Progress Energy

Christopher L. Burton
Vice President
Harris Nuclear Plant
Progress Energy Carolinas, Inc.

Serial: HNP-08-075
10 CFR 50.90

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U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR LICENSE AMENDMENT
TECHNICAL SPECIFICATIONS 5.6.1.3.a AND 5.6.1.3.b – INCORPORATION OF UPDATED CRITICALITY ANALYSES TO REFLECT REMOVAL OF CREDIT FOR BORAFLEX IN BWR SPENT FUEL POOL STORAGE RACKS

Ladies and Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Part 50.90, "Application for Amendment of License or Construction Permit," Carolina Power & Light Company (CP&L) doing business as Progress Energy Carolinas, Inc. (PEC), requests an amendment to Appendix A, Technical Specifications (TS), of Facility Operating License No. NPF-63 for Shearon Harris Nuclear Power Plant, Unit No. 1 (HNP). The proposed amendment will modify Technical Specifications 5.6.1.3.a and 5.6.1.3.b to incorporate the results of a new criticality analysis.

HNP requests approval of this Amendment by September 2009, with implementation within 90 days of approval.

This document contains no new Regulatory Commitment.

In accordance with 10 CFR 50.91(b), HNP is providing the State of North Carolina with a copy of the proposed license amendment.

Please refer any question regarding this submittal to Mr. Dave Corlett at (919) 362-3137.

I declare, under penalty of perjury, that the attached information is true and correct (Executed on SEP 2 9 2008).

Sincerely,

Christopher L. Burton

Christopher L. Burton
Vice President
Harris Nuclear Plant

A001
NRR

P.O. Box 165
New Hill, NC 27562

T> 919.362.2502
F> 919.362.2095

CLB/kms

Enclosures:
1. Evaluation of the Proposed Change
2. Affidavit for Withholding of Proprietary Information
3. Holtec International Report No. HI-2043321 (Proprietary)

cc:
Mr. M. E. Pribish, Acting NRC Sr. Resident Inspector, HNP
Ms. B. O. Hall, N.C. DENR Section Chief
Mr. L. A. Reyes, NRC Regional Administrator, Region II
Ms. M. G. Vaaler, NRR Project Manager, HNP

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1
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REQUEST FOR LICENSE AMENDMENT
EVALUATION OF PROPOSED CHANGES

Subject: *Request for License Amendment for Technical Specification 5.6.1.3 to incorporate updated criticality analyses for BWR Boraflex storage racks.*

ATTACHMENTS:

1. Technical Specification Page Markups
2. Retyped Technical Specification Pages
3. Proposed Technical Specification Bases Changes (For Information Only)

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EVALUATION OF PROPOSED CHANGES

1. SUMMARY DESCRIPTION

This evaluation supports a request from Carolina Power & Light Company (CP&L), doing business as Progress Energy Carolinas, Inc. (PEC), to amend Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit No. 1 (HNP).

The proposed change would revise Appendix A, Technical Specifications (TS), Section 5.6.1.3 to add new requirements for the Boiling Water Reactor (BWR) spent fuel storage racks containing Boraflex in Pools A and B. The requirements for the BWR spent fuel racks as currently contained in Section 5.6.1.3 will be revised to specify applicability to the spent fuel storage racks containing Boral in Pool B.

This License Amendment Request does not impact the Technical Specification 5.6.3.b License Amendment Request currently in NRC review (HNP-08-018, submitted April 03, 2008).

2. DETAILED DESCRIPTION

HNP TS Design Feature 5.6.1.3, Fuel Storage Criticality for BWR Storage Racks in Pools A and B, currently requires that the BWR Storage Racks in Pools A and B be maintained with a neutron effective multiplication factor (k_{eff}) less than or equal to 0.95 when flooded with unborated water (5.6.1.3.a) and that a nominal 6.25 inch center-to-center distance in the BWR storage racks be maintained to assure the reactivity margin (5.6.1.3.b).. No distinction is made in the current TS requirements between BWR storage racks containing Boraflex as the reactivity suppressor and those using Boral. The proposed change adds a new requirement, "BWR Boraflex storage racks" (to be designated 5.6.1.3.a) and converts the existing 5.6.1.3.a and 5.6.1.3.b into "BWR Boral storage racks" (to be designated 5.6.1.3.b).

This revision is necessary to address the ongoing issue surrounding the use of Boraflex as a neutron absorbing material in the BWR Spent Fuel Pool (SFP) storage racks. There are currently eight high density BWR spent fuel storage racks at HNP, three located in SFP A and five located in SFP B. Since the installation of these Boraflex racks, the Boraflex has degraded at a higher rate than originally anticipated, resulting in a potential reduction in reactivity suppression.

The current criticality analysis as performed by Westinghouse for the BWR Boraflex spent fuel pool racks takes credit for Boraflex as a reactivity suppressor. However, Holtec International (Holtec) has performed a new criticality analysis (HI-2043321, "Criticality Safety Analyses of BWR Fuel Without Credit for Boraflex in the Racks at the Harris Nuclear Power Station"). This new analysis revises the HNP BWR Boraflex storage rack criticality design basis for Pools A and B by removing the credit for Boraflex as the reactivity suppressor (i.e., to reflect a zero Boraflex reactivity credit).

This new analysis has determined that the BWR Boraflex spent fuel racks require slightly different criteria than do the racks containing Boral. As a result, the following criteria need to be added to the fuel storage controls for Pools A and B: (1) a burnup credit criteria for fuel placed in the BWR Boraflex spent fuel racks, and (2) credit for soluble boron in Spent Fuel Pool water to maintain $k_{eff} \leq 0.95$.

The revised criticality analysis removes reliance on Boraflex and credits soluble boric acid, fuel assembly design, and burnup for the BWR Boraflex spent fuel racks. As a result, irradiated BWR fuel is required to meet certain enrichment and burnup requirements (Burnup credit requirement or BUC) to be stored in the BWR Boraflex storage racks located in the Pools A and B. Irradiated fuel that does not meet the BUC requirement must be stored in the BWR Boral storage racks. The k_{eff} of the BWR Boraflex racks is revised to ≤ 0.95 with credit for soluble boron and < 1.0 when flooded with unborated water.

A TS revision is needed to incorporate these new results concerning the storage requirements for safe storage of BWR fuel assemblies in BWR Boraflex spent fuel racks. This current license amendment request is applicable only to the BWR Boraflex storage racks in Pools A and B. The Boraflex issue has been already been addressed for the PWR Boraflex storage racks and, since the Boraflex degradation does not extend to spent fuel storage racks at HNP containing Boral as the neutron absorption material, the PWR and BWR Boral racks are not affected by this request.

Generic Letter 96-04, "Boraflex Degradation in Spent Fuel Pool Storage Racks," was issued by the Nuclear Regulatory Commission (NRC) to address concerns regarding Boraflex dissolution in spent fuel pool racks. HNP's supplemental response to this Generic Letter (Serial: HNP-05-004, dated April 25, 2005), resulted in the submittal of a License Amendment Request (Reference 1). As a result of that LAR, a TS change was made to incorporate the updated criticality analysis performed for the Pressurized Water Reactor (PWR) storage racks containing Boraflex.

That analysis, which replaced the reactivity credit for Boraflex in the PWR racks with soluble boron, was approved by the NRC on March 10, 2006, for the PWR Boraflex storage racks (Reference 2). Approval of that Amendment resulted in the revision of the TS requirements for PWR Boraflex fuel storage racks and the addition of TS requirements for fuel storage pool boron concentration. In the associated Safety Evaluation, the NRC noted that when the SFP storage rack criticality design basis is changed to reflect a zero Boraflex credit, an unpoisoned storage rack system results. To provide safe storage of the used fuel assemblies and to ensure compliance with the regulatory reactivity limits, the removal of Boraflex then needs to be counterbalanced with the use of both fuel burnup credit (BUC) and pool soluble boron credit.

The NRC's approval of both the previously mentioned HNP PWR Boraflex rack criticality analysis (Reference 2) and a similar analysis submitted for H.B. Robinson as License Amendment No. 198 (Reference 3) recognizes the acceptability of soluble boron and fuel burnup as Boraflex substitutes in criticality analysis for reactivity suppression. Both of these analyses demonstrated that fuel could be stored in a subcritical configuration with k_{eff} less than or equal to 0.95 by crediting fuel burnup and partial soluble boron under abnormal and accident operating conditions. In addition, both analyses also concluded that the fuel would remain in a subcritical configuration with k_{eff} less than 1.0 in the absence of soluble boron.

The issue of Boraflex degradation in the BWR Boraflex racks is addressed in a similar manner as that provided in the previous submittal for the PWR Boraflex racks. The criticality analysis for the BWR Boraflex racks has been revised to remove reliance on Boraflex for reactivity suppression and to take credit for soluble boric acid, fuel assembly design, and burnup. New administrative restrictions will be placed on the storage of irradiated BWR fuel in the BWR Boraflex storage racks in Pools A and B.

To incorporate this updated analysis for the BWR Boraflex racks at HNP, a revision to TS Sections 5.6.1.3.a and 5.6.1.3.b is proposed. The change to existing TS 5.6.1.3.a reflects the updated requirements for the BWR Boraflex racks, specifically:

1. k_{eff} less than or equal to 0.95 if flooded with water borated to 2000 ppm.
2. k_{eff} less than 1.0 if flooded with unborated water.
3. Nominal 6.25 inch center-to-center spacing between fuel assemblies shall be maintained for fuel stored in the BWR racks.
4. BWR assemblies must be within the "acceptable range" of the burnup restriction shown in Figure 5.6-3 prior to storage in a BWR Boraflex storage rack.

Section 5.6.1.3.b will then be revised to with the following requirements for the BWR Boral storage racks:

1. k_{eff} less than or equal to 0.95 when flooded with unborated water.
2. The reactivity margin is assured for BWR Boral racks in pool "B" by maintaining a nominal 6.25 inch center-to-center distance in the BWR Boral storage racks.

Additionally, new Figure 5.6-3, "Pools "A" and "B" Burnup versus Enrichment for BWR Boraflex Racks," is added to TS page 5-7e to define the BWR fuel that meets the requirements for unrestricted storage in the Boraflex racks in Pools A and B.

3. TECHNICAL EVALUATION

HNP's spent fuel storage pools A and B contain both PWR and BWR fuel racks. The basic function of the SFP storage racks is to ensure that the fuel remains subcritical in the stored geometry and in a coolable geometry for all analyzed conditions. Both the PWR and BWR racks incorporate a neutron absorbing material (either Boraflex or Boral) in the rack design for reactivity control. The Boraflex neutron absorbing material, which is encapsulated in stainless steel for structural support, consists of boron carbide particles held in place by a nonmetallic binder. The material is not sealed since it is compatible with the pool environment.

Due to the continued degradation of the Boraflex in the BWR spent fuel storage racks, HNP is proposing to incorporate a revised criticality analysis into its TS. This new analysis removes the reliance on Boraflex for neutron suppression and applies credit for soluble boric acid and fuel assembly design and burnup.

The water for in-service spent fuel pools A, B and C at HNP (currently Pool D is not used for fuel storage) contains soluble boron (boric acid solution), which results in large subcriticality margins under actual operation conditions. It is required per TS 3.7.14 that the boron concentration is greater than or equal to 2000 ppm for spent fuel pools containing nuclear fuel. Additionally, Surveillance Requirement TS 4.7.14 requires the spent fuel pool concentrations to be verified at least every seven days.

BWR storage rack analyses do not usually credit soluble boron in the pool water. Typically, low burnup fuel is used with credit for gadolinia. However, due to the dual storage of PWR and BWR assemblies in HNP's SFP, soluble boron is present in the HNP spent fuel pools where the BWR assemblies are stored. Therefore, partial credit for soluble boron is used to ensure that the maximum k_{eff} is less than 0.95 under normal storage conditions and to protect against accident conditions.

3.1 Holtec International, Inc. Report No. HI-2043321, Revision 4

HI-2043321, Revision 4, "Criticality Safety Analyses of BWR Fuel Without Credit for Boraflex in the Racks at the Harris Nuclear Power Station," the proprietary Holtec technical report provided as Enclosure 2 to this submittal, evaluates the criticality safety of the BWR Boraflex fuel storage racks in the spent fuel pools at HNP. This report is based on the very conservative assumption of a complete loss of Boraflex in the BWR storage racks.

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The primary criticality analyses at 95% probability, 95% confidence level were performed with the three-dimensional MCNP4a code, a Monte Carlo code developed by the Los Alamos National Laboratory, for explicit modeling of actinide and fission product nuclide concentrations. A two-dimensional deterministic code using transmission probabilities, CASMO4, was used for the calculation of differential reactivity effects of manufacturing tolerances and to determine the nuclide inventories used in the MCNP4a calculations at the various burnups. Each fuel rod and fuel assembly was explicitly described in the geometric model used in the calculations. The GE13 assembly was chosen as the reference fuel assembly design as discussed on page 4 of report HI-2043321.

Per NRC guidelines, parametric evaluations were performed independently for each of the manufacturing tolerances and the associated reactivity uncertainties were combined statistically. All calculations were made for an explicit modeling of the fuel and storage cell to define the limiting enrichment-burnup combinations, thereby assuring the safe storage of spent fuel in the BWR racks.

The presented analysis includes credit for geometry, soluble boron and fuel assembly design/burnup in conjunction with the removal of the previously considered credit for Boraflex as a neutron absorber. When performing this analysis based on the assumed loss of all Boraflex material, the temperature coefficient of reactivity is positive. Therefore, the limiting calculations assumed a temperature of 150° F, the administrative limit for the spent fuel pool. Any higher temperatures would be considered accident conditions and the soluble boron normally present in the pool water would assure maintenance of reactivity below the regulatory limit of k_{eff} less than 0.95.

The analyses included the following conservative analytical assumptions to ensure that the true reactivity will always be less than the calculated reactivity:

1) The criticality safety analyses were based upon an infinite radial array of storage cells with a finite axial length, water reflected. Thus, there is no credit for radial neutron leakage, and axial neutron leakage is reflected back;

2) Minor structural materials were neglected; i.e. spacer grids were conservatively assumed to be replaced by water;

3) Because the temperature coefficient of reactivity is positive in the absence of Boraflex, the analyses assumed a SFP reference temperature of 150°F. Higher temperatures would be an accident condition for which soluble boron credit is permitted;

4) The axial burnup distribution calculations were performed assuming an axial distribution derived from data based on four different axial burnup distributions for GE13 fuel, as determined to be the bounding fuel design;

5) No Boraflex is present in the BWR spent fuel racks and is assumed to be displaced by the same water as is in the SFP.

The following criticality safety criteria were used in the analysis:

1) the racks remain subcritical without any credit for the soluble boron present;

2) partial credit is taken for the soluble boron to assure the reactivity remains below 0.95 under both normal and accident conditions.

To determine the maximum k_{eff} values, an infinite radial array of storage cells with a finite axial length, water reflected, was assumed. For each fuel assembly initial enrichment, a minimum burnup was determined that assures the maximum k_{eff}, including calculational and manufacturing uncertainties, remains sub-critical under the assumed absence of all soluble boron. The conservative axial burnup distribution used in the calculations is shown as Figure 1 (page 20), "Normalized Axial Burnup Distribution," in Holtec report HI-2043321.

The results of the analyses are summarized in Figure 2 (page 21), "Minimum Fuel Burnup for Acceptable Storage of Spent Fuel of Various Initial Planar Average Enrichments," of Holtec report HI-2043321, which reflects the minimum acceptable burnup for fuel of various initial maximum planar average enrichments. The limiting points in Figure 2 may be fitted for the following linear function of the initial maximum planar average enrichment, E:

$$\text{Burnup Limit} = 13.258 * E - 18.016$$

To assure that all points in Figure 2 are bounded by the linear, least-squares fit, the line is conservatively adjusted upward by 0.738 MWD/KgU. The calculated minimum burnups and the values determined by the linear fit are shown in Table 5 (page 16), "Limiting Fuel Burnup," of Holtec report HI-2043321.

A soluble boron concentration of 220 ppm was determined to be adequate under normal conditions to maintain the fuel stored in the spent fuel pool at a k_{eff} below 0.95, including all manufacturing and calculation tolerances. The results of this analysis indicate that spent fuel assemblies having at least the burnup-enrichment combination as reflected in Figure 2 and Table 5 of the Holtec report may be safely accommodated in the storage racks, based on maintaining minimum 300 ppm soluble boron.

3.2 Accident analysis

The accident conditions and associated calculated reactivity effects are provided in Table 4 (page 15), "Summary of Abnormal/Accident Conditions," of Holtec report HI-2043321. The postulated accidents analyzed for the BWR Boraflex racks include temperature increases, void (boiling), the drop of a fuel assembly on the top of a rack, seismic movement and the misloading of a non-BUC qualified fuel assembly into a rack filled with BUC qualified fuel.

With the exception of the misloaded fuel assembly, none of the analyzed abnormal/accident conditions result in the incorporation of any additional storage requirements or limitations. Since normal storage conditions use a temperature of 150°F, higher temperatures are classified as accident conditions, allowing credit for soluble boron. A void or boiling condition will result in a negative void coefficient of reactivity and both the assembly drop on the top of the rack and seismic movement events produce negligible consequences.

The evaluation of the fuel misloading accident assumed the subject misloaded assembly was the most reactive assembly possible. Calculations were then performed to determine the amount of soluble boron concentration required to maintain k_{eff} below 0.95 in the pool under the postulated accident scenario. The analysis of the misloading accident scenario results in the determination that 300 ppm soluble boron in the spent fuel pool is adequate to assure a k_{eff} less than 0.95.

Since Technical Specification 3.7.14 requires the spent fuel boron concentration to be greater than or equal to 2000 ppm, excess reactivity margin is maintained in the spent fuel pools. Significant loss or dilution of the soluble boron concentration is extremely unlikely due to the conservative water volumes used for SFP A, SFP B and SFP C and the large amounts of unborated water necessary to reduce the boron concentration from 2000 ppm to 300 or to 220 ppm. Therefore, the TS required minimum spent fuel pool boron concentration of 2000 ppm remains unchanged based on the revised criticality analysis. Even under the proposed accident condition, the minimum soluble boron concentration of 300 ppm needed to maintain k_{eff} below 0.95 continues to remain significantly less than the TS 3.7.14 limit of 2000 ppm, ensuring a large reactivity safety margin.

The analyses presented in Holtec report HI-2043321 concludes that the HNP BWR Boraflex spent fuel storage racks can safely store fuel with initial maximum planar average enrichments up to 4.6% with assurance that the maximum reactivity, including calculational and manufacturing uncertainties, will be less than 0.95 with 95% probability at the 95% confidence level, provided that:

1) the fuel conforms to the enrichment-burnup limits for the spent fuel as shown in Figure 2, "Minimum Fuel Burnup for Acceptable Storage of Spent Fuel of Various Initial Planar Average Enrichments," of the Holtec report (incorporated into new TS Figure 5.6-3), and

2) a minimum of 300 ppm soluble boron is maintained.

3.3 Bounding of PWR Boraflex Analyses

The revision to the criticality analysis for the PWR Boraflex Racks (Reference 1), required an analysis of dilution accidents due to the partial dependence of criticality control on boron concentration. The soluble boron in the spent fuel pool water is maintained under normal conditions at an amount greater than 2000 ppm per TS 3.7.14. Based on the previously submitted PWR Boraflex LAR (Reference 1), the required minimum boron concentration for the PWR Boraflex racks is 500 ppm under normal conditions and 1000 ppm for the most serious credible accident scenario. For the BWR Boraflex racks, the most serious credible accident requires a spent fuel pool boron concentration of 300 ppm, a much lower value than that required for the PWR Boraflex racks. Thus, the boron dilution accident evaluation previously performed and submitted with the PWR Boraflex analyses (Reference 1) bounds the BWR Boraflex racks.

The PWR Boraflex rack criticality analysis performed by Framatome and submitted with the PWR Boraflex LAR (Reference 1) also determined the impact of the BWR Boraflex racks on adjacent PWR Boraflex racks. The BWR Boraflex racks used in that calculation were conservatively modeled with no Boraflex and with a design basis BWR fuel assembly. The Framatome analysis design basis BWR fuel assembly is a GE13 9 x 9 assembly uniformly loaded at 1.5 wt. % enrichment with no burnup, integral absorbers, axial blankets, or part length rods. The design basis BWR fuel assembly used in the Framatome Criticality Analysis has an equivalent reactivity of a typical BWR assembly with higher enrichment and burnup shipped to HNP. The interface criteria on BWR fuel assembly properties become operative when Boraflex credit is removed from the BWR rack analyses.

The Holtec analysis for removing Boraflex credit for BWR spent fuel racks concludes that a minimum boron concentration of 300 ppm with a burnup credit curve for BWR fuel is adequate to maintain k_{eff} below 0.95. Therefore, the PWR soluble boron requirements, as documented in the report provided with the PWR Boraflex submittal (Reference 1), bound the BWR Boraflex analysis.

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The updated requirement for the storage of BWR fuel in the BWR Boraflex racks located in the Pools A and B is that the fuel assembly enrichment and burnup fall within the acceptable region of a burnup-enrichment curve, also referred to as Burnup Credit (BUC). Incorporating the revised criticality analysis, the k_{eff} of the BWR Boraflex racks is ≤ 0.95 with credit for soluble boron and < 1.0 when flooded with unborated water, which meets the regulatory requirements of 10 CFR 50.68(b)(4).

In summary, CP&L, doing business as PEC, proposes to modify HNP's TS 5.6.1.3 regarding the storage of spent BWR fuel assemblies in racks containing Boraflex. This revision is the result of a recent criticality analysis performed which removes the credit for Boraflex as a neutron reactivity suppressor. This change will separate the TS requirements for fuel storage criticality for BWR spent fuel racks in Pools A and B into criteria for Boraflex and Boral racks. This change does not impact the BWR Boral storage racks or the Pressurized Water Reactor (PWR) storage racks containing Boraflex in Pools A and B.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The current design function of the BWR Boraflex storage racks is to maintain stored irradiated BWR fuel in a sub-critical condition without reliance on soluble boron, burnup credit or special geometry. The fuel designs permitted for storage in the BWR storage racks in Pools A and B are limited by TS 5.6.1.3.a. The Technical Specification requires that k_{eff} for BWR fuel assemblies be less than or equal to 0.95 when flooded with unborated water.

Per FSAR Section 9.0 (Reference 4), the design and operation of the fuel pool meets the requirements of 10 CFR 50.68(b), which requires compliance with listed requirements (1) through (8) in lieu of maintaining a monitoring system capable of detecting a criticality as described in 10 CFR 70.24. Per 10 CFR 70.24(d)(1), the requirements of 10 CFR 70.24(a) through (c) do not apply if the requirements of 10 CFR 50.68(b) are met. The portion of 10 CFR 50.68(b) applicable to this current request is 50.68(b)(4):

> "If no credit for soluble boron is taken, the k-effective of the spent fuel storage racks loaded with fuel of the maximum fuel assembly reactivity must not exceed 0.95, at a 95 percent probability, 95 percent confidence level, if flooded with unborated water. If credit is taken for soluble boron, the k-effective of the spent fuel storage racks loaded with fuel of the maximum fuel assembly reactivity must not exceed 0.95, at a 95 percent probability, 95 percent confidence level, if flooded with borated water, and the k-effective must remain below 1.0

(subcritical), at a 95 percent probability, 95 percent confidence level, if flooded with unborated water."

The presented BWR Boraflex rack criticality analysis demonstrates that k_{eff} will be controlled through a combination of design, operating and TS limits without the requirement for a criticality alarm. Implementation of the new TS requirements associated with the updated criticality analyses for BWR Boraflex storage racks in Pools A and B maintains compliance with the limits specified in 10 CFR 50.68(b)(4).

Per FSAR 9.1.1.3, the Fuel Handling Building is designed to meet the requirements of Regulatory Guide (RG) 1.13, Rev. 1, "Spent Fuel Storage Facility Design Basis," which contains guidelines for conformance with the General Design Criteria (GDC) contained in 10 CFR 50 Appendix A relevant to the design of spent fuel storage facilities. RG 1.13 endorses ANSI/ANS 57.2-1983 and provides protection to the fuel racks and other pieces of equipment against natural phenomena, including tornadoes, hurricanes and floods.

The fuel racks, which are designed in accordance with the NRC position paper, "Review and Acceptance of Spent Fuel Storage and Handling Applications," are ANS Safety Class 3 and Seismic Category I structures. They are designed to withstand normal and postulated dead loads, live loads, loads due to thermal effects, loads caused by the operating bases earthquakes and safe shutdown earthquake events in accordance with Regulatory Guide 1.29, with stress allowable defined by ASME Code, Section III. The incorporation of the proposed revised criticality analysis does not affect the current spent fuel storage design criteria.

10 CFR 50 Appendix A General Design Criterion 61, "Fuel Storage and Handling and Radioactivity Control," requires that fuel storage and handling, radioactive waste, and other systems which may contain radioactivity be designed to assure adequate safety under normal and postulated accident conditions. Implementing the proposed revised criticality analysis does not affect the ability of the Boraflex spent fuel storage racks in Pools A and B to meet this criterion.

10 CFR 50 Appendix A General Design Criterion 62, "Prevention of Criticality in Fuel Storage and Handling," specifies that criticality in the fuel storage and handling system shall be prevented by physical systems or processes, preferably by use of geometrically safe configurations. The changes proposed in this request do not impact the capability of the existing storage racks in SFPs A and B to comply with this Criterion. Irradiated BWR fuel will be required to meet certain enrichment and burnup requirements (Burnup credit requirement or BUC) to be stored in the BWR Boraflex storage racks located in the Pools A and B.

NUREG-0800, Section 9.1.1, "Criticality Safety of Fresh and Spent Fuel Storage and Handling," (III.1.D) requires that for PWR pools where partial credit for soluble boron is taken, both of the following criteria must be met:

i. When the spent fuel storage racks are loaded with fuel of the maximum permissible reactivity and are flooded with full-density unborated water, the maximum k_{eff} must be less than 1.0 for all normal and credible abnormal conditions. The k_{eff} must included allowance for all relevant uncertainties and tolerances.

ii. When the spent fuel storage racks are loaded with fuel of the maximum permissible reactivity and are flooded with full-density water borated to a minimum concentration ($C_{B,min,}$ measured in parts per million of boron), the maximum k_{eff} must be no greater than 0.95 for all normal conditions. Plant technical specifications must incorporate the $C_{B,min.}$ The k_{eff} must include allowance for all relevant uncertainties and tolerances.

The new criticality analysis will continue to meet the k_{eff} requirements contained in Section 5.A.2 of the NRC Internal Memorandum, "Guidance on the Regulatory Requirements for Criticality Analysis of Fuel Storage at Light-Water Reactor Power Plants," (Reference 5).

In summary, a design feature of the BWR Boraflex racks is the ability of the racks to maintain k_{eff} less than or equal to 0.95 during normal and accident conditions. Currently during accident conditions soluble boron is relied on to maintain $k_{eff} \leq 0.95$. Since the revised Holtec criticality analyses is based on the removal of credit for Boraflex, other negative reactivity contributors from the fuel and soluble boron are credited to maintain k_{eff} less than or equal to 0.95 during normal conditions.

In accordance with NUREG-0800, Section 9.1.1 and 10 CFR 50.68, k_{eff} shall be less than 1.0 when BWR Boraflex racks are used for underwater storage in unborated water. When credit is taken for soluble boron, k_{eff} shall be less than or equal to 0.95 during normal operation. Both of these values include calculation uncertainties and mechanical tolerance effects. For accident scenarios in underwater storage with credit taken for soluble boron in the pool water, the maximum k_{eff} shall be less than or equal to 0.95.

Based on the above, the proposed activity includes a revised methodology (changes in acceptance criteria) for analysis of BWR Boraflex rack pool storage. The specific codes used are within the population of codes generally accepted by the NRC for criticality analyses, with the restrictions on code usage from the benchmarking of the specific code against experimental results and the approach used to address uncertainties.

The proposed changes have been evaluated to determine that applicable regulations and requirements for HNP will continue to be met. PEC has determined that the proposed change does not require any exemptions or relief from regulatory requirements, other than the change to Technical Specifications. Applicable regulatory requirements will continue to be met, adequate defense-in-depth will be maintained, and sufficient safety margins will be maintained.

4.2 Precedent

The proposed limits on k_{eff} allow for credit for soluble boron and are consistent with the requirements of 10 CFR 50.68(b)(4). The allowance for credit for soluble boron is also consistent with approved license amendments for other plants including: H.B. Robinson Unit 2, McGuire Units 1 and 2, Oconee Units 1, 2 and 3, Ginna, Palisades, North Anna Units 1 and 2, South Texas Project Units 1 and 2 and the PWR Boraflex storage rack Amendment for Harris Nuclear Plant.

4.3 Significant Hazards Consideration

Carolina Power & Light Company (CP&L), doing business as Progress Energy Carolinas, Inc. (PEC), has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below. This evaluation is in conformance with the guidance provided in NRC Regulatory Issue Summary (RIS) 2001-22.

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed activity changes the design basis of the BWR Boraflex storage racks, but does not make physical changes to the facility. The change to TS Section 5.6.1.3 (BWR Storage Racks in Pools A and B), which is an update to the administrative controls for maintaining the required boron concentration in the Boraflex BWR spent fuel storage racks located in Pools A and B, does not modify the facility.

   The accidents currently analyzed in the FSAR applicable to the proposed activity are fuel handling accidents. These accidents include dropping a fuel assembly onto the top of a fuel rack or in the space between a rack and the pool wall. These events are caused either by personnel error or equipment malfunction.

   Based on the new criticality analysis, revised acceptance criteria are needed to ensure the criticality safety of fuel storage in BWR Boraflex racks in Pools A and B. Similar administrative controls were previously placed on fuel stored in the PWR Boraflex racks in Pools A and B. These changes will eliminate the dependence on the Boraflex absorber in the BWR storage racks. These changes do not impact the probability of having a fuel handling accident and do not impact the consequences of a fuel handling accident.

Therefore, this amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   These revised acceptance criteria applicable to the irradiated fuel stored in the BWR Boraflex racks in Pools A and B are being added to TS Section 5.6.1.3.a.

   The proposed change does not result in any credible new failure mechanisms, malfunctions or accident initiators not considered in the original design and licensing bases.

   Detailed analyses have been performed to ensure a criticality accident in Pools A and B is not a credible event. The events that could lead to a criticality accident are not new. These events include a fuel mispositioning event, a fuel drop event, and a boron dilution event. The proposed changes do not impact the probability of any of these events.

   The detailed criticality analyses performed demonstrates that criticality would not occur following any of these events. Even in a more likely event, such as a fuel mispositioning event, the acceptance criteria for k_{eff} remains less than or equal to 0.95. In the unlikely event that the spent fuel storage pool boron concentration were reduced to zero, k_{eff} remains less than 1.0. A criticality accident is considered "not credible" and the proposed action does not create the possibility of a new or different kind of accident from any accident previously evaluated.

   Therefore, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

   Response: No.

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EVALUATION OF PROPOSED CHANGES

Incorporation of the revised criteria for fuel stored in the BWR Boraflex racks in Pools A and B do not involve a reduction in the margin of safety. The updated fuel storage condition continues to meet $k_{eff} \leq 0.95$ with credit for soluble boron and $k_{eff} < 1.0$ when flooded with unborated water.

The proposed changes for storage of irradiated fuel in BWR Boraflex racks in Pools A and B continues to provide the controls necessary to ensure a criticality event could not occur in the spent fuel storage pool. The acceptance criteria are consistent with the acceptance criteria specified in 10 CFR 50.68, which provide an acceptable margin of safety with regard to the potential for a criticality event.

Therefore, this amendment does not involve a significant reduction in a margin of safety.

Based on the above, HNP concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

Based on the considerations discussed above, (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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

5. ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, "Standards for Protection Against Radiation," or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," Paragraph (c)(9).

Therefore, pursuant to 10 CFR 51.22, Paragraph (b), an Environmental Impact Statement or Environmental Assessment is not required in connection with the proposed amendment.

6. REFERENCES

1. Letter from J. Scarola (Progress Energy) to the Nuclear Regulatory Commission (Serial: HNP-05-103), "Request for License Amendment to Credit Soluble Boron for Fuel Storage Pools," dated September 01, 2005 (includes proprietary Framatome ANP, Inc. Report No. 77-5069740-P-00 dated August 2005)

2. Letter from Nuclear Regulatory Commission to Mr. C. J. Gannon (Carolina Power & Light Company), "Shearon Harris Nuclear Power Plant, Unit 1 – Issuance of Amendment Regarding Soluble Boron Credit for Fuel Storage Pools (TAC NO. MC8267)," dated March 10, 2006, and accompanying Safety Evaluation

3. Letter from Nuclear Regulatory Commission to Mr. J. W. Moyer (Carolina Power & Light Company), "H. B. Robinson Steam Electric Plant, Unit No. 2 – Issuance of an Amendment Re: Elimination of Neutron Absorption Credit For Boraflex (TAC NO. MB9148)," dated December 22, 2003, and accompanying Safety Evaluation

4. Harris Nuclear Plant Final Safety Analysis Report (FSAR)

5. Nuclear Regulatory Commission Internal Memorandum from L. Kopp to T. Collins, "Guidance on the Regulatory Requirements for Criticality Analysis of Fuel Storage at Light-Water Reactor Power Plants," dated August 19, 1998

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ATTACHMENT 1
TECHNICAL SPECIFICATION PAGE MARKUPS
(5 Pages)

Insert

Delete

Revise A

3. BWR Storage Racks in Pools "A" and "B"

   a. k_{eff} less than or equal to 0.95 when flooded with unborated water.

   b. The reactivity margin is assured for BWR racks in pools "A" and "B" by maintaining a nominal 6.25 inch center-to-center distance in the BWR storage racks.

4. PWR and BWR racks in pools "C" and "D"

   a. k_{eff} less than or equal to 0.95 when flooded with unborated water.

   b. The reactivity margin is assured for pools "C" and "D" by maintaining a nominal 9.017 inch center-to-center distance between fuel assemblies placed in the non-flux trap style PWR storage racks and 6.25 inch center-to-center distance in the BWR storage racks.

   c. The following restrictions are also imposed through administrative controls:

      1. PWR assemblies must be within the "acceptable range" of the burnup restrictions shown in Figure 5.6-1 prior to storage in pools "C" and "D".

      2. BWR assemblies are acceptable for storage in pool "C" provided the maximum planar average enrichments are less than 4.6 wt.% U235 and K_{inf} is less than or equal to 1.32 for the standard cold core geometry (SCCG).

5. In each case, k_{eff} includes allowances for uncertainties as described in Section 4.3.2.6 of the FSAR.

DRAINAGE

5.6.2 The pools "A", "B", "C" and "D" are designed and shall be maintained to prevent inadvertent draining of the pools below elevation 277.

CAPACITY

5.6.3.a Pool "A" contains six (6 x 10 cell) flux trap type PWR racks and three (11 x 11 cell) BWR racks for a total storage capacity of 723 assemblies. Pool "B" contains six (7 x 10 cell), five (6 x 10 cell), and one (6 x 8 cell) flux trap style PWR racks and seventeen (11 x 11 cell) BWR racks and is licensed for one additional (11 x 11 cell) BWR rack that will be installed as needed. The combined pool "A" and "B" licensed storage capacity is 3669 assemblies.

Delete

Technical Specification 5.6.1.3 REVISE A:

3. BWR Storage Racks in Pools "A" and "B"

   a. BWR Boraflex storage racks

      1. k_{eff} less than or equal to 0.95 if flooded with water borated to 2000 ppm.

      2. k_{eff} less than 1.0 if flooded with unborated water.

      3. Nominal 6.25 center-to-center spacing between fuel assemblies shall be maintained for fuel stored in the BWR racks.

      4. BWR assemblies must be within the "acceptable range" of the burnup restriction shown in figure 5.6-3 prior to storage in a BWR Boraflex storage rack.

   b. BWR Boral storage racks

      1. k_{eff} less than or equal to 0.95 when flooded with unborated water.

      2. The reactivity margin is assured for BWR Boral racks in pool "B" by maintaining a nominal 6.25 inch center-to-center distance in the BWR Boral storage racks.

Figure 5.6-3

Pools "A" and "B" Burnup Versus Enrichment for BWR Boraflex Racks

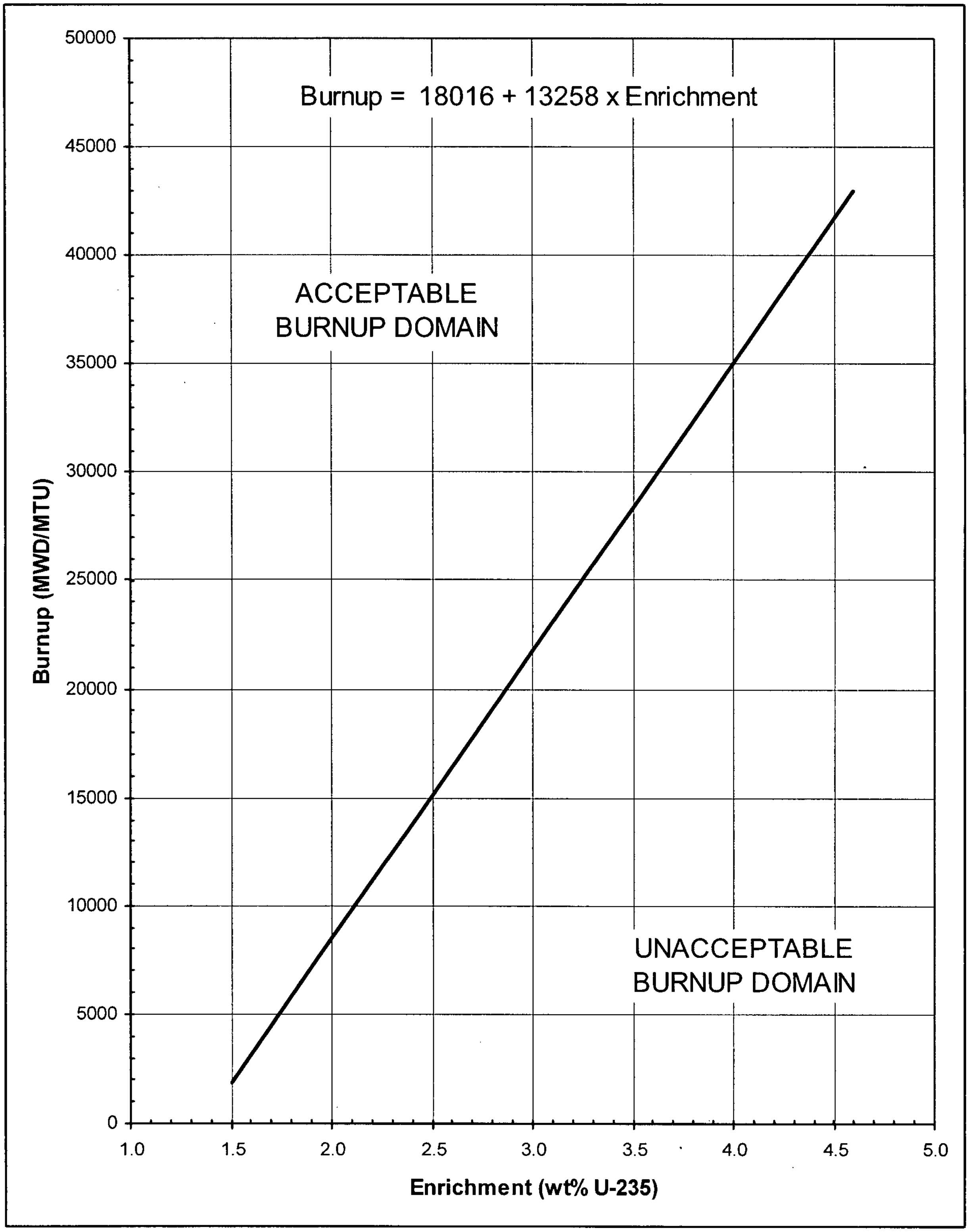

Figure 5.6-3:

POOLS "A" AND "B" BURNUP VERSUS ENRICHMENT FOR BWR BORAFLEX RACKS

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ATTACHMENT 2
RETYPED TECHNICAL SPECIFICATION PAGES
(5 Pages)

5.0 DESIGN FEATURES

SECTION PAGE

3. BWR Storage Racks in Pools "A" and "B"

   a. BWR Boraflex storage racks.

      1. K_{eff} less than or equal to 0.95 if flooded with water borated to 2000 ppm.

      2. K_{eff} less than 1.0 if flooded with unborated water.

      3. Nominal 6.25 inch center-to-center spacing between fuel assemblies shall be maintained for fuel stored in the BWR racks.

      4. BWR assemblies must be within the "acceptable range" of the burnup restriction shown in figure 5.6-3 prior to storage in a BWR Boraflex storage rack.

   b. BWR Boral storage racks

      1. K_{eff} less than or equal to 0.95 when flooded with unborated water.

      2. The reactivity margin is assured for BWR Boral racks in pool "B" by maintaining a nominal 6.25 inch center-to-center distance in the BWR Boral storage racks.

4. PWR and BWR racks in pools "C" and "D"

   a. k_{eff} less than or equal to 0.95 when flooded with unborated water.

   b. The reactivity margin is assured for pools "C" and "D" by maintaining a nominal 9.017 inch center-to-center distance between fuel assemblies placed in the non-flux trap style PWR storage racks and 6.25 inch center-to-center distance in the BWR storage racks.

   c. The following restrictions are also imposed through administrative controls:

      1. PWR assemblies must be within the "acceptable range" of the burnup restrictions shown in Figure 5.6-1 prior to storage in pools "C" and "D".

      2. BWR assemblies are acceptable for storage in pool "C" provided the maximum planar average enrichments are less than 4.6 wt.% U235 and K_{inf} is less than or equal to 1.32 for the standard cold core geometry (SCCG).

5. In each case, k_{eff} includes allowances for uncertainties as described in Section 4.3.2.6 of the FSAR.

DRAINAGE

5.6.2 The pools "A", "B", "C" and "D" are designed and shall be maintained to prevent inadvertent draining of the pools below elevation 277.

CAPACITY

5.6.3.a Pool "A" contains six (6 x 10 cell) flux trap type PWR racks and three (11 x 11 cell) BWR racks for a total storage capacity of 723 assemblies. Pool "B" contains six (7 x 10 cell), five (6 x 10 cell), and one (6 x 8 cell) flux trap style PWR racks and seventeen (11 x 11 cell) BWR racks and is licensed for one additional (11 x 11 cell) BWR rack that will be installed as needed. The combined pool "A" and "B" licensed storage capacity is 3669 assemblies.

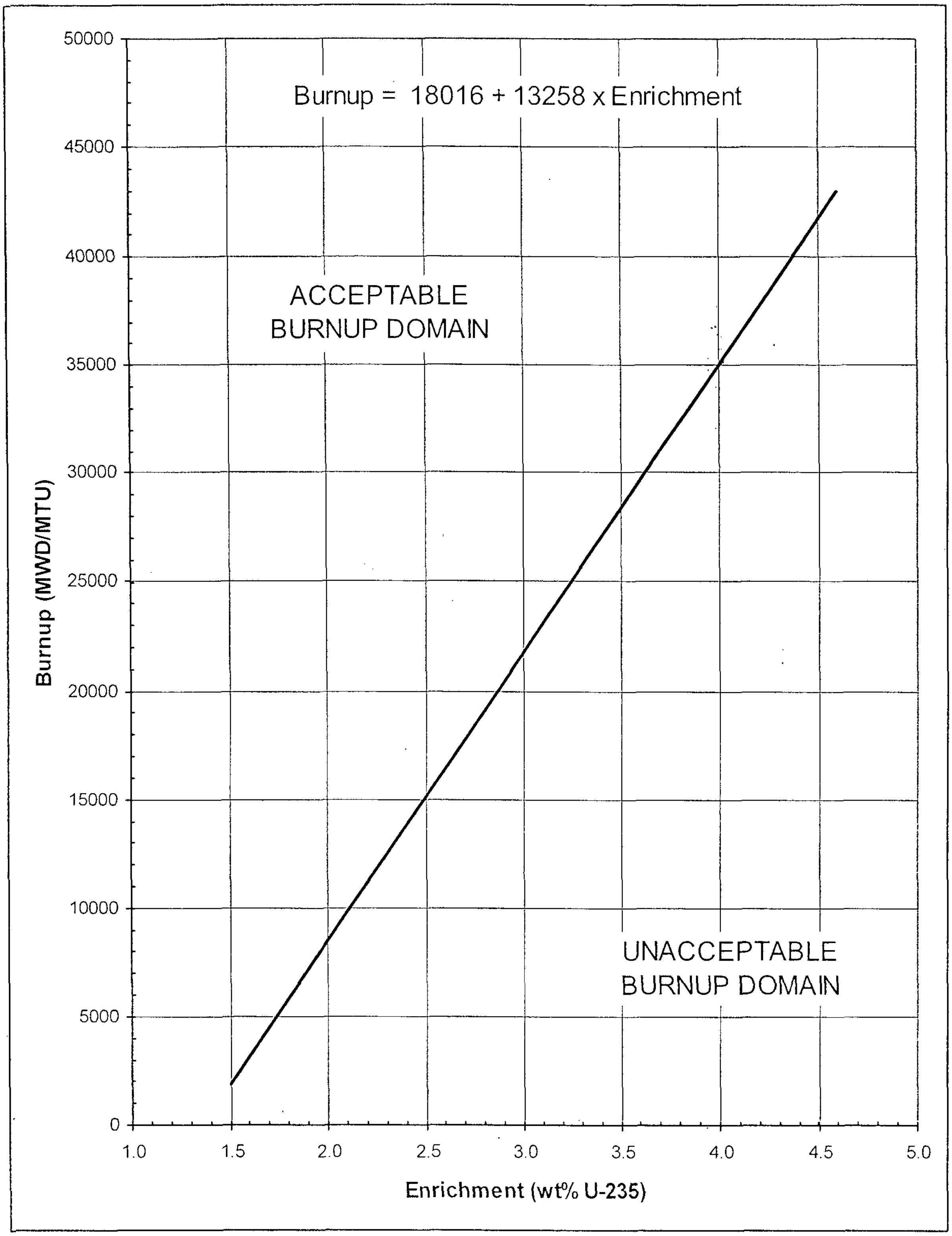

Figure 5.6-3:

POOLS “A” AND “B” BURNUP VERSUS ENRICHMENT FOR BWR BORAFLEX RACKS

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ATTACHMENT 3
PROPOSED TECHNICAL SPECIFICATION (TS) BASES CHANGES
(FOR INFORMATION ONLY)
(1 Page)

3/4.7.9 SEALED SOURCE CONTAMINATION

The sources requiring leak tests are specified in 10 CFR 31.5(c)(2)(ii). The limitation on removable contamination is required by 10 CFR 31.5(c)5. This limitation will ensure that leakage from Byproduct, Source, and Special Nuclear Material sources will not exceed allowable intake values.

Sealed sources are classified into three groups according to their use, with Surveillance Requirements commensurate with the probability of damage to a source in that group. Those sources that are frequently handled are required to be tested more often than those that are not. Sealed sources that are continuously enclosed within a shielded mechanism (i.e., sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shielded mechanism.

3/4.7.10 DELETED

3/4.7.11 DELETED

3/4.7.12 DELETED

3.4.7.13 ESSENTIAL SERVICES CHILLED WATER SYSTEM

The OPERABILITY of the Emergency Service Chilled Water System ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

3/4.7.14 FUEL STORAGE POOL BORON CONCENTRATION

The fuel storage pools contain several rack designs. The PWR and BWR racks in Pools "C" and "D" have a poison that maintains k_{eff} less than or equal to 0.95 during normal operation. The BWR Boral racks in Pools "A" and "B" also credit a poison in the rack design. For the PWR Boraflex racks and BWR Boraflex racks in Pools "A" and "B", the installed poison is not credited and soluble boron is relied upon to maintain K_{eff} less than or equal to 0.95 during normal operation. Soluble boron is also relied upon during design basis accidents (e.g. fuel handling accidents (FHA) or misloading) to maintain k_{eff} less than or equal to 0.95. The most limiting boron requirement is 1000 ppm of any of the pools. The difference between 2000 ppm and 1000 ppm provides margin for boron measurement uncertainties and the detection and mitigation of an accidental boron dilution event. It is not required to postulate the boron dilution accidents concurrent with another accident such as fuel misloading or FHA.

The water in the pools normally contains a boron concentration in excess of 2000 ppm. The pools are typically interconnected through canals. Years of operating data show that the boron concentration does not vary significantly from pool to pool. The sampling surveillance permits taking a sample from any location in the connected volume of the pools. This is typically done by rotating between four widely separated locations (e.g. Pool A, Pool B, Pool C and 1&4 Transfer Canal) in the entire pool volume. Sampling of an individual pool is only required when a specific pool is isolated such that diffusion of the boron between pools is restricted.

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HOLTEC INTERNATIONAL
AFFIDAVIT PURSUANT TO 10 CFR 2.390
(5 Pages)

HOLTEC INTERNATIONAL

Holtec Center, 555 Lincoln Drive West, Marlton, NJ 08053
Telephone (856) 797-0900
Fax (856) 797-0909

U.S. Nuclear Regulatory Commission
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AFFIDAVIT PURSUANT TO 10 CFR 2.390

I, Debabrata Mitra-Majumdar, being duly sworn, depose and state as follows:

(1) I am the Holtec International Project Manager for the Harris Nuclear Station Criticality Analysis Project and have reviewed the information described in paragraph (2) which is sought to be withheld, and am authorized to apply for its withholding.

(2) The information sought to be withheld is Revision 4 of Holtec Report HI-2043321 containing Holtec Proprietary information.

(3) In making this application for withholding of proprietary information of which it is the owner, Holtec International relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4) and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10CFR Part 9.17(a)(4), 2.390(a)(4), and 2.390(b)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information", and some portions also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, <u>Critical Mass Energy Project v. Nuclear Regulatory Commission</u>, 975F2d871 (DC Cir. 1992), and <u>Public Citizen Health Research Group v. FDA</u>, 704F2d1280 (DC Cir. 1983).

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Holtec Center, 555 Lincoln Drive West, Marlton, NJ 08053
Telephone (856) 797-0900
Fax (856) 797-0909

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(4) Some examples of categories of information which fit into the definition of proprietary information are:

a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by Holtec's competitors without license from Holtec International constitutes a competitive economic advantage over other companies;

b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.

c. Information which reveals cost or price information, production, capacities, budget levels, or commercial strategies of Holtec International, its customers, or its suppliers;

d. Information which reveals aspects of past, present, or future Holtec International customer-funded development plans and programs of potential commercial value to Holtec International;

e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs 4.a and 4.b, above.

(5) The information sought to be withheld is being submitted to the NRC in confidence. The information (including that compiled from many sources) is of

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Holtec Center, 555 Lincoln Drive West, Marlton, NJ 08053
Telephone (609) 797-0900
Fax (609) 797-0909

a sort customarily held in confidence by Holtec International, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by Holtec International. No public disclosure has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within Holtec International is limited on a "need to know" basis.

(7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his designee), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside Holtec International are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

(8) The information classified as proprietary was developed and compiled by Holtec International at a significant cost to Holtec International. This information is classified as proprietary because it contains detailed descriptions of analytical

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Telephone (609) 797-0900
Fax (609) 797-0909

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approaches and methodologies not available elsewhere. This information would provide other parties, including competitors, with information from Holtec International's technical database and the results of evaluations performed by Holtec International. A substantial effort has been expended by Holtec International to develop this information. Release of this information would improve a competitor's position because it would enable Holtec's competitor to copy our technology and offer it for sale in competition with our company, causing us financial injury.

(9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to Holtec International's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of Holtec International's comprehensive spent fuel storage technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology, and includes development of the expertise to determine and apply the appropriate evaluation process.

The research, development, engineering, and analytical costs comprise a substantial investment of time and money by Holtec International.

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

Holtec International's competitive advantage will be lost if its competitors are able to use the results of the Holtec International experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

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Telephone (609) 797-0900
Fax (609) 797-0909

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The value of this information to Holtec International would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive Holtec International of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

STATE OF NEW JERSEY)
) ss:
COUNTY OF BURLINGTON)

Dr. Debabrata Mitra-Majumdar, being duly sworn, deposes and says:

That he has read the foregoing affidavit and the matters stated therein are true and correct to the best of his knowledge, information, and belief.

Executed at Marlton, New Jersey, this 16th day of September, 2008.

Debabrata Mitra-Majumdar, Ph.D.
Holtec International

Subscribed and sworn before me this 16th day of September, 2008.

Maria C. Massi

MARIA C. MASSI
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires April 25, 2010