

James C. Kinsey
Project Manager, ESBWR Licensing

PO Box 780 M/C A-55
Wilmington, NC 28402-0780
USA

T 910 675 5057
F 910 362 5057
jim.kinsey@ge.com

MFN 06-313 Supplement 8

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U.S. Nuclear Regulatory Commission
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Subject: Response to Portion of NRC Request for Additional Information Letter
No. 40 Related to ESBWR Design Certification Application, RAI Number
19.2-5 S01 (amended).

The purpose of this letter is to supplement the GE-Hitachi Nuclear Energy Americas LLC (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by NRC letter dated July 5, 2006 (Reference 1) and responded to in References 2 and 3 on September 12, 2006 and May 25, 2007 respectively. The purpose of this transmittal is to provide several pages that were inadvertently omitted from the ROAAM report provided in Reference 3. This transmittal also includes additional comments of the ROAAM Reviewers. The entire amended ROAAM report is included in the Enclosure.

Sincerely,

Lathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

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Reference:

1. MFN 06-222, Letter from U.S. Nuclear Regulatory Commission to David Hinds, Request for Additional Information Letter No. 40 Related to ESBWR Design Certification Application, July 5, 2006.
2. MFN 06-313 – Response to Portion of NRC Request for Additional Information Letter No. 40 Related to ESBWR Design Certification Application – ESBWR Probabilistic Risk Assessment – RAI Numbers 19.1-8 (b) (Revised Response), 19.1-9, 19.1-10, 19.1-16, 19.1-18, 19.2-4, 19.2-5, 19.2-15, 19.2-16, 19.2-19, 19.2-20, 19.2-21, 19.2-23, 19.2-34, 19.2-58 through 19.2-62, and 19.2-64. September 12, 2006.
3. MFN 06-313, Supplement 2. Response to NRC Request for Additional Information Letters No. 3 and 40 for the ESBWR Design Certification Application – PRA – RAI Numbers 19.0.0-1 S01 and 19.2-5 S01. May 25, 2007.

Enclosure:

1. Attachment 1. MFN 06-313, Supplement 8 ROAAM-Review of “Severe Accident Management in Support of the ESBWR Design Certification” Amended.

Attachment 2. ROAMM Review With Responses.

cc:	AE Cubbage	USNRC (with enclosure)
	GB Stramback	GEH/San Jose (with enclosure)
	RE Brown	GEH/Wilmington (with enclosure)
	eDRF	0000-0074-1260

**Enclosure 1, Attachment 1 of
MFN 06-313, Supplement 8**

**Response to Portion of NRC Request for
Additional Information Letter No. 40
Related to ESBWR Design Certification Application
ESBWR Probabilistic Risk Assessment
RAI 19.2-5S01 (Amended)**

A fundamental component of the validity of the Risk-Oriented Accident Analysis Methodology (ROAAM) approach is the quality of the independent peer review. Provide additional detailed information to substantiate that review was independent and comprehensive. This would include the affiliations, qualifications and relevant experience of the reviewers to the area reviewed, an estimate as to level of effort each devoted to the review, the individual directions given regarding the scope and depth of their review, and information as to joint meetings and interviews.

GE Response (original)

While recognizing the limitations, under the time schedule for delivering the initial PRA to the NRC, we had no choice but to conduct a limited ROAAM review that included two independent experts, namely Dr. Robert Henry, of Fauske and Associates, and Dr. Fred Moody, a retired GE employee and now an independent consultant. Now that the time permits we have undertaken a full ROAAM review involving 9 independent experts as shown in Table 1 below:

Table 1 – Summary of Independent Full ROAAM Reviewers

Name	Company	Expert's Review Areas	Efforts
Hans Fauske	Fauske & Associates, Inc. USA	All aspects of BiMAC engineering, steam explosions, and all safety	1 week
Joe Rashid	ANATECH Corp. USA	All structures under thermal and explosive loading	1 week
Peter Griffith	Massachusetts Institute of Technology, USA	Thermal Hydraulic of BiMAC	4 weeks
Fred Moody	Consultant USA	All aspects of BiMAC engineering, DCH, and all safety	4 weeks
Robert Henry	Fauske & Associates, Inc. USA	All aspects of BiMAC engineering, DCH, and all safety	1 week
Brian Turland	Sercoassurance, UK	Steam explosions, and all aspects of Severe Accident Management (SAM)	1 week
Harri Tuomisto	FORTUM Engineering, Finland	All aspects of SAM	1 week
Manfred Fisher	Framatome ANP, Germany	Material interactions and ex-vessel melt behavior	1 week
Masaki Saito	Tokyo Institute of Technology, Japan	High temperature material interactions, melt attack of BiMAC	1 week

All are well known to the USNRC and most have participated in previous ROAAM reviews— brief CV's will be included with the revised report that will document the review. The review is currently under way and it is expected to be completed by the end of September 2006. The full ROAAM review of Severe Accident Treatment (SAT) report, provided to the ROAAM reviewers, is attached to this RAI letter as the "Attachment to GE Response to RAI 19.2-5". The content of the full ROAAM Severe Accident Treatment (SAT) report is the same as provided in Section 21 of NEDO-33201 Rev 1 except the format of the report is slightly different. The new SAT report addenda pages describe the additional information provided to the full ROAAM reviews and are marked as "unverified page for review" on each page. We expect revised Section 21 of NEDO-33201 to be submitted at the end of October 2006, which will include and incorporate all the full ROAAM reviewers' comments and resolutions.

NRC RAI 19.2-5 Supplement 1

Received by e-mail from Tom Kevern.

The latest version of the ROAAM methodology was provided as an attachment to the response to RAI 19.2-5. Although the list of peer reviewers is identified in the response, this version of the ROAAM report still does not have the Peer Review results requested in the original RAI (19.0.0-1). These results would pertain to the assessment of direct containment heating, ex-vessel steam explosions, and core debris-concrete interactions for ESBWR. The experts' reports and authors' responses are essential to establishing the failure probability values assigned for these phenomena. Please provide these reports and responses.

GE Response (Supplement 1)

The attached files contain the results of the ROAAM Peer Review. As indicated on the cover page of the attachment, these comments and responses to the comments are part of the ROAAM report for ESBWR.

The review addendum has nine subsections. Each one contains the comments from an individual reviewer and author's response to those comments. There are also three appendices that were referenced in the course of the review. These are also attached as part of this RAI response.

DCD Impact

No DCD changes will be made in response to this RAI.

No changes to NEDO-33201 will be made in response to this RAI.

GEH Response (Supplement 1, amended)

Additional pages are included in the ROAAM Report, Chapter 3, pages III-35 through III-37 and in the ROAAM Independent Review Report and Responses. The entire report is being transmitted to simplify updating.

DCD/NEDO-33201 Impact

No DCD changes will be made in response to this RAI.

NEDO-33201 Section 21, Rev 2 is being revised to include relevant portions of the ROAAM report.