GE Hitachi Nuclear Energy

Richard E. Kingston
Vice President, ESBWR Licensing

PO Box 780 M/C A-65
Wilmington, NC 28402-0780
USA

T 910 819 6192
F 910 362 6192
rick.kingstion@ge.com

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U.S. Nuclear Regulatory Commission
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Subject: **Request for Exemption from 10 CFR 52.47(a)(8) and 10 CFR 50.34(f)(2)(iv)**

The purpose of this letter is to submit GEH's exemption request from regulations 10 CFR 52.47(a)(8) and 10 CFR 50.34(f)(2)(iv).

GEH requests an exemption pursuant to 10 CFR 50.12(a)(2), from 10 CFR 52.47(a)(8) and 10 CFR 50.34(f)(2)(iv) – Safety Parameter Display System (SPDS) Console. Information supporting the exemption request is contained in Enclosure 1.

GEH has concluded that special circumstances defined in 10 CFR 50.12 exist to warrant the exemption. Granting the exemption request will not present undue risk to the public health and safety and is consistent with the common defense and security.

GEH requests approval of the exemption concurrent with the approval of the application for design certification of the GEH ESBWR. GEH has indicated in the GEH Design Certification Document (DCD), Revision 5 that the SPDS function would be integrated into the ESBWR Non-Safety Related Distributed Control and Information Systems (N-DCIS). Based on the NRC's review of the DCD (application for which was originally submitted to the NRC on August 24, 2005) and subsequent conversations regarding Human Factors Engineering in Chapter

18 of the DCD, it was indicated that an exemption would be required based on current regulations 10 CFR 52.47(a)(8) and 10 CFR 50.34(f)(2)(iv) in deference to the allowance for integration of the SPDS in NUREG-0800, Standard Review Plan (SRP).

If you have any questions or require additional information, please contact me.

Sincerely,

Richard E. Kingston
Vice President, ESBWR Licensing

Enclosure:

1. MFN 09-141 - 10 CFR 50.34(f)(2)(iv) - Exemption Request – Safety Parameter Display System Console

cc:	AE Cubbage	USNRC (with enclosure)
	RE Brown	GEH/Wilmington (with enclosure)
	DHHinds	GEH/Wilmington (with enclosure)

Enclosure 1

MFN 09-141

10 CFR 52.47(a)(8) and 10 CFR 50.34(f)(2)(iv) Exemption Request

Safety Parameter Display System Console (SPDS)

ESBWR Exemption Request

GE Nuclear Energy (predecessor to GE Hitachi Nuclear Energy, or "GEH") submitted the ESBWR design certification application in August 2005 and the NRC has been reviewing it for approval in a future rulemaking. In that action, GEH has identified that the ESBWR design will not be in conformance with a regulatory requirement that is applicable to design certifications. As a result, GEH requests that the NRC grant a specific exemption from NRC regulations. NRC regulations in 10 CFR 52.47 provide that the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of the regulations of this part. The Commission's consideration will be governed by § 50.12 of this chapter, unless other criteria are provided for in this part, in which case the Commission's consideration will be governed by the criteria in this part. Only if those criteria are not met will the Commission's consideration be governed by § 50.12 of this chapter. The Commission's consideration of requests for exemptions from requirements of the regulations of other parts in this chapter, which are applicable by virtue of this part, shall be governed by the exemption requirements of those parts.

Thus, in accordance with 10 CFR 52.47 and 10 CFR 50.12, Specific Exemptions, GEH requests an exemption from the requirements of 10 CFR 52.47(a)(8) and 10 CFR 50.34(f)(2)(iv) with respect to providing a Safety Parameter Display System (SPDS) console. Specifically, the NRC regulations in 10 CFR 50.34(f)(2)(iv) require:

> *Provide a plant safety parameter display console that will display to operators a minimum set of parameters defining the safety status of the plant, important plant parameter and data trends on demand, and capable of indication when process limits are being approached or exceeded. (I.D.2).*

ESBWR DCD, Tier 2, Section 7.1.5.2.4.1, describes the SPDS for the ESBWR. The ESBWR design addresses the regulatory guidance in accordance with NUREG-0800 by integrating the SPDS function into the design of the Non-Safety Related Distributed Control and Information System (N-DCIS), rather than use a stand-alone console. The staff indicates that for applicants who are in the early stages of the control room design, the function of a separate SPDS may be integrated into the overall control room design.

However, because the 10 CFR 50.34(f)(2)(iv) regulation specifies a safety parameter display *console*, it has been determined that an exemption is necessary. In accordance with 10 CFR 52.47, the exemption is governed by 10 CFR 50.12 and is subject to the special circumstances described in 10 CFR

50.12(a)(2). In the particular case discussed herein, it is the special circumstance in 10 CFR 50.12(a)(2)(ii), which applies:

> (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;

10 CFR 50.12 states that the Commission may grant an exemption from requirements contained in 10 CFR 50 provided that: 1) the exemption is authorized by law, 2) the exemption will not present an undue risk to public health and safety, 3) the exemption is consistent with the common defense and security as defined by 50.12(a)(1), and 4) special circumstances, as defined in 10 CFR 50.12(a)(2) are present. These requirements are satisfied as described below.

1. The requested exemption is authorized by law.

Law does not preclude the exemption.

2. The requested exemption does not present an undue risk to the public health and safety.

The ESBWR design integrates the SPDS requirements into the design requirements for the N-DCIS rather than use a stand-alone console.

The SPDS criteria contained in 50.34(f)(2)(iv) specifies to display to operators a minimum set of parameters defining the safety status of the plant, a full range of important plant parameters and data trends on demand, and indicate when process limits are being approached or exceeded are provided as a specially designed display on any of the nonsafety-related Visual Display Units (VDUs) in the Main Control Room (MCR), the Technical Support Center and the Remote Shutdown Station. Specific SPDS parameters will be available in the MCR and on the Wide Display Panel (WDP) plant mimic.

The display navigation and hierarchy will be designed such that the operator will not have to search through plant operating displays to find the SPDS display. By integrating the SPDS display into the operator workstations, as well as the WDP, personnel will be able to readily view the SPDS display. Having the SPDS implemented in this manner will make it an integral part of day-to-day plant safety oversight and operations. GEH is confident that an integrated approach is more effective and is consistent with new digital technologies and human factors best practices.

The ESBWR human system interface provides the status of the SPDS variables. The integrated ESBWR alarm system provides alarms addressing the SPDS variables.

The response time of the N-DCIS will meet or exceed the response times recommended in NUREG-1342. The response times will be verified during the Factory Acceptance Test.

3. The requested exemption will not endanger the common defense and security.

As described above, the ESBWR design integrates the SPDS variables into the design requirements for the N-DCIS rather than use a stand-alone console. The equivalent information will be available to the operators and emergency organization.

4. Special circumstances are present.

As noted above, 10 CFR 50.12(a)(2)(ii) states: "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"

The purpose of the plant safety parameter display console is to display important plant variables in the main control room in order to assist in rapidly and reliably determining the safety status of the plant. As described above, the ESBWR design integrates the SPDS requirements into the design requirements for the N-DCIS rather than a stand-alone console. The equivalent information will be available to the operators and emergency organization. This accomplishes the intent of 10 CFR 50.34(f)(2)(iv). Therefore, the application of the rule is not necessary to achieve the underlying purpose of the rule.

On the basis of the information presented above, GEH requests that the NRC grant an exemption for the ESBWR design certification to allow the design to use an approach that will incorporate the SPDS into the N-DCIS console rather than into a specific, stand-alone SPDS console, as suggested by 10 CFR 50.34(f)(2)(iv).