



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

November 30, 2015

LICENSEE: STP Nuclear Operating Company  
FACILITY: South Texas Project  
SUBJECT: SUMMARY OF CONFERENCE CALLS HELD ON OCTOBER 15 AND 27, 2015 BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND STP NUCLEAR OPERATING COMPANY, CONCERNING SET 34, REQUEST FOR ADDITIONAL INFORMATION FOR THE SOUTH TEXAS PROJECT, LICENSE RENEWAL APPLICATION (TAC. NOS. ME4936 AND ME4937)

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of STP Nuclear Operating Company (STPNOC or the applicant) held a telephone conference call on October 15, 2015, and a follow-on call on October 27, 2015, to discuss and clarify the staff's requests for additional information (RAIs), Set 34, concerning the South Texas Project, license renewal application. The discussions were useful in clarifying the intent of the staff's RAIs.

Enclosure 1 provides the participants and Enclosure 2 contains the RAIs discussed with the applicant, including a brief description on the status of the items.

The applicant had an opportunity to comment on this summary.

*/RA/*

John W. Daily, Senior Project Manager  
Reactor Projects Branch 1  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-498 and 50-499

Enclosures:

1. List of Participants
2. List of Requests for Additional Information

cc: Listserv

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TELEPHONE CONFERENCE CALL, RAI SET 34  
SOUTH TEXAS PROJECT  
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS  
OCTOBER 15, 2015

PARTICIPANTS	AFFILIATIONS
John Daily	Nuclear Regulatory Commission (NRC)
Jim Medoff	NRC
Ganesh Cheruvenki	NRC
Bill Holston	NRC
Arden Aldridge	STP Nuclear Operating Company (STPNOC)
Gary Warner	Worley Parsons
Cheryl Boggess	Westinghouse
Karli Szweda	Westinghouse
Taylor Terek	Westinghouse
Mary Ann Walsh	Westinghouse

LIST OF PARTICIPANTS (FOLLOW-ON CALL FOR B2.1.13-5a)  
OCTOBER 27, 2015

PARTICIPANTS	AFFILIATIONS
John Daily	NRC
Bill Holston	NRC
Arden Aldridge	STPNOC
Gary Warner	Worley Parsons

CONFERENCE CALL ON REQUEST FOR ADDITIONAL  
INFORMATION RAI SET 34  
LICENSE RENEWAL APPLICATION  
OCTOBER 15 AND 27, 2015

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of STP Nuclear Operating Company (STPNOC or the applicant) held a telephone conference call on October 15, 2015, and a follow-on call on October 27, 2015, to discuss and clarify the staff's requests for additional information (RAIs), Set 34, concerning the South Texas Project, license renewal application. The discussions were useful in clarifying the intent of the staff's RAIs.

**Discussion**

The staff and the applicant held discussions on the draft RAIs contained in RAI Set 34 in order to clarify and ensure a common understanding of the information being requested. The issues, requests, and pertinent discussions are presented below.

The follow-on call was conducted on October 27, 2015, to finish discussion of RAI B2.1.13-5a.

The staff agreed to look further into some of the points raised as presented below, prior to issuing the final version of the requests. Actions or changes agreed to in the call, or resolved shortly thereafter, are presented as part of the respective RAI's discussion.

The applicant agreed to take the staff's concerns into consideration as it prepares its responses.

**Individual RAI drafts**

**RAI 3.0.3.3.6-1 – Components within the scope of the AMP**

**Issue:**

The population of components in MRP-227-A includes "Primary," "Expansion," "Existing Program" and "No Additional Measures" category components, even though "No Additional Measures" components are not included as part of the sample of components that will be inspected in accordance with the MRP-227-A methodology. The "Scope of Program" program element for the PWR Reactor Internals Program does not include "No Additional Measures" components as part of the population of components that is included within the scope of the AMP. The methodology in MRP-227-A does not preclude the possibility that the some components identified as "No Additional Measures" components in MRP-227-A are ASME Section XI Examination Category B-N-2 or B-N-3 components for the STP units.

**Request:**

Justify the basis for omitting "No Additional Measures" components from the scope and population of components in the PWR Reactor Internals Program. Clarify whether any of the RVI "No Additional Measures" components at STP are defined as ASME Section XI Examination Category B-N-2 or B-N-3 components. If so, identify which "No Additional

Measures” components are within the scope of the ASME Section XI Examination Category B-N-2 or B-N-3 requirements, and clarify whether the components will be inspected in accordance with the ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program (LRA AMP B2.1.1).

Discussion:

The staff and the applicant agreed that no additional clarification was needed.

**RAI 3.0.3.3.6-2 – Apparent component categorization inconsistencies**

Issue:

In MRP-227-A, the EPRI MRP identifies XL lower core plates in Westinghouse-designed PWR as “Existing Program” components that are inspected in accordance with ASME Section XI Examination Category B-N-3 requirements and does not define these components as “Expansion” components. To be consistent with this protocol, the reactor vessel internals inspection plan (RVIIIP), as submitted in the letter of June 30, 2015, identifies that the XL lower core plates are “Existing Program” components that will be inspected in accordance with ASME Section XI Examination Category B-N-3 requirements. Thus, there is an apparent inconsistency between the category identified for the XL lower core plates in the “Scope of Program” element and the category for these components identified in the RVIIIP.

Request:

Clarify whether the XL lower core plates (one plate in each unit) are “Expansion” components or “Existing Program” components for the PWR Reactor Internals Program, or both. If the plates are “Expansion” components, identify and justify the basis for selecting the “Primary” components that are linked to the XL lower core plates as “Expansion” components for the AMP and the RVIIIP.

Discussion:

The staff and the applicant agreed that no additional clarification was needed.

**RAI 3.0.3.3.6-3 – Response to A/LAI #1 – Lack of an MRP Letter 2013-025 Assessment**

Issue:

The letter of June 30, 2015, does not include an assessment of the three parameters identified by Westinghouse for bounding RVI component design, as recommended in MRP Letter No. 2013-025.

Request:

Provide the basis why the response basis to A/LAI #1 in the letter of June 30, 2015, did not include an assessment of the three parameters identified above, in accordance with

recommendations in EPRI MRP Letter No. 2013-025. Justify why such an assessment would not be needed as part of the basis for concluding that the assumptions used to develop MRP-227-A are bounding for the design of the RVI components at STP Units 1 and 2.

Discussion:

The staff and the applicant agreed that no additional clarification was needed.

**RAI 3.0.3.3.6-4 – Topic – Response to A/LAI #2 – Comparison to UFSAR Information**

Issue:

In Section 4.1 of the UFSAR, the applicant identifies RVI design assembly or component modifications that have been or will be implemented in the units. Based on the UFSAR statements, the staff need to understand: (a) whether the specific RVI assemblies at STP include any design configurations that deviate from the RVI design assemblies and assembly components that were generically evaluated in the MRP-191, MRP-232, and MRP-227-A reports or were not evaluated in these reports, and (b) whether these deviations (if they exist) should have been more definitively assessed in the response that was provided to A/LAI #2. Apparent deviations for lower core support structure components are addressed in RAI 3.0.3.3.6-5.

Request:

Identify all RVI design assembly component configurations (other than those for the deviations on lower core support structure assembly components) that have not been evaluated by or differ from those generically evaluated in the MRP-191, MRP-232, and MRP-227-A reports, other than those for lower core support assembly components (which are the topic of RAI 3.0.3.3.6-5). For components that have corresponding components in the generic MRP evaluations but differ from the configurations in the generic evaluation, clarify how the stress levels and neutron fluences for these components compare to those assessed for corresponding components in the generic MRP design evaluations. Based on this comparison, justify why augmented inspection protocols for the components would not need to be proposed for the components on a plant-specific basis for the AMP. Similarly, for components not analyzed in the MRP reports, justify why plant-specific aging management criteria would not need to be proposed for the components on a plant-specific basis for the AMP.

Discussion:

The staff and the applicant agreed that no additional clarification was needed.

**RAI 3.0.3.3.6-5 – Topic – Response to A/LAI #2 – Lower Core Support Assembly Deviations**

Issue:

These deviations were not identified in the response to A/LAI #2 and change a number of generic “Primary” to “Expansion” category relationships for the RVIIP from those defined in the MRP-227-A report for these Westinghouse-designed internal

Request:

Justify why the response to A/LAI #2 has not identified the lack of a lower core support structure assembly and lower core support column bodies and bolts (MRP-227-A “Expansion” components) as a deviations from the assessments in the MRP-191, MRP-232, and MRP-227-A reports. Clarify how these deviations would change the “Primary” to “Expansion” category relationships that need to be defined for the AMP and RVIIIP when compared to those normally defined in the MRP-227-A report for Westinghouse-designed internals. Provide the basis why alternative “Expansion” component substitutions for these components would not need to be proposed for the AMP and RVIIIP in order to be consistent with the total number of “Expansion” components defined in MRP-227-A for Westinghouse-designed internals.

Discussion:

The staff stated that it found apparent conflicting statements concerning the design of the STP core barrels and lower support structure assemblies; the staff noted these could create deviations from the generic Westinghouse PWR-designed components as reflected in MRP-227-A. The applicant agreed to supply a justification that explains why the components’ designs are not deviations from the MRP-227-A report.

**RAI 3.0.3.3.6-6 – Topic – Response to A/LAI #3 – Use of Inspection Data for CRGT Split Pins**

Issue:

1. The EPRI MRP has yet to identify in MRP-227-A or in the background reports for MRP-227-A that augmented inspections are part of the programmatic criteria for managing cracking or wear in replaced Westinghouse-design CRGT split pins made from Type 316 cold-worked stainless steel materials or that such data will be collected by the EPRI MRP for distribution to and evaluation by the industry licensee. Thus, some additional information is needed to clarify how the applicant will implement its process for collecting and assessing CRGT split pin inspection data in accordance with the PWR Reactor Internals Program.
2. If the CRGT splits pins are defined as ASME Section XI Examination Category B-N-3 removable core support structure components, the applicant will be required to inspect the components in accordance with their ISI program requirements for B-N-3 inspections, independent of the position taken in MRP-227-A for replaced split pins made from Type 316 cold-worked stainless steel materials.

Request:

1. Identify the plants that will be performing inspections of their replaced Type 316 cold-worked CRGT split pins which the applicant will use as the lead operating experience for managing aging in the CRGT split pins at STP Units 1 and 2. Identify the process or processes that will be used in accordance with the “Administrative Controls” or “Confirmation Process” elements of the PWR Reactor Internals Program to collect and compile the inspection data from these plants. Identify the criteria that will be implemented in accordance with the “monitoring and trending”

program element of the AMP. Identify the plant-specific “acceptance criteria” that will be used to assess such data and the “corrective actions” that will be taken if the acceptance criteria are not met.

2. Clarify whether the replaced CRGT split pins at STP are categorized as ASME Section XI Examination Category B-N-3 components (i.e., ASME removable core support structure components). If the split pins are defined as ASME removable core support structure components, justify why the components would not need to be inspected and managed for aging using either the “Existing Program” criteria in the PWR Reactor Internals Program (LRA B.2.1.35) or the ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program (i.e., the ISI Program in LRA Section B2.1.1).

Discussion:

The staff and the applicant agreed that no additional clarification was needed.

**RAI 3.0.3.3.6-7 – Topic – Response to A/LAI #5 – Comparison to UFSAR Information**

Issue:

In UFSAR Section 4.1, the applicant discusses changes to the configuration of the hold-down springs which eliminated the use of screws for retention of the springs.

Request:

Clarify whether the change in the component configuration for the hold-down springs (as described in UFSAR Section 4.1) impacts the loading and FMECA assessments for Type 403 martensitic stainless steel hold-down springs in the MRP-191 report. Based on this review, clarify whether the basis for omitting physical measurements of the hold-down springs remains valid in light of the information provided about the hold-down spring design in Section 4.1 of the UFSAR. Justify your response to this RAI.

Discussion:

The staff and the applicant discussed the 2 types of hold-down springs, the one for the internals package as a whole and the ones for individual fuel assembly bundles. Since the internals package hold-down spring has no associated screws or bolts, this RAI is not necessary and will be dropped.

**RAI 3.0.3.3.6-8 – Topic – Response to A/LAI #7 –Thermal Aging of CASS Upper Internals**

Issue:

The response to A/LAI #7 uses the criteria in NRC License Renewal Issue 08-0030 (dated May 19, 2000) as the basis for concluding that thermal aging embrittlement will not be an aging management issue for RVI upper internals assembly support columns or column bases. Additional data is necessary to verify that thermal aging embrittlement will not be an aging mechanism of concern for these components during the period of extended operation.



Request:

Provide the plant-specific delta-ferrite contents for the CASS CF8 materials used to fabricate upper internals assembly support columns or column bases, and the equational criteria and plant specific chemistry alloy content data used to calculate the delta-ferrite contents of these components. As an alternative basis for resolving this issue (if applicable), the applicant may demonstrate that these components were appropriately evaluated in MRP-227-A or the background reports for MRP-227-A and were placed into FMECA Category A and “No Additional Measures” categories based on the conclusions that there are no consequences on RVI component intended functions if these components fail to maintain their structural integrity.

Discussion:

The staff and the applicant agreed that no additional clarification was needed.

**RAI 3.0.3.3.6-9 – Topic – Response to A/LAI #8, Item 5 – RVI Environmentally-Assisted Fatigue**

Issue:

Although the scope of LRA AMP B3.1 includes activities to monitor the impacts of environmentally-assisted fatigue on the CUF analyses for reactor coolant pressure boundary components, it is not evident whether similar activities will be applied to the CUF analyses for the RVI components listed in the background section of this RAI, and if so, how such activities will be applied to the cycle counting and CUF reanalysis criteria defined in the AMP.

Request:

Clarify whether the AMP’s monitoring and trending activities for monitoring the impacts of environmental effects of the adequacy of components with CUF analyses are being extended to those RVI components with a CUF analysis. If not, identify the activities that will be performed to analyze or manage environmentally-assisted fatigue in the RVI components. Justify the response to this RAI.

Discussion:

The staff and the applicant agreed that no additional clarification was needed.

**RAI 3.0.3.3.6-10 – Topic – Adequacy of UFSAR Supplement Section A1.35**

Issue:

In the letter of June 30, 2015, the applicant did not administratively update LRA Section A1.35, PWR Reactor Internals, to be consistent with the updated version of the PWR Reactor Internals Program (LRA Section B2.1.35) provided in the letter of June 20, 2015. Thus, the current version of LRA UFSAR Supplement Section A1.35, “PWR Vessel Internals,” is out of date and must be updated to reflect the status of the AMP and reactor vessel internals inspection plan (RVIIIP) that were submitted in the letter of June 30, 2015.

Request:

Justify why LRA Section A1.35 has not been updated to reflect that the current status of the AMP and RVIIIP submitted in the letter of June 30, 2015. Specifically, justify why the USFAR supplement in Section A1.35 has not been updated to reflect the following aspects of the program:

- Appropriate referenced ERPI Report for the AMP and UFSAR Supplement for the AMP is EPRI Technical Report No. 1022863, "Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guideline (MRP-227-A)"
- Protocols and activities for implementing the AMP and RVIIIP in accordance with methodology in MRP-227-A are appropriately adjusted to account for deviations from the generic design and inspection and evaluation criteria in MRP-227-A or for the applicant's response bases for resolving specific Applicant/Licensee Action Items in the MRP-227-A report, as identified in the NRC safety evaluation for MRP-227-A dated December 16, 2011
- Population of components in the AMP include "Primary," "Expansion," "Existing Program," and "No Additional Measures" category components for the AMP

Discussion:

The staff and the applicant agreed that no additional clarification was needed.

**RAI B2.1.35-11/B3.1-11** – This RAI is a duplicate request to RAI 3.0.3.6-9 and therefore is deleted.

**RAI B2.1.13-5a – Topic – LR-ISG-2013-01 – Inspection Frequency Followup**

Issue:

(1) LR-ISG-2013-01, "Aging Management of Loss of Coating or Lining Integrity for Internal Coatings/Linings on In-Scope Piping, Piping Components, Heat Exchangers, and Tanks," AMP XI.M42, "Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks," recommends that when peeling, delamination, blisters, or rusting are observed during inspections or when cracking and flaking that does not meet acceptance criteria is observed during inspections, the subsequent inspection interval is 4 years instead of 6 years. The responses to RAI 3.0.3-2a Part (d) and RAI B2.1.13-5a state that the specific degraded coatings will be replaced. However, with a known degradation mechanism potentially occurring in other locations with the same coating and environment, the staff concluded that inspections should be conducted more frequently than if no degradation was noted in prior inspections. The staff lacks sufficient information to conclude that a 6-year inspection interval is adequate when the extent of coating degradation, similar to the observed degradation that was repaired, is not known. In addition, an adequate basis for inspecting the EW pump internal coatings every 10 years was not provided.

And:

(2) The extent of blistering, peeling, and delamination is not typically detectable by visual inspection alone. The “corrective actions” program element of LR-ISG-2013-01, “Aging Management of Loss of Coating or Lining Integrity for Internal Coatings/Linings on In-Scope Piping, Piping Components, Heat Exchangers, and Tanks,” AMP XI.M42, “Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks,” recommends that testing or examination be conducted to ensure that the extent of repaired coatings/linings encompasses sound material.

Request:

1) Respond to the following:

a) With the exception of the internal coatings for the fire water storage tanks, state and justify the basis for how the extent of coatings that could be experiencing similar degradation to the coating areas that were repaired will be determined in a reasonable time frame.

b) State the basis for inspecting the EW pump internal coatings every 10 years in lieu of every 6 years.

c) State the basis for not stating the periodicity of EW pump internal coating inspections in the Open-Cycle Cooling Water System Program.

2) State whether: (a) testing and examination will be conducted prior to and during the repair to ensure that replaced coatings encompasses sound coating material; and (b) the testing will include physical techniques in addition to visual examination.

Discussion:

The issues as originally presented in the draft were agreed to be clear. Most of the discussion centered upon various aspects of the staff requests.

Request 1(a): The applicant stated that it inspects one train of ECW components each year (6 trains between the two units combined), thus the combination of component, coating, and environment is inspected annually. In addition the applicant stated that when degradation is detected, it is repaired to original condition.

Requests 1(b) and 1(c):

The applicant stated that it does not credit the EW pump internal coating with a license renewal function (i.e., it is not relied upon for pressure boundary retention), however the coating is covered under the 10-year pump overhaul schedule. The staff stated that, in that case, could the coating, while not in-scope, nevertheless become a clogging hazard to downstream components? The applicant stated that it credits the downstream self-cleaning strainers which have a mesh size smaller than the minimum diameter of any downstream in-scope components.

Request 2:

Discussion of this item revolved around sub part (b), with the applicant stating that it repairs all degradation that is found during inspections. Therefore, the staff and the applicant agreed that sub part (b) is not needed and can be dropped.

Following the October 15 call, the staff revised Issue 3/Request 3. A follow-on call was held on October 27, 2015, to discuss the revisions.

[Issue 3]:

Although the ECW pumps are located upstream of self-cleaning strainers, this in and of itself is not a sufficient basis to justify a nominal 10-year inspection frequency. The staff lacks sufficient information to conclude that the strainers will provide an effective barrier to flow blockage of downstream heat exchangers. Plant-specific operating experience of the ECW coatings has revealed degraded coatings. Degraded coatings can lead to loss of material of the base material. A basis was not provided for how loss of material will be monitored given that the coatings will be inspected on a nominal 10-year frequency.

[Request 3]:

State:

- a. What backup indications are available to determine that fouling is not occurring on the self-cleaning strainers.
- b. State the interval of inspection of the strainer elements on the self-cleaning strainers.
- c. State the results of a plant-specific review of strainer differential pressure results.

[Finally,] Given that prior plant-specific inspections of the ECW pump internal coatings have revealed degradation, state the basis for why there is reasonable assurance that the pressure boundary function of the pump and associated piping components will be maintained between inspection intervals.

During the October 27 call, the applicant explained that the ECW pump strainer has a control room alarm on high-DP, and operators routinely check on the strainer during their rounds. In addition, the applicant stated that the strainer is maintained under its Maintenance Rule programs and is inspected at a 3-year interval for holes and other issues. The applicant stated that it manages loss of material by the periodic overhaul of the pumps. The staff sought confirmation that the ECW pumps are constructed of aluminum bronze material, which is generally corrosion resistant. The applicant confirmed this to be the case and stated this had been provided in an earlier response; the staff agreed to look into the earlier responses to verify this, and if so, then requests 3(c) and the final paragraph would be dropped as not needed.

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