

May 24, 2000

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

FROM: Jacob I. Zimmerman, Project Manager, Section 2 */RAI/*  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

SUBJECT: MILLSTONE, UNIT 3, DRAFT REQUEST FOR ADDITIONAL  
INFORMATION, SUPPLEMENTARY LEAKAGE COLLECTION AND  
RELEASE SYSTEM (TAC NO. MA2035)

The attached request for additional information (RAI) was transmitted by facsimile on May 24, 2000, to Mr. R. Joshi of Northeast Nuclear Energy Company (NNECO). This information was transmitted to facilitate an upcoming conference call in order to clarify the licensee's submittal dated June 6, 1998. In addition, review of the RAI would allow NNECO 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

Attachment: As stated

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REQUEST FOR ADDITIONAL INFORMATION  
SUPPLEMENTAL LEAKAGE COLLECTION AND RELEASE SYSTEM (SLCRS)  
BYPASS LEAKAGE UNREVIEWED SAFETY QUESTION (USQ)  
MILLSTONE, UNIT 3  
DOCKET NO. 50-423

Containment Mixing Model Questions:

1. The sprayed region of Zone 3 is added to the “effectively sprayed volume” of Zones 1 and 2 for the mixing model. What fraction of the total containment volume is the unsprayed region in Zone 3? It is our understanding that this unsprayed region in Zone 3 is a slow mixing region due to structural interferences in the region. Assuming the volume of this unsprayed region in Zone 3 is not negligible or even substantial, was a qualitative or quantitative estimation or actual calculation of the mixing rate for this region done?
2. Do the final mixing rates (time-dependent) include any correction(s) contributed by the Zone 3 unsprayed region for its slow mixing rate(s)? If not, please provide a brief discussion.
3. Is there any qualitative relationship or a discussion representing a relationship between the mixing rate and other removal coefficients by spray for first order elemental iodine? Please provide a brief discussion.

Iodine Removal Questions:

4. Insert G in the submittal dated April 19, 2000, contains a list of parameters used in determining removal rates of elemental and particulate iodine from the post-accident containment atmosphere. We would like to know how did you arrive at the values of the following iodine removal coefficients ( $\lambda$ ). Please, provide a description of the method and the values of input parameters used in calculation:
  - Elemental iodine coefficient by plate out in the sprayed region of containment
  - Particulate iodine removal coefficients by sprays in the sprayed region of containment

Meteorology Questions:

5. A Stone and Webster calculation dated May 27, 1998, on X/Qs from the Unit 3 main steam valve building (MSVB) states that the postulated effluent release for the MSVB bypass scenario does not meet the Murphy-Campe criteria for using the diffuse source equation. However, a general statement is made that because of multiple flow disruptions due to buildings both upwind and downwind of the release, it is reasonable to assume that this equation may be used to estimate resultant X/Q values. The calculation assumes that the release occurs from the vent closest to the control room intake and mixes in the wake of the MSVB.

Provide further supportive information on why the effluent may be approximated as a diffuse source. Include specifics related to release location(s) and flow path(s) to the control room intake for the supplemental leak collection and release system bypass scenario. Include information such as flow around structures, building corners, etc., impacting straight line laminar movement of the effluent to the control room intake; and, if the release is actually postulated to be from more than a single point, a description of location, arrangement and spacing of the points or dimensions of the grid assumed to release the effluent. One or more sketches might be helpful in visualizing the postulated flow path.