January 18, 2001

Oliver D. Kingsley, President
Nuclear Generation Group
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: DRESDEN, UNITS 2 AND 3 - REQUEST FOR ADDITIONAL INFORMATION REGARDING RISK-INFORMED INSERVICE INSPECTION PROGRAM RELIEF REQUEST (TAC NOS. MB0362 AND MB0363)

Dear Mr. Kingsley:

By letter dated October 18, 2000, Commonwealth Edison Company (ComEd) submitted relief request CR-21 to implement risk-informed changes to the inservice inspection (ISI) program at Dresden Nuclear Power Station. The staff has identified additional information that is needed in order for them to complete their review of this relief request. These questions were discussed with members of your staff on December 19, 2000. On January 11, 2001, your staff agreed that your response would be provided within thirty days of the date of this letter. Should your staff have any questions about this request for additional information (RAI), please contact me at (301) 415-2863.

Sincerely,

/RA/

Lawrence W. Rossbach, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-237 and 50-249

Enclosure: RAI

cc w/encl: See next page

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Request for Additional Information (RAI)

Dresden Risk Informed ISI Program Relief Request

1. Please provide the following information:

   a) When does the current 10-year inspection interval start and end?
   b) When does the current inspection period start and end?
   c) What cumulative percentage of inspections have been completed for the current interval?

2. The implementation of a Risk Informed Inservice Inspection (RI-ISI) program for piping should be initiated at the start of a plant's 10-year inservice inspection interval consistent with the requirements of the American Society of Mechanical Engineers (ASME) Code Section XI, Edition and Addenda committed to by the Owner in accordance with 10 CFR Part 50.55a. However, the implementation may begin at any point in an existing interval as long as the examinations are scheduled and distributed to be consistent with ASME XI requirements, e.g., the minimum examinations completed at the end of the three inspection intervals under Program B should be 16 percent, 50 percent, and 100 percent, respectively, and the maximum examinations credited at the end of the respective periods should be 34 percent, 67 percent, and 100 percent.

   It is our view that it is a virtual necessity that the programs for the RI-ISI inspections (RI-ISIs) and for the balance of the inspections be on the same interval start and end dates. This can be accomplished by either implementing the RI-ISIs at the beginning of the interval or merging RI-ISIs into the program for the balance of the inspections if the RI-ISIs are to begin during an existing ISI interval. One reason for this view is that it eliminates the problem of having different Codes of record for the RI-ISIs and for the balance of the inspections. A potential problem with using two different interval start dates and hence two different Codes of record would be having two sets of repair/replacement rules depending upon which program identified the need for repair (e.g., a weld inspection versus a pressure test).

   In addition, with the change to a RI-ISI program, the Code minimum and maximum percentages of examination per period still apply to the RI-ISIs. For example, if a licensee is interested in starting the RI-ISIs during the second period, either the RI-ISIs or the Code required inspections should satisfy the second period minimum/maximum percentages. The code required percentages would have already been satisfied for the first period.

   Please describe your implementation plan with respect to the above discussion.

3. Will the RI-ISI program be updated every 10 years and submitted to the Nuclear Regulatory Commission (NRC) consistent with the current ASME XI requirements?

4. Under what conditions will the RI-ISI program be resubmitted to the NRC before the end of any 10-year interval?

5. Section 3.5, page 9 of 25 states that longitudinal welds are considered subsumed with examination of the associated circumferential weld when the circumferential weld is selected for RI-ISI examination as per Code Case N-524. However, Section 3.6, page 11 of 25 states that Code Case N-524 will be removed from the ISI plan upon approval of the relief request. Please clarify your position regarding Code Case N-524.

6. Section 3.5, page 9 of 25 states that 13.3 percent of Class 1, butt welded elements, were selected for volumetric examination at Unit 2. This section also states that 5.5 percent of socket welded elements were selected for VT-2 examination. For Unit 2, please specify if any of the socket welded elements are included in the 13.3 percent sample. The corresponding number for Unit 3 are 12.0 percent and 6.7 percent. For Unit 3, please specify if any of the socket welded elements are included in the 12.0 percent sample. The staff has concluded that at least 10 percent of butt welded elements need to be selected for examination to assure adequate safety margins and defense in depth.

7. Page 5 states that, "If no other damage mechanism was identified, the element was removed from the RI-ISI element selection population and retained in the appropriate augmented program."

   a) How many Class 1, Intergranular Stress Corrosion Cracking (IGSCC) Category B through G welds does Dresden have? How many Class 2, IGSCC Category B through G welds does Dresden have? Have all these welds been "removed from the RI-ISI element selection population?" Are any of these inspections credited as an inspection in the RI-ISI program?

   b) Our understanding of your terminology is that a flow accelerated corrosion (FAC) element is a run of pipe that may contain one or more welds within the element or at the boundaries. Is the entire length of an element in your FAC program always inspected? If there are no other degradation mechanisms in this FAC element, is the population of welds within the element and/or at the boundary of the element "removed from the RI-ISI element selection program?" If there are any welds within and/or at the boundary of this element that are currently being inspected under the Section XI program, what happens to these inspections under RI-ISI program and how are they included in the change in risk calculations?

   Does the reported 13 percent and 12 percent of Class 1, butt welded elements inspected include the population of IGSCC Category B through G welds, and the FAC element welds, in the denominator?

8. It is acceptable to credit a weld inspected in the current IGSCC Category A-G program as a RI-ISI program inspection (within certain percentage limits). If a weld that is currently inspected in the IGSCC A-G program but not credited as a Section XI inspection is credited in the RI-ISI program, how is this weld treated in the change in risk estimates? If a weld is currently inspected in the IGSCC A (only) program but not credited as a Section XI inspection is not credited in the RI-ISI program (e.g., the inspection will be discontinued), how is this weld treated in the change in risk estimates?

9. Table 3 on page 20, lists 324 high risk and 494 medium risk welds. The Electric Power Research Institute (EPRI) methodology calls for inspecting twenty-five percent of high risk and ten percent of medium risk welds. Twenty-five percent of 324 is 81 and ten percent of 494 is 49. Yet Table 5 on page 22, only identifies 42 high risk and 53 medium risk inspection locations? Please clarify this apparent discrepancy. There is a similar apparent discrepancy between Tables 4 and 6 for Unit 2.

10. Page 6 states that "The potential for synergy between two or more damage mechanisms working on the same location was considered in the estimation of pipe failure rates and rupture frequencies which was reflected in the risk impact assessment." Specifically, how was this synergy reflected in the risk impact? Was synergy also reflected in the safety significant categorization and if so how?

11. Please provide references to all the equations that you are using to calculate the change in risk. Please also provide references from which all the input parameters required by the equations were developed and justified (except for the conditional core damage and condition large early release probabilities). Please provide specific references, e.g. equation numbers, table numbers, page numbers, and report references.

12. It is our understanding that you are calculating an "inspection effectiveness factor" for use in equation 3-9 of EPRI Topical Report (TR) 112657. Please provide the distribution of inspection effectiveness values calculated (clearly identifying the upper and lower bounds) and a discussion on how these values compare with other probability of detection estimates (redefined to the same format).

13. If results from the bounding evaluations described in the EPRI TR, instead of the Markov calculations are sufficient to illustrate that the suggested change in risk guidelines are not exceeded, you may provide a brief description of these evaluations and the results instead of the information requested in questions 11 and 12.

14. Please provide a table where the number of Class 1, Class 2, and augmented inspections credited in the RI-ISI program is given for each system.