From: "Drury, Rufus S. (PS, NE)" <rufus.drury@gene.GE.com>
To: <SXD@nrc.gov>
Date: 8/10/01 3:10PM
Subject: RE: NEDC-32983P, Safety Evaluation

Steve: Here is GE's draft response to the draft Safety Evaluation for the NEDC-32983P LTR. I'll call to discuss the next the steps. I'll also fax to you.

Regards,

Rufus Drury

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MFN 01-039

August 9, 2001

DRAFT

US Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Attention: Chief, Information Management Branch
Program Management
Policy Development and Analysis Staff

Subject: **Proprietary Information Review of Draft NRC Safety Evaluation: SAFETY EVALUATION FOR NEDC-32983P: "GENERAL ELECTRIC METHODOLOGY FOR REACTOR PRESSURE VESSEL FAST NEUTRON FLUX EVALUATION" (TAC NO. MA9891)**

This letter responds to the NRC Staff request for a "proprietary information review" of the draft safety evaluation (SE) for the subject report. Mr. S. Dembek made the NRC Staff request verbally and by subsequent email on August 6, 2001.

Although the draft SE does not contain any information proprietary to GE Nuclear Energy or to the General Electric Corporation, it does contain some information that GE believes is incorrect and some information that needs clarification. GE offers for staff consideration some comments, which are divided into two groups. The first relates to typographical and editorial comments and the second relates to issues and concerns. The comments are listed in the two attachments, respectively.

GE requests a conference call to amplify the concerns listed in Attachment 2 because compliance with the "limitations and requirements," as stated in the draft SE, may not be possible within the schedule constraints required by the SE. In the case of the requirement for additional dosimetry analysis directly related to the shroud, the action suggested may not be possible or within the control of GE.

Please note that the attachment contains proprietary information of the type that GE maintains in confidence and withholds from public disclosure. The information has been handled and classified as proprietary to GE as indicated in the attached affidavit. GE hereby requests that this information be withheld from public disclosure in accordance with the provisions of 10CFR2.790.

Sincerely,

J. F. Klapproth, Manager
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GE Nuclear Energy
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Attachments: 1) Typographical and Editorial Comments (3 pages) and 2) Issues and Concerns (3 pages)

Affidavit by George B. Stramback, dated August X, 2001 (4 pages) (LATER)

cc:

R. M. Pulsifer	(NRC)	w/ attachments
M. A. Mitchell	(NRC)	w/o attachments
L. Lois	(NRC)	w/o attachments
C. E. Carpenter	(NRC)	w/o attachments
K. E. Wichman	(NRC)	w/o attachments
R. S. Drury	(GE)	w/ attachments

Attachment 1 to MFN 01-039

Typographical and Editorial Comments

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Comment 1

Section 2.1 (third paragraph): "The eighty-group MATXS (Ref.-8) cross section library is the basic nuclear data set. This library is used in performing the energy and spatial self-shielding and removal calculations. The scattering cross sections are represented using a P_3 Legendre expansion. The calculations are performed in (r, θ), (r, z) and (r) geometries. A synthesis technique is used to determine the three-dimensional fluence distribution and to some extent account for the effect of axial leakage between the core and the cavity."

Revision

The underlined sentence should read as follows: "The calculations are performed in (r, θ) and (r, z) geometries."

Comment 2

Section 2.3 (first paragraph): "In order to provide a measurement benchmark for qualifying the DORT and MCNP calculational methodology, GE has performed an in-reactor dosimetry benchmark experiment (Ref. 4 and 5). The experiment included the irradiation of a set of passive dosimeters for one cycle in an operating (non US) BWR. The measurements included Fe-54 and Nb-93 threshold dosimeters as well as U-238, Th-232 and Np-237 fission dosimeters. The dosimeters were located in the downcomer at three axial elevations, three azimuths and three radial locations. The dosimeter activation counting and related measurements were performed at the GE Vallecitos Nuclear Center."

Revision

The underlined sentence should read as follows: "The measurements included Fe-54, Nb-93, and Ni-58 threshold dosimeters as well as U-238, Th-232 and Np-237 fission dosimeters."

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Comment 3

Section 3.4 (last paragraph): "While the uncertainty analysis based on the surveillance dosimetry C/M comparisons is generally consistent with the analytic uncertainty, it is noted that several substantial adjustments are required to account for approximations made in the calculations of the surveillance data. In addition the uncertainty in the fluence adjustment is substantially larger than the adjustment itself. Therefore, in order to provide additional confidence in the benchmarking of the proposed fluence methodology, within three years GE is required to perform predictive calculations of at least four additional BWR capsule dosimetry activity measurements. These calculations should be submitted to the NRC staff prior to the completion of the measurements. After the measurements are completed, comparisons of the measurements and calculations should also be submitted to the NRC. If the C/M comparisons are not consistent with the proposed NEDC-32983P fluence methodology and supporting benchmark uncertainty analysis, the necessary revisions to the uncertainty analysis and methodology should be provided in the submittal. This requirement was discussed and agreed upon with GE in a NRC/GE/BNL conference call on June 25, 2001."

Revision

The underlined sentence would make more sense if it should read as follows: "In addition the uncertainty in the fluence adjustment is not substantially smaller than the adjustment itself."

Comment 4

The acronym in the first sentence of the second paragraph in Section 2.2 is a "typo" (LTR instead of LTP).

GE Proprietary Information

Attachment 2 to MFN 01-039

Issues and Concerns

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Concern 1

Section 3.5 (last paragraph): "However, shroud fluence values are used mainly for the estimation of shroud crack growth propagation rates. The phenomenon is associated with a threshold fluence value. Therefore, the staff finds the proposed method acceptable for shroud fluence calculations provided that: (1) the estimates are limited within the beltline region and (2) the bias is not deducted from the calculated value. To provide additional confidence to the predicted shroud fluence, GE is required within three years from the approval of this methodology to perform and provide to the staff additional dosimetry analysis, directly related to the shroud, demonstrating the capability of this method."

Discussion

GE doesn't have physical access to any plant shroud nor the right to add or augment the presently available or scheduled to be available dosimetry data for any BWR. At this time GE is aware of no utility plans to add shroud dosimetry capsules to any operating BWR. GE needs additional clarification from the NRC Staff.

Concern 2

Limitations and Requirements (1): "Within three years from the day of the approval of this methodology, GE will perform predictive calculations of at least four additional BWR surveillance capsule dosimetry measurements which will be submitted to the staff before initiation of the measurements."

Discussion

Although GE agrees that this was the general conclusion of the NRC Staff during the June 25, 2001 conference call, at that time GE expressed concerns about its' ability to facilitate utility creation of and subsequently acquire access to the necessary information. These concerns and practicalities are not adequately acknowledged nor accounted for here. GE also needs additional detailed clarification from the NRC Staff on process steps to accomplish to predictive analysis. Such detail should be in place coincident with or prior to imposition of such an SER requirement.

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Concern 3

Limitations and Requirements (2): "Comparisons of the measurements and calculations will also be submitted to the NRC."

Discussion

GE needs additional detailed clarification from the NRC Staff on process steps to accomplish this analysis task (i.e., what is the process such that a practical schedule can be developed). . Such detail should be in place coincident with or prior to imposition of such an SER requirement.

Concern 4

Limitations and Requirements (3): "Shroud fluence estimates will be limited to the beltline region, without bias adjustment."

Discussion

(See Concern 1 above.)

Concern 5

Limitations and Requirements (4): "GE will perform dosimetry analysis to confirm and remove the conservatism in the shroud fluence calculations."

Discussion

See Concern 1 and 3 above.

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Concern 6

Limitations and Requirements (5): "Revisions to the fluence methodology and supporting uncertainty analysis will be provided, if the C/M comparisons (for the additional analysis for the vessel and the shroud) are not consistent with the NEDC-32983P fluence methodology."

Discussion

See Concern 1 and 3 for reference to "shroud" analysis concerns.

Suggested revision: "Revisions to the fluence methodology and supporting uncertainty analysis will be provided, if the C/M comparisons (for the additional analysis for the vessel) are not consistent with the comparisons shown in NEDC-32983P."