January 18, 2000

Mr. William T. Cottle
President and Chief Executive Officer
STP Nuclear Operating Company
South Texas Project Electric
Generating Station
P. O. Box 289
Wadsworth, TX 77483

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 - REQUEST FOR EXEMPTION TO EXCLUDE CERTAIN COMPONENTS FROM THE SCOPE OF SPECIAL TREATMENT REQUIREMENTS REQUIRED BY REGULATIONS; REQUEST FOR ADDITIONAL INFORMATION (TAC NOS. MA6057 AND MA6058)

Dear Mr. Cottle:

By letter dated July 13, 1999, the STP Nuclear Operating Company (STPNOC) requested that the Nuclear Regulatory Commission (NRC) approve 14 risk-informed exemptions to exclude safety-related low safety/risk significant (LSS) and non-risk significant (NRS) components from the scope of special treatment requirements defined in Title 10 of the Code of Federal Regulations (10 CFR). The proposed exemptions are based on risk-informed insights gained from your probabilistic risk assessment and are an extension of STPNOC's Graded Quality Assurance program that has been approved by the NRC.

Your request for multiple exemptions is also being treated as a pilot-plant initiative and is assisting current NRC efforts to incorporate risk-informed attributes into the Part 50 regulations. The NRC believes that integrating these insights into the appropriate regulatory framework will enhance nuclear safety by allowing licensees to focus resources on safety-significant issues, while understanding that it also provides opportunities to further manage site maintenance costs. For these reasons, the staff strongly endorses, and appreciates, your extensive efforts in support of this exemption request.

On August 31 and September 1, 1999, representatives from your staff and the NRC met in order to discuss the exemption request in detail as well as to gain a greater understanding of the risk categorization process currently implemented at South Texas Project (STP). As a follow-up to these meetings, the NRC staff met with your representatives at the STP site on October 5 and 6, 1999, to further discuss a number of aspects of the proposal identified during its initial technical review. These discussions have been very helpful to the staff as it considers the implications to public health and safety with the merits of reducing unnecessary regulatory burden mentioned in your exemption request.

Accordingly, the NRC staff has determined that additional information is needed, as discussed in the enclosed request for additional information (Enclosure 1). This request integrates questions from all of the technical staff involved with the review of your exemption request. We recognize that your exemption request is a first-of-a-kind proposal and that it includes some very unique aspects. However, our review has identified that some fundamental material was not provided in your submittal. This type of material would typically be expected for more routine licensing action requests. Overall, the enclosed questions relate to information that the staff will need to arrive at a safety decision on your exemption proposal. In addition, given your status as a pilot plant, the NRC staff is requesting information that will be useful for our risk-informed Part 50 (RIP50) effort. This question, which will help clarify certain aspects of your request with similar issues now being considered by the NRC RIP50 team, is contained in Enclosure 2.

We believe the most effective manner to resolve these questions will be for STP to develop a draft response, and a draft revision of the exemption request, based on the enclosed request for additional information. Following the docketing of that information, a meeting will be scheduled at a mutually agreeable date and time to discuss the draft information. Then, a formal resubmittal of the exemption request would be expected.

The NRC staff appreciates the efforts expended with respect to this matter. If you or your staff have any issues associated with the request for additional information that need further clarification to assist in preparing your response to the request for additional information, please call me at 301-415-1010.

Sincerely,

/***RA/***

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

Docket Nos. 50-498 and 50-499

Enclosures: 1. Request for Additional Information
2. Request for Information to Support RIP50

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LETTER TO W. T. COTTLE - RE: SOUTH TEXAS PROJECT, UNITS 1 AND 2 - REQUEST FOR EXEMPTION TO EXCLUDE CERTAIN COMPONENTS FROM THE SCOPE OF SPECIAL TREATMENT REQUIREMENTS REQUIRED BY REGULATIONS; REQUEST FOR ADDITIONAL INFORMATION (TAC NOS. MA6057 AND MA6058)

Dated: January 18, 2000

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SOUTH TEXAS PROJECT
REQUEST FOR EXEMPTIONS TO EXCLUDE CERTAIN COMPONENTS FROM THE SCOPE OF SPECIAL TREATMENT REQUIREMENTS
REQUEST FOR ADDITIONAL INFORMATION

REGULATORY PROCESS AND SCOPE ISSUES

1. In discussions with the licensee during the August 31, and September 1, 1999, public meetings, it was unclear what components were included (or excluded) from the exemption request. For example, the licensee stated that piping was not included in the exemption request - only "tagged" components were included in the scope of the proposed exemption. The staff requests that the licensee provide a list of the groups or types of components included in the exemption request (not individual components).

2. The licensee's proposed exemption request is not clear in terms of which ASME Code requirements will continue to be applied to safety-related components that are categorized as LSS or NRS. In the August 31, 1999, meeting to discuss the exemption request, the licensee stated that safety-related piping 1-inch nominal pipe size (NPS 1) and less were not subject to ASME Code requirements. Although the ASME Code, Section XI excludes ISI requirements for piping and components of NPS 1 and smaller (except for steam generator tubing), it is not clear whether the licensee was intending to exclude safety-related piping NPS 1 and smaller from ASME Code, Section III design requirements or from the ASME Code, Section XI repair and replacement requirements. Please clarify which requirements of the ASME Code (Section III and Section XI) will not be applied to safety-related piping NPS 1 and smaller. Please either confirm that the ASME Code requirements will continue to be satisfied at STP, or provide a technical basis for why this piping will remain functional under all design conditions (i.e, with the design, repair, and replacement requirements eliminated).

3. The July 13, 1999, submittal stated that an exemption to General Design Criterion (GDC) 4, which includes qualification for dynamic effects, was requested. During the meetings with the staff on August 31, September 1, and October 5, 1999, the licensee stated that an exemption was not requested for GDC 4 in its entirety and that dynamic qualification of electrical and mechanical components was out of the scope of the exemption request.

   (a) The staff requests that the licensee clarify the scope of the proposed exemption request under GDC 4, including whether dynamic qualification is considered in the scope of the exemption request.

   (b) In addition, indicate whether or not the dynamic qualification of the piping, and cable raceways and conduits are also included in the exemption request.

4. It is not clear from the licensee's submittal whether the request is for a one-time exemption from the 50.59 evaluation requirements (i.e. for assessing the impact of

deleting special treatment requirements on a component by component basis) or whether the proposal is for a permanent and more global exemption from 50.59 evaluations for equipment categorized as LSS or NRS. For example, after these special treatment requirements are relaxed, is it the licensee's intention to continue to use 50.59 to evaluate subsequent changes to the LSS and NRS components (e.g. repair or replacement) to determine if an unreviewed safety question exists (i.e., and therefore requires prior staff review and approval) or is the licensee suggesting that components categorized as LSS and NRS are outside the scope of 50.59 entirely? Please either confirm that 50.59 will be used to evaluate subsequent changes to components categorized as LSS or NRS, or describe an alternate process for controlling those changes.

5. Existing controls regulating facility changes, such as 10 CFR 50.59, are intended to preserve the deterministic licensing and design basis. High safety significant (HSS) and medium safety significant (MSS) systems, structures, and components (SSCs) may be risk significant based on performance attributes derived from circumstances which are not within the bounds of the existing design basis. Therefore, existing change controls may not provide a sufficient mechanism to preserve these risk significant characteristics. Please identify those areas where risk-significant attributes are not addressed by current special treatment requirements. In addition, describe what additional controls will be implemented for HSS and MSS SSCs to ensure risk significant attributes are not changed inappropriately.

6. The July 13, 1999, submittal indicates that the licensee is not requesting an exemption from 10 CFR 50.55a. However, the ASME Code as incorporated by reference in 50.55a establishes quality criteria for replacement parts. Section 4.2.1 of the submittal states that, "For safety-related LSS and NRS (not risk significant) components, the requested exemption would enable STP to replace an ASME component with a non-ASME component without the need to perform a detailed 50.59 evaluation or seek prior NRC approval." With respect to this point, provide information to address the following items:

   (a) How can this be accomplished without exemption from the 50.55a requirements or an approval of an acceptable alternative under 50.55a(a)(3)(i)?

   (b) Will individual systems contain both ASME and commercial grade parts? If yes, please describe how the licensee will ensure system safety functionality.

   (c) How will records be maintained, e.g., the N-5 data package for piping systems?

7. The licensee has indicated that in-service inspection (ISI) and testing (IST) are not included in the scope of the exemption request and stated that it would use RG 1.178 and RG 1.175 to risk-inform ISI and IST at a later time (see Attachment 3 to the licensee's July 13, 1999, submittal, in response to IST Question No. 1). It is not clear whether the licensee intends to take safety-related components categorized as LSS or NRS out of the scope of their ISI and IST program as part of the proposed exemption request. Section 4.1.2 of the licensee's proposed exemption request states, "For LSS and NRS components, South Texas Project (STP) seeks to reestablish ASME Code class

boundaries at a component level basis rather than on a system level basis without prior NRC approval. If this exemption is granted, LSS and NRS ASME components may be replaced with non-ASME components without prior NRC approval."

(a) Please verify that ASME code components will be inspected and tested in accordance with the code requirements until such time as alternative risk-informed ISI and IST programs are approved under a separate regulatory action.

(b) Would the non-ASME replacement components continue to be tested and inspected in accordance with the ASME Code? If not, explain your rationale for not continuing ASME tests or inspections.

8. Important aspects regarding special treatment provisions may exist in various licensee commitments. Before the staff can entertain an approval of the proposed exemption, the staff needs to understand how the exemptions will affect those commitments, and what process will be used by the licensee to control changes to commitments. Please explain the process to control changes to any commitments involving special treatment activities, that could result from implementing the proposed exemptions. This includes changes to commitments that have been implemented in response to Generic Letters, Bulletins, Inspection Reports, commitments made to support licensing actions, etc.

9. The licensee's July 13, 1999, exemption request did not adequately describe the process STPNOC will use to categorize and make subsequent changes to special treatment requirements for safety-related LSS and NRS equipment. As outlined in RG 1.174, the staff needs to have a clear description of the overall process. The staff additionally needs to establish an appropriate level of regulatory change control over that process before it can accept the proposed exemptions. Please provide an enhanced description (i.e., such as might be included in a revision to the licensee's Updated Final Safety Analysis Report (UFSAR), revision to the licensee's Operations Quality Assurance Plan (OQAP), or included as an exemption condition) of the exemption request and associated processes to be implemented by STPNOC. Also, propose whether this description should be placed in the UFSAR, the OQAP, or be included an as exemption condition (or be placed in some other location), and discuss the reasons for your desired location of this description. The enhanced description should address at a minimum:

- the specific aspects of each regulation for which an exemption is requested,
- the component categorization process (for components modeled and not modeled in the licensee's PRA),
- proposed implementation plans including a description of the treatment processes that will be applied to safety-related components categorized as HSS vs. MSS vs. LSS vs. NRS as well as to non-safety-related components categorized as HSS or MSS,
- the process used to assess the aggregate change in plant risk (CDF or LERF) associated with changes in special treatment for components,

- the integrated decision making process used by the licensee (including consideration of the defense-in-depth philosophy and safety margins),
- performance monitoring processes,
- feedback and corrective action processes,
- plans for periodic reassessment of the overall process and program,
- processes for controlling changes to the aforementioned plans and processes.

10. The licensee is proposing to downgrade the manual initiation of protective functions one lower level than the ranking of the controlled component. This will result in manual initiation functions being downgraded to LSS when the controlled component is categorized MSS and, thus, manual initiation will be exempted from the special treatments. However, manual initiation is required by IEEE-279 which is embedded in 10 CFR 50.55a(h).

    (a) Therefore, explain why an exemption from 10 CFR 50.55a(h) has not been requested.

    (b) If such an exemption request is proposed, provide the technical basis for the request.

11. The licensee's exemption request states that "LSS components generally include piping, locked open valves, hand switches, and outside containment isolation valves sized 3" and under [emphasis added]." Please describe the process for categorizing containment isolation valves (CIVs). Describe what special treatment will be applied to these LSS valves to ensure that they remain functional. Alternatively, the licensee could provide an analysis of the effect of degraded containment isolation valve performance/reliability on the probability of an inter-system loss of coolant accident (ISLOCA) and large early release frequency (LERF) as was done by the licensee to extend inservice test intervals for CCW and SI system CIVs (Reference NRC Safety Evaluation dated July 23, 1999).

12. On page 8 of Attachment 1 to the July 13, 1999, submittal, the licensee stated that LSS and NRS Class 1E electrical equipment could be replaced with non-Class 1E equipment. Based on information conveyed by licensee representatives during an August 31, 1999, meeting, it is our understanding that electrical systems would be excluded at this time from the risk-informed treatment process due to cost/benefit considerations. Please clarify the extent to which electrical SSCs are proposed to be exempted from the special treatment regulations, and modify the exemption request as appropriate.

13. With respect to the proposed Appendix B exemptions:

    (a) Provide an amplified description of the proposed commercial quality practices that will be used by the licensee (and by the licensee's vendors) to serve as an alternative to each of the 15 Appendix B criteria for which an exemption is requested.

    (b) Provide an expanded discussion about how these commercial quality practices will provide reasonable assurance that safety-related LSS/NRS equipment will reliably perform their design functions.

    (c) Appendix B, Criterion IV specifies that measures shall be established to assure that applicable design requirements are suitably included in procurement documents. Licensees rely on purchase orders to convey design requirements to vendors so that replacement parts will continue to reliably function under design conditions. Please justify why a complete exemption from Criterion IV is appropriate, given the importance of procurement documents in ensuring conformance of procured equipment with applicable design requirements. Describe in detail what measures will be imposed to ensure that design requirements are met.

14. Please clarify the following. As written, the licensee's exemption request for 10 CFR 50.65 implies that the exemption applies only to safety-related LSS and NRS components and not to any nonsafety-related SSCs. The maintenance rule scope specified in 50.65(b) applies to safety-related and nonsafety-related SSCs.

    (a) Is the licensee requesting exemption from 50.65 for any nonsafety-related SSCs?

    (b) If so, please provide a more specific request that addresses how the exemption will apply to all of the scoping requirements in 50.65(b) and the resulting changes to the maintenance rule (MR) program and monitoring.

    (c) How will LSS and NRS safety-related and nonsafety-related components be treated under the scope of 10 CFR 50.65(a)(4) when this new rule becomes effective?

15. What is the mechanism and time frame to identify any changes in risk categorization of components from LSS/NRS to MSS or HSS that may be a result from operating experience or plant facility modifications? What is the time frame that these components will then return to the scope of the appropriate special treatment and how will a demonstration be made that shows the performance or condition of the components are being effectively controlled through the performance of appropriate special treatment?

16. STP is a 10 CFR Part 50, Appendix J, Option B, plant. Please provide more specificity about what portions (specific sections) of Appendix J, Option B, are to be exempted.

17. Appendix J, Option B, stipulates cumulative limits for containment leakage. If certain containment isolation valves (CIVs) are not to be leak tested at all, how will these leakage limits be verified? (The staff notes that since STP is an Option B plant, any changes to the cumulative leakage limit for STP will also require a TS change.)

18. Please identify which configurations of CIVs will not be leak tested under the Appendix J exemption? An example of a configuration is a closed system with a single isolation valve at each penetration.

RISK CATEGORIZATION ISSUES

19. STPNOC states that its snubber testing program will be modified to remove safety-related LSS and NRS snubbers from the scope of the program.

    (a) Please explain the process and criteria for categorizing safety-related snubbers as LSS or NRS.

    (b) How will the snubbers' purpose of protecting the safety function of a system (and not necessarily the functions of a specific component) be considered?

    (c) Also, STPNOC should discuss what other activities will provide reasonable confidence that the safety-related piping system which contains the affected snubbers will be able to perform its intended safety function if the snubbers are removed from the testing program.

20. (a) Explain how the common cause failure (CCF) basic event importance measure is estimated for the proposed exemptions. Explain the difference between the current method and the method reported in STP's graded quality assurance (GQA) program submittal dated August 4, 1997. Provide the basis for the new estimation method.

    (b) In Section 5.2.4.1 of the submittal, it is indicated that the same PRA tools used for the GQA program will be used for the proposed exemption. In addition to the method of estimating CCF, identify other changes made, if any, to the categorization process since the GQA submittal was approved on November 6, 1997.

21. Regulatory Guide 1.174 states that "all safety impacts of the proposed change are [to be] evaluated in an integrated manner as part of an overall risk management approach in which the licensee is using risk analysis..."

    (a) Provide a discussion on the aggregate impact of the proposed exemptions on plant risk in terms of CDF and LERF.

    In Section 5.2.4.1, pages 16 and 17 of the submittal, it is stated that "STP performed sensitivity studies in which unreliability was simultaneously increased for medium safety significant and low safety significant SSCs of a similar type within the scope of the PRA. These studies evaluated the impact of increasing the unreliability of the group of SSCs by as much as an order of magnitude. Based upon these studies, STP determined that increases in the failure rate by as much as an order of magnitude had little, or no, impact on the final SSC risk categorization."

    (b) Provide the details and the results of the sensitivity analyses. It is unclear to us whether unreliability of all groups of SSCs were increased by an order of magnitude. If you assumed that the increase in unreliability is varied for different groups of SSCs, explain the basis of your assumption.

(c) Identify the "types" of SSC selected, and define how a "group" was chosen.

(d) Explain why you only increased the failure rates one group at a time. Discuss if any of these studies lead to any changes in the categorization.

(e) Discuss how these sensitivity studies account for potential common mode failure in diverse and redundant systems under postulated accident conditions.

22. During the review of the Safety Injection (SI) system at STP, the staff noted that the system binder contained a general note allowing the limit switches which are used in actuation of critical components to be rated as LSS. However, upon inquiry from the NRC staff, the licensee stated that this note has been revised by a new note and the new note does not generalize the categorization of limit switches used for actuation of other components. Upon review of the SI system binder, it was determined that the SI system review was done based on the original note in the binder and was not based on the revised note.

(a) Describe the general quality assurance program that is being or will be applied by STPNOC, and what corrective actions are being taken, on its risk categorization process to avoid these types of errors.

(b) The staff also requests that the licensee justify this discrepancy not only for the SI system, but for all other systems where the old note has been listed in the system binder.

(c) Also, the licensee should provide assurance that any other general note which has been revised such that it can affect the categorization of components, has been evaluated for the affected systems and the categorization of the components has been corrected if needed.

23. During the August 31, 1999, meeting, the licensee informed the staff that certain electrical components may continue to be classified as HSS or MSS, while the attached mechanical components are classified as LSS or NRS. Also, during the same meeting, the licensee informed the staff that components which perform a support function for HSS and MSS systems or components, will have the same HSS or MSS classification as the supported systems or components. Therefore, please describe:

(a) The process criteria or rules for classifying inter-connected and supporting components (e.g., electro-mechanical components, supporting systems or components) including consideration of functional dependencies, and

(b) The process criteria that will be implemented to ensure that HSS or MSS electrical components will remain functional including consideration of potential adverse spatial interactions between mechanical and electrical components.

24. Attachment 1, Section 4.1.2, of the July 13, 1999, exemption request, states " . . . LSS and NRS Class 1E electrical equipment could be replaced with non-Class 1E equipment. In such an event, STP will take actions as necessary to ensure that HSS and MSS Class 1E components are appropriately protected per the requirements in the UFSAR." Based on information conveyed by representatives from STPNOC during an August 31, 1999, meeting, it is our understanding that:

    - Safety-related (Class 1E) electrical SSCs, which are not (or may not be) subjected to the STPNOC process for categorization and treatment, will be considered safety-related HSS SSCs;

    - STPNOC will take actions as necessary to ensure that these safety-related HSS electrical SSCs (as well as other safety-related HSS and MSS SSCs) will be appropriately protected per the requirements in the UFSAR, and;

    - Safety-related electrical SSCs classified to LSS or NRS by the STPNOC process (which no longer meet any one or more of the special treatment requirements for which an exemption is being requested) will be isolated from HSS and MSS electrical systems the same way non-safety-related SSCs are isolated per UFSAR design commitments. Safety-related LSS or NRS SSCs will be isolated using qualified safety-related (Class 1E) isolation devices defined in the UFSAR and cables from the isolation device to the safety-related LSS or NRS SSCs will be routed in raceways that are separated from raceways or electrical containment penetrations which contain cables which serve safety-related HSS and MSS SSCs.

    Please confirm this understanding. If protection may be different from our understanding described above, provide the licensee's design criteria for providing electrical isolation and the proposed regulatory process for implementing the design changes necessary to provide this isolation. We acknowledge that the licensee's response to this question is dependent upon its response to an earlier question (RAI Question 12) about the extent to which electrical systems will be exempted from special treatment provisions.

25. To facilitate the staff's review, provide the risk-significance basis document for the emergency diesel generator system.

26. Please provide an explanation about how the safety-significance determination process was applied to the auxiliary feedwater system (AFWS) steam supply orifices for the AFWS pump turbine. How did the determination process account for the design modification which had replaced steam condensate traps with orifices as a result of operational problems (turbine overspeed had apparently resulted from the presence of steam condensate in the AFWS pump turbine steam supply when the steam condensate traps had overfilled)?

27. During the staff's recent visit to the STP plant site, a sample comparison was completed for risk rankings in the risk-significance basis documents for two heating, ventilation and air conditioning (HVAC) systems. These systems included the electrical auxiliary building (EAB) HVAC and fuel handling building (FHB) HVAC.

    A sample comparison of risk rankings for fire dampers for the EAB HVAC and FHB HVAC systems, respectively, showed that EAB HVAC system dampers were assigned a risk ranking of "Medium" while FHB HVAC system dampers were assigned a risk ranking of "Low." Provide the bases for the differences in risk rankings. [The licensee has frequently cited fire dampers as an example of components brought into scope to receive "special treatment."]

    Compare the risk rankings of the filtration fans, HEPA filter and carbon filter in both the EAB HVAC and FHB HVAC systems (i.e., a comparison of components that are typically covered by Technical Specifications) and provide the bases for any differences. Select two other examples where the risk rankings differ and provide the bases for the differences.

28. Please describe how the licensee's risk determination process evaluates the significance of all areas covered by the Maintenance Rule scope (50.65(b)(1), (b)(2)(i), (b)(2)(ii), and (b)(2)(iii), and associated industry guidance). If the risk determination process does not cover the Maintenance Rule scope, provide appropriate justification as the staff will need to fully understand and evaluate the differences.

29. Explain the risk basis for concluding that certain CIVs do not require leakage rate testing as specified in Appendix J. Please reference information already submitted on the docket, if appropriate.

30. Explain the categorization scheme for risk ranking SSCs not in the licensee's PRA and for system functions. Provide the basis for the 6-point (0 to 5) rating scale used by the plant's Working Group to risk-rank SSCs. For example, explain how "insignificant" impact is different from "minor" impact in discriminating the two points on the scale. Other examples include: "minor" impact and "low" impact, "rarely" occurring event and "infrequently" occurring event, "infrequently" occurring event and "occasionally" occurring event, "regularly" occurring event and "frequently" occurring event. Unless there is an underlying basis associated with these words to meaningfully differentiate the adjacent points on the scale, we find that some of the adjacent points on the proposed scale do not convey any intrinsically meaningful difference. If, for example, a smaller scale, i.e., 3-point scale, is used to clearly distinguish the points in the scale, discuss how such a scale might impact the risk-ranking results. In other words, provide a discussion of how a robustness of a scale affects the sensitivity of the risk-ranking results. Include in the discussion the basis of the weighting factors (and the associated numerical values) and their impact on the risk-ranking. Also include the basis for the "score ranges" for final risk ranking categorization.

31. (a) Explain the potential difference in the importance of an SSC for at-power and shutdown modes and how such difference is accounted for in risk-ranking. For example, if an SSC that might be judged by the Working Group to be important with a score of "5" for a shutdown/mode-change critical question (with low scores for other four critical questions) could result in a final score less than "40," would it be categorized as a non-risk significant or a low safety significant SSC?

    (b) Discuss if the weighted sum is always used as the sole guideline or if other constraints are applied.

    (c) Similarly, provide a discussion and examples of how an SSC's importance during external events (i.e., seismic, fire, and tornadoes) might affect its overall importance as applied toward the risk-ranking. Identify the external phenomena that were addressed in order to determine what impact the proposed exemption from environmental and dynamic effects will have on CDF and LERF.

32. During the GQA evaluation, the staff did not emphasize the review of the environmental and seismic analyses in your PRA because the special treatment requirements were not being modified. Discuss how the quality of your PRA, and related analyses to support these exemptions, are sufficient to give reliable results. The Advisory Committee for Reactor Safeguards (ACRS) has suggested, and we are considering, determining the importance of SSCs for seismic, fire, and other external events based on the specific analysis alone. For example, the importance of SSC's for seismic events should be determined by only using the seismic analysis. This reduces the shadowing effect between analyses of differing precision. Please describe how importance measures are obtained for the seismic and other external event analyses, and how these measures are used together with the internal events results. Have any SSCs been identified that are important only for external events? Also, since the PRA assumes that the equipment is fully qualified for the environment it must operate in, please explain how you intend to incorporate environmental and seismic effects into your PRA such that you can estimate or bound the aggregate impact of all your proposed special treatment changes.

33. In the licensee's risk categorization process, the safety significance of all system functions are determined by critical question responses assigned by the expert panel - even system functions modeled in the PRA.

    (a) Explain how the importance of a component in the system impacts the safety significance of that system.

    (b) For example, the licensee's PRA indicates that the Chemical and Volume Control System (CVCS) positive displacement pump is high safety significant, but the Working Group categorized the corresponding system function as low safety significant. We anticipated that the functions supported by a high safety significant SSC should also be categorized as high safety significant. In particular, your new method of having the expert panel directly assign grades to each system function does not seem to fully comport with assigning a safety significance to each system function based on a combination of PRA insights and deterministic insights. Please

explain the source of the apparent discrepancy in the categorization. That is, what characteristics of the PRA models led to the high safety significance categorization for the Chemical and Volume Control (CVCS) pump, and how do these contrast with the characteristics assumed by the expert panel in assigning the grades to eventually end up with a low safety significance designation for the corresponding system function? Moreover, explain how such a designation would impact the risk-ranking of a component in the CVCS.

34. Due to redundancy, inboard and outboard containment isolation valves tend to be ranked low. The licensee decided to categorize inboard valves as high safety significant/medium safety significant and certain outboard valves as low safety significant. It is our understanding such a designation could change without any basis since you stated (during our visit to STP in October 1999) that it was only a matter of choice.

    (a) If both inboard and outboard containment isolation valves were considered to be low safety significant, explain why one was categorized high safety significant. Moreover, explain what would prevent you from designating both inboard and outboard isolation valves as low safety significant in the next or future operating cycle(s).

    (b) Explain the guidance and the basis for the guidance in helping to determine safety significance for similar situations or configurations.

    (c) Provide your expectations regarding the differences in monitoring/surveillance, stroke testing, and leak testing that LSS and HSS containment isolation valves will receive. Describe the implications of reclassifying the isolation valves on the maintenance rule implementation and the containment leakage performance indicator. Confirm whether containment isolation performance will be monitored at the component or system level.

35. In Section 5.2.4.1, page 17 of your submittal, it is stated that you have identified approximately 100 non-safety-related SSCs that have been categorized as high safety significant and medium safety significant. To help us better understand your categorization process, please provide a list of these SSCs and a summary description of why they are important. Explain how this categorization is reflected in the plant PRA. The staff needs to have an understanding about the extent to which the PRA models relatively more significant plant equipment. (It may help to group certain components, as appropriate, when describing their-risk significance).

36. In estimating the importance measures, Fussell-Vesely (FV) and Risk Achievement Worth (RAW), you have used the mean values of the parameters in the ratios. This practice usually results in reasonable approximation; however, this may not be the case for parameters whose epistemic uncertainties are very large. Please explain if this problem applies to your proposal and discuss how you will resolve it.

37. You have taken the "Graded Quality Assurance" addendum from the "Comprehensive Risk Management" procedure (Rev. 2 dated 01/02/97) and issued a new procedure on "Graded Quality Assurance Working Group Process" (Rev. 0 dated 8/12/98). The new procedure has added explicit guidance for assigning components a lower significance than the safety significance of the function they support. The licensee's current guidance is as follows:

> If the component failure will fail the function or if credit for component reliability cannot be taken, then the component is ranked at the same risk as the highest risk function it supports.
>
> As a general rule of thumb, if redundancy or backup is available and the reliability of the associated components has been good, the critical questions for the component can be answered at a lower value than given for the highest risk function supported by the component. However, the WG [working group] should use conservative judgement when taking credit for component redundancy

You use five "critical questions" to determine risk of a system function or component ranking. These questions are related to the impact on initiating event, risk significant system, accident/transient, emergency operating procedures, and shutdown/mode change. The response to these questions is one of any points ranging from "0" to "5." For example a score of "1" denotes "positive response having insignificant impact and/or occurring very rarely" and a score of "5" denotes "positive response having high impact and/or occurring frequently."

If this procedure is to be used for the proposed exemption request, explain how many points lower the "critical question" score can be assigned to a redundant component relative to the function's critical question score. For example, if a critical question score is "5" for a particular function, discuss whether a score of "4" or lower should be assigned for the relevant redundant components. Discuss whether all five (or all non-zero) critical question scores for all redundant components are scored lower than the scores for their function. If only "selected" redundant components are scored lower, provide the basis for such a decision. If only selected critical questions are scored lower, provide the basis for such a decision. If a component is placed in a lower safety significance category as a result of being assigned a lower critical question score, discuss how a justification (including a description of how a component is judged to be highly reliable) is developed.

TECHNICAL AND SPECIAL TREATMENT ISSUES

38. In order to understand the licensee's special treatment process, the staff needs more information on the following example. Section 7.2.1 of the licensee's proposed exemption request states, "In addition, as appropriate, STP will modify various programs (e.g., provisions for motor-operated valve (MOV) program, air-operated valve (AOV) program, snubber testing program, molded case circuit breaker program) to remove safety-related LSS and NRS components from the scope of these programs."

    (a) Does this mean, for example, that LSS and NRS MOVs will be taken out of the scope of the GL 89-10 and GL 96-05 programs?

    (b) If it is your proposal to remove safety-related MOVs and AOVs from the scope of the current programs, please explain how it will be adequately demonstrated that the valves will continue to be capable of performing their safety-related functions.

39. (a) Identify the process that will be used to select codes, standards, and plant procedures that describe "normal commercial and industrial practices" that will be used to procure, install, inspect, test, and maintain plant equipment that is removed from the scope of the special treatment controls. Please describe how the codes and standards will be evaluated to consider their use in lieu of the current special treatment requirements. Please provide some representative examples of the codes and standards that will utilized for the LSS and NRS equipment.

    (b) Explain how these standards and procedures will provide adequate assurance that these components will remain functional under design-basis conditions (following a seismic or other external event and under design-basis environmental conditions). For example, the licensee could provide specific examples that demonstrate (or an analysis of data which supports the assertion) that certain commercial-grade components will remain functional under design-basis accident-like conditions.

    (c) Similarly, for non-safety related SSCs that have been categorized as HSS or MSS, how will the licensee identify the conditions under which these components must function and how will the licensee identify the practices that need to be applied to these components in order to ensure their functionality.

    (d) How will the licensee's process address the EQ qualified lifetime for safety-related components categorized LSS when those lifetimes are reached?

40. During the meeting on August 31, 1999, the licensee indicated that LSS/NRS equipment would be tested (post-maintenance or modification, and surveillance testing) to some degree to demonstrate the functional capability of the equipment.

    (a) Please provide an expanded discussion on this testing and the associated acceptance criteria.

(b) Also, since no critical attributes are designated for NRS equipment in the system bases documents, how would the test acceptance criteria be determined?

41. The July 13, 1999, submittal describes (Attachment 3, pages 5 and 6) that the licensee's procurement requirements would specify environmental parameters that LSS/NRS equipment must withstand. However, during the site visit on October 5, 1999, the licensee indicated that purchase order requirements pertaining to environmental qualification aspects would not be imposed for LSS/NRS equipment. Please clarify the approach that the licensee intends to implement to provide confidence that LSS/NRS components will remain functional if they are exposed to a harsh environment.

42. During the staff's October 5 and 6, 1999, site visit to STP, the licensee stated that it sees no difference between the reliability of safety-related and commercial-grade components. Provide your analysis of the data to support the assumed failure probability and reliability of safety-related components categorized as LSS, which have been presumably designed, procured, tested and inspected to commercial standards, for operation of these components under normal operating conditions and under all design-basis conditions.

43. Section 4.1.2 of the licensee's application states that " . . . STP will utilize purchase requirements or other evaluations to ensure the availability of replacement components to function under design conditions, without performing qualification tests." Also, during the site visit on October 5 and 6, 1999, the licensee indicated that non-safety-related components that are categorized as either MSS or HSS will have special treatment applied as necessary to ensure that their critical attributes are satisfied. These critical attributes, as documented in the licensee's system categorization notebooks, were derived from the PRA failure modes but they were not very specific. For example, a system categorization notebook would only indicate that a particular valve should open to provide flow to a particular heat exchanger. The critical attribute did not specify the design-basis conditions under which the flow needs to be provided.

    How will the licensee's process identify and ensure that the each component's <u>specific</u> critical attributes will be satisfied (i.e., for safety-related components categorized as LSS and NRS and non-safety-related components categorized as MSS or HSS) so there will be adequate assurance that these components will be functional under design-basis conditions?

44. In its July 13, 1999, request, STPNOC states " . . . the change in the special treatment requirements for LSS components is not expected to impact system performance levels, because STP will continue to monitor system performance under the Maintenance Rule program and take appropriate corrective actions as necessary to maintain system performance." The STPNOC request also states that "the effect on equipment availability of reduced or eliminated special treatment requirements will be seen based on future PRA performance data updates and the periodic GQA performance evaluation and feedback process."

(a) The staff judged that licensee's graded quality assurance program would have a minimal impact on the reliability of the equipment, and it was recognized that the operability of equipment under adverse transient conditions would still be ensured by the other special treatment requirements. For the proposed exemption request, you have stated that any widespread and larger deviations in reliability should be detectable through the sophisticated monitoring and feedback procedure. Please describe how section 5.3.11 of the GQA program (which describes the GQA performance feedback loop and considerations for adjusting GQA controls) will be implemented for the proposed exemptions. Provide an explanation as to how your monitoring and feedback procedure will assure that changes in SSC reliability (in excess of those assumed during the safety significance determination process) under adverse conditions will be detected.

(b) Explain how the use of 1) station performance indicators, 2) periodic updates of the PRA with respect to performance data and 3) maintenance rule 50.65(a)(3) periodic evaluations will quantitatively assess the SSC reliability under off-normal operating conditions.

(c) Please describe how the licensee's corrective action program will consider the reestablishment of selected "special treatment requirements" when component performance suggests the need for such controls.

(d) The licensee states that the Maintenance Rule (MR) will be used for monitoring and feedback but also says that LSS components will be removed from the scope of the MR (thereby deleting all component-level feedback). Please provide a description of a component-level monitoring program that feeds information back to the licensee's corrective action program.

(e) From information conveyed during the August and October meetings, the licensee indicated that the corrective action requirements of the MR would continue to apply if LSS or NRS component failures or performance problems result in exceeding the established MR performance measures or criteria for plant/system/train level functions of systems comprised of a mix of HSS, MSS, LSS and NRS components. Please confirm this position. In addition, please explain the process for making repetitive maintenance preventable functional failures (RMPFF) determinations for HSS and MSS equipment. Will these RMPFF determinations consider previous failures of LSS and NRS components where there could be common maintenance practices or similar equipment failures? The staff will need to understand how RMPFF determinations integrate relevant information from LSS or NRS equipment problems.

45. Please describe how the licensee's overall process considers spatial relationships such as seismic interactions or fires. Describe the evaluations and processes that will provide reasonable assurance that LSS and/or NRS equipment will maintain functionality and conformance with design provisions which should preclude adverse interactions (such as spraying, flooding, seismic interaction, electrical separation, and electrical isolation) with HSS and/or MSS equipment. The staff expects that STP will maintain robust provisions that will preclude these adverse interactions.

46. (a) Clarify how systems that are comprised entirely of safety-related LSS and NRS components or systems that are comprised of a mixture of safety-related LSS and NRS and nonsafety-related LSS and NRS components will be treated under the maintenance rule.

(b) Provide examples of systems where this situation occurs (i.e. radiation monitoring system, emergency lighting system, plant communication system).

(c) How will performance monitoring at the plant/system/train function level against established criteria continue for these systems as stated in the exemption request?

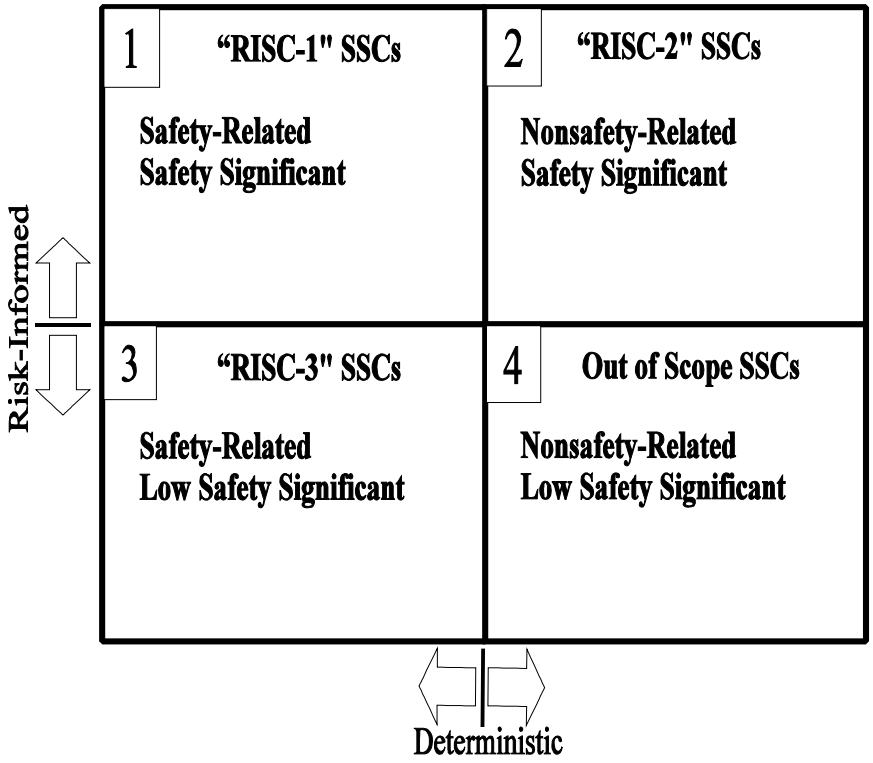
SOUTH TEXAS PROJECT

REQUEST FOR INFORMATION TO SUPPORT INITIATIVES TO INCORPORATE RISK-INFORMED INSIGHTS INTO 10 CFR PART 50 REGULATIONS

1. In SECY-99-256, "Rulemaking Plan for Risk-Informing Special Treatment Requirements," the NRC staff describes a scheme for categorizing SSCs according to their safety significance and status under the deterministic safety-related regime. This scheme divides SSCs into 4 bins. (See Figure 1.) Risk-informed safety class 1, or RISC-1 SSCs are presently safety-related and are determined to be safety significant by a risk-informed categorization process. RISC-2 SSCs are not presently safety-related, but have been determined to be safety significant by a risk-informed categorization process. RISC-3 SSCs are presently safety-related, but have been found to be of low safety significance by a risk-informed categorization process. Remaining SSCs are expected to be out of the scope of special treatment requirements, though other regulatory controls may still apply.

   In an effort to equate current Risk-informed Rulemaking efforts with your exemption request, please describe how the STP risk categorizations compare to these classifications.

Figure 1: **Diagram of Categorization and Treatment**



ENCLOSURE 2

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