally, the licensee stated that all criticality analyses for a flooded DSC were performed at temperatures and densities of water corresponding to optimum moderation conditions. Finally, the licensee stated that it credited 90 percent of the Boron-10 content for the fixed neutron absorber in the DSC. NUREG-1536, "Standard Review Plan for

Dry Cask Storage System," states that "[f]or a greater credit allowance [i.e., greater than 75 percent for fixed neutron absorbers] special, comprehensive fabrication tests capable of verifying the presence and uniformity of the neutron absorber are needed." As part of an amendment to the Part 72 license for the Transnuclear NUHOMS®-24PTH design, the NRC staff reviewed and accepted the results of additional data supplied by the manufacturer that demonstrated that a 90-percent credit for the fixed neutron absorbers was acceptable. These tests and corresponding results are detailed in Appendix P of the Standardized NUHOMS® FSAR. Therefore, for the purposes of this exemption, the staff finds a 90-percent credit acceptable on the basis that it has previously been reviewed and approved by the NRC. Subsequently, based on its review of the criticality analyses and the information submitted in its exemption request, the NRC staff finds that the licensee has satisfied Criterion 1.

Second, the NRC staff reviewed the proposed HBRSEP2 ISFSI TS. The licensee's criticality analyses credit soluble boron for reactivity control during DSC loading, unloading, and handling operations. Since the boron concentration is a key safety component necessary for ensuring subcritical conditions in the pool, the licensee must have a conservative ISFSI TS capable of ensuring that sufficient soluble boron is present to perform its safety function. The ISFSI TS applicable to the NUHOMS®-24PTH DSC, and attached to the Certificate of Compliance No. 1004, contain the requirements for the minimum soluble boron concentration as a function of fuel assembly class, DSC basket type, and corresponding assembly average initial enrichment values. In all cases, the boron concentration required by the ISFSI TS ensures that the k_{eff} will be below 0.95 for the analyzed loading configuration. Additionally, the licensee's ISFSI TS contain surveillance requirements that assure it will verify the boron concentration is above the required level both prior to and during DSC loading, unloading, and handling operations. Based on its review of the HBRSEP2 ISFSI TS, the NRC staff finds that the licensee has satisfied Criterion 2.

Third, the NRC staff reviewed the HBRSEP2 Updated FSAR and the information provided by the licensee in its exemption request to ensure that it complies with GDC 63. GDC 63 requires that licensees have radiation monitors in fuel storage and associated handling areas to detect conditions that may result in a loss of residual heat removal capability and excessive radiation levels and initiate appropriate safety actions. As previously described, HBRSEP2 was licensed prior to the issuance of the GDC listed in 10 CFR 50, Appendix A; therefore, GDC 63 is not directly applicable. However, HBRSEP2 has committed to a plant-specific version of the 1967 draft GDC as discussed in its Updated FSAR, Section 3.1.2. The comparable GDC is Criterion 18, “Monitoring Fuel and Waste Storage,” that states the following: “Monitoring and alarm instrumentation shall be provided for fuel and waste storage and associated handling areas for conditions that might result in loss of capability to remove decay heat and detect excessive radiation levels.” The NRC staff reviewed the HBRSEP2 Updated FSAR, plant-specific GDC, and exemption request to determine whether the licensee had provided sufficient information to demonstrate compliance with the intent of GDC 63. In its exemption request, the licensee stated that an area radiation monitor is located in the area of the SFP. Additionally, station procedures specify appropriate safety actions upon a high radiation alarm, including evacuation of local personnel, determination of cause, and determination of potential low water level in the SFP. In addition, personnel working in the area of the SFP wear individual, gamma-sensitive, electronic alarming dosimeters that provide an audible alarm should the dose or dose rate exceed pre-established setpoints. Based on its review of the exemption request, the HBRSEP2 Updated FSAR, and the licensee’s plant-specific GDC, the NRC staff finds that the licensee has satisfied Criterion 3.

Finally, as part of the criticality analysis review, the NRC staff evaluated the storage of non-fuel-related material in a DSC. The NRC staff evaluated the potential to increase the reactivity of a DSC by loading it with materials other than spent nuclear fuel and fuel debris.

The approved contents for storage in the NUHOMS®-24PTH cask design are listed in the HBRSEP2 ISFSI TS Limiting Condition for Operation (LCO) 1.2.1 “Fuel Specifications.” This ISFSI TS LCO restricts the contents of the DSC to only fuels and non-fissile materials irradiated at HBRSEP2. As such, HBRSEP2 is prohibited from loading other forms of special nuclear material, such as sources, detectors, etc., in the DSC. Therefore, the NRC staff determined that the loading limitations described in the HBRSEP2 ISFSI TS will ensure that any authorized components loaded in the DSCs will not result in a reactivity increase. Based on its review of the loading restrictions, the NRC staff finds that the licensee has satisfied Criterion 4.3.2.2

Boron Dilution Analysis

Since the licensee’s ISFSI application relies on soluble boron to maintain subcritical conditions within the DSCs during loading, unloading, and handling operations, the NRC staff reviewed the licensee’s boron dilution analysis to determine whether appropriate controls, alarms, and procedures were available to identify and terminate a boron dilution accident prior to reaching a critical boron concentration.

By letter dated October 25, 1996, the NRC staff issued a safety evaluation on licensing topical report WCAP-14416, “Westinghouse Spent Fuel Rack Criticality Analysis Methodology.” This safety evaluation specified that the following issues be evaluated for applications involving soluble boron credit: the events that could cause boron dilution, the time available to detect and mitigate each dilution event, the potential for incomplete boron mixing, and the adequacy of the boron concentration surveillance interval.

The criticality analyses performed for the NUHOMS®-24PTH DSC are described in Section 6 of Appendix P of the FSAR for the Standardized NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel. For this boron dilution evaluation, the licensee employed the same criticality analysis methods, models, and assumptions. These HBRSEP2 criticality calculations are based on the KENO V.a code. The calculations determined the

minimum soluble boron concentration required to maintain subcriticality (k_{eff} < 1.0) following a boron dilution event in a NUHOMS®-24PTH DSC loaded with fuel assemblies that bound the HBRSEP2 fuel designs (Westinghouse 15 x 15 fuel). Both intact and damaged fuel over the range of soluble boron concentrations permitted for various enrichments and basket types were evaluated. The results of these calculations for the bounding case indicate that subcriticality is maintained with 73 percent or more of the minimum boron concentration levels required in the ISFSI TS for all basket types as a function of initial enrichment.

Calculations were performed by the licensee to determine the time required to dilute the SFP such that the boron concentration is reduced from the NUHOMS® TS (required boron concentration for maintaining k_{eff}#0.95) to a just subcritical boron concentration (k_{eff} <1.0) for fuel loaded into a NUHOMS®-24PTH DSC.

The HBRSEP2 SFP is a large structure filled with borated water that completely covers the spent fuel assemblies with more than 21 feet of water above the top of the fuel racks and the fuel cask. The cask lay down area is not separated by any structure from the remainder of the SFP. Thermal gradients generated by stored fuel and operation of the SFP cooling system will cause significant mixing within the pool. The licensee assumed that all unborated water introduced from any uncontrolled dilution source instantaneously mixes with the water in the SFP (i.e., no unborated water is lost prior to its mixing with borated water). The configuration of the pool and the mixing of the coolant provide reasonable assurance that this assumption is valid for low to moderate dilution flow rates.

The volume of water in the SFP is 240,000 gallons. To reduce the boron concentration by a factor of 0.73 from the TS for k_{eff}#0.95 and approach a k_{eff} of 1.0 requires the addition of 75,530 gallons of unborated water. Three examples of potential dilution sources were identified by the licensee: a 2-gpm flowrate from small failures or misaligned valves that could occur in the normal soluble boron control system or related systems, the failure of the 2-inch

demineralized water header, and the maximum credible dilution event involving the rupture of a fire protection system header.

To demonstrate that sufficient time exists for plant personnel to identify and terminate a boron dilution event, the licensee provided a description of all alarms available to alert operators, and plant procedures, administrative controls, and training that will be implemented in response to an alarm. There is no automatic level control system for the SFP; therefore, any large, uncontrolled water addition would cause the SFP to overflow. However, a high level alarm in the control room would alert personnel of a potential boron dilution event when the water level reaches the high level setpoint.

The highest uncontrolled dilution flow rate was determined to be the fire protection header on the SFP floor for fire hose station 104. As stated in the letter dated July 6, 2005, this fire protection header will be isolated during DSC loading and unloading to preclude this as a source of uncontrolled dilution to the SFP. The licensee has revised DSC loading and unloading procedures to include a requirement to close the fire protection system valve (FP-71) prior to placing fuel in the DSC during loading and prior to placing the loaded DSC back in the SFP during unloading. This change has resulted in the most limiting uncontrolled dilution source being identified as the assumed break of a 2-inch demineralized water header, which could cause a dilution flow of approximately 103 gpm. No other single source has been identified that would exceed this dilution rate. Therefore, the time to reach a critical boron concentration, as provided by licensee, is estimated to be 755 minutes.

In the case of the 103-gpm demineralized water pipe rupture, there would be no alarm from the demineralized water system. However, there would be available approximately 10 hours to isolate the leak once the SFP high level alarm was received. This analysis provides reasonable assurance that dilution flows leading to pool overflow would be detected and

isolated well before the critical boron concentration could be reached from credible dilution sources.

The licensee stated that plant procedures do allow for continued operation with the SFP high level alarm illuminated. The licensee stated that operating procedures had been revised to specify that, if the SPF high level alarm is illuminated and there is fuel in the DSC in the SFP, then continuous coverage to monitor the SFP water level will be required. A local level indicator is available in the SFP. The personnel providing continuous coverage when the SFP Hi Level Alarm is illuminated or inoperable can use this indication to detect possible dilution of the SFP. The available time before criticality by dilution is sufficient to allow identification and termination of any credible source of dilution.

When fuel is loaded in the DSC in the SFP, boron analyses of the SFP water are required at least once every 48 hours per the TS. Small dilution flows may not be readily identified by level changes in the SFP due to operational leakage through the pool liner and the SFP cooling system. The licensee determined that a dilution flow of 2 gpm would require approximately 26 days to dilute the boron concentration of the SFP near to that calculated as the critical boron concentration. Therefore, the reduction in boron concentration due to a dilution flowrate of 2 gpm would be detected by the required boron concentration surveillance well before a significant dilution occurs.

To ensure that operators are capable of identifying and terminating a boron dilution event during DSC loading, unloading, and handling operations, operator training will be conducted. This training will highlight the boron concentration requirements for loading the DSC, the potential for criticality should boron concentration levels decrease, and the need for timely mitigating activities if a boron dilution event occurs. Operators and other personnel involved in the dry fuel storage implementation will receive this new training prior to loading of

the first DSC. Additionally, before each DSC loading evolution, the crew involved in performance of the work will receive a pre-job briefing, where the need for boron concentration control will be discussed.

Based on the NRC staff's review of the licensee's boron dilution analysis, the NRC staff finds the licensee has provided sufficient information to demonstrate that an undetected and uncorrected dilution from the TS-required boron concentration to the calculated critical boron concentration is very unlikely. Based on its review of the boron analysis and enhancements to the operating procedures and operator training program, the NRC staff finds the licensee has satisfied Criterion 5.

Therefore, in conjunction with the conservative assumptions used to establish the TS-required boron concentration and critical boron concentration, the boron dilution evaluation demonstrates that the underlying intent of 10 CFR 50.68(b)(1) is satisfied.

3.3 Legal Basis for the Exemption

3.3.1 Authorized by Law

This exemption results in changes to the operation of the plant by allowing the operation of the new dry fuel storage facility and loading of the NUHOMS®-24PTH DSC. As stated above, 10 CFR 50.12 allows the NRC to grant exemptions from the requirements of 10 CFR Part 50. In addition, the granting of the licensee's exemption request will not result in a violation of the Atomic Energy Act of 1954, as amended, or the intent of the Commission's regulations. Therefore, the exemption is authorized by law.

3.3.2 No Undue Risk to Public Health and Safety

The underlying purposes of 10 CFR 50.68(b)(1) is to ensure that adequate controls are in place to ensure that the handling and storage of fuel assemblies is conducted in a manner such that the fuel assemblies remain safely subcritical. Based on the NRC staff's review of the licensee's exemption request, the licensee has demonstrated that sufficient controls are in

place to provide reasonable assurance that there is no undue risk to public health and safety given conservative assumption in the criticality analysis (criterion 1 above); surveillances periodically verify the boron concentration before and during loading and unloading (criterion 2 above); radiation monitoring equipment is used to detect excessive radiation and initiate appropriate protective actions (criterion 3 above); only fuel authorized by the ISFSI TS will be loaded and stored in the ISFSI (criterion 4 above); and boron dilution events have been analyzed, and there are sufficient monitoring capabilities and time for the licensee to identify and terminate a dilution event prior to achieving a critical boron concentration in the cask (criterion 5 above). Therefore, the NRC staff concluded that the underlying purpose of the rule has been satisfied and that there is no undue risk to public health and safety.

3.3.3 Consistent with Common Defense and Security

This exemption results in changes to the operation of the plant by allowing the operation of the new dry fuel storage facility and loading of the NUHOMS®-24PTH DSC. This change to the fuel assembly storage and handling in the plant does not affect the national defense strategy because the national defense is maintained by resources (hardware or software or other) that are outside the plant and that have no direct relation to plant operation. In addition, loading spent fuel into the NUHOMS®-24PTH DSC in the SFP does not affect the ability of the licensee to defend the plant against a terrorist attack. Therefore, the common defense and security is not impacted by this exemption request.

3.3.4 Special Circumstances

Pursuant to 10 CFR 50.12, "Specific Exemption," the NRC staff reviewed the licensee's exemption request to determine if the legal basis for granting an exemption had been satisfied. With regards to the six special circumstances listed in 10 CFR 50.12(a)(2), the NRC staff finds that the licensee's exemption request satisfies 50.12(a)(2)(ii), "Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not

necessary to achieve the underlying purpose of the rule." Specifically, the NRC staff concludes that since the licensee has satisfied the five criteria in Section 3.1 of this exemption, the application of the rule is not necessary to achieve its underlying purpose in this particular case.

3.4 Summary

Based upon the review of the licensee's exemption request to credit soluble boron during DSC loading, unloading, and handling in the HBRSEP2 SFP, the NRC staff concludes that pursuant to 10 CFR 50.12(a)(2) the licensee's exemption request is acceptable. However, the NRC staff places the following limitations/conditions on the approval of this exemption:

1. This exemption is limited to the loading, unloading, and handling of the DSC for only the TN NUHOMS®-24PTH at HBRSEP2.
2. This exemption is limited to the loading, unloading, and handling in the DSC at HBRSEP2 of Westinghouse 15 x 15 fuel assemblies that had maximum initial, unirradiated U-235 enrichments corresponding to the TS limitations in LCO 1.2.1 for Amendment 8 to the NUHOMS®-24PTH cask design.

4.0 CONCLUSION

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants CP&L an exemption from the requirements of 10 CFR 50.68(b)(1) for the loading, unloading, and handling of the components of the Transnuclear NUHOMS®-24PTH dry cask storage system at HBRSEP2. However, since the licensee does not have an NRC-approved methodology for evaluating changes to the analyses or systems supporting this exemption request, the NRC staff's approval of the exemption is restricted to those specific design and operating conditions described in the licensee's February 22, 2005, exemption request. The licensee may not apply the 10 CFR 50.59 process for

evaluating changes to specific exemptions. Any changes to the design or operation of 1) the dry cask storage system, 2) the spent fuel pool, 3) the fuel assemblies to be stored, 4) the boron dilution analyses, or 5) supporting procedures and controls, regardless of whether they are approved under the general Part 72 license or perceived to be conservative, will invalidate this exemption. Upon invalidation of the exemption, the licensee will be required to comply with NRC regulations prior to future cask loadings.

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 (70 FR 43462). This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 27th day of July 2005.

FOR THE NUCLEAR REGULATORY COMMISSION

Ledyard B. Marsh, Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Mr. J. W. Moyer
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