ML032591149

R.E. Ginna License Renewal Application - Request for Additional Information Clarifications

The following requests for additional information clarifications (C-RAI) were submitted to R.E. Ginna Nuclear Power Plant via e-mail between June 17, 2003 and July 23, 2003.

C-RAI 2.1 -4

The added component, Pipe, in Table 2.3.3.-7, was linked to the Aging Management Reference: Table 3.4-2 Line Number (474). However, the information for this link is missing. Provide this information. Furthermore, explain why Table 3.4-1 Line Number (5) is not applicable to the added "Pipe."

C-RAI 2.3.2.5 -2

Clarify the phrase, “Since by definition a containment boundary cannot be adversely affected by a dynamic effect calling for the boundary function to be maintained, the penetration design itself, as well as the Containment Isolation (CI) boundary on the other side of the 2-1/2 ft. thick reinforced concrete containment has been designed to withstand these forces.”
a) What is meant by "by definition"?

b) How does this definition assure that out-of-scope piping will not age to the point that it could potentially threaten the containment boundary in an accident?

C-RAI-2.3.3.3 -2

Regulatory Guide (RG) 1.13 recommendation that seismically qualified redundant makeup water supplies be provided to the spent fuel pool was published in March of 1971, after the Ginna operating license was issued in 1969. However, paragraph C.8 was included with nearly identical wording in Safety Guide 13, which preceded RG 1.13.

Irrespective of the issue date of the Safety Guide, Section 9.1.2.1.1 of the Ginna UFSAR commits to the guidance of RG 1.13, by stating that "Criteria for the design and performance of the current spent fuel storage system are defined by ANSI/ANS Standard 57.2-1983 and Regulatory Guide 1.13."

Loss of water in excess of 47 gpm from a leaking spent fuel storage pool could result in overheating and damage to the stored spent fuel in less than 3000 minutes.

The NRC staff's SER for re-racking the spent fuel pool at Ginna, dated July 30, 1998, specifically cites the RWST and the CVCS holdup tanks as alternate sources of spent fuel pool makeup water following a loss of forced cooling. The applicant identified these sources of alternate spent fuel pool makeup water in a supplementary submittal dated November 11, 1997.

Taking the above information into account, identify the makeup sources, structures, and components within the scope of license renewal or justify their exclusion.

C-RAI 2.3.3.5 -4

The applicant’s statement that there are several normally closed valves downstream of 4614 which could be used to isolate a break in the piping is too imprecise for use in future audits. The applicant should specify the exact location of the interface between the in-scope and out-of-scope piping segments, and whether all of the piping and components within the in-scope

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boundaries are subject to an AMR.

C-RAI Generic HVAC -2

The response states that the component type “heat exchanger” is in scope for the intended function of pressure boundary, and not for heat transfer function, contradictory to Tables 2.3.3-9 and 2.3.3-10. Please clarify.

C-RAI 2.3.3.11 -1

Are all of the following within the scope of LR: the Reactor Head Lifting Device, the Reactor Internals Lifting Device, and the load carrying elements of the Containment Main Crane, the Auxiliary Building Main Crane, and the Spent Fuel and Containment Refueling Bridge Cranes as well as selected jib and monorail hoists?

C-RAI 2.3.3.11 -2

What specific components of bridges and trolleys are within the scope of LR? Does the component group “cranes” include the Reactor Head Lifting Device and the Reactor Internals Lifting Device? Or, are these two lifting devices not subject to an AMR?

C-RAI 2.3.3.11 -2(a)

Does the component group “cranes” include the Reactor Head Lifting Device and the Reactor Internals Lifting Device? Or, are these two lifting devices not subject to an AMR?

C-RAI 2.5 -1 & C-RAI 2.5 -2

The response to F-RAI 2.5-1 states that credible failures of cables M0089 and M0108 do not result in the loss of an intended function, and the cables are not required to recover from a SBO event. Additionally, the figure provided in response to F-RAI 2.5-2 does not identify any of the circuits from 4160 V buses 12B and 12A to 480 V safety buses 16, 17, 14, and 18 as part of the offsite power circuits that are included within the scope of license renewal. These circuits are part of the offsite power path that bring offsite power into the safety buses. It’s not clear why these circuits are not included within the scope of license renewal. Clarify how the Ginna plant can be brought to a shutdown condition from the offsite power supply if these circuits to the safety-related shutdown buses are not included within the scope of license renewal.

C-RAI 2.5 -2

The figure provided in response to F-RAI 2.5-2 does not identify the nature of the blue color-coded circuits from PPSB and PPSA to dummy breakers DX/12B and DX/12A respectively. Please identify the component/commodity group that applies to these portions of the offsite power circuits.

C-RAI 3.2.2 -1

The applicant indicates that credit is taken for the thimble tube inspections performed under the Thimble Tube Inspection Program as managing cracking due to SCC of the guide tubes.

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Details of these inspections including scope, examination method, acceptance criteria, and examination frequencies are included in the Thimble Tube Inspection Program description in Section B2.1.36 of the LRA. All thimble tube inspections are performed by personnel qualified in accordance with the requirements of ASME Section XI, Article IWA-2300, SNT-TC-1A, and ANSI/ASNT CP-189. Since the OD surface of the thimble tubes is exposed to the same environment as the ID surface of the guide tube and both components are fabricated from stainless steel they would both be susceptible to SCC. The Thimble Tube Inspection Program, as described in Section B2.1.36 of the LRA, is for detection of wear, not SCC. In order for the Thimble Tube Inspection to be utilized for detection of SCC in the guide tube, the Thimble Tube Inspection Program must be modified to include inspection for SCC. The staff requests that the applicant revise the Thimble Tube Inspection Program and the associated Ginna inspection procedures, as discussed in the response to F-RAI 3.2.2-1.

C-RAI 3.4 - 1

Address the "operating experience" in responses to F-RAI 3.4 -1.

C-RAI 3.4 -2

(1)The applicant did not respond to each of the three questions asked for internal environments;
(2) For external surfaces, the LRA states that the System Monitoring Program will be credited for managing the aging effects of loss of material. However, in the response to F-RAI 3.4-2, the applicant stated that the Periodic Surveillance and Preventive Maintenance Program will be used if age-related degradation is revealed. Are both AMPs to be used together with the One-Time inspection Program?
(3) no plant-specific operating experience related to the components of concern was provided. The applicant is requested to provide clarifications concerning these issues.

C-RAI 3.4 -3

Address the "operating experience" in responses to F-RAI 3.4 -3.

C-RAI 3.4.8 -2

The response to F-RAI 3.4.8 -2 requested that the applicant to explain the apparent discrepancy for the link between Table 3.4 -1 line number (17) and Table 2.3.3-8 (the link to the AMR for pipe or tank covered in the emergency power system). The applicant response covered only "tank" and did not provide an explanation for "pipe". Explain the discrepance for pipe.

C-RAI 3.5 -3

Are there any locations in the boundary between the AFW system and the service water system where residual raw water could collect; therefore requiring aging management? Are the drains located a low point in the system where they verify no raw water is present?

C-RAI 3.5 -4

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Do responses 1 & 2 to RAI F-RAI 3.5 -4 refer to the same oil coolers?

C-RAI 3.5 -8

As described in the GALL report, the One-time Inspection program is used to verify the effectiveness of an aging management program (AMP) and confirm the absence of an aging effect expected to occur very slowly or not at all. For example, the Water Chemistry Program manages aging effects for piping internals and the One-time Inspection Program verifies effectiveness of the Water Chemistry AMP by confirming that unacceptable degradation is not occurring and the intended function will be maintained during the period of extended operation. In a raw water environment, galvanic corrosion is likely to occur; therefore, periodic inspections are more appropriate for managing these aging effects. Explain the basis for performing One-time Inspections to manage galvanic corrosion is raw water or provide periodic inspections to manage this aging effect.

C-RAI 3.6-1 (Related to responses to RAI 3.6-1 and RAI B2.1.3-2)

The staff recognizes that the applicant is aggressive in performing tendon inspections, and the tendon inspections provide certain degree of confidence in the integrity of rock anchor system coupled to the tendons. However, it is the other inaccessible features of the containment, where the staff needs additional assurance for the extended period of operation. Inspections performed in accordance with the requirements of subsection IWL of Section XI of the ASME Code will not be able to detect problems with the (1) tendon bellows, (2) elastomer pads, (3) radial tension bars. Moreover, the areas of the containment where these components are located are below the ground water level, and the staff had identified water related problems around the elastomer pads in the early 1990s. The applicant needs to develop an aging management program (or periodic functional tests) that would verify the containment functionality at the location of the containment hinge.

C-RAI 3.6-1 (Related to responses to RAI 3.6-1 and RAI B2.1.3-2)

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Applicant's Response

The applicant understands the limitations related to detection of certain age related degradation as identified above. Therefore indirect observations are the most prudent course of action. With respect to (1) tendon bellows our best course of action is to ensure that the tendon grease cans remain filled. To that end the Periodic Surveillance and Preventive Maintenance Program was

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modified to perform more frequent inspections and grease will be added as necessary to compensate for the possibility of bellows leakage. For item (2) the elastomer pads are under significant compression (the weight of containment) and largely inaccessible. No meaningful program could be identified to manage aging of the pads other than that done as part of ILRT and SIT. It is important to note that exposure of the elastomer pads to ground water does not constitute an aggressive material/environment combination that would be expected to have deleterious effects. What is lacking is the ability to directly confirm the absence of aging effects. For all items (1),(2) and (3) the Staff and RG&E have had numerous discussions which culminated in a safety evaluation report that concluded the best way to assure the structural integrity of the containment is through a well-planned tendon surveillance program. (See letter dated May 27, 1994, Allen Johnson ,NRC to Robert Mecredy, RG&E. Subject: GINNA CONTAINMENT STRUCTURAL INTEGRITY- TECHNICAL REPORT NO. 500167-7 "RADIAL DISPLACEMENT AND REBAR STRAIN MEASUREMENT FOR EWR 5181," MAY 17,1993 (TAC NO.M80494) and follow-up letter dated July12, 1994, Robert Mecredy, RG&E to Allen Johnson, NRC. Subject: Ginna Containment Structural Integrity R.E. Ginna Nuclear Power Plant.).

Staff Request: The 1993-94 correspondence, cited by the applicant, is related to the water damage pointed out by the staff. The applicant had performed structural analysis, and performed a Structural Integrity Testing (SIT) to confirm the continuing behavior of the containment. The staff agrees with the applicant that only indirect aging management could be performed for the three items in the lower part of the containment. The staff's expectation is that the applicant commit to perform two or three SITs during the extended period of operation. SIT could be performed at the peak calculated pressure that would demonstrate conformation with the expected behavior of the lower part of the containment. SIT measurements would consist of radial and vertical deformations similar to the measurements taken during initial and subsequent SITs, and visual observations during and after the test. The comparison will allow the applicant to detect significant deviation from the containment expected behavior.

C-RAI 3.6 -8

Is loss of preload managed by the Bolting Integrity Program?

C-RAI 3.7 -2

The response to F-RAI 3.7-2 states that the scope does not limit the program to adverse localized equipment environments, but is structured to identify any such areas that may exist within the plant space. The UFSAR supplement identified in Section A2.1.9 of the LRA, however, still states: "The program requires that cables and connections in accessible areas exposed to adverse localized environments caused by heat, radiation, or moisture are inspected on a periodic basis." This will need revision to make it consistent with how the program is actually conducted.

The response to F-RAI 3.7-2 goes on to say all cables identified with high loading or less than optimal cable tray fill are installed in plant spaces included in the scope of the aging management program. The plant spaces included in the scope of the aging management program are not limited to only those with highly loaded cables or less than optimal tray fill, are

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they?

The response also states that: "The aging management program allows for a graded approach to examination based on operating experience and the specific environment . Therefore it is not the intent to imply that all the accessible cable and connections within the identified plant building/areas will be visually inspected. When it is clear during the implementation of the program that a plant space contains no significant stressors and is within the analyzed assumptions for limiting materials of construction, then detailed inspections are not likely to occur. However, this does not eliminate the plant space from review for future inspections." This approach seems reasonable. I assume that the statement, "this does not eliminate the plant space from review for future inspections," indicates that at least a general inspection of the space will be performed in the future, to check that no changes have been made since the last inspection that could add significant stressors or adverse localized environments in the space. Is this accurate?

C-RAI 3.7-3

The response to F-RAI 3.7-3 proposes an AMP for radiation monitoring and nuclear instrumentation cables that is based on measurement of insulation resistance. Is this AMP intended for both EQ and non-EQ cables? If intended for only non-EQ cables, the program description should clarify that this AMP is limited to non-EQ cables.

C-RAI 3.7 -5

The response to F-RAI 3.7-5 addresses the failures of phase bus identified in the NRC Information Notices referenced in the Staff RAI. The response indicates that the subject phase bus at Ginna are not likely to experience the early failures identified in the Information Notices. It's not clear from the information provided, however, that the phase bus will not be subject to age related degradation over the longer term, 60 year period of plant operation. Several recent applicants have identified the need for aging management programs for phase bus, and a phase bus manufacturer was reluctant to endorse the view that no aging management program is needed for this component. Describe the construction of the phase bus at Ginna, and identify the materials used in their construction. (We note that Table 3.7-2 in the Ginna LRA did not identify the Penetrox (or equivalent) used as an anti-oxidation material in the phase bus, and the AERMs column in the table identifies aging effects for organics but no organics are identified in the material column.) Provide a discussion of how the construction will preclude the ingress of dust, contamination or moisture over a 60 year period. Provide details of the AMR conducted for the phase bus insulating materials, the Penetrox (or equivalent), and any organics used in construction. Include the pertinent parameters and results of the aging analysis which found these materials were good for sixty years. Describe how the AMR determined that connection surface oxidation of aluminum bus connections was not a problem and required no aging management. Provide the phase bus manufacturer's endorsement of your conclusion that thermal cycling of the bus connections at Ginna is not considered significant, and does not require any type of screening such as torque checks or thermal scanning over a 60 year period.

C-RAI 3.7 -6

The response to F-RAI 3.7-6 states that plant operating experience has not identified that aging

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effects for copper and stainless steels in non-marine atmospheric environments results in degradation requiring aging management. Has analysis been performed on the potential for torque relaxation of the bolted electrical connections due to thermal cycling? Does RG&E's Energy Delivery Department perform any period maintenance or screening tests (e.g. thermal scans) on the electrical connections of the switchyard bus?

C-RAI 3.7-6(a)

The response to F-RAI 3.7-6 states that plant operating experience has not identified that aging effects for copper and stainless steels in non-marine atmospheric environments results in degradation requiring aging management. The response to F-RAI 3.7-6 also states that: "Because those portions of the switchyard bus that are in-scope to the rule have not exhibited any aging effect requiring management and because any detrimental effect of aging on their functionality is monitored by the maintenance rule, no further License Renewal Programs need be applied."

Plant operating experience and lack of exhibited aging effects prior to the period of extended operation does not, by itself, provide a basis for concluding that aging management of a component is not required. These are indications that there have been no early failures or problems associated with the component up to that point and help to support or provide input into an analysis that reviews the potential aging effects associated with the component. Has a switchyard bus analysis been performed on the potential for torque relaxation of the bolted electrical connections due to thermal cycling? Does RG&E's Energy Delivery Department perform any periodic maintenance or screening tests (e.g. thermal scans) on the electrical connections of the switchyard bus?

With regard to existing programs under the Maintenance Rule, it is correct that these programs can be credited for license renewal. In order for a program to be credited for license renewal, however, it must be consistent with the ten attributes identified for license renewal AMPs. If the swithyard bus maintenance rule program provides aging management of the bus electrical connections or other aging effects of the switchyard bus, describe the ten attributes of the switchyard bus program, consistent with the guidance provided in Branch Technical Position RLSB-1 of the staff's license renewal Standard Review Plan (NUREG-1800). If it does not manage aging effects, then provide the details of your AMR that concludes there are no aging effects requiring management (torque relaxation of the bolted electrical connections due to thermal cycling should be among the aging effects addressed), or provide a description of the AMP which manages the effects.

C-RAI 3.7 -7

The response to F-RAI 3.7-7 states that plant operating experience has not identified that the aging effects for high voltage insulator materials in non-marine atmospheric environments results in degradation requiring aging management. Is there a potential for contamination buildup on the high voltage insulators at Ginna? Does RG&E's Energy Delivery Department perform any period maintenance or screening tests on the high voltage insulators?

C-RAI 3.7-7(a)

The response to F-RAI 3.7-7 states that plant operating experience has not identified that the

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aging effects for high voltage insulator materials in non-marine atmospheric environments results in degradation requiring aging management. The response to F-RAI 3.7-7 also states that: "Because those high voltage insulators that are in-scope to the rule have not exhibited any aging effect requiring management and because any detrimental effect of aging on their functionality is monitored by the maintenance rule, no further License Renewal Programs need be applied."

Plant operating experience and lack of exhibited aging effects prior to the period of extended operation does not, by itself, provide a basis for concluding that aging management of a component is not required. These are indications that there have been no early failures or problems associated with the component up to that point and help to support or provide input into an analysis that reviews the potential aging effects associated with the component. Is there a potential for contamination buildup on the high voltage insulators at Ginna? Does RG&E's Energy Delivery Department perform any period maintenance or screening tests on the high voltage insulators?

With regard to existing programs under the Maintenance Rule, it is correct that these programs can be credited for license renewal. In order for a program to be credited for license renewal, however, it must be consistent with the ten attributes identified for license renewal AMPs. If the high voltage insulators maintenance rule program provides control of contamination buildup on the insulators or controls other aging effects of the insulators, describe the ten attributes of the high voltage insulators program, consistent with the guidance provided in Branch Technical Position RLSB-1 of the staff's license renewal Standard Review Plan (NUREG-1800). If it does not manage aging effects, then provide the details of your AMR that concludes there are no aging effects requiring management (control of contamination buildup on the insulators should be among the aging effects addressed), or provide a description of the AMP which manages the effects.

C -RAI 4.1 -1

The RAI response indicates that metal corrosion allowance was used in supplier calculations but was not considered a TLAA per criterion 6. What is the basis for the corrosion allowance in the vendor calculations? Is it based on an assumed 40 year plant life?

C-RAI 4.2 -1

There current capsule withdrawal schedule is to withdraw one of the capsules during the 2003 refueling outage. At that time, the capsule will have received a fast neutron fluence of 5.05E19, more than the projected dose at 60 years of 4.85E19. Since Ginna has performed, and submitted to the NRC, a reactor vessel equivalent margins analysis, they indicated that they do not plan on testing that capsule. In addition, the current plan is to leave one capsule in the reactor vessel until about 2009, at which point it will have received a fast neutron fluence equivalent to 80 years of operation.

a) Since item 6 in GALL XI.M31 indicates the applicant is to withdraw one capsule at an outage in which the capsule receives a neutron fluence equivalent to the 60-year fluence and recommends that the applicant test the capsule in accordance with the requirements of ASTM E 185, the staff believes the capsule withdrawn during the 2003 refueling outage should be tested. Confirm whether the capsule will be tested during the current outage; if not, justify this

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deviation from GALL.

b) Item 7 in GALL XI.M31 indicates applicants without in-vessel capsules during the period of extended operation should use alternative dosimetry to monitor neutron fluence during the period of extended operation. Since the last capsule is to be removed in 2009, will Ginna have capsules within the vessel that could be removed and tested during the license renewal period? If they will not have capsules in the RPV during the license renewal period, what alternative dosimetry will be utilized during the period of extended operation to monitor neutron fluence?

C-RAI 4.2.1 -1

The analysis for pressurized thermal shock in attachment 4 in the June 10, 2003, response for additional information letter is different than the evaluation in Section 4.2 of the LRA. Does this analysis supercede the evaluation documented in Section 4.2 of the LRA? If it does, UFSAR Section A3.1.2 needs to be revised. The applicant is requested to confirm the analysis documented in the June 10, 2002, letter supercedes the evaluation in the LRA and to provide a updated UFSAR Section A3.1.2.

C-RAI 4.2.2 -1

Since the studs are fabricated with a specified minimum yield strength of 105 Ksi, it is possible that they could be heat treated to a maximum tensile strength limited greater than 1,172 MPa (170 ksi) and could be susceptible to SCC. This aging effect is identified in GALL item A2.1-c in NUREG-1801. This GALL item identifies Chapter XI.M3, “Reactor Head closure Studs” program as the GALL program acceptable for mitigating this aging effect. This program relies on ASME Code Section XI, Subsection IWB to monitor and detect this aging effect. Preventive measures identified in the GALL program include avoiding the use of metal-plated stud bolting to prevent degradation due to corrosion or hydrogen embrittlement and using manganese phosphate or other acceptable surface treatments and stable lubricants (RG 1.65).

Verify whether metal-plated stud bolting, manganese phosphate or other acceptable surface treatments, and stable lubricant was used/or the applicant is to provide the information.

C-RAI 4.3.7 -1

The charging nozzle and safety injection nozzle have relatively low calculated fatigue usage. The calculated usage factors do not correlate very well with the usage factors contained in NUREG/CR-6260. Why is the calculated fatigue usage is so low for these components.

C-RAI 4.3.7 -1(a)

The charging nozzle and safety injection nozzle have relatively low calculated fatigue usage. The calculated usage factors do not correlate very well with the usage factors contained in NUREG/CR-6260. Why is the calculated fatigue usage is so low for these components.

Also, provide the projected fatigue usage factor for the reactor vessel shutdown cooling nozzles (P&ID 33013-1260-LR, location F-4) for 60-years of operation.

C-RAI 4.5 -1

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In constructing the trend lines, it appears that the analyst has averaged the prestressing forces measured during each inspection. In Information Notice 99-10, the staff discourages the averaging method. The regression analysis is more representative, if each measured value is independently considered in the regression analysis. The individual measured values plotted on both sides of the trend line would make the operating experience transparent. The applicant is requested to show the individual measured values obtained during each inspection.

C-RAI 4.7.4 -1

The applicant is requested to provide the bases for (1) 0.030 in (vertical), (2) 0.0014 (radial) displacements, and (3) 144 cycles used in the final fatigue usage factor calculations.

C-RAI 4.7.6 -1

In response to F-RAI 4.7.6-1 in the May 23, 2003, letter the applicant described the UFSAR Supplement to for the RCP flywheel TLAA and has semi-committed to update the UFSAR. Since the applicant has not updated the UFSAR, provide a updated UFSAR Section for review

C-RAI 4.7.7 -1

Provide the response to F-RAI 4.7.7 -1, item (b).

C-RAI B2.1.1 -1

(a) Are all tanks in the scope of this program protectively coated at exterior surfaces?

(b) Provide the bases for not crediting the protective coatings applied on the carbon steel tanks as a preventive measure to mitigate .

(c) One of the key elements in GALL AMP XI.M29 is to implement preventive measures to mitigate the corrosion of the exterior surfaces of the carbon steel tanks. If you are not crediting the protective coatings for mitigating the effects of aging, what other mitigation measures do you plan to implement?

(d) The staff understands that the UT thickness measurements of tank bottom apply only to reactor make-up water storage tank (performed in 2001),and “A” and “B” condensate storage tanks (to be performed in 2003-2004), because the bottom of these tanks are not accessible for visual inspection. Will the bottom of these tanks be UT measured for thickness again prior to the beginning of the extended operation period.

(e) What is the guidance for additional measurements and inspections in the event that degradation is detected?

C-RAI B2.1.3 -3

In response to (b), it is not clear if the applicant is restoring the liner plate to its nominal thickness before recoating. The applicant is requested to clarify this issue. In response to (c), the applicant is requested to include a sampling plan for removing the insulation for examining

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the liner surfaces.

C-RAI B2.1.3 -3(1)

In response to (b), it is not clear if the applicant is restoring the liner plate to its nominal thickness before recoating. The applicant is requested to clarify this issue. In response to (c), the applicant is requested to include a sampling plan for removing the insulation for examining the liner surfaces.

Applicant's Response

(b) The carbon steel liner plate was not restored to its nominal thickness. Only the zinc-rich coating was restored.

Staff Request: Provide the acceptance criteria for liner degradation, when you (the applicant) will repair and restore the degraded liner before coating.

C-RAI B2.1.13

The AMP Audit performed on June 24, 2003, identified a discrepancy between the LRA and the applicant's Fire Protection Program basis document, LR-FP-PROGPLAN. The LRA states the Fire Protection Program is consistent with GALL, whereas the basis document states that the AMP is consistent with GALL with discrepancies. Provide the basis for the discrepancies in GALL and LR-FP-PROGPLAN identified during the AMP Audit.

C-RAI B.2.1.22 -1

This RAI response was to focus on small heat exchangers that are cleaned and inspected (rather than having heat transfer testing) as part of the plant's PM Program which they stated is an exception to the Service Water System Program. The responses seem to miss this focus/exception and in some cases tend to discuss heat transfer testing.

1) what was the criteria used to scope small heat exchangers that would be cleaned and inspected per the PM program (the initial response indicates all heat exchangers are within the program).

2) when the heat exchangers are being cleaned/inspected, what method and acceptance criteria are used to identify aging - response discusses pressure, flow and temperature. How is this relative to cleaning and inspecting and the exception is that heat transfer testing is not performed on this group of heat exchangers? Are visual inspections performed, does the specific PM address what the aging mechanism is and how it can be identified?

4) is the cleaning and inspection data relative to the aging trended?

5) does the cleaning and inspection preventative maintenance action contain acceptance criteria relative to aging of small heat exchangers

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There was a final part to this RAI that was not addressed: if enhancements to the PM program as stated in the LRA were necessary relative to the small heat exchangers?

C-RAI

Is loss of preload managed by the Bolting Integrity Program?

C-RAI B2.1.29

The licensee is requested to provide a listing of components that will be inspected for selective leaching, the components that will be assessed for hardness testing and how the hardness testing will be performed.

C-RAI B2.1.29 -1

In accordance with 10 CFR 54.2(d), the applicant is required to provide a summary description of the programs and activities for managing the effects of aging and the evaluation of time limited aging analyses for the period of extended operation determined by paragraphs (a) and(c) of this section respectively in the UFSAR supplement for the facility. The applicant is requested to provide this information in the UFSAR supplement for the selective leaching of materials program.

C-RAI B2.1.31 -1

1. Section a) of this RAI asked a question regarding the "Steam Generator Shell Assembly". The RAI response repeatedly refers to SG shell, wrapper and upper internals. At Ginna, are all these components considered part of the "SG Shell Assembly"? If not, and only the "SG shell" relates to the SG Shell Assembly, the applicant should explain the purpose of referring to the wrapper and upper internals in the RAI response. (For example, are they crediting the SG Program for aging management of these two components? If so, these are added components beyond those originally identified in the LRA application.)

2. In the applicant's response to (3) "Detection of Aging Effects" - The applicant has stated that periodic visual inspections are performed of the secondary side (including inspections of accessible areas of the shell). This response does not provide sufficient detail for the staff to complete their review. The applicant should address how frequently the inspections are performed (e.g., every refueling outage, etc) and the basis for this frequency. In addition, the applicant should address the extent/sample size of the inspection of each of these components (i.e., mid-upper bundle, tube support structure and the shell) and the basis for this inspection. The applicant should ensure the response to the question above identifies in more detail what areas of the SG shell are "accessible". If operating experience is a major factor in dictating the response to this question, the licensee should provide additional details on site specific and generic industry operating experience related to these components.

3. In the applicant's response to (5) "Acceptance Criteria" - The applicant stated that evidence of secondary side degradation is dispositioned by engineering evaluation. This response does not provide sufficient detail for the staff to complete their review. The applicant should identify the acceptance criteria which dictate the conditions (based on the visual

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inspection) that should be brought to the applicant's attention such that an engineering evaluation would be required.

C-RAI B2.1.34

Ginna's LRA did not provide the UFSAR supplement pertaining to AMP B2.1.34, "Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS)." Please provide.

C-RAI B2.1.34 -1

(a) The applicant stated that flaw tolerance evaluations were performed for the reactor coolant system (RCS) piping which included the effects of thermal aging embrittlement of CASS elbows and CASS reactor coolant pump (RCP) casings in the RCS. Was flaw tolerance evaluation performed for CASS RCP flanges? The staff understands that radiographic testing (RT) was performed on CASS valve bodies. Discuss the limitations of using RT in the detection and sizing of service induced cracks in the valve bodies and compare its capability in crack detection and sizing with respect to ultrasonic testing (UT).

(d) The referenced letter only discussed the industry-wide service experience pertaining to CASS valve bodies. Provide the industry-wide service experience pertaining to CASS piping components and CASS reactor coolant pump components.

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