From: "Stewart, Roger" <roger.stewart@pgnmail.com>
To: "SK Mitra (SKM1@nrc.gov)" <SKM1@nrc.gov>
Date: 5/12/03 3:44PM
Subject: Clarification of RAI response

As discussed I am forwarding you the proposed RNP response to NRC request for clarification for items A, D, E, G, and I.

<<NRC RAI Question Response.doc>>

We are still reviewing the other items.

As indicated, Jan is out of the office until Wednesday and Talmage and myself will be at BNP tomorrow. We can be reached through Mike Heath at 910 457-3487.

CC: "Fletcher, Mike" <mike.fletcher@pgnmail.com>, "Kozyra, Jan" <jan.kozyra@pgnmail.com>, "Clements, Talmage" <talmage.clements@pgnmail.com>, "Baucom, Chuck" <chuck.baucom@pgnmail.com>, "Crandall, Raymond A" <Raymond.Crandall@pgnmail.com>

Accession no.: ML031330784

RAI Clarification A

A. The staff has questions on the applicant's draft responses to RAI B.3.8 and B.3.12 regarding buried piping and Tanks surveillance program and Inspection program, respectively.

The applicant stated that service water and fire protection systems also have buried piping, in addition to the fuel oil piping (Table 3.3-1 Item 17). However, in the draft response to B.3.8-D1 (buried piping surveillance program) and B.3.12-D1, it seems that the buried pipes in the service water system and fire protection system are not considered in either the buried piping surveillance program or buried piping inspection program. The only buried piping covered in these two AMPs is the fuel oil piping. The staff believes that all buried piping considered for the license renewal application should be covered either in the surveillance program or inspection program or both. Clarify why the service water and fire protection system piping are not considered by these 2 AMPs.

The applicant needs to discuss how they intend to inspect or conduct surveillance on the service water and fire protection system buried piping, if these piping are not covered in the buried piping surveillance program or inspection program. Identification of water on the soil surface above the underground piping is not a sufficient method of surveillance because it would be after the effect.

Confirm that the buried piping covered in the license renewal application consists of the fuel oil piping, service water system piping, and fire protection system piping.

Identify those buried piping that are not covered in the license renewal and clarify why they are not considered in the scope of review.

RNP Response:

Buried pipes within the evaluation boundaries for the service water system and fire protection system are included in the buried piping inspection program.

B.3.8-D1 and B.3.8-1 state the buried fuel oil piping is contained within the buried piping *surveillance* program. The cathodic protection system, which is the subject of the buried piping surveillance program, is only associated with fuel oil piping. The RNP cathodic protection system does not protect buried pipes in the service water system and fire protection system, therefore they are not mentioned in these responses to RAI B.3.8-D1 and B.3.8-1. Only the activity for inspection of coatings on the buried fuel oil piping is combined with the inspections performed as part of the buried piping *inspection* program.

B.3.12-D1 and B.3.12-1 are related to the buried piping inspection program and address buried piping in the service water and fire protection systems as follows:

The service water system buried pipes within the scope of the buried piping inspection program consist of the highlighted pipes on the evaluation boundary drawing G-190199LR, Sheet 2, from intake structure through the 30 inch north and south SW supply headers. The underground portion of the north service water header rises above the ground outside the south end of the Radwaste Building as shown on Sheet 9 (G-4). The south service water header rises above ground inside the component cooling water heat exchanger room in the Reactor Auxiliary

Building as shown on Sheet 10 (B-1). The service water return included in the buried piping inspection program is a small segment outside the component cooling water heat exchanger room that connects to the underground circulating water return from the condenser catch basin on Sheet 1, (F-8).

The fire protection system buried pipes within the scope of the buried piping inspection program consist of highlighted 4 inch, 6 inch, 8 inch, 10 inch and 12 inch pipes on the evaluation boundary drawings HBR2-8255LR, Sheets 1, 2 and 6. The buried piping segments typically include piping components identified on the drawings from the intake at Unit 1 to Unit 2 and shown as piping in the Yard and the segments up to building boundaries.

Under detection of aging mechanism the GALL program states:

"Periodic inspection of susceptible locations to confirm that coating and wrapping are intact is an effective method to ensure that corrosion of external surfaces has not occurred and the intended function is maintained. Buried piping and tanks are inspected when they are excavated during maintenance. The inspections are performed in areas with the highest likelihood of corrosion problems, and in areas with a history of corrosion problems. However, because the inspection frequency is plant specific and also depends on the plant operating experience, the applicant's proposed inspection frequency is to be further evaluated for the extended period of operation."

With regard to detection of aging mechanisms and inspections, the activities forming the RNP program are consistent with the GALL program. RNP will inspect coatings whenever buried piping is excavated for any reason not just for maintenance as stated in the GALL program. LRA section B.3.12 discusses the site specific history of leakage in buried piping for the piping covered under this program. There was no leakage identified for the fire protection system. The leakages identified in the service water piping were associated with a specific segment of the underground north service water header. This segment of piping is no longer buried. Those instances of leakages were related to installation activities due to rerouting of the buried portion due to erection of the Radwaste Building in the 1990's. It was not due to a generalized degradation of pipe coating. The evaluations noted that the resistivity of the soil at RNP is very high which minimizes the potential for corrosion. Based on these facts supported by site experience, RNP concludes that no specific schedules for inspections are warranted.

See response to clarification item 1.

The buried pipes that are not covered in the license renewal are those buried pipes that are not highlighted on the associated evaluation boundary drawings.

There are no service water system buried pipes outside the scope of buried piping inspection program. The highlighted 126" underground, concrete condenser circulating water return to the discharge basin shown on Sheet 1 (F-8) of G-190199LR was determined to have no potential aging mechanisms requiring management.

RAI Clarification D

D. Open Item related to response to RAI 3.5.1-19:

b. The corrective action related to liner plate corrosion: The applicant states that "identified corrosion will be prepared, recoated, and new moisture barrier installed." Without knowing the extent of corrosion, how the applicant decided that just recoating of the corroded areas would suffice. The corrective action should include the techniques required to bring the liner to its design thickness, e. g. weld overlays or coring the degraded areas and replacing with new compatible liner plate. Please discuss the corrective actions in terms of the extent of liner degradation.

RNP Response:

RNP agrees that the response should be clarified and proposes that the next to the last paragraph be revised to read (*italics* indicate revision):

Liner plate areas (behind the ¾" X ¾" moisture barrier) will be visually examined (VT-3) for corrosion. At any degraded areas, the degradation is characterized to identify any reduction in liner plate thickness, and compared to the minimum liner design thickness. If the actual thickness is less than the minimum design thickness, appropriate repair methods will be implemented which meet the requirements of ASME Section XI, Subsection IWE, Requirements for Class MC and Metallic Liner of Class CC Components of Light-Water Cooled Plants. Repair techniques will be specified by Robinson Engineering, *and could involve repair by weld overlay or removal/replacement of sections of plate*. After the liner plate thickness is determined to meet the minimum design thickness requirements, the liner plate surface will be prepared, recoated and new moisture barrier installed. No additional examinations are planned except those which are required by the IWE Program.

RAI Clarification E

E. The applicant listed the TLAAs applicable to RNP in Table 4.1-1 of the LRA. Tables 4.1-2 and 4.1-3 in NUREG-1800 identify potential TLAAs determined from the review of other license renewal applications. In RAI 4.1-1 the staff requested that the applicant discuss:

Whether there are any calculations or analyses at RNP that address the topics listed in Tables 4.1-2 and 4.1-3 of NUREG-1800 and were not included in Table 4.1-1 of the LRA.
Discuss how these calculations or analyses were evaluated against the TLAA definition provided in 10 CFR 54.3 if they do exist.

In its RAI response dated April 28, 2003, the applicant indicated that documentation existed for the following topics listed in NUREG-1800 that are applicable to PWR facilities and were not included in Table 4.1-1 of the LRA of RNP are:

1. In service flaw growth analysis of structure stability
2. Metal containment corrosion allowance
3. High energy line break analysis based on cumulative usage factor
4. Reactor vessel low temperature over pressure protection (LTOP) analysis
5. Main steam supply lines to AFW pump
6. RCP flywheel fatigue analysis
7. Reactor vessel internals transient analysis
8. Reactor vessel internals fracture toughness ductility reduction
9. Containment liner plate fatigue analysis

The applicant stated that there are no high energy line break analysis (item 3) for RNP that rely on fatigue cumulative usage factors, such as those in R.G. 1.46, to identify potential postulated break locations. Based on the results of the search for RNP-specific TLAAs, the calculations or analyses that were identified for these generic TLAA categories, include the reactor vessel for LTOP analysis (item 4), the main steam supply lines to AFW pump (item 5), and the RCP flywheel fatigue analysis (item 6).

The analysis of the main steam supply lines to the AFW pump (item 5) is addressed in LRA Subsection 4.3.2. No explicit fatigue analysis of the main steam supply lines to the steam-driven AFW pump has been identified for RNP. Items 4 and 6 were determined to not meet the criterion from 10 CFR 54.3 that the analysis involves time-limited assumptions defined by the current operating term. The RNP LTOP analyses (item 4) have been performed for periods less than the current operating term and are periodically updated. Further discussion on this matter is provided in RNP Response to RAI 4.2.3-1, Part 2.. The RCP flywheel fatigue analysis (item 6) has been performed using an operating life of 60 years.

The RAI response does not address the reasons why items 1, 2, 7, 8, and 9, identified in the RAI response, were not included in Table 4.1-1 of the LRA. The staff finds further justifications are required. This is defined as open item 4.1.2-1.

RNP Response:

The need for this clarification appears to be based on a misunderstanding of the information provided in the RAI response. This conclusion can be inferred by the statement in the second paragraph of the above clarification question. This statement reads:

"In its RAI response dated April 28, 2003, the applicant indicated that documentation existed for the following topics listed in NUREG-1800 that are applicable to PWR facilities and were not included in Table 4.1-1 of the LRA of RNP are:

1. In service flaw growth analysis of structure stability
2. Metal containment corrosion allowance
3. High energy line break analysis based on cumulative usage factor
4. Reactor vessel low temperature over pressure protection (LTOP) analysis
5. Main steam supply lines to AFW pump
6. RCP flywheel fatigue analysis
7. Reactor vessel internals transient analysis
8. Reactor vessel internals fracture toughness ductility reduction
9. Containment liner plate fatigue analysis"

This statement is not correct. While the RAI response listed all nine of the generic TLAA categories from NUREG-1800 Tables 4.1-2 and 4.1-3 applicable to a PWR, it did not say that RNP-specific documentation existed for these TLAA categories.

As noted in the first sentence of the third paragraph of the submitted RAI response, the calculations or analyses that were identified by the search for RNP-specific TLAAs are the three listed (Items 4, 5, and 6 from the above list). The information provided in the remainder of the paragraph address only those three TLAAs that are applicable to RNP. The information provided in the response indicates that no other RNP-specific calculations or analyses were found that fit the generic categories identified in NUREG-1800 Tables 4.1-2 and 4.1-3. The last sentence in paragraph three of the response indicates that high energy line break analyses exist for RNP, but they do not rely on cumulative usage factors in accordance with item 3 above.

In summary, RNP-specific calculations or analyses in the NUREG-1800 categories exist only for the three TLAA categories that were identified and evaluated in the provided RAI response.

RAI Clarification G

G. I need clarification of the following to write my SE.
"(4) RNP will submit, for review and approval, the inspection plan for the Nickel-Alloy Nozzles and Penetration Program, since..... implemented from the applicant's participation in industry initiatives prior to July 31, 2009."

Please clarify what follows after the word since....in the above statement.

Please clarify if the UFSAR will be updated again to reflect our RAI prior to our issuance of final SER.

RNP Response:

The commitment is as stated in item 33 on page 8 of 12 of Attachment II to the RAI Response letter (Serial: RNP-RA/03-0031):

"RNP will submit, for review and approval, its inspection plan for the Nickel-Alloy Nozzles and Penetrations Program, as it will be implemented from the applicant's participation in industry initiatives, prior to July 31, 2009."

The UFSAR update will be as stated in the RNP Response to RAI B.4.3-1.**RAI Clarification I**

I. Response to RAI 4.3-2
If operating procedures are changed to the extent that the fatigue usage associated with a particular operation is increased beyond that assumed in the most recent fatigue analysis for the component, the affected fatigue analyses would be revised to account for the more severe thermal stress. Therefore, allowable cycles will be less than previously calculated. The acceptance limit would remain that the CUF must be less than 1.0. If there is no need to reduce cycles for the design transient (i.e., the increase in fatigue usage from the previous analysis does not result in CUF > 1.0), then no change would be required to the Fatigue Monitoring Program limits. If the number of cycles for the design transient had to be reduced due to lower allowable cycles to obtain a CUF value less than 1.0, this reduced number of cycles would become the new Fatigue Monitoring Program cycle limit.

RNP Response:

RNP agrees with the suggested clarification to the response. The first paragraph of the response to item 3 of RAI 4.3-2 should be revised to read:

If operating procedures are changed to the extent that the fatigue usage associated with a particular operation is increased beyond that assumed in the most recent fatigue analysis for the component, the affected fatigue analyses would be revised to account for the more severe thermal stress. Therefore, allowable cycles will be less than previously calculated. The acceptance limit would remain that the CUF must be less than 1.0. If there is no need to reduce cycles for the design transient (i.e., the increase in fatigue usage from the previous analysis does not result in CUF > 1.0), then no change would be required to the Fatigue Monitoring Program limits. If the number of cycles for the design transient had to be reduced due to lower allowable cycles to obtain a CUF value less than 1.0, this reduced number of cycles would become the new Fatigue Monitoring Program cycle limit.