November 13, 2000

Mr. J. V. Parrish
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) FOR WNP-2
(TAC NO. MA9827)

Dear Mr. Parrish:

By letter dated August 16, 2000, Energy Northwest submitted a risk informed inservice inspection relief request for NRC staff review. As a result of the review, the NRC staff has determined that additional information is needed to complete the review. The information needed is detailed in the enclosed RAI.

The enclosed request was discussed with Mr. Rhoades of your staff on November 2, 2000. A mutually agreeable target date of December 4, 2000, was established for responding to the RAI. If circumstances result in the need to revise the target date, please call me at your earliest opportunity at (301) 415-1424.

Sincerely,

/RA/

Jack Cushing, Project Manager, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosure: Request for Additional Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION

ENERGY NORTHWEST

WNP-2

DOCKET NO. 50-397

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 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 ASME Code Section XI, Edition and Addenda committed to by the licensee in accordance with 10 CFR 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 inspections intervals under Program B should be 16%, 50%, and 100%, respectively, and the maximum examinations credited at the end of the respective periods should be 34%, 67%, and 100%.

   It is our view that it is a virtual necessity that the programs for the RI-ISI inspections 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 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 states that since there are no high-risk segments identified in the Main Steam (MS), Low Pressure Core Spray (LPCS) and the Standby Liquid Control (SLC) systems, no elements in these systems were included in the RI-ISI program volumetric inspection plan. However, it would be prudent to select some elements for inspection from these systems for defense-in-depth purposes and to comply with EPRI TR-112657, Rev. B-A, Section 3.6.5, which states that considerations that go into element selection include distribution of inspections among systems. Please explain the rationale for not including any elements for these systems.

6. Section 1.2 states that the NRC staff noted a weakness in the licensee's evaluation of human errors as part of their IPE and cautioned the use of the IPE for applications that are sensitive to human error analysis. How have you addressed this weakness as it applies to this submittal?

7. The first paragraph of Section 3.8 states that "... the risk from implementation of this program is expected to remain neutral or decrease when compared to that estimated from current requirements." A similar statement is made in the last sentence of the introductory portion of Section 3. However, from Table 3.8-1 the estimated CDF and LERF increased by 9.6E-8/year and 1.8E-9/year, respectively. Please explain this apparent discrepancy and/or correct the statements.

8. Do the RI-ISI exams values presented in Table 3.8-1 include credit for some of the augmented inspection programs (e.g, HELB, IGSCC, and FAC) or are these inspections in addition to the augmented inspections? In addition, do the ΔCDF and ΔLERF values presented in Table 3.8-1 include the contribution from the augmented inspection programs?

   a Please explain how the IGSCC B-G and the FAC degradation mechanisms are accounted for during the ranking process. Also, explain how they are accounted for in the change in risk calculation. For example, in Table 3.8-1, in the first entry for the RRC system it appears that the FAC degradation mechanism is included in the ranking to place the segment in Risk Category 1. What is the failure frequency used to estimate the change in risk due to the decrease of 8 inspections and from what Table and line is it taken from in EPRI TR-111880?

   b The HELB augmented inspection program is not directed toward a specific degradation mechanism. How do you consider/credit HELB in the evaluation? For example, in Table 3.8-1, in the first entry for the MS system, it is stated that there is a reduction of 6 inspections. How many welds are in this segment and how many welds are currently being inspected in this segment under the ISI program? How many welds are currently being inspected in this segment under the HELB program and how many will be inspected under the HELB program after the RI-ISI program is in place? What is the failure frequency used to estimate the change in risk due to the decrease of 6 inspections and from what Table and line is it taken from in EPRI TR-111880? How is the HELB program addressed in the ΔCDF and ΔLERF calculations?

   c In Table 3.8-1, in the second entry for the RRC system, which is susceptible to the IGSCC damage mechanism, there are 14 Section XI exams and 36 RI-ISI exams identified, resulting in a delta inspection of +22. How many welds are in

this segment, how many welds are currently being inspected in this segment under the IGSCC program, and how many welds are currently inspected in this segment outside the IGSCC program under the current ISI program? Likewise, after the RI-ISI program is in place, how many welds will be inspected in this segment under the IGSCC program and how many welds will be inspected in this segment outside the IGSCC program under the RI-ISI program? What is the failure frequency used to estimate the change in risk due to the increase in inspections and from what Table and line is it taken from in EPRI TR-111880?

9. The submittal states that a conservative quantitative evaluation was performed using the rupture frequencies from Table A-11 in EPRI TR-111880. As stated at the end of Chapter 1 and in the discussion of "Enhancements to the Methodology" section of Chapter 2 of EPRI TR-111880, the data provided in EPRI TR-111880 is only for the pipe sizes that are greater than or equal to two inches. Do any of the evaluated segments have a pipe size less than two inches and, if so, what reference was used to derive the rupture frequencies for these segments?

10. Water hammer is identified as a damage mechanism in Table 3.8-1 for RCIC, but this mechanism is not shown in Table 3.3-1. The submittal does not appear to address any of the loading degradation types (e.g., vibration fatigue, water hammer, overpressure) identified in EPRI TR-111880. Are any of the evaluated segments susceptible to these loading degradation types and, if so, how are these mechanisms addressed or why are they not addressed?

11. Section 3.8 states that the evaluation of risk impacts considered the possible effects of synergy between different damage mechanisms for segments found to be susceptible to two or more ISI amenable damage mechanisms. How was this synergy addressed?

    a Could consideration of multiple degradation mechanisms result in a higher assigned rupture potential and how were failure frequencies derived for segments with multiple degradation mechanisms? For example, in Table 3.8-1, the third entry for the RHR system includes TASCS, TT, and IGSCC mechanisms in one segment. What is the rationale for assigning a medium rupture potential? What is the failure frequency used to estimate the change in risk due to the decrease of 2 inspections and from what Table and line is it taken from in EPRI TR-111880?

    b Were design and construction defects, which are stated in the "Modeling Approach to Estimation of Pipe Rupture Frequencies" section of Chapter 2 of EPRI TR-111880 as being amenable to ISI, considered synergistically with other damage mechanisms? Why were loading degradation types that are not amenable to ISI not considered when combined with damage mechanisms that are ISI amenable? For example, in Table 3.8-1, the first two entries include FAC and WH mechanisms. What is the failure frequency used to estimate the change in risk due to the decrease of all 18 inspections (11 from the high segment and 7 from the medium segment) and from what Table and line is it taken from in EPRI TR-111880?

12. Section 3.3 of EPRI TR-112657 Rev. B-A requires the consideration of external events (e.g., seismic events) and operation modes outside the scope of the PRA (e.g., shutdown) in the categorization of segments. Were external events and operation modes outside the scope of the PRA systematically considered and was the plant multi-disciplinary review team involved in this evaluation?

13. In accordance with EPRI TR-112657 Rev. B-A Section 3.6.5.1, does the RI-ISI program include inspections for all the degradation mechanism types identified?