



December 22, 2010

SBK-L-10203
Docket No. 50-443

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Seabrook Station
Response to Request for Additional Information Set 2
Related to the Review of the Seabrook Station License Renewal Application

References:

1. NextEra Energy Seabrook, LLC letter SBK-L-10077, "Seabrook Station Application for Renewed Operating License," May 25, 2010. (Accession Number ML101590099)
2. Seabrook: Request For Additional Information Related To The Review Of The Seabrook Station License Renewal Application, November 18, 2010, (TAC NO ME4028). (Accession Number ML103090308)

In Reference 1, NextEra Energy Seabrook, LLC (NextEra) submitted an application for a renewed facility operating license for Seabrook Station for Seabrook Station Unit 1 in accordance with the Code of Federal Regulations, Title 10, Parts 50, 51, and 54.

In Reference 2, the NRC requested additional information in order to complete its review of the License Renewal Application.

The Enclosure to this letter provides the NextEra Energy Seabrook response to the request for information regarding RAMA Code PWR Benchmarks. In support of this response NextEra Energy Seabrook is providing attachments 1 through 4 which contain supporting information referenced in the attached response.

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Attachments 1 and 3 contain information proprietary to TransWare Enterprises, and it is supported by an affidavit in Attachment 5 signed by Dean B Jones, President, TransWare Enterprises Inc., the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (a) (4) of Section 2.390 of the Commission's regulations. Accordingly, it is respectfully requested that the information that is proprietary to Transware be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations. Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting TransWare affidavit should reference SEA-FLU-001-R-003 and should be addressed to Mr. Dean B. Jones, TransWare Enterprises Inc., 1565 Mediterranean Drive, Sycamore, Illinois, 60178.

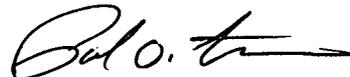
Contained in Attachment 5 is TransWare Enterprises affidavit regarding Proprietary Information Notice, and Copyright Notice.

No new or revised commitments are made in this submittal. If there are any questions or additional information is needed, please contact Mr. Richard R.Cliche, License Renewal Project Manager, at (603) 773-7003.

If you have any questions regarding this correspondence, please contact Mr. Michael O'Keefe, Licensing Manager, at (603) 773-7745.

Sincerely,

NextEra Energy Seabrook, LLC.



Paul O. Freeman
Site Vice President

- Enclosure NextEra Energy Seabrook, LLC; Response to NRC Request for Additional Information Set 2
- Attachment 1 TransWare Enterprises report, SEA-FLU-001-R-003, Rev 0 "*Licensing Version of Seabrook Station Reactor Pressure Vessel Fluence Evaluation at 55 EFPY*" (Proprietary),
- Attachment 2 TransWare Enterprises report, SEA-FLU-001-R-004, Rev 0 "*Non-Proprietary Version of Seabrook Station Reactor Pressure Vessel Fluence Evaluation at 55 EFPY*"
- Attachment 3 B. P. Distler and D. B. Jones, "*RAMA Fluence Methodology – Evaluation of Regulatory Guide 1.190 PWR Computational Benchmark Problem*," TWE-FLU-001-R-001, Rev. 0, TransWare Enterprises Inc., January 2010.
- Attachment 4 B. P. Distler and D. B. Jones, "*Non-Proprietary Version of RAMA Fluence Methodology – Evaluation of Regulatory Guide 1.190 PWR Computational Benchmark Problem*," TWE-FLU-001-R-002, Rev. 0, TransWare Enterprises Inc., December 2010.
- Attachment 5 Affidavit: Dean B Jones, President, Transware Enterprises Inc.

cc:

W.M. Dean,	NRC Region I Administrator
G. E. Miller,	NRC Project Manager, Project Directorate I-2
W. J. Raymond,	NRC Resident Inspector
R. A. Plasse Jr.,	NRC Project Manager, License Renewal
M. Wentzel,	NRC Project Manager, License Renewal

cc: Without Proprietary Attachments 1&3

Mr. Christopher M. Pope
Director Homeland Security and Emergency Management
New Hampshire Department of Safety
Division of Homeland Security and Emergency Management
Bureau of Emergency Management
33 Hazen Drive
Concord, NH 03305

John Giarrusso, Jr., Nuclear Preparedness Manager
The Commonwealth of Massachusetts
Emergency Management Agency
400 Worcester Road
Framingham, MA 01702-5399



I, Paul O. Freeman, Site Vice President of NextEra Energy Seabrook, LLC hereby affirm that the information and statements contained within are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.

Sworn and Subscribed

Before me this

22 day of December, 2010

A handwritten signature in cursive script, appearing to read "Paul O. Freeman", written over a horizontal line.

Paul O. Freeman
Site Vice President

A handwritten signature in cursive script, appearing to read "Shirley Sweeney", written over a horizontal line.

Notary Public



Enclosure to SBK-L-10203

NextEra Energy Seabrook, LLC

Response to NRC Request for Additional Information Set 2

Response to Request For Additional Information - Set 2

RAI 4.2.1-1

Background

The Seabrook license renewal application (LRA) states that fluence values were calculated using the RAMA methodology, which, as noted in the LRA, has not been approved by the NRC for generic use at pressurized water reactors. The LRA states,

“This prior work has been extended in the Seabrook Station analysis to additional PWR benchmarks and plant-specific dosimetry comparisons, further validating the use of RAMA for all light water reactor designs.”

Regulatory Basis

RG 1.190, RP 1.3.3: The capsule fluence is extremely sensitive to the geometrical representation of the capsule geometry and internal water region, and the adequacy of the capsule representation must be demonstrated.

RG 1.190, RP 1.4: The calculational methodology must be qualified by both (1) comparisons to measurement and calculational benchmarks and (2) an analytic uncertainty analysis. The methods used to calculate the benchmarks must be consistent (to the extent possible) with the methods used to calculate the vessel fluence. The overall calculational bias and uncertainty must be determined by an appropriate combination of the analytic uncertainty analysis and the uncertainty analysis based on the comparisons to the benchmarks.

Request

Please provide documentation of the referenced additional PWR benchmarks and plant-specific dosimetry comparisons to demonstrate adherence to the regulatory positions described above.

NextEra Energy Seabrook Response

In accordance with the requirements of Regulatory Position 1.4 of Regulatory Guide 1.190, the RAMA Fluence Methodology has been previously qualified using accepted benchmarks prescribed in RG 1.190. Results from the qualification effort are presented in Reference 1, *BWRVIP-115-A: BWR Vessel and Internals Project, RAMA Fluence Methodology Benchmark Manual – Evaluation of Regulatory Guide 1.190 Benchmark Problems*, EPRI, Palo Alto, CA: 2009. 1019050. [1019050NP (Adams Accession ML100540367)] and have been reviewed and accepted by the Staff for application of the RAMA Fluence Methodology to boiling water reactor fluence evaluations. The qualifications include comparisons to calculated results for the Pool Critical Assembly (PCA) and

the VENUS-3 vessel simulation benchmarks, comparisons to the H. B. Robinson Unit 2 pressure vessel benchmark, and comparisons to the BWR calculational benchmark. In support of the Seabrook Station fluence evaluation, the qualifications for the RAMA Fluence Methodology are herein extended to include comparisons to the PWR calculational benchmark and comparisons to plant-specific activation measurements from three surveillance capsules irradiated in Seabrook Station. Reference 2, "Licensing Version of Seabrook Station Reactor Pressure Vessel Fluence Evaluation at 55 EFPY," SEA-FLU-001-R-003, Rev. 0, documents the results of plant-specific Seabrook Station surveillance capsule evaluations and Reference 3, RAMA Fluence Methodology – Evaluation of Regulatory Guide 1.190 PWR Calculational Benchmark," TWE-FLU-001-R-001, Rev. 0 documents the comparisons to the PWR calculational benchmark.

Section 6 of SEA-FLU-001-R-003, Rev. 0 (Reference 2) provides an assessment of the uncertainty in the RPV fast neutron fluence predictions for Seabrook Station in accordance with RG 1.190, accounting for all experimental, benchmark and plant-specific evaluations. The following paragraphs provide a summary of the RAMA benchmark and plant-specific comparisons.

The PCA benchmark consists of 27 measurements spanning five different fast neutron reactions. The VENUS-3 benchmark consists of 385 measurements from three fast neutron reactions. The RAMA calculation-to-measurement (C/M) comparisons to the PCA and VENUS-3 vessel simulation benchmarks are 0.99 with a standard deviation of ± 0.05 and 1.03 with a standard deviation of ± 0.05 , respectively. Details of the RAMA models and comparisons for the two vessel simulation benchmarks are provided in *BWRVIP-115-A* (Reference 1).

The H. B. Robinson Unit 2 benchmark consists of activation measurements obtained from an in-vessel surveillance capsule and a cavity dosimeter after one cycle (cycle 9) of operation. The RAMA C/M comparisons to the H. B. Robinson Unit 2 pressure vessel benchmark for the surveillance capsule and cavity dosimeter are 0.95 with a standard deviation of ± 0.04 and 1.04 ± 0.04 , respectively. Details of the RAMA model and comparisons for the H. B. Robinson benchmark are provided in *BWRVIP-115-A* (Reference 1).

The PWR calculational benchmark consists of fast neutron flux predictions and capsule reaction rate estimates obtained from a discrete ordinates model of a typical PWR reactor geometry. Three core loading configurations are included in the benchmark: a standard core loading, a low leakage core loading, and a partial length shield assembly loading. The average RAMA comparisons to the discrete ordinates results are 1.12 with a standard deviation of ± 0.11 for the standard core loading and 1.02 with a standard deviation of ± 0.12 for the low leakage core loading. The RAMA-predicted reduction in fast neutron flux for the partial length shield assembly loading is 1.01 with a standard deviation of ± 0.03 when compared to the corresponding reduction from the discrete ordinates solution. Details of the RAMA models and comparisons for the PWR calculational benchmark are provided in TWE-FLU-001-R-001, Rev 0(Reference 3).

Plant-specific activation measurements have been performed for three surveillance capsules removed from Seabrook Station after being irradiated for one cycle, five cycles, and ten cycles. The average comparisons of RAMA-predicted activation to measurements (C/M) for each of the three Seabrook Station capsules are 1.08 ± 0.08 , 1.05 ± 0.06 , and 1.07 ± 0.09 . Details of the RAMA models and comparisons are provided in SEA-FLU-001-R-003, Rev. 0 (Reference 2).

References

1. *BWRVIP-115-A: BWR Vessel and Internals Project, RAMA Fluence Methodology Benchmark Manual – Evaluation of Regulatory Guide 1.190 Benchmark Problems*, EPRI, Palo Alto, CA: 2009. 1019050. [1019050NP (Adams Accession ML100540367)]
2. D. B. Jones, "Licensing Version of Seabrook Station Reactor Pressure Vessel Fluence Evaluation at 55 EFPY," SEA-FLU-001-R-003, Rev. 0, TransWare Enterprises Inc., January 2010.
3. B. P. Distler and D. B. Jones, "RAMA Fluence Methodology – Evaluation of Regulatory Guide 1.190 PWR Computational Benchmark," TWE-FLU-001-R-001, Rev. 0, TransWare Enterprises Inc., January 2010.

Attachment 5

Affidavit:

Dean B Jones, President, Transware Enterprises Inc.

Affidavit

I, **Dean B. Jones**, state as follows:

1. I am the President of TransWare Enterprises Inc. (TWE) and 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 sought to be withheld is contained in the following attachments: a) TransWare Enterprises Inc. Document No. TWE-FLU-001-R-001, Revision 0, "RAMA Fluence Methodology – Evaluation of Regulatory Guide 1.190-PWR Computational Benchmark Problem," January 2010; and b) TransWare Enterprises Inc. Document No. SEA-FLU-001-R-003, Revision 0, "Licensing Version of Seabrook Station Reactor Pressure Vessel Fluence Evaluation at 55 EFPY," January 2010. TWE proprietary information is indicated by enclosing it in double brackets and highlighting the proprietary text in blue. Paragraph 3 of this affidavit 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, TWE relies upon the exemption of 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 the NRC regulations 10CFR9.17(a)(4) and 2.390(a)(4) 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 and 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, 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 that 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 TWE's competitors without license from TWE constitutes a competitive economic advantage over other companies;
 - b. Information which, if used by a competitor, could reduce the competitor's expenditure of resources or improve competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;
 - c. Information that reveals cost or price information, production capacities, budget levels, or commercial strategies of TWE, its customers, or its suppliers;
 - d. Information which reveals aspects of past, present, or future TWE customer-funded development plans and programs of potential commercial value to TWE;
 - 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 4a. and 4b., above.

5. To address 10CFR2.390 (b)(4), the information sought to be withheld is being submitted to the NRC in confidence. The information is of a sort customarily held in confidence by TWE, and is in fact so held. 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. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by TWE, no public disclosure has been made, and it is not available to 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.
6. Initial approval of proprietary treatment of a document is made by the manner 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 TWE. Access to such documents within TWE 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 project manager, principal engineer, and by the Quality Assurance department for technical content, competitive effect, and the determination of the accuracy of the proprietary designation. Disclosures outside TWE 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 is classified as proprietary because it contains details of TWE's methodologies for fluence and uncertainty analyses.

The development of the methods used in these analyses, along with the testing, development, and approval of the supporting methodology was achieved at a significant cost, on the order of several million dollars, to TWE or its licensor.

9. Public disclosure of the information sought to be withheld is likely to cause substantial harm to TWE's competitive position and foreclose or reduce the availability of profit-making opportunities. The methodologies for fluence and uncertainty analyses are part of TWE's nuclear engineering consulting base expertise 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 TWE or its licensor. The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it is clearly substantial.

TWE's competitive advantage will be lost if its competitors are able to use the results of the TWE 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 TWE 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 TWE 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 at Sycamore, Illinois, this 10th day of December, 2010.



Dean B. Jones
TransWare Enterprises Inc.

Virginia M. Scoughton

