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Proprietary Notice

This letter forwards proprietary information in accordance with 10CFR2.390. Upon the removal of Enclosure 1, the balance of this letter may be considered non-proprietary.

MFN 09-427

Docket No. 52-010

June 25, 2009

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Subject: Response to Portion of NRC Request for Additional Information Letter No. 337 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.1-50 S03

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by NRC Letter 337, dated May 14, 2009, Reference 1. GEH response to RAI Number 9.1-50 S03 is addressed in Enclosure 1, which contains GEH proprietary information as defined by 10 CFR 2.390. GEH customarily maintains this information in confidence and withholds it from public disclosure. Enclosure 2 is a referenced sketch. Enclosure 3 is a non-proprietary version that is suitable for public disclosure.

The affidavit contained in Enclosure 4 identifies that the information contained in Enclosure 1 has been handled and classified as proprietary to GEH. GEH hereby requests that the information of Enclosure 1 be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390 and 9.17.

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

Sincerely,

Richard E. Kingston
Vice President, ESBWR Licensing

DOB
NRW

Reference:

1. MFN 09-331, Letter from U.S. Nuclear Regulatory Commission to Jerald G. Head, *Request for Additional Information Letter No. 337 Related to ESBWR Design Certification Application*, dated May 14, 2009.

Enclosures:

1. Response to Portion of NRC Request for Additional Information Letter No. 337 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.1-50 S03 - Proprietary Version
2. Response to Portion of NRC Request for Additional Information Letter No. 337 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.1-50 S03 -Sketch
3. Response to Portion of NRC Request for Additional Information Letter No. 337 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.1-50 S03 – Non-Proprietary Version
3. MFN 09-427– Affidavit – Larry J. Tucker – June 25, 2009

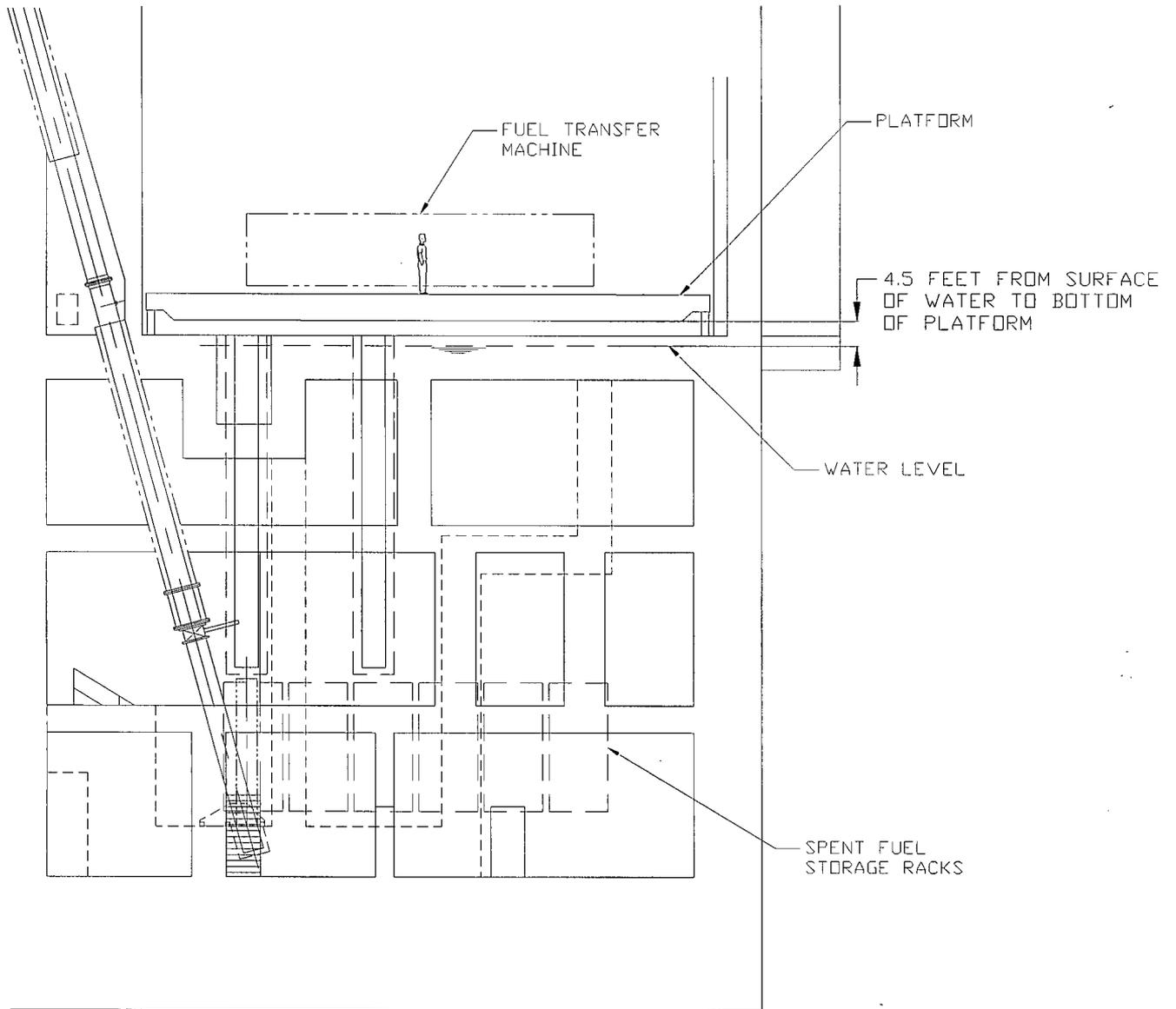
cc: AE Cubbage USNRC (with enclosures)
JG Head GEH/Wilmington (with enclosures)
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Enclosure 2

MFN 09-427

**Response to Portion of NRC Request for
Additional Information Letter No. 337
Related to ESBWR Design Certification Application
Auxiliary Systems
RAI Number 9.1-50 S03
Sketch**

Fuel Handling Sketch



Enclosure 3

MFN 09-427

**Response to Portion of NRC Request for
Additional Information Letter No. 337
Related to ESBWR Design Certification Application**

Auxiliary Systems

RAI Number 9.1-50 S03

Non-Proprietary Version

NRC RAI 9.1-50 S03

The staff has reviewed the shielding calculation, [[

]]. On the basis of this review, the staff has the following questions.

1. Table 4 of the calculation presents dose rates at the spent fuel pool water's surface and at [[]] above the water from a single fuel assembly located [[]] below the water's surface. It is not clear how the heights of [[]] above the water surface of the spent fuel pool (SFP) correspond to the location of a person standing on the fuel handling bridge deck during refueling operations in the Fuel building. Provide a drawing showing the configuration of the spent fuel pool, fuel handling elevation, and refueling personnel located on the fuel handling machine.

2. Table 4 of the calculation provides the worst-case deep dose equivalent rates at the water's surface and at [[]] above the water from a single fuel assembly [[]] below the water's surface. It appears from the calculation that these deep dose equivalent rates are based solely on the dose contribution from the single elevated fuel assembly in the SFP. Provide an analysis to determine the additional dose contribution to the operator standing on fuel handling bridge deck from the radionuclides (corrosion and fission products) contained in the SFP.

3. As stated in subpart 1 above, it is not clear from GEH's response to staff RAI 9.1-50 S02 how the location of the worst-case deep dose equivalent dose rates provided in Table 4 of the calculation corresponds to the location of a person standing on the fuel handling bridge deck. Specify the worst-case deep dose equivalent dose rate (this dose rate should include the dose contributions from both the spent fuel assembly and from the radionuclides in the SFP) to a person standing on the fuel handling bridge deck during refueling operations. Compare this calculated dose rate with the estimated average dose rate of 8 $\mu\text{Sv/hr}$ (0.8 mSv/hr) to a person in the Fuel Building during refueling as shown on DCD Tier 2 Table 12.4-5 and provide reasons for any differences in dose rate values.

4. If the estimated dose rate to a person standing on the fuel handling bridge deck during refueling (as calculated in response to subpart 3 above) exceeds 2.5 mSv/hr (25 μSv), provide a description of design features/access controls (such as installing floor shielding on the fuel handling bridge and minimizing the personnel stay times on the refueling bridge) to ensure that the dose to the refueling personnel on the fuel handling bridge deck are maintained ALARA during refueling operations.

GEH Response

1. A sketch is provided in the attached markup that shows the configuration of the spent fuel pool, fuel handling elevation and refueling person located on the fuel handling machine platform.

2. Section 5, Results of the Calculation, of the [[]], shows the additional dose contribution to the operator standing on the fuel handling machine platform from the radionuclides (corrosion and fission products) contained in the spent fuel pool to contribute a maximum of [[]]. This maximum dose contribution of [[] is a negligible amount to the total dose rate of [[] above the surface of the water.

3. Section 5, Results of the Calculation, of the [[]], shows the worst-case deep dose equivalent dose rate, which includes contributions from the spent fuel assembly and the radionuclides in the spent fuel pool to an operator on the fuel handling machine platform is [[] above the surface of the water. This distance of [[] above the surface of the water includes the [[] from the surface of the water to the bottom of the fuel handling platform and then [[] from the platform to above the knee of the operator on the platform. No credit is taken for shielding from the platform.

The calculated dose rate of [[] above the surface of the water for an operator standing on the fuel handling machine platform is conservatively based on handling fuel assemblies at [[] after shutdown. The 8 $\mu\text{Sv/hr}$ (0.8 mR/hr) was in error in DCD Tier 2 Subsection 12.4.4 and Table 12.4-5 and is being updated in Revision 6 of the DCD to [[] as part of the DCD Chapter 12 update. This value, [[]], is a general area Reactor Building refueling floor and Fuel Building radiation zone effective value based on operational BWR history. This value is not meant to be a measure of the dose rate for a worker on the refueling and fuel handling machine platforms.

4. The estimated dose rate to a person standing on a fuel handling machine platform during the handling of a fuel assembly does not exceed 25 $\mu\text{Sv/hr}$ (2.5 mR/hr). The dose rates will decrease over the duration of refueling operations and this number, [[] above the surface of the water, is conservative. The Operational Radiation Protection Program is used by the utility to manage radiation exposure to the operators within ALARA guidelines.

DCD Impact

DCD Tier 2 Subsection 12.4.4 and Table 12.4-5 have been updated as discussed above (See Preliminary Chapter 12 submitted via MFN 09-410). No further DCD changes are required in response to this RAI.

Enclosure 4

MFN 09-427

Affidavit

Larry J. Tucker

June 25, 2009

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, **Larry J. Tucker**, state as follows:

- (1) I am Manager, ESBWR Engineering, GE-Hitachi Nuclear Energy Americas LLC (“GEH”), have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.
- (2) The information to be discussed and sought to be withheld is delineated in the letter from Mr. Richard E. Kingston to U.S. Nuclear Regulatory Commission, entitled “*MFN 09-427 Response to Portion of NRC Request for Additional Information Letter No. 337 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.1-50 S03*”, dated June 25, 2009. The information in Enclosure 1, which is entitled “*Response to Portion of NRC Request for Additional Information Letter No. 337 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.1-50 S03 - Proprietary Version*” contains proprietary information, and is identified by [[dotted underline inside double square brackets⁽³⁾]]. Figures and other large objects are identified with double square brackets before and after the object. In each case, the superscript notation ⁽³⁾ refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.
- (3) In making this application for withholding of proprietary information of which it is the owner or licensee, GEH 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 10 CFR 9.17(a)(4), and 2.390(a)(4) for “trade secrets” (Exemption 4). The material for which exemption from disclosure is here sought also qualify under the narrower definition of “trade secret”, within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).
- (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 GEH's competitors without license from GEH 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 aspects of past, present, or future GEH customer-funded development plans and programs, resulting in potential products to GEH;
- d. 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) To address 10 CFR 2.390(b)(4), the information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GEH, 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 GEH, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to 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, or subject to the terms under which it was licensed to GEH. Access to such documents within GEH 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 for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GEH 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 identified in paragraph (2) above is classified as proprietary because it contains computer code analysis inputs and assumptions used by GEH for analyzed transients using the TRACG computer model. Development of these inputs and assumptions and the TRACG computer code was achieved at a significant cost to GEH, and is considered a major GEH asset.
- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GEH's competitive position and foreclose or reduce the

availability of profit-making opportunities. The information is part of GEH's comprehensive BWR safety and 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. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

The research, development, engineering, analytical and NRC review costs comprise a substantial investment of time and money by GEH.

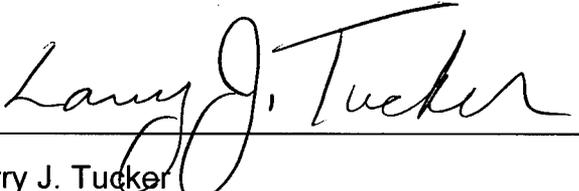
The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GEH's competitive advantage will be lost if its competitors are able to use the results of the GEH 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.

The value of this information to GEH 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 GEH of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing and obtaining these very valuable analytical tools.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed on this 25th day of June 2009.



Larry J. Tucker
GE-Hitachi Nuclear Energy Americas LLC