May 10, 2001

MEMORANDUM TO: James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Victor Nerses, Sr. Project Manager ***/RA/***
Project Directorate I, Section 2
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: MILLSTONE NUCLEAR POWER STATION, UNIT 3, FACSIMILE TRANSMISSION, DRAFT REQUEST FOR ADDITIONAL INFORMATION (RAI) TO BE DISCUSSED IN AN UPCOMING CONFERENCE CALL (TAC NO. MA9740)

The attached draft RAI was transmitted by facsimile on May 10, 2000, to Mr. Ravi Joshi of Dominion Nuclear Connecticut, Inc. (DNC). This draft RAI was transmitted to facilitate an upcoming conference call in order to clarify the licensee's application dated July 25, 2000, regarding risk-informed inservice inspection program plan. Review of the RAI would allow DNC to determine and agree upon a schedule to respond to the RAI. This memorandum and the attachment do not convey a formal request for information or represent an NRC staff position.

Docket No. 50-423

Enclosure: Draft Request for Additional Information

May 10, 2001

MEMORANDUM TO: James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Victor Nerses, Sr. Project Manager ***/RA/***
Project Directorate I, Section 2
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: MILLSTONE NUCLEAR POWER STATION, UNIT 3, FACSIMILE TRANSMISSION, DRAFT REQUEST FOR ADDITIONAL INFORMATION (RAI) TO BE DISCUSSED IN AN UPCOMING CONFERENCE CALL (TAC NO. MA9740)

The attached draft RAI was transmitted by facsimile on May 10, 2000, to Mr. Ravi Joshi of Dominion Nuclear Connecticut, Inc. (DNC). This draft RAI was transmitted to facilitate an upcoming conference call in order to clarify the licensee's application dated July 25, 2000, regarding risk-informed inservice inspection program plan. Review of the RAI would allow DNC to determine and agree upon a schedule to respond to the RAI. This memorandum and the attachment do not convey a formal request for information or represent an NRC staff position.

Docket No. 50-423

Enclosure: Draft Request for Additional Information

DISTRIBUTION:

PDI-2 Rdg	PUBLIC	SDinsmore, SPSB
SHou	VNerses	

Accession No.: ML011300182
* see previous concurrence

OFFICE	PDI-2/PM	SC/SPSB*	ASC/EMCB
NAME	VNerses	MRubin	LLund
DATE	5/10/01	5/2/2001	5/9/01

OFFICIAL RECORD COPY

DRAFT

REQUEST FOR ADDITIONAL INFORMATION ON THE MILLSTONE, UNIT 3
RISK-INFORMED INSERVICE INSPECTION PROGRAM PLAN

1) Table 3.4-1 includes stratification together with the thermal Fatigue failure mechanism. The maximum failure probability for thermal fatigue is given in your submittal as 4.2E-5. SRRA calculations submitted by other licensees have one entry for striping/stratification and another for thermal fatigue. The failure probability in the other submittals for striping/stratification ranges from 1E-4 to 3E-3. The entire range from previous submittals for striping/stratification alone is higher than your maximum probability for stratification and thermal fatigue.

a) Why did you include stratification under the Thermal Fatigue degradation mechanism?

b) Are SRRA calculations performed for once for thermal fatigue and and once again for stratification, or is the representative weld modeled with both degradations mechanism simultaneously present?

c) What training and experience did personnel have who developed the input for, ran, and subsequently interpreted the output from the SRRA code? Please compare the qualifications of this organization and personnel with the guidelines in, "Licensee Qualification for Performing Safety Analysis," Generic Letter 83-11, Supplement 1, June 24, 1999.

2) Your Table 3.4-1 includes a "None" failure mechanism. There is an entry in the table that "None (Reverts to TF Exams)" but no failure probability range is provided.

a) Please explain what this entry means.

b) Please identify where the WCAP identifies the use of a "none" failure mechanism and describes how the failure probability should be quantified.

e) How many location within segments assigned the "none" failure mechanism were selected for inspection in RI-ISI?

3) Page 15 of the SRRA supplement states that, "[t]he pressure stress, the number of initial flaws in a weld and pipe leak rate are all calculated assuming circular piping geometry with uniform pipe thickness and the flaws of concern being circumferentially oriented. In the rare situation that a longitudinal flaw in an axial weld or non-standard geometry would need to be evaluated, the failure probability should be estimated by other means." Please explain why a socket weld failure probability can be calculated using the SRRA computer program and is not a "non-standard geometry."

4) Section 3.4 of your submittal states that, "Generally, the SRRA code was used to estimate where the possible ranges of failure probability would fall. The final probability selected was determined by team members using the relevant information."

> a) The ranges reported in your Table 3.4-1 are very broad, what types of ranges for individual segments were supplied to the team members?
>
> b) What type of experience and training did the team members have that allowed them to make reasoned judgements when picking specific failure frequencies for each segment?
>
> c) The different break size (e.g., leak rates) are specified in the input to the SRRA program and the different frequencies are calculated. How were the failure frequencies for the different leak rates characterized and discussed to allow the team members that selected the frequencies to make reasoned judgements as to picking specific failure frequencies for each segment?

5) The WCAP requires that all the degradation mechanism and worst case operating conditions within a segment are imposed on a single weld in the SRRA calculations, and that representative weld's failure probability is used to represent the segment's failure probability.

> a) How many segments had the potential to be exposed to more than one degradation mechanism either at different sections or in the same section?
>
> b) How many segments were exposed to different operating conditions along the entire length of the segment?
>
> c) How many SRRA calculations did you perform on a representative weld by combining degradation mechanisms from different points in the segment and the worst case operating conditions on a representative weld.

6) What criteria did you use to differentiate between High Failure Importance and Low Failure Importance in Figure 3.7-1 of the WCAP? Please include break size and frequency (or 40 year probability)

7) The Westinghouse method requires calculating the different rupture sizes and different CCDP/CLERP for failures of large diameter piping, summing the risk of these break sizes failures into a total segment CDF/LERF, and calculating the RRWs based on this total.

> a) How did you characterize the different break sizes for the SRRA input (e.g., what leak rates did you use)?
>
> b) How many segments have multiple break sizes failure in their total CDF/LERF?

8) Your submittal states that only 4 segments were placed in Region 1 (of WCAPs Figure 3.7-1) and only one weld in each segment is placed in Region 1A. The expectation during the development of the methodology, and the experience with the pilot application, was that the

piping segments would more evenly distributed between the different regions than your results. In order to support the necessary investigation to identify the difference between the anticipated results and your reported results, please provide a table with the following information for each of your 113 segments.

a) Segment Identification number and diameter

b) Degradation Mechanism(s) identified

c) Calculated SRRA failure frequency (or probability at 40 years)

- For pipes with different break sizes please provide the probability of each break size
- If the probability was selected from a range, please provide (or reference) the range and provide the final selection

d) Plant impact (Initiating event or failure of function on demand)

When multiple break sizes were used, the IE and/or function lost for each break size

e) Conditional core damage probability (CCDP) w/o operator action

When multiple break sizes were used, the CCDP for each break size

f) Conditional large early release probability (CLERP) w/o operator action

When multiple break sizes were used, the CCDP for each break size

g) The safety significance as determined by the RRW values, and that as assigned by the expert panel.

9) Each segment has four RRWs calculated, a CDF with and without operator action, and a LERF with and without operator action. Please identify, by system;

a) the number of segments with any of the four RRWs>1.005

b) the number of segments with any of the four RRWs between 1.005 and 1.001

c) the number of segments assigned the HSS categorization by the expert panel,

d) the number of segments with any of the four RRWs>1.005 assigned a low safety significance by the expert panel

e) the number of segments with any of the RRWs between 1.005 and 1.001 that were assigned high safety significance by the expert panel.

f) the number of segments with any of the RRWs < 1.001 that were assigned high safety significance by the expert panel.

10) In the staff's IPE data base (a data base the includes the results of all the original submitted versions of the IPEs) the Millstone 3 CCDP for large LOCA (>6") is 2.07E-2, Medium LOCA (between 2" and 6") is 1.69E-2, Small LOCA (between 3/8 and 2") is 4.00E-4.

a) Are these numbers the correct characterization of your IPE results?

b) What CCDPs do you currently have for these LOCA sizes?

c) How did you develope CLERPs for the different LOCA sizes and what values did you use?

d) Please describe the sequence of events, including the timing of the events, leading to core damage and large early release sequences following the rupture of the charging seal injection lines.

e) Please provide the fact and observation forms made during the 1999 Westinghouse Owner's group Peer Review certification on the LOCA sequences, and on the sequences used to model the rupture of the charging seal injection lines.

11) How many segments are used to represent each of your reactor coolant loops? How many inspections are done in each of the segments?

12) Please provide the range of values and identify the source of the selected range of values for the following input parameters for the Statistical models: Probability of a flaw, Probability of Detection, and the Conditional Probability of Leak/Year/Weld