May 16, 2001

MEMORANDUM TO: Robert A. Gramm, Chief, Section 1
Project Directorate IV and Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: John A. Nakoski, Senior Project Manager, Section 1
Project Directorate IV and Decommissioning ***/RA/***
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 - STAFF COMMENTS ON PROPOSED FSAR SECTION PROVIDED TO LICENSEE ON MAY 11, 2001, TO RESOLVE REMAINING OPEN ITEMS
(TAC NOS. MA6057 AND MA6058)

The U.S. Nuclear Regulatory Commission (NRC) staff is in the process of reviewing the risk-informed exemption requests that the STP Nuclear Operating Company (STPNOC) submitted. As part of that process, the NRC staff issued a draft safety evaluation (SE) on November 15, 2000. Currently, the NRC staff is working with STPNOC to resolve the open and confirmatory items from the draft SE. The NRC staff is participating in periodic teleconferences to discuss the resolution of the open and confirmatory items. In preparation for these teleconferences, the licensee will frequently provide the NRC staff with information either using email or by fax. Likewise, the NRC staff will frequently provide information to the licensee using similar methods. All of the information exchanged by email or fax between the licensee and the NRC during this process will be made available to the public.

The attachment provides NRC staff comments on the licensee's May 2, 2001, draft proposed Final Safety Analysis Report (FSAR) section that describes the categorization, treatment, and oversight processes that form the basis for the requested exemptions. This information was provided to the licensee on May 11, 2001, to facilitate discussions during a teleconference on May 14, 2001, to develop a version of the FSAR that is sufficient to support the finalization of the NRC staff's SE. Changes were made to the attachment after it was sent to the licensee to clarify NRC staff's concerns or proposed resolution. The changes made are italicized and underlined.

Docket Nos. 50-498 and 50-499

Attachment: As stated

cc: See next page

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STAFF COMMENTS ON MAY 2, 2001, PROPOSED STP FSAR

Provided below are issues that have been identified by the technical staff based on its review of the STP FSAR sent to the NRC on May 2, 2001. One new issue has been identified that should be discussed further with STPNOC, ~~*one concern was identified that should be discussed by NRR Leadership,*~~ six changes proposed by STPNOC were identified where the changes are not consistent with the intent of RILP, and ~~*six*~~ *four* changes proposed by STPNOC were identified where clarification may be necessary on the intent of the proposed change. For each of these issues, an excerpt from the May 2, 2001, proposed STP FSAR, a statement of the concern, and a proposed resolution are provided. Highlights, redlines, and strikeouts in the excerpts from the proposed STP FSAR reflect changes made by STPNOC to the version of the FSAR that we provided to STPNOC during the April 24, 2001, RILP - STPNOC meeting.

NEW ISSUE IDENTIFIED:

Excerpt from Proposed STP FSAR (information was added to April 24, 2001, NRC Version)

Section 13.7.2.5 Categorization of the Pressure Boundary Function of ASME Components.

In addition to the results of the categorization process discussed in Sections 13.7.2.3 and 13.7.2.4 above, STP considers other information in categorizing the pressure boundary function of ASME components. Specifically, for ASME Class 1 and 2 components, STP has established a risk ranking process in conjunction with its relief requests for risk-informed inservice inspection (RI-ISI) under NRC Regulatory Guide 1.178, "An Approach for Plant-Specific Risk-Informed Decisionmaking: Inservice Inspection of Piping." For ASME Class 3 components, STP will follow the RI-ISI methodology for risk ranking. STP will apply this methodology to Class 3 systems or portions of systems for which the exemption from 10 CFR 50.55a(g) is desired.

The RI-ISI methodology for risk ranking applies only to piping. STP assigns other components the same pressure boundary risk rank as the associated section of piping, or performs a technical evaluation that supports a lower pressure boundary risk rank based on such factors as differences in design features and/or degradation mechanisms that are less severe for these components than for the associated piping.

For determining the final pressure boundary category of ASME components for purposes of the exemption from 10 CFR 50.55a(g), STP uses the higher of the RI-ISI risk ranking or the categorization of the pressure boundary function determined by the process discussed in Section 13.7.2.4. Supports are assigned the same category as the final pressure boundary category of the associated component.

In order to provide additional assurance, STP performs periodic tests, up to and including tests equivalent to ASME Section XI tests, to ensure that the pressure boundary of LSS and NRS components is sufficiently maintained.

Concern:

The NRC staff disagrees with the fundamental premise that supports may be assigned the same category as the final pressure boundary category of the associated component. The categorization approach does not take into account the appropriate failure modes of supports and the potential effects of their failure on multiple trains. Further, the staff disagrees with the underlying technical assumption that support failure will affect only the component to which it is attached. Without specific justification, supports in the vicinity of low safety significant components cannot be assumed to be less important to the overall system than the supports connected to high safety significant components. This approach for categorizing supports could result in certain supports

being inappropriately categorized as having low safety significance, and consequently not tested or inspected adequately to provide assurance of their operational readiness. As a result, some supports categorized as low-safety significant might not be capable of protecting their applicable piping systems when challenged by a seismic event, water hammer, or other dynamic loadings; or a snubber might inadvertently lock-up under thermal loadings. Therefore, the NRC staff finds the approach used to categorize supports to be unacceptable.

Proposed Resolution:

While we have previously told STPNOC that its proposed approach to categorizing supports was acceptable, we need to fully consider the new perspective brought to the proposal. The STP FSAR should be updated to address this concern. For example, the FSAR could be revised to read:

> "Supports are assigned the same category as the final pressure boundary category of the highest ranked piping or component within the piping analytical model in which the support is included."

The intent here is that when categorizing the supports (or snubbers), STPNOC should consider the boundaries of piping segments as they relate to the supporting piping analytical models.

CHANGES NOT CONSISTENT W/RILP INTENT:

1. Excerpt from Proposed STP FSAR

   Section 13.7.3.3.4 Maintenance Process.

   Preventive maintenance tasks are developed for active structures, systems, or components factoring in vendor recommendations. STP may use an alternative to these recommendations if there is a technical basis that supports the functionality of the safety-related LSS and NRS SSCs. ~~The basis does not need to be documented.~~ For an SSC in service beyond its designed life, STP will have a technical basis to determine that the SSC will remain capable of performing its safety-related function(s). These bases do not need to be documented.

   Concern:

   In its January 23, 2001, submittal, STP committed to perform an evaluation to determine whether to replace a component that exceeded its qualified life, but did not state that the evaluation would be undocumented. These engineering evaluations will involve quantitative analyses and need to be documented.

   Proposed Resolution: Recommend that STPNOC restore the paragraph to its original form.

2. Excerpt from Proposed STP FSAR

   Section 13.7.3.3.5 Inspection, Test, and Surveillance Process.

   The purpose of the inspection, test, and surveillance process for safety-related LSS and NRS SSCs is to obtain data or information that allows evaluation of operating characteristics to support STP's determination that these SSCs will remain capable of performing their safety-related functions under design-basis conditions. ~~throughout the service life of the SSC.~~

Concern:

The purpose statement is intended to ensure that STP establishes a means to collect data or information that allows a forward-looking assessment of the capability of safety-related LSS and NRS SSCs to perform their safety functions under design-basis conditions. RAI responses from STP had revealed ineffective approaches being considered by the licensee for the inspection, test, and surveillance process (such as relying only on periodic operation of a pump or valve without performance evaluation). Deletion of the phrase "throughout the service life of the SSC" would permit implementation of an ineffective data/information collection strategy (e.g., an MOV exercise stroke as opposed to a diagnostic test) that might not maintain functionality of the component over the SSC service life.

Proposed Resolution: Recommend that STPNOC restore the paragraph to its original form.

3. Excerpt from Proposed STP FSAR

Section 13.7.3.3.7 Management and Oversight Process.

Planned changes to, or elimination of, commitments described in the UFSAR or other licensing bases documentation that address issues identified in NRC generic communications (e.g., generic letters or bulletins), NRC orders, notices of violation, etc. related to safety-related LSS and NRS SSCs will be evaluated ~~for the effect on the ability of these SSCs to perform their safety-related functions under design basis conditions~~ in accordance with ~~an NRC endorsed~~ STP's commitment change process.

Concern:

This requirement is necessary in the FSAR to prevent the licensee from eliminating commitments applicable to safety-related LSS and NRS SSCs without consideration of the basis for the commitment in terms of the functionality of the affected SSCs. For example, in its RAI response, STP stated that GL 89-10 and GL 96-05 commitments for safety-related LSS and NRS MOVs would be eliminated with reliance on past practices without consideration that the inadequacy of those past practices in providing assurance of MOV functionality led to the issuance of GL 89-10 and GL 96-05. Further, the FSAR needs to specify use of an NRC-endorsed commitment change process to ensure adequate consideration of the impact of changes in commitments by the licensee.

Proposed Resolution: Recommend that STPNOC restore the paragraph to its original form.

4. Excerpt from Proposed STP FSAR

Section 13.7.4.1 Performance Monitoring.

- ~~Performance Reporting & Identification Database – This database collects both positive and negative indicators from the performance of plant activities, such as corrective maintenance, installation of modifications, and conduct of testing. The Quality organization provides oversight of this database.~~

Concern:

The staff relies, in part, on the licensee's use of feedback from corrective maintenance, installation of modifications, and conduct of testing to gain confidence that components will be capable of functioning under design-basis conditions when called upon.

Proposed Resolution: Recommend that STPNOC restore the paragraph to its original form.

5. Excerpt from Proposed STP FSAR

13.7.2.2 Comprehensive Risk Management Process. The integrated decision-making process used by STP is controlled by procedure. ~~The integrated decision-making~~ This process incorporates the use ~~of an Expert Panel and Working Groups. The Expert Panel is comprised of qualified senior level individuals and is responsible for oversight of the program and for reviewing the activities and recommendations of the Working Group. The Working Group is comprised~~ of experienced individuals who apply risk insights and ~~experience~~ judgement to categorize components in accordance with the process described in this Section. ~~and make recommendations to the Expert Panel.~~

Concern:

STP has eliminated the two-step oversight process of a Working Group and an Expert Panel. The two-step oversight process for independent review of risk categorization was an element of the STP robust categorization process. At the April 4 - 5, 2001, meeting when STPNOC suggested that it would rewrite this section, we explicitly told them it was okay provided that the concept of an independent review (Expert Panel review as described originally) was retained in the process description.

Proposed Resolution:

We need to inform STPNOC that it needs to rewrite this section to capture the concept of the independent review.

6. Excerpt from Proposed STP FSAR

Section 13.7.2.3 PRA Risk Categorization Process.
.....

PRA Ranking	Criteria
High	RAW ~~≥~~= 100.0 or FV ~~≥~~= 0.01 or FV ~~≥~~= 0.005 and RAW ~~≥~~= 2.0
Medium (Further Evaluation is Required)	FV < 0.005 and 100.0 > RAW ~~≥~~= 10.0
Medium	FV ~~≥~~= 0.005 and RAW < 2.0 or FV < 0.005 and 10.0 > RAW ~~≥~~= 2.0
Low	FV < 0.005 and RAW < 2.0

Concern:

The RAW and FV table does not contain ≤ or ≥symbols. The table needs to be corrected.

Proposed Resolution: Recommend that STPNOC restore the table to its original form.

CLARIFICATION OF STPNOC'S PROPOSED CHANGES:

1. Excerpt from Proposed STP FSAR

Section 13.7.3.2 Enhanced Treatment for HSS and MSS Components.

> The performance of these SSCs will be monitored ~~sufficiently~~ as described in Section 13.7.4 to ~~assure~~ provide reasonable confidence that their ongoing capability to perform their risk significant functions. The design control process will ~~assure that~~ evaluate facility changes affecting the risk-significant functions of these SSCs. ~~will continue to be capable of performing those functions.~~

Concern:

In its discussion of the STP performance monitoring processes *(Under Section 13.7.4 only subsection 13.7.4.1, "Performance Monitoring," discusses performing monitoring processes.)* Section 13.7.4*.1* only refers to the Maintenance Rule Program and the Corrective Action Program. Similar to the staff's position on safety-related LSS and NRS SSCs, these two programs *by themselves* are not sufficient to provide confidence in the capability of HSS and MSS SSCs to perform their risk-significant functions. Further, the reference to "reasonable confidence" was applied to LSS and NRS SSCs, and might not be appropriate for HSS and MSS SSCs. Finally, the FSAR does not focus the evaluation of facility changes on the capability of HSS and MSS SSCs to perform their risk-significant functions.

Proposed Resolution: [DISCUSS WITH STPNOC]

We should clarify the intent of the proposed rewrite with STPNOC.

It appears that the first sentence would limit STPNOC to only those monitoring processes described in Section 13.7.4. There are other monitoring processes that the licensee ~~*could use*~~ *is using* to establish confidence in the functionality of HSS and MSS SSCs. Our understanding of the intent of the monitoring processes is that sufficient monitoring is performed to support STPNOC's determination that these SSCs will remain capable of performing the HSS or MSS functions. The first sentence would be acceptable with the removal of the reference to Section 13.7.4 as describing the only monitoring processes to provide reasonable confidence of functionality.

The proposed rewrite of the second sentence appears to have changed the intent as we understood it. As rewritten, it reads that changes to the risk-significant functions will only be evaluated using the design control process. Our understanding of the intent is that the design control process will be applied to facility changes affecting the risk-significant functions of these SSCs.

Given our comments, we propose the following rewrite:

> The performance of these SSCs will be ***monitored to*** provide reasonable confidence of their ongoing capability to perform their risk significant functions. The design control process will ***be applied to*** facility changes affecting the risk-significant functions of these SSCs.

2. Excerpt from Proposed STP FSAR

Section 13.7.3.3.1 Design Control Process.

~~The design control process for safety-related LSS and NRS SSCs will maintain and apply the design inputs and assumptions to maintain the ability of these SSCs to perform their safety-related functions under design-basis conditions. Changes to~~ Changes may be made in the design (including the design basis) of safety-related LSS and NRS ~~SSCs~~ components. Such changes will be controlled by following the design control process satisfying 10 CFR Part 50, Appendix B, and other regulatory requirements that may be applicable, such as 10 CFR 50.59.

Concern:

Deletion of the overall purpose of the design control process would eliminate the requirement that the licensee maintain and apply the design inputs and assumptions. The discussion of changes to design basis is not appropriate for this section of the FSAR on treatment of safety-related LSS and NRS SSCs, because Option 2 assumes that design bases will be maintained. The licensee can address design basis changes through other means allowed by the regulations. Further, the revised language might allow STP to change design inputs and assumptions through the 50.59 process with no prior NRC review and approval and without satisfying the provisions of Section 13.7.5.2. This purpose statement (and others) is necessary in the FSAR because the licensee's responses to RAI questions revealed that STP did not intend to maintain design inputs in the treatment of safety-related LSS and NRS SSCs. The requirement to maintain and apply design inputs needs to be retained in the FSAR to ensure that seismic and environmental capability is adequately addressed. Further, the purpose statement was intended to address staff concerns regarding ineffective approaches for implementing the design control process indicated in STP's submittals.

Proposed Resolution: [DISCUSS WITH STPNOC]

Contrary to the statement made under the concern above, it is the NRC's position that changes may be made to design inputs and assumptions without NRC review and approval consistent with the provisions of 10 CFR 50.59. Changes to the design inputs and assumptions that are made consistent with 10 CFR 50.59 are not subject to the change control provisions of proposed FSAR Section 13.7.5.2.

We accept the deletion of the first sentence as it is unnecessary given that the design control process should remain unchanged as a result of the exemptions we may grant (requirements of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B, continue to apply). Under Option 2, the decision was made to discuss design bases as those described in the FSAR. To be consistent with the direction being taken in Option 2, and to clarify the intent we suggest discussing the following rewrite with STPNOC:

> ***Changes in the design functions of LSS and NRS SSCs or the conditions under which the intended functions are required to be performed, as described in the FSAR,*** will be controlled by following the design control process satisfying 10 CFR Part 50, Appendix B, and other regulatory requirements that may be applicable, such as 10 CFR 50.59.

3. Excerpt from Proposed STP FSAR

See the new issue for the excerpt from the proposed STP FSAR Section 13.7.2.5.

Concern:

This section needs to be clarified that the risk-informed ISI methodology to be used to categorize the passive pressure boundary function is that approved for use at STPNOC (EPRI methodology).

Proposed Resolution: [DISCUSS WITH STPNOC]

The staff will work with STPNOC to clarify the RI ISI methodology to be used.

4. Excerpt from Proposed STP FSAR

13.7.2.3 PRA Risk Categorization Process.

....

A sensitivity study is performed as part of the periodic updates to the PRA to determine the cumulative impact on CDF and LERF from postulating a factor of 10 increase in the failure rates for all modeled LSS components and non-categorized low ranking PRA components. The increases in CDF and LERF are determined to be acceptable using the guidelines for changes as outlined in Regulatory Guide 1.174.

To address defense-in-depth issues related to Late Containment Failures, a similar sensitivity analysis is performed as part of the periodic updates to the PRA. This study postulates an increase in component failure rates by a factor of 10 for all modeled LSS components and non-categorized low ranking PRA components. STP compares the results with the guidance for CDF and LERF in Regulatory Guide 1.174. This assures that the delta increases in Late Containment Failures are small and consistent with the intention of the Commission's Safety Goal Policy Statement.

Concern:

It is not clear from the statement what the intent of the sensitivity studies are. In the first paragraph, the intent of conducting a sensitivity study should be stated clearly using words like, "To determine the potential impact of the categorization of the LSS components on the overall plant risk, a sensitivity study is performed...." In the second paragraph, the third and last sentences should be changed to something like: "STP compares the resulting late containment failure frequency with its nominal frequency to assure that the delta increase in the late containment failure frequency is small, in support of adhering to the defense-in-depth philosophy depicted in RG 1.174."

Proposed Resolution: [DISCUSS WITH STPNOC]

The staff will work with STPNOC to clarify the intent of sensitivity studies.