June 15, 2000

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 ***/RA/***
Project Directorate IV and Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 - DRAFT INFORMATION PROVIDED BY LICENSEE BETWEEN MAY 18 AND 25, 2000, FOR RESOLUTION OF THE REQUEST FOR ADDITIONAL INFORMATION FOR THE MULTIPART EXEMPTION REQUEST (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 on July 13, 1999. As part of that process, the NRC staff issued a request for additional information (RAI) on January 18, 2000. Currently, the staff is working with STPNOC to ensure that STPNOC clearly understands the extent of the questions raised and for the NRC staff to gain a better understanding of the scope of the expected response by STPNOC. The NRC staff has agreed to participate in periodic teleconferences to discuss specific questions raised in the RAI. 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 enclosure provides the draft responses provided by the licensee for questions 2, 6, 9, 12, 13, 16, 17, 18, 24, 29, 30, 37, 39, 40, 41, 43, 45, and enclosure 2 of the January 18, 2000, request for additional information. The date that each response was received is indicated at the bottom of each page in the enclosure.

The draft information provided by the licensee was reformatted into WordPerfect format and distributed to the responsible technical reviewers. No changes were made to the text of the information provided by the licensee.

Enclosure: As stated

Docket Nos. 50-498 and 50-499

June 15, 2000

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Project Directorate IV and Decommissioning
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Docket Nos. 50-498 and 50-499

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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).

RESPONSE: (R. Chackal)

STP requests an exemption from 10CFR50.55a as it relates to ASME Code requirements. Since the plant has already been designed and constructed in accordance with the ASME Code, STP's exemption request involves only the portion of the Code that involves the replacement of items, when the need arises. This activity is covered under Section XI of the Code. Section XI of the Code generally requires that replacement items meet the requirements of the original Construction Code, i.e., ASME Section III. However, Section XI does provide relief for piping, valves, and fittings 1 inch nominal pipe size and less. These items are exempt from the requirements of Section XI and, by reference, from the requirements of Section III, as long as the materials and primary stress levels are consistent with the requirements of the applicable Construction Code. The Code provides this relief in consideration of the burden of the extensive controls required by Section III, especially subsection NCA, when compared to the likelihood and consequences of a failure.

STP considers that the above relief should be expanded to include safety related LSS and NRS replacement items, regardless of size or product form. In procuring such items, STP would ensure that the materials and primary stress levels of the replacement items are consistent with the requirements of Section III and are documented. This process would conform to the existing relief allowances provided in Section XI for NPS 1 and smaller items.

In order to effect the above relief, STP is seeking an exemption from the requirements of the ASME Code that would allow replacement items to be fabricated, procured, installed, and tested in accordance with ANSI B31.1, as long as the material and primary stresses meet the requirements of the ASME Code. The requirements for material and stresses will be met through compliance with ASME Section II and ASME Section III, respectively. In addition, STP will conduct post-installation pressure tests in accordance with ASME Section XI. Other additional requirements of ASME Section III, including Subsection NCA, General Requirements, would not apply. STP considers that these measures are sufficient to provide reasonable assurance, commensurate with the low risk significance, that the technical requirements of the Code are satisfied and that replacement items would remain functional under all design conditions.

For example, the replacement of a LSS or NRS ASME valve would consist of the following steps:

1. Initiate a design change package to implement the replacement of a code valve with a non-code valve.

2. Identify the proposed ANSI B31.1 valve

3. Ensure and document that the material characteristics of the replacement valve are consistent with the requirements of ASME Section II.

4. Perform stress calculations to confirm and document that the allowable stresses for the replacement valve are consistent with the requirements of ASME Section III.

5. Prepare a Work Package that identifies installation requirements required by ANSI B31.1 such as welding, NDE, testing, etc.

6. Install the valve and conduct post-installation testing in accordance with the requirements of the work package.

7. Maintain associated records for the life of the plant.

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?

RESPONSE: (R. Chackal)

To clarify the STP position, STPNOC does request an exemption from 10CFR50.55a with respect to ASME Code requirements for the replacement of LSS and NRS components or associated parts. The exemption request will be updated to reflect this change.

Under this exemption, ASME Code components could be replaced with non-Code components, as the need arises. Thus, individual systems could contain both Code and non-Code components. As described in the response to Question 2, the replacement process would be conducted in accordance with the requirements of STP's design change program and the ANSI B31.1 standard, subject to meeting the requirements of ASME Section II for materials and ASME Section III for stresses. These measures provide proven and reasonable assurance, commensurate with the low risk significance, that the components will function as designed.

The N-5 data report provides records of the original construction and is not revised. Subsequent changes or replacements are performed in accordance with Section XI and result in a NIS-2 data report. The current configuration of a piping system, with regards to Code records, is ascertained by the review of the original N-5 data report and any subsequent NIS-2 data reports. Under the proposed exemption for the replacement of LSS and NRS components, NIS-2 data reports would not be compiled. Instead, the data typically contained in the NIS-2 reports would be documented in the design change packages and in the work packages, as described in the response to Question 2. These types of records are maintained for the life of the plant and provide adequate documentation to ascertain the configuration of replacement items.

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.*

RESPONSE:

The attached response provides an enhanced description of the exemption request and associated processes to be implemented by STP. This type of information will be included in a revision to the STP Updated Final Safety Analysis Report (UFSAR). While the level of detail may be modified when finally incorporated into the UFSAR, an appropriate level of detail will be included in the UFSAR to document the processes used and the allowances received through the exemption request. STP further notes that additional details regarding the processes and programs referred to in this response can be found in the responses to other questions in the RAI.

♦ *THE SPECIFIC ASPECTS OF EACH REGULATION FOR WHICH AN EXEMPTION IS REQUESTED*

Regulation Request	**Scope of Exemption**	**Justification for Exemption**
10 CFR 21.3 – Request an exemption to exclude safety-related LSS and NRS components from the scope of the definition of “basic component.”	Would not apply procurement, dedication, and reporting requirements in Part 21 to safety-related LSS and NRS components.	Part 21 imposes procurement and dedication requirements and requires the reporting of defects and noncompliances involving components whose failure could cause a “substantial safety hazard.” Reporting of defects and noncompliance involving safety-related LSS and NRS components is not necessary to meet the intent of Part 21, because failure of such components would not result in a substantial safety hazard.
10 CFR 50.34(b)(6)(ii) Request an exemption to the extent that it incorporates provisions from 10 CFR Part 50, Appendix B.	Refer to request for exemption from Appendix B.	Refer to request for exemption from Appendix B.
10 CFR 50.34(b)(11) -Request an exemption to the extent that it incorporates seismic qualification requirements in Part 100.	Refer to request for exemption from Part 100	Refer to request for exemption from Part 100.
10 CFR 50.49(b) - Request an exemption to exclude LSS and NRS components from the scope of electric equipment important to safety.	♦ Would not maintain documentation and files specified in Section 50.49 for LSS and NRS components. ♦ Would not maintain such components in a qualified condition. ♦ Could replace such a component with an unqualified one. Note: LSS and NRS components will still be designed to function in expected environmental conditions.	Section 50.49 ensures that electrical components important to safety can perform their safety function in a harsh environment during and following a design basis event. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore are not required to perform a safety significant function. It is not necessary to apply the special treatment required by 10CFR50.49 to provide reasonable assurance that these components are capable of performing their required function(s). Therefore, it is not necessary to maintain such equipment in a qualified condition or to replace such components with qualified components in order to meet the intent of Section 50.49.

Regulation Request	Scope of Exemption	Justification for Exemption
10 CFR 50.54(a)(3) – Request an exemption from the requirement to seek prior NRC approval for reductions in the commitments in the QA program description involving safety-related LSS and NRS components.	Would not seek prior NRC approval for reductions in commitments in the QA program description related to safety-related LSS and NRS components.	It would be extremely burdensome and prohibitively costly to seek prior NRC approval for each such change. NRC's approval of this exemption request serves the same purpose as the approval required by this section of the regulations.
10 CFR 50.55a(f)(4) – Request an exemption from meeting the requirements of ASME section XI, for replacement of safety-related LSS and NRS components, except that materials would meet the requirements of ASME Section II and primary stress levels would meet the requirements of ASME Section III.	Would allow the replacement of safety related LSS and NRS components with non-Code components, subject to meeting the requirements of ASME Section II for materials and ASME Section III for primary stress levels.	These provisions ensure that mechanical systems and important components within these systems can perform their safety function. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore are not required to perform a safety significant function. Therefore, when the need arises to replace these components, it is not necessary to procure and install a Code component to satisfy the purpose of these provisions, as long as materials and stress levels meet the referenced Code requirements.
10 CFR 50.55a(f) – Request an exemption from meeting the requirements of ASME Section XI for testing of safety related LSS and NRS components..	Would remove safety related LSS and NRS components from the scope of component-specific testing requirements. System-level testing requirements would continue to be applied.	These provisions ensure that mechanical systems and important components within these systems can perform their safety function. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore are not required to perform a safety significant function. Therefore, it is not necessary to test these components to satisfy the purpose of these provisions.

Regulation Request	Scope of Exemption	Justification for Exemption
10 CFR 50.55a(g) – Request an exemption from meeting the requirements of ASME Section XI for inspection of safety related LSS and NRS components.	Would remove safety related LSS and NRS components from the scope of component-specific inspection requirements	These provisions ensure that mechanical systems and important components within these systems can perform their safety function. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore are not required to perform a safety significant function. Therefore, it is not necessary to inspect these components to satisfy the purpose of these provisions.
10 CFR 50.55a(h) – Request an exemption for safety related LSS and NRS components to be excluded from the scope of components required to meet sections 4.3 and 4.4 of IEEE 279.	Sections 4.3 and 4.4 of IEEE 279 would not apply to safety related LSS and NRS components. STP would continue to meet the other requirements listed in IEEE 279, including functional and design requirements.	The quality assurance requirements and environmental qualification requirements are not considered necessary for these components. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore are not required to perform a safety significant function. Therefore, it is not necessary to apply these requirements to satisfy the purpose of these provisions.
10 CFR 50.59(a)(1), (a)(2), and 50.59(b)(1) – Request an exemption to perform a written safety evaluation of changes in special treatment requirements for safety-related LSS and NRS components. Also request an exemption to seek prior NRC approval for such changes to the extent that they involve an unreviewed safety question.	Would not perform safety evaluations for changes in the special treatment requirements for safety-related LSS and NRS components, and would not seek prior NRC approval for those changes involving an unreviewed safety question.	It would be extremely burdensome and prohibitively costly to perform a 50.59 evaluation and seek prior NRC approval for each such change. NRC's approval of this exemption request serves the same purpose as the approval required by this section of the regulations.

Regulation Request	**Scope of Exemption**	**Justification for Exemption**
10 CFR 50.65(b) – Request an exemption to exclude LSS and NRS components from the scope of SSCs covered by the Maintenance Rule.	Would remove LSS and NRS components from the scope of 10CFR50.65. Component level monitoring would not be performed. Note: Would still be required to monitor performance on a system/train level with respect to such components.	Section 50.65 monitors the effectiveness of maintenance activities for "safety significant plant equipment" to minimize the likelihood of failures and events caused by lack of effective maintenance. LSS and NRS components do not fall within the intent of Section 50.65. By definition, components that are categorized as LSS and NRS are not required to prevent or mitigate accidents, and thus do not perform a safety significant function. Therefore, it is unnecessary to include within the scope of Section 50.65 LSS and NRS components for providing effective maintenance controls.
10 CFR Part 50 Appendix A, GDC 1 – Request an exemption to exclude safety-related LSS and NRS components from the scope of SSCs important to safety under GDC 1.	Would not provide quality assurance for safety-related LSS and NRS components.	Quality assurance provides adequate confidence that SSCs, which prevent or mitigate the consequences of accidents that could cause undue risk to the public health and safety, will perform satisfactorily in service. By definition, components that are categorized as LSS and NRS are not required to prevent or mitigate accidents, and thus do not perform a safety significant function. Therefore, exclusion of such components from the scope of the QA program is consistent with the intent of these regulations. Furthermore, this exemption will not affect any of the functional requirements for the components.
10 CFR Part 50, Appendix A, GDC 2 – Request an exemption to exclude safety-related LSS and NRS components from the scope of SSCs important to safety under GDC 2, to the extent that GDC 2 requires tests, inspections, and documentation to demonstrate that SSCs are designed to withstand the effects of natural phenomena without loss of capability to perform their safety functions.	♦ Would not maintain safety-related LSS and NRS components in a qualified condition. ♦ Could replace safety-related LSS or NRS components with a component that is not qualified. Note: Will still satisfy the functional requirements in GDC 2.	These qualification requirements ensure that components important to safety can perform their safety function during and following a design basis event. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore, are not required to perform a safety significant function. It is unnecessary to maintain the qualification of such components or to replace them with qualified components to meet the intent of these regulations.

Regulation Request	**Scope of Exemption**	**Justification for Exemption**
10 CFR Part 50, Appendix A, GDC 4 – Request an exemption to exclude safety-related LSS and NRS components from the scope of SSCs important to safety under GDC 4, to the extent that GDC 4 requires documentation, inspection, and testing to demonstrate that SSCs are able to withstand environmental effects. GDC 4 requirements related to dynamic effects would not be exempted.	♦ Would not maintain safety-related LSS and NRS components in an environmentally qualified condition. ♦ Could replace such a component with an unqualified one. Note: Will still be required to satisfy the functional requirements in GDC 4 for environmental effects. GDC 4 requirements with respect to dynamic effects would continue to apply.	GDC 4 ensures that components important to safety can perform their safety function during and following a design basis event. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore are not required to perform a safety significant function. Therefore, it is not necessary to maintain such equipment in an environmentally qualified condition or to replace such components with environmentally qualified components in order to meet the intent of GDC 4.
10 CFR Part 50, Appendix A, GDC 18 – Request an exemption to exclude safety-related LSS and NRS components from the scope of SSCs important to safety under GDC 18, to the extent that GDC 18 requires that such components be designed to permit testing of, and that tests be performed for, individual features, such as wiring, insulation, connections, switchboards, relays, switches, and buses.	♦ Would not need to inspect or test individual safety-related LSS and NRS components within these systems ♦ Would not maintain the design of these components to permit such inspections or testing. Note: Would still need to conduct system functional tests.	These provisions ensure that Electric Power Systems and important components within these systems can perform their safety function. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore are not required to perform a safety significant function. Therefore, it is not necessary to inspect or test these components to satisfy the purpose of these provisions.

Regulation Request	Scope of Exemption	Justification for Exemption
10 CFR Part 50 Appendix B, Introduction –Request an exemption to exclude safety-related LSS and NRS from the scope of safety-related SSCs covered by Appendix B [except for Criterion III (Design Control), Criterion IV (Procurement Document Control), Criterion XV (Nonconforming Materials, Parts, or Components), and Criterion XVI (Corrective Action)].	Would not provide quality assurance for safety-related LSS and NRS components, except for design control, procurement document control, control of nonconformances, and corrective action.	Quality assurance provides adequate confidence that SSCs, which prevent or mitigate the consequences of accidents that could cause undue risk to the public health and safety, will perform satisfactorily in service. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore, are not required to perform a safety significant function. Therefore, exclusion of such components from the scope of the QA program is consistent with the intent of these regulations. Furthermore, this exemption will not affect any of the functional requirements for the components.

Regulation Request	Scope of Exemption	Justification for Exemption
10CFR Part 50, Appendix J, B.III – Request an exemption to exclude safety-related LSS and NRS components, subject to additional limitations listed under Scope of Exemption, from the scope of components requiring local leak rate tests and containment isolation valve leak rate tests.	Would not need to perform local leak rate tests of LSS containment isolation valves and other safety-related LSS or NRS components that meet the criteria provided under Justification for Exemption	By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore are not required to perform a safety significant function. Furthermore, to be exempt, these components would be required to meet one or more of the following criteria: ♦ The valve is required to operate (i.e., open) under accident conditions to prevent or mitigate core damage events (e.g., CC-MOV-0057, Component Cooling Water to Reactor Containment Fan Coolers). ♦ The valve is normally closed and in a physically closed, water-filled system. (e.g., containment isolation valves in the Demineralized Water system) ♦ The valve is in a physically closed system whose piping pressure rating exceeds the containment design pressure rating and that is not connected to the reactor coolant pressure boundary (e.g., containment isolation valves in the Main Feedwater system). ♦ The valve is in a closed system whose piping pressure rating exceeds the containment design pressure rating, and is connected to the reactor coolant pressure boundary. The process line between the containment isolation valve and the reactor coolant pressure boundary is non-nuclear safety (i.e., the valve itself would have been classified as non-nuclear safety were it not for the fact that it penetrates the containment building). An example is the Safety Injection accumulator nitrogen supply valve. ♦ The valve size is 1 inch or less (i.e., by definition the valve failure does not contribute to large early release).

Regulation Request	**Scope of Exemption**	**Justification for Exemption**
10 CFR Part 100, Appendix A.VI(a)(1) and (2) – Request an exemption to exclude safety-related LSS and NRS components from the scope of SSCs covered by these sections, to the extent that these sections require testing, inspection, and documentation to demonstrate that SSCs are designed to withstand the safe shutdown earthquake and operating basis earthquake.	♦ Would not need to maintain safety-related LSS and NRS components in a qualified condition. ♦ Could replace a safety-related LSS or NRS component with a component that is not qualified. Note: Will still comply with the functional requirements in these sections of Part 100.	These qualification requirements ensure that components important to safety can perform their safety function during and following a design basis event. By definition, components that are categorized as LSS and NRS are not required to mitigate or prevent accidents, and therefore are not required to perform a safety significant function. It is unnecessary to maintain the qualification of such components or to replace them with qualified components to meet the intent of these regulations.

♦ *COMPONENT CATEGORIZATION PROCESS*

The process utilized by STP in risk categorizing components consists of the following major tasks:

1. Identification of functions performed by the subject plant system.
2. Determination of the risk significance of each function based on answering a set of critical questions.
3. For each component, identification of the system function(s) supported by that component.
4. Calculation of a preliminary risk categorization for each component based on the risk significance of the most limiting system function and on the PRA risk ranking, if the component is modeled.
5. Adjustment of the risk categorization of the component based on redundancy, diversity, reliability, performance, and other considerations, as appropriate.
6. Identification of critical attributes for components determined to be risk significant.

These tasks are performed by a Working Group comprised of experienced individuals in various facets of nuclear plant operation. Working Group recommendations are arrived at by consensus, with dissenting opinions documented, as appropriate. These recommendations are presented to an Expert Panel comprised of senior-level managers. The Expert Panel reviews the Working Group recommendations utilizing risk categorization criteria and injecting deterministic insight, as appropriate. If appropriate, the Expert Panel then grants approval of the Working Group recommendations, subject to incorporation of any comments.

♦ 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,

Implementation of allowances to exclude certain components from the scope of special treatment requirements required by regulations will occur through general implementation activities and through specific implementation activities. General activities have broad-based effects, and will establish base level mechanisms to facilitate more specific implementation activities. Specific activities will incorporate the detailed scope and strategy changes permitted by the exemption request.

GENERAL IMPLEMENTATION EFFORTS:

- site wide communication and training of the allowances resulting from the approval of the exemption request,

- development of additional Risk Significance Basis Documents (RSBD) and documentation of categorization results will support enhanced implementation activities,

- station-level program procedures will be revised to reflect risk significance categorizations and will clarify the difference in treatment requirements commensurate with component risk significance.

SPECIFIC IMPLEMENTATION EFFORTS:

- Maintenance, operations, and engineering procedures will be revised to detail how risk significance affects individual processes and to establish appropriate treatments and controls based on component risk significance.

- Safety-related HSS and MSS components (as a result of this exemption) will remain under existing special treatment requirements with no proposed changes.

- Non-safety related HSS and MSS components will be evaluated to determine if additional controls, targeted at the critical attributes which made the component safety significant, should be applied. In addition, Maintenance Rule controls will be established at the component level for this equipment if not already in place. If component critical attribute treatment is not adequately addressed, the corrective action program will be used to identify and enhance the treatment. Appropriate trends will be monitored to ensure proper performance levels are maintained.

- Safety related LSS or NRS components will be removed from the scope of special treatment requirements. Appropriate commercial controls will be applied to these components to provide reasonable assurance that the components can satisfy their design functional requirements. Maintenance Rule monitoring will performed at the system, train, or plant level to ensure reliability levels are maintained. Periodic reviews performed by the GQA Working Group will validate the adequacy of existing component categorizations and treatment controls. If current component performance or reliability is unsatisfactory, additional controls could be applied, up to and including an increase in component categorization.

- ***THE PROCESS USED TO ASSESS THE AGGREGATE CHANGE IN PLANT RISK (CDF OR LERF) ASSOCIATED WITH CHANGES IN SPECIAL TREATMENT FOR COMPONENTS,***

The Expert Panel is responsible for assessing and approving the aggregate effect on plant risk for all risk-informed applications. The process used to access the aggregate change in plant risk associated with changes in special treatment for components is based on periodic updates to the station's PRA and the associated PRA risk ranking sensitivity studies. The PRA is updated in accordance with the PRA Configuration Control Procedure approximately once every eighteen months and a report is prepared. The Expert Panel reviews the executive summary of that report. The executive summary generally contains the following type of information:

- Overall updated CDF and LERF,
- Delta CDF and LERF from the previous reporting period,
- A characterization of the dominant sequences,
- The initiating event contributions to CDF and LERF,
- List of HSS components,
- List of components whose PRA risk categorization has changed, and
- Trends in safety function unavailability.

This information is presented to the responsible Working Group, and then to the Expert Panel who determines if additional corrective actions are required based on approved criteria. If corrective actions are necessary, the actions are addressed by the Working Group. If no corrective actions are identified, then the Expert Panel approves the report, and in so doing, approves the updated risk levels until the next reporting period. Components that are not modeled are qualitatively assessed by the Working Group using approved criteria. Insights from this qualitative assessment are also provided to the Expert Panel for review.

This process accomplishes the assessment of aggregate effects as performed at STP. The updating of the station's PRA initiates the process for the Expert Panel to perform this review and to document their findings in the Expert Panel meeting minutes. Any changes in this assessment process may be made based on industry trends and new information developed as a result of experience and lessons learned.

- ***THE INTEGRATED DECISION MAKING PROCESS USED BY THE LICENSEE (INCLUDING CONSIDERATION OF THE DEFENSE-IN-DEPTH PHILOSOPHY AND SAFETY MARGINS),***

The integrated decision-making process used by STP is documented in the Comprehensive Risk Management Program procedure, 0PGP02-ZA-0003. The integrated decision-making process incorporates the use of an Expert Panel and Working Groups. The roles and functions of the Expert Panel are described as follows:

<u>The Expert Panel . . .</u>

- is composed of a group of senior-level managers who possess diverse backgrounds.
- approves the criteria for assessing the risk significance of SSCs.
- approves the criteria for assignment of QA grade levels for SSCs.
- approves and issues documents communicating risk-informed decisions.
- appoints Working Groups.
- assesses the overall station risk impact due to SSC performance and all implemented risk-informed programs after each plant-specific data update of the PRA.
- retains appropriate documented decisions and supporting documents as quality records.

The roles and functions of the Working Groups are described as follows:

<u>Working Groups . . .</u>

- are composed of experienced personnel who possess diverse knowledge and insights into the plant.
- inject deterministic knowledge and insights to make up for PRA model limitations.
- analyze performance data and consider available risk information when developing recommendations.
- document recommendations and include rationale that forms the bases for the recommendations.
- provide recommendations to the Expert Panel for approval.
- following Expert Panel approval, take appropriate action to facilitate implementation of the decisions.

- ***PERFORMANCE MONITORING PROCESSES***

STP's performance monitoring processes include the following:

- Maintenance Rule Program – Specific performance criteria is identified at the system, train, or component level. HSS and MSS component performance is monitored at the component level. LSS and NRS component performance is not explicitly monitored, but degrading performance in these components, if significant, would be observed at the system or train level. Data used for monitoring is obtained from work orders, condition reports, test results, etc. System Health Reports are provided periodically and reviewed by Management. System Health Reports identify performance indicators and corrective action plans and status, as applicable.

- 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, conduct of testing, etc. The Quality organization provides oversight of this database. Negative indicators are documented through the initiation of a condition report.

- Corrective Action Program - Initiation of condition reports that document degraded equipment performance or condition, including condition reports generated as a result of operator rounds, system engineer walk-downs, and corrective/preventive maintenance activities.

- ***FEEDBACK AND CORRECTIVE ACTION PROCESSES***

STP's feedback and corrective action processes ensure that equipment performance changes are evaluated for impact on the component risk categorization, the application of special treatments, or other corrective actions. Performance data is compiled and presented to the Working Group during periodic reviews which are performed for each risk-categorized system. Performance and reliability data is generally obtained from:

1. Maintenance Rule Program – System Health Reports, Maintenance Rule Status, performance indicators, and adverse trends. If Maintenance Rule performance criteria is exceeded, then the affected system is evaluated for reclassification to Maintenance Rule category (a)(1). All (a)(1) classifications must be evaluated to determine the cause of the performance decline and develop a plan of corrective actions to prevent recurrence.

2. Operating Experience Review – Review and compilation of condition reports generated through the Corrective Action Program against system components since the last review period. The review also includes related industry experience, review of performance indicators from the Performance Reporting & Identification Database, and identification of adverse trends and causes.

3. PRA model updates – Periodic updates to the PRA model to include updates in reliability data. Reliability data for SSC's is obtained from input collected during plant operation to support the Maintenance Rule Program, information collected from the On-line Maintenance Program, review and discussion of system status with System Engineers and review of operating logs.

This process ensures that any negative performance changes that are attributed to the relaxation of special treatment controls are addressed timely by the reinstatement of applicable controls up to and including the re-categorization of the component's risk significance, as appropriate.

- ***PLANS FOR PERIODIC REASSESSMENT OF THE OVERALL PROCESS AND PROGRAM,***

STP's risk-informed programs and processes undergo periodic assessments as determined by the Expert Panel. These independent assessments will be performed in accordance with station procedures, and may include Quality audits, external audits, and self-assessments. The results of the assessments, along with any deficiencies or recommendations identified, will be addressed using the Corrective Action Program. In addition, improvements in the risk-informed processes and programs are continuously sought. Continuous improvement has been demonstrated in enhanced categorization and documentation methodologies.

- ***PROCESSES FOR CONTROLLING CHANGES TO THE AFOREMENTIONED PLANS AND PROCESSES.***

Upon approval, the implementation documents (i.e., procedures, Risk Significance Basis Documents, Master Equipment Databases, etc) can not be changed without approval and oversight of the Working Group and the Comprehensive Risk Management Expert Panel. The Working Group will recommend appropriate changes and forward these recommendations to the Expert Panel for approval. The procedural requirements in the Comprehensive Risk Management Program procedure and Graded Quality Assurance Process procedure delineate the responsibilities for implementing changes in the programs. The Expert Panel is specifically designated to maintain cognizance over the implementation of the Comprehensive Risk Management program and adjusting program criteria as appropriate.

The mechanism for facilitating changes to the Comprehensive Risk Management and Working Group processes and procedures utilizes processes such as the assessment process, periodic feedback process, and the continuous feedback process. Possible changes are evaluated by the Working Group, and recommendations are forwarded to the Expert Panel for approval. Condition Reports are generated, as appropriate, to document and track changes. Changes that affect procedures or other licensing bases will also use the 50.59 process to properly evaluate the recommended changes. These changes will be reported in accordance with 10CFR50.59 and 10CFR50.71(e).

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.*

RESPONSE:

STP proposes to exempt LSS and NRS Class 1E electrical components from the scope of special treatment requirements, such as seismic/environmental qualification and 10CFR 50 App. B requirements, subject to ensuring and documenting that failure of the component would not, in and of itself, result in failure or degradation of any MSS or HSS component. The following justifications are provided:

- The mode of failure where the function of an LSS or NRS component is lost (e.g., failure of a motor operator to provide motive force to its associated valve when demanded) has been determined through the risk categorization process to have little or no impact on protecting the core, mitigating the consequences of an accident, or protecting the public health and safety.

- The mode of failure where the LSS or NRS component degrades in such a way as to cause a fault in the electrical circuitry is prevented from affecting other upstream, electrically connected MSS or HSS components by at least one fully qualified Class 1E electrical isolation device. This isolation device shall remain in the scope of the special treatment requirements, either by virtue of it not being risk ranked or by ranking it as MSS or HSS.

- As noted in the question, STP has not yet risk categorized a complete electrical system. Prior to implementing the proposed exemption for LSS and NRS electrical components, STP will confirm and document that there exists at least one fully qualified Class 1E isolation device between the LSS or NRS component and any upstream electrically connected MSS or HSS component. In the case where this cannot be confirmed, STP will revise the risk categorization of the LSS or NRS electrical component to MSS or HSS.

- For handswitches, where the associated end device has been risk categorized as MSS and the handswitch has been ranked at a lower risk, STP will confirm and document that credible failure(s) of the handswitch could not prevent the associated end device from performing its MSS function(s). In the case where this cannot be confirmed, STP will revise the risk categorization of the handswitch to match that of the end device. For additional discussions on handswitches, please refer to the response to Question 10.

- When the need arises, STP may replace an existing LSS or NRS Class 1E component with a commercial grade component that meets the existing functional design requirements, including environmental parameters. Procuring a commercial component is accomplished by performing an engineering evaluation to ensure that the replacement component satisfies the required form, fit, and function. The replacement component will be capable of meeting the risk significant design functional requirements (including environmental considerations), however, the component will not be specifically qualified.

- By purchasing functionally equivalent replacement components, and by procuring from reputable vendors, reasonable assurance is provided that a quality product (which will meet the various challenges of service operation) is received. Even if the subject component is exposed to conditions for which the original Class 1E component was specifically qualified for, as long as these conditions are within the stated design parameters for the component, it is reasonable to expect that LSS and NRS components will be able to satisfactorily perform.

- The above measures will provide reasonable assurance, commensurate with the risk significance, that the replacement component can satisfactorily perform its risk significant functions and/or would not electrically degrade other components. Therefore, STP intends to continue to identify the replacement component as Class 1E, similar to maintaining the safety related classification for LSS and NRS safety related mechanical components.

- For cabling, STP intends to maintain current separation requirements. Therefore, existing Class 1E cables would not be replaced with commercial grade cables if this would result in violating separation requirements.

- In order for a failure of the replacement component to have a risk significant impact on the plant, the following must occur at the same time:

  - The replacement component must fail in such a way as to affect the upstream electrical circuitry.
  - The fully qualified Class 1E isolation device must fail to protect the upstream circuits.
  - The above two failures occur during a design basis event.

  STP does not consider this scenario to be credible. Additional probabilistic justification is provided later in this response.

- All equipment necessary to mitigate the consequences of initiating events is included in the plant PRA. Changes to the risk significance of components included in the PRA will not result in removal of the equipment from the model. As component replacements are made, changes in equipment failure rates, if they occur, will be identified by the Corrective Action Program or the Maintenance Rule Program and the new failure rates incorporated into the PRA model during the cycle updates. Requantification of the model with the changed failure rates may result in a change to the components' risk ranking. However, based on evidence being collected to support the Balance of Plant model, the failure rates for most equipment whose special treatment requirements are relaxed will not change significantly.

- Therefore, we expect no impact on plant risk in terms of core damage frequency or large early release frequency. Notwithstanding this conclusion, use of the special treatment exemption, when granted, will generally occur only as LSS or NRS components are replaced. Any change to core damage frequency or large early release frequency is expected to be gradual and detectable before a significant impact to core damage frequency or large early release frequency occurs.

<u>Additional Justification</u>

A sensitivity study was performed to show the impact of postulating increased failure rates for low ranked components to the CDF and LERF. The approach of the study was to increase the component failure rate by a factor of 10 for all components ranked LSS. Note, by definition all components credited in the plant specific PRA for accident/transient mitigation are ranked at least LSS. There are 431 component categorized as LSS and which are modeled in the PRA. The results are as follows:

	Current Average (events/reactor year)	Sensitivity Study λ_{LSS}*10 (events/reactor year)	Increase	% Increase
CDF	9.0781E-6	9.3232E-6	2.4510E-7	2.7%

LERF	1.3742E-7	1.3911E-7	1.6900E-9	1.2%

In all cases increasing the failure rates of LSS components by a factor of 10 was greater than the 95th percentile for each of the LSS component failure rate distributions.

The above increases in CDF and LERF are within the acceptance guidelines for very small changes as outlined in Regulatory Guide 1.174. The acceptance guidelines are 1E-6 delta CDF and 1E-7 delta LERF. Results from this study are small and consistent with the intention of the Commission's Safety Goal Policy Statement.

The sensitivity study incorporating a factor of 10 increase in failure rates for all LSS equipment (including Class 1E equipment) modeled in the PRA is believed to represent a conservative "bounding case" because there is evidence that component failure characteristics for non-safety-related equipment do not differ significantly from those for safety-related equipment. STPNOC asserts that, for components within the scope of the STPEGS Graded QA Program, non-safety-related component failure rates are not appreciably greater than corresponding safety-related (including Class 1E) component failure rates for similar component types. To support this assertion, STPNOC has performed a data analysis of Institute of Nuclear Power Operations (INPO) Equipment Performance and Information Exchange System (EPIX) data. Nuclear industry data reporting to the Nuclear Plant Reliability Data System (NPRDS) spans the time period from 1977 through 1996. The EPIX Maintenance Rule and Reliability Information (MRRI) database includes component failure data since 1996. NPRDS component engineering data includes indication of safety class, thus enabling a distinction between safety-related component and non-safety-related component failure rates. While the MRRI database does not include a safety-class distinction, INPO was able to provide STPNOC an MRRI database file for 1997-1999 data that is "back-linked" to NPRDS, thus providing indication of safety class. The NPRDS data and MRRI data were first analyzed separately then merged to provide a large-scope analysis to support responses for the STPEGS exemption request RAIs. STPNOC has developed a report, entitled "Safety-Related Versus Non-Safety-Related Equipment Failure Frequency Data Analysis for Nuclear Power Plants in the United States" dated April 6, 2000, describing this NPRDS-MRRI data analysis. This report is available upon request.

The scope of this merged NPRDS-MRRI analysis included consideration of over 670,000 component records and over 166,000 component failure records for those components. The historical data analyzed consisted of over 74 billion component-hours of experience. Tables 1 and 2 (attached) from the response to RAI #42 provide analysis results information for all 33 component type data categories contained in the merged NPRDS-MRRI database. These tables show that the calculated safety-related failure frequencies are generally greater than or roughly equivalent to those for corresponding types of non-safety-related components, based on historical NPRDS-MRRI data. This analysis shows that, of 33 component type categories investigated, 21 had higher safety-related failure frequency values than corresponding non-safety-related categories. Non-safety-related failure frequency values were significantly higher than corresponding safety-related failure frequencies in only one of the 33 categories (the "containment penetration" component type category). The analysis shows that, for most component types, the calculated safety-related failure frequencies are generally greater than or roughly equivalent to those for corresponding types of non-safety-related components, based on historical NPRDS and MRRI data.

An argument often made in this type of comparison is that there is more safety-related component experience in the database than non-safety-related component experience. This is valid. However, the failure frequency parameters, calculated simply in terms of reported failures per component-hour of experience in this analysis, are being compared on a consistent basis. For example, in the circuit breaker component type category, the following failure frequencies are determined with respect to safety classification:

For safety-related circuit breakers

- Number of failures: $X_{SR} = 6{,}457$
- Number of operating hours, $Y_{SR} = 7{,}723{,}785{,}888$

This yields a failure frequency of:

$$X_{SR} / Y_{SR} = 6{,}457 / 7{,}723{,}785{,}888 = 8.36E\text{-}7 \textit{ failures per operating hour}$$

Similarly, for non-safety-related circuit breakers

- Number of failures: $X_{NSR} = 1{,}345$
- Number of operating hours: $Y_{NSR} = 1{,}777{,}678{,}176$

This yields a failure frequency of:

$$X_{NSR} / Y_{NSR} = 1{,}345 / 1{,}777{,}678{,}176 = 8.36E\text{-}7 \textit{ failures per operating hour}$$

One can conclude that we have a greater degree of confidence that the historical failure frequency for safety-related circuit breakers represents the "true" failure frequency (calculated for infinite experience), than we do for the non-safety-related circuit breakers. However, in this case, there are large numbers of component-hours of experience for both safety-related and non-safety-related components, indicating that we have relatively high confidence in both results.

Another way of looking at this is that, if we were to "scale" the safety-related experience down to the non-safety-related experience level, we would multiply both the component-hours of experience and the reported failure count by the ratio of non-safety-related to safety-related component-hours of experience i.e.,

$$\textit{Scale} = 1{,}777{,}678{,}176 / 7{,}723{,}785{,}888 = 0.23$$

If we do this, we get the similar results as with the actual experience numbers, i.e.,

$$\textit{Scaled Number of NSR Failures} = \textit{Scale} * X_{SR} = 0.23 * 6{,}457 = 1486 \approx 1345$$

Likewise, we would get the similar results if we were to scale the non-safety-related experience up to the safety-related experience. That is, if we increase or decrease the component-hours of experience for a component type category of interest in the database by some factor, we would expect to have a higher or lower number of reported failures by the same factor.

Another simple conservative example will show how low the projected frequency of these types of fault back-propagation events are at STPEGS. First, there are several types of circuits supplying Class 1E loads that are LSS based on the PRA and on the Working Group/Expert Panel evaluations. Most of these types of circuits have multiple protection devices (i.e., circuit breakers, fuses, isolation transformers, etc.) between the endpoint load (assumed to be the source point of the electrical fault being propagated in our example) and an MCC or load center where multiple cascading failures could be experienced as a result of the initial fault. In the case of some MOVs and fans at STPEGS, there is only one breaker between the endpoint motor and an MCC where multiple faults could conceivably be experienced as a result of a fault generated in the MOV motor or associated local power or control circuitry. We conservatively choose this case for our example here. In our example, a plant “initiating event” from the PRA must occur to cause a demand of the target LSS MOV in our example. From the current STPEGS PRA database, each unit at STPEGS can expect to, on average, experience 3.98 initiating events per year (4.54E-04 events per hour). Only a portion of these events may actually require a demand of our target MOV, but we will conservatively assume that all of them do. In the PRA model, an MOV usually only has to change state once in the event sequence, therefore only a fraction of the total failure modes possible for the component will be modeled, but we will conservatively assume that all failure modes quantified in the PRA database for MOVs apply in our example (i.e., could result in an event leading to a cascading electrical fault). Studies performed for “hot short” type failures show that only a fraction of the total failure mode events for an MOV would be expected to result in the type of cascading electrical fault of interest here. We will conservatively assume, in this example, that that all the associated failure mode events of interest will also result in hot short conditions that could be propagated as a cascading electrical fault (this, again, is very conservative). The current STPEGS PRA database shows the following mean values for MOV failure rates for failure modes that could be associated with initiation of a cascading electrical fault:

MOV failure to open on demand = 1.25E-03
MOV failure to close on demand = 1.07E-04
MOV transfers open (or closed) per hour = 2.99E-07

In our conservative example, there is only one protective device (a Class 1E circuit breaker that will remain Class 1E under the proposed STPNOC Exemption Request) between the potential source of the cascading electrical failure and other power or control circuitry for other components that could be safety-related. The current STPEGS PRA database shows the following mean values for circuit breaker failure rates for failure modes that could be associated with propagation of a cascading electrical fault:

Breaker failure to open on demand = 2.16E-04
Breaker failure to close on demand = 1.06E-03
Breaker transfers open (or closed) per hour = 7.25E-07

Based on this information, a very conservative upper bound of the total frequency of generation of a cascading electrical fault from our MOV circuit of interest back to a point in STPEGS circuitry that could result in a potential cascading failure of additional equipment supplied by the MOV’s MCC can be estimated as follows:

Frequency of fault propagation

$$\left({}^{3.98}\!/_{8766} * (1.25E\text{-}3 + 1.07E\text{-}4) + 2.99E\text{-}7\right) * (2.16E\text{-}4 + 1.06E\text{-}3) + 7.25E\text{-}7$$

= 7.26E-7 events per hour
= 6.37E-3 events per year

This frequency is strongly dominated by the local failure of the breaker itself, not from faults caused by demands based on the MOV failure or the PRA initiating event. If we conservatively assume that all the MOV failure rates will increase by a factor of 10 after being replaced by commercial grade equipment, the new total frequency of fault propagation can be estimated as follows:

Frequency of fault propagation

$$\left({}^{3.98}\!/_{8766} * (1.25E\text{-}3 + 1.07E\text{-}4) + 2.99E\text{-}7\right) * 10 * (2.16E\text{-}4 + 1.06E\text{-}3) + 7.25E\text{-}7$$

= 7.37E-7 events per hour
= 6.46E-3 events per year

This represents a "delta" frequency of approximately 1E-08 events per hour, or about 9E-05 events per year for our conservative example. Recall that, from the safety-data versus non-safety-related failure frequency discussion above (and in RAI item 42), assuming a factor of 10 increase in failure rate for commercial grade equipment over current Class 1E equipment is not justified (i.e., is grossly conservative) based on available objective evidence from the INPO EPIX database, which indicates that failure frequencies for all the components of interest in our example here are within a factor of less than 2. Thus, the impact of implementing risk categorization at STPEGS could be expected to increase the "back-propagation" of electrical faults by approximately 1.4%, at the most. This conservative example shows that implementing risk categorization at STPEGS is expected to have an insignificant impact on back-propagation of electrical faults at the station.

In conclusion, STP proposes to exempt LSS and NRS Class 1E electrical components from the scope of special treatment requirements subject to the bulleted items provided at the beginning of this response (e.g., component has little or no impact on mitigating accidents/transients, etc.). STP has performed the following sensitivity studies in support of this question:

1. The overall impact of postulated failure rate increase is within the acceptance guidelines as outlined in Regulatory Guideline 1.174;

2. An evaluation of safety-related versus non-safety-related equipment failure frequencies demonstrates, for most component types, that the failure frequencies are higher for safety-related components;

3. It has been demonstrated that if we "scale" down safety-related experience to non-safety-related experience level, the number of equipment failures do not appreciably change; and

4. It was conservatively demonstrated that the frequency of occurrence of "back-propagating" electrical faults could result in an increase of only 1.4% which is not an appreciable change.

Therefore, STP is confident that removing special treatment requirements for LSS and NRS Class 1E equipment would not unduly hinder the ability of the plant to prevent or mitigate the consequences associated with accidents or transients.

TABLE 1. SUMMARY OF MERGED NPRDS-MRRI COMPONENT TYPE CATEGORY SAFETY-RELATED VERSUS NON-SAFETY-RELATED FAILURE FREQUENCY COMPARISON RESULTS

COMPONENT DATA CHARACTERISTIC DESCRIPTION	NUMBER IN CATEGORY
TOTAL COMPONENT CATEGORIES ANALYZED:	33
NUMBER OF CATEGORIES WITH SAFETY-RELATED DEMAND FAILURE RATE GREATER THAN NON-SAFETY-RELATED FAILURE FREQUENCY:	21
NUMBER OF CATEGORIES WITH NON-SAFETY-RELATED DEMAND FAILURE RATE GREATER THAN SAFETY-RELATED FAILURE FREQUENCY:	12
CATEGORIES WHERE SAFETY-RELATED DEMAND FAILURE RATE IS MORE THAN A FACTOR OF 2 LESS THAN NON-SAFETY-RELATED FAILURE FREQUENCY:	3
CATEGORIES WHERE SAFETY-RELATED DEMAND FAILURE RATE IS MORE THAN A FACTOR OF 3 LESS THAN NON-SAFETY-RELATED FAILURE FREQUENCY:	1
TOTAL COMPONENT-HOURS OF EXPERIENCE DATA:	74,615,379,120
TOTAL FAILURE EVENT RECORDS ANALYZED:	116,413
TOTAL FUNCTIONAL FAILURES IN RECORD SET:	116,413
SAFETY-RELATED COMPONENT-HOURS OF EXPERIENCE:	60,968,091,504
NON-SAFETY-RELATED COMPONENT-HOURS OF EXPERIENCE:	13,647,287,616
SAFETY-RELATED FUNCTIONAL FAILURES IN RECORD SET:	93,697
NON-SAFETY-RELATED FUNCTIONAL FAILURES IN RECORD SET:	22,716

TABLE 2. MERGED NPRDS-MRRI COMPONENT TYPE CATEGORY DATA ANLAYSIS RESULTS

COMPONENT TYPE ID	COMPONENT DESCRIPTION	SAFETY-RELATED COMPONENT-HOURS	SAFETY-RELATED COMPONENT FAILURES	NON-SAFETY-RELATED COMPONENT-HOURS	NON-SAFETY-RELATED COMPONENT FAILURES	SAFETY-RELATED COMPONENT FAILURE FREQUENCY (FAILURES / COMPONENT-HOUR)	NON-SAFETY-RELATED COMPONENT FAILURE FREQUENCY (FAILURES / COMPONENT-HOUR)	NON-SAFETY-RELATED > SAFETY-RELATED FREQUENCY	NON-SAFETY-RELATED > 2*SAFETY-RELATED FREQUENCY	NON-SAFETY-RELATED > 3*SAFETY-RELATED FREQUENCY
ACCUMU	Accumulators, tanks, air receivers	320,096,904	286	51,778,080	9	8.93E-07	1.74E-07	NO	NO	NO
AIRDRY	Air dryers, dehumidifiers	20,415,504	149	26,830,248	168	7.30E-06	6.26E-06	NO	NO	NO
ANNUNC	Annunciator modules, alarms	21,289,632	9	50,028,864	4	4.23E-07	8.00E-08	NO	NO	NO
BATTRY	Batteries, battery chargers	188,054,640	1,109	34,188,936	170	5.90E-06	4.97E-06	NO	NO	NO
BLOWER	Blowers, compressors, fans, vacuum pumps, cooling units	327,993,024	1,601	106,903,032	808	4.88E-06	7.56E-06	YES	NO	NO
CKTBRK	Circuit breakers, contactors, controllers	7,723,785,888	6,457	1,777,678,176	1,345	8.36E-07	7.57E-07	NO	NO	NO
CRDRVE	Rod drive mechanism, hydraulic control unit	2,386,497,960	3,049	84,631,656	13	1.28E-06	1.54E-07	NO	NO	NO
DEMIN	Demineralizers, ion exchangers	44,136,024	72	72,290,016	255	1.63E-06	3.53E-06	YES	YES	NO
ELECON	Electrical conductors, bus, cable, wire	47,311,920	229	2,645,688	9	4.84E-06	3.40E-06	NO	NO	NO
ENGINE	Engines (gas, diesel)	42,954,168	1,364	3,009,408	45	3.18E-05	1.50E-05	NO	NO	NO
FILTER	Filters, strainers, screens	194,277,624	492	48,874,176	90	2.53E-06	1.84E-06	NO	NO	NO
GENERA	Generators, inverters, motor generators	155,717,880	1,618	41,882,208	400	1.04E-05	9.55E-06	NO	NO	NO

COMPONENT TYPE ID	COMPONENT DESCRIPTION	SAFETY-RELATED COMPONENT-HOURS	SAFETY-RELATED COMPONENT FAILURES	NON-SAFETY-RELATED COMPONENT-HOURS	NON-SAFETY-RELATED COMPONENT FAILURES	SAFETY-RELATED COMPONENT FAILURE FREQUENCY (FAILURES / COMPONENT-HOUR)	NON-SAFETY-RELATED COMPONENT FAILURE FREQUENCY (FAILURES / COMPONENT-HOUR)	NON-SAFETY-RELATED > SAFETY-RELATED FREQUENCY	NON-SAFETY-RELATED > 2*SAFETY-RELATED FREQUENCY	NON-SAFETY-RELATED > 3*SAFETY-RELATED FREQUENCY
HEATER	Electric heaters	66,201,648	215	6,761,136	12	3.25E-06	1.77E-06	NO	NO	NO
HTEXCH	Heat exchanger, condenser, steam generator	414,941,280	1,468	356,166,816	1,105	3.54E-06	3.10E-06	NO	NO	NO
IBISSW	Bistable, switch (mechanical, electronic)	4,583,711,328	7,309	1,168,451,712	1,367	1.59E-06	1.17E-06	NO	NO	NO
ICNTRL	Instrument controllers	898,170,120	2,617	754,194,216	2,054	2.91E-06	2.72E-06	NO	NO	NO
INDREC	Indicators, recorders, gauges	1,165,607,472	1,572	467,257,680	452	1.35E-06	9.67E-07	NO	NO	NO
INTCPM	Integrator/computation module	5,147,811,144	6,485	1,254,243,600	1,619	1.26E-06	1.29E-06	YES	NO	NO
IPWSUP	Electronic power supply	2,421,707,832	2,710	307,631,568	421	1.12E-06	1.37E-06	YES	NO	NO
ISODEV	Isolation devices	1,331,855,808	774	158,385,984	96	5.81E-07	6.06E-07	YES	NO	NO
IXMITR	Transmitters, detectors, elements	4,019,348,664	9,775	950,110,272	1,298	2.43E-06	1.37E-06	NO	NO	NO
MECFUN	Governors, couplings, gear boxes	145,165,920	790	64,157,760	346	5.44E-06	5.39E-06	NO	NO	NO
MOTOR	Motors (electric, hydraulic, pneumatic)	894,689,184	1,212	217,592,112	450	1.35E-06	2.07E-06	YES	NO	NO
PENETR	Containment penetrations, air locks, hatches	562,056,384	922	2,977,224	121	1.64E-06	4.06E-05	YES	YES	YES
PIPE	Pipes, fittings, rupture discs	127,431,000	415	22,303,536	104	3.26E-06	4.66E-06	YES	NO	NO
PUMP	Pumps, eductors	745,949,736	4,797	160,325,160	1,136	6.43E-06	7.09E-06	YES	NO	NO
RELAY	Relays	8,447,729,424	2,922	348,630,792	275	3.46E-07	7.89E-07	YES	YES	NO

COMPONENT TYPE ID	COMPONENT DESCRIPTION	SAFETY-RELATED COMPONENT-HOURS	SAFETY-RELATED COMPONENT FAILURES	NON-SAFETY-RELATED COMPONENT-HOURS	NON-SAFETY-RELATED COMPONENT FAILURES	SAFETY-RELATED COMPONENT FAILURE FREQUENCY (FAILURES / COMPONENT-HOUR)	NON-SAFETY-RELATED COMPONENT FAILURE FREQUENCY (FAILURES / COMPONENT-HOUR)	NON-SAFETY-RELATED > SAFETY-RELATED FREQUENCY	NON-SAFETY-RELATED > 2*SAFETY-RELATED FREQUENCY	NON-SAFETY-RELATED > 3*SAFETY-RELATED FREQUENCY
SUPORT	Supports, hangers, snubbers	899,955,000	908	38,081,304	44	1.01E-06	1.16E-06	YES	NO	NO
TRANSF	Transformers, shunt reactors	259,542,552	161	194,772,312	150	6.20E-07	7.70E-07	YES	NO	NO
TURBIN	Turbines (steam, gas)	28,295,040	363	48,378,888	380	1.28E-05	7.85E-06	NO	NO	NO
VALVE	Valves, dampers	13,192,044,024	20,420	3,375,651,384	4,061	1.55E-06	1.20E-06	NO	NO	NO
VALVOP	Valve operators	4,112,662,464	11,279	1,450,059,720	3,909	2.74E-06	2.70E-06	NO	NO	NO
VESSEL	Pressure vessel, reactor vessel, pressurizer	30,684,312	148	413,952	0					
	TOTAL:	60,968,091,504	93,697	13,647,287,616	22,716			12	3	1

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.

RESPONSE: (part a) (G. Sandlin)

In the exemption request, STP requested exemption from 15 of the 18 Appendix B criteria. The three criteria for which exemption was not requested included:

- Criterion III – Design Control
- Criterion XV – Nonconforming Materials, Parts, or Components, and
- Criterion XVI – Corrective Action

In addition, in the response to part (c) of this question, STP clarifies that we are not asking for exemption to Criterion IV, Procurement Document Control. For the remaining 14 criteria, STP proposes the following commercial quality practices as an alternative to that specified in Appendix B. It should be remembered that exemption is only requested for components that are risk categorized as LSS and NRS. LSS and NRS components, by definition, serve little, if any, function in mitigating the consequences of an accident or protecting the health and safety of the public during a design basis event or any other credible event. With this in mind, the following commercial practices for NRS and LSS components will be followed:

- Criterion I (Organization) – the Quality organization will focus on HSS/MSS components, including non-safety related HSS/MSS components and will not be required to provide oversight for LSS/NRS components or activities. The Comprehensive Risk Management Expert Panel provides organizational oversight for the categorization of SSCs and for the implementation of risk-informed activities at STP. The GQA Working Group provides oversight for the categorization of SSCs and monitors the implementation feedback for potential adjustments in controls or categorization.

- Criterion II (Quality Assurance Program) – the Operations Quality Assurance Program (OQAP) will be modified to focus on HSS/MSS SSCs, including those that are not safety related. Commercial programs, procedures, and practices (i.e., Balance of Plant) are in place to provide appropriate controls over activities affecting LSS and NRS components. These processes have been proven to provide satisfactory controls to ensure that Balance-of-Plant equipment operates safely and reliably. Likewise, these processes will provide reasonable assurance that LSS/NRS SSCs can perform their design basis functions. The implementation of these activities will be under the oversight of the Expert Panel, who will receive input from the GQA Working Group, other Working Groups, and plant staff.

- Criterion V (Instructions, Procedures, and Drawings) – appropriate procedures, instructions, and drawings are in place, and will be used, as appropriate, in support of activities affecting LSS/NRS components. The use of these instructions, procedures, and drawings will follow good business practices to provide reasonable assurance that LSS/NRS components will operate reliably and can satisfy their design functional requirements.

- Criterion VI (Document Control) – appropriate commercial practices will be followed to properly control documents affecting LSS/NRS components and activities. These practices will be governed by administrative procedures which will provide reasonable oversight over the LSS/NRS activities.

- Criterion VII (Control of Purchased Material, Equipment, and Services) – appropriate commercial practices will be followed to provide reasonable assurance that purchased material and equipment for LSS/NRS components conform to the procurement documentation. STP will continue to procure LSS/NRS components from reputable vendors. These practices will be governed by administrative procedures.

- Criterion VIII (Identification and Control of Materials, Parts, and Components) – appropriate commercial practices will be followed to provide reasonable assurance that incorrect or defective material, parts, and components are not used in LSS/NRS component applications. These practices will be governed by administrative procedures.

- Criterion IX (Control of Special Processes) – special processes will follow good commercial practices, and will be administratively controlled using existing processes and programs. Appropriate measures will be followed to ensure the reliability of LSS/NRS components, and to provide reasonable assurance that these components can perform their design functional requirements.

- Criterion X (Inspection) – commercial practices will be followed to ensure the reliability of LSS/NRS components, and to provide reasonable assurance that these components can perform their design functional requirements. Supervisor oversight or peer observations may be used to provide additional assurance that activities are completed in a safe and effective manner.

- Criterion XI (Test Control) – commercial practices will be followed to provide reasonable assurance that LSS/NRS components can satisfy their design functional requirements. Appropriate post-maintenance testing will be performed as well as operational checks to provide reasonable assurance that components will function.

- Criterion XII (Control of Measuring and Test Equipment) – commercial maintenance procedures, work instructions, and practices will be followed to use tools, gauges, instruments, and other measuring and testing equipment (M&TE). It is expected that this equipment will continue to be controlled and calibrated as it is currently, however, if a post-calibration check of the M&TE fails, evaluation of impact on LSS and NRS components will not be required, nor will any rework be required on LSS/NRS components.

- Criterion XIII (Handling, Storage, and Shipping) – appropriate commercial practices will be used to ensure that LSS/NRS components are properly handled, stored, shipped, cleaned, and preserved to ensure that replacement components retain their design functional requirements.

- Criterion XIV (Inspection, Test, and Operating Status) – LSS and NRS components will continue to remain within the existing configuration control program at STP. This includes the appropriate tagging to identify operational or maintenance status. Commercial practices will be used to identify the status of inspections or tests (normally contained within procedural guidance).

- Criterion XVII (Quality Assurance Records) – administrative controls will specify appropriate records and documentation for LSS and NRS components. Records that are administratively required to be retained will be controlled through the existing document control process.

- Criterion XVIII (Audits) – LSS and NRS components will be appropriately monitored under the Maintenance Rule program at the system/train/plant level. In addition, periodic reviews performed by the GQA Working Group will assess the appropriateness of the controls placed on LSS/NRS components and the risk categorization for these components. Furthermore, the Quality Organization has and will continue to assess the overall GQA program and provide findings/recommendations to STP Management. Other assessments may be pursued based on good business practices or as directed by the Comprehensive Risk Management Expert Panel.

The above commercial practices have provided effective oversight and control for balance-of-plant components and activities. It is reasonable to expect that these same controls can effectively be used on LSS/NRS components which are not required to mitigate the consequences of an accident or to protect the health and safety of the public during a design basis event or any other credible event.

RESPONSE: (part b)

Commercial practices will be followed for LSS/NRS components. STP asserts that for similar components, the failure rate of non-safety related SSCs does not differ appreciably from the failure rate of safety-related SSCs. See the response to Question 42 for additional insights into this assertion. Therefore, commercial practices have been demonstrated to provide reasonable assurance that LSS/NRS components will reliably perform their design functions.

From a procurement perspective, purchases of safety related LSS/NRS parts using commercial practices would require an engineering evaluation. This evaluation will compare the form, fit, and function between the existing LSS/NRS safety related part and the proposed part using commercial non-Appendix B suppliers. These parts will be evaluated and justified in accordance with site procedure OPGP03-ZE-0072 “Replacement Item Equivalency Evaluation (IEE) Program”. This procedure requires that critical characteristics for design functions are selected and a comparison of existing and proposed critical characteristics is made and justified. Specifications that describe parts are available from manufacturers that provide the necessary data to make these comparisons. Typically, this information is contained in what is called a “catalog cut sheet”. The Item Equivalency procedure uses the guidance of EPRI Report NP-6406, ”Technical Evaluation of Replacement Items Guideline”. This evaluation will ensure that the proposed replacement will perform the design function. The Equivalency Evaluation is used for part number changes to ensure that the replacement part will function and fit, and to maintain configuration control. The IEE does not dedicate a part and STPNOC is not proposing that a safety related LSS/NRS part or component would require a dedication. Where the proposed change is a component (assembly of parts), a Design Change will be utilized in most cases. A design change is required if design basis documents such as Piping and Instrumentation Diagrams (P&IDs) require change due to the component change. The existing Design Change process at STP will be utilized for these changes. These processes are currently the practice at STPNOC for all components regardless of quality classification. These practices are used for parts and components in the Turbine-Generator Building and in the Reactor Containment Building.

After acceptability is demonstrated, a purchase order (PO) will be issued to a commercial vendor. Part number, model number, size, and description, as appropriate, will identify the required component. The purpose of this identification is to ensure that the part or component ordered, and evaluated, is the same as that received. The PO may also contain drawing references and specification references where this information is needed to describe the part or component. There will be a requirement in each PO that substitutions are not allowed without written permission. Engineering will evaluate each request for a substitution. Upon receipt of the part or component, an inspection will be performed for damage and to ensure that the part or component ordered is the component received.

Commercial manufacturers and suppliers are motivated to provide high quality and reliable products, which meet published specifications. These purchases will start with a comparison of the existing part or components design characteristics to the proposed component characteristics as described above. In many cases, the only difference will be the certifications and traceability to an Appendix B program. In other cases, materials may be different. Where functional differences are identified, the engineering evaluation mentioned above will ensure that the part or component will function as designed. Some differences may require a design change to implement the change.

Normal commercial procurement practices specified above will provide a reasonable level of assurance that safety-related LSS and NRS components will be able to satisfy their intended design functional requirements. If the evaluations discussed above do not provide the necessary assurance that the component can satisfy its design functional requirements, additional testing, up to and including qualification-type testing, will be pursued to ensure that reasonable assurance is appropriately provided.

Attached to this response is an example of an equivalency evaluation that could be prepared for the replacement of a safety related LSS/NRS component with a commercial grade component. This example is provided for additional insight only.

RESPONSE: (part c)

Following further review and consideration of the requirements of Criterion IV, STPNOC withdraws the request for exemption from Criteria IV. The exemption request will be updated to reflect this change in our approach.

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Replacement Item Equivalency Evaluation Program

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Item Equivalency Evaluation (IEE) No.: 99-1566-2

REV. NO.: 0RMS FILE NO.:Z31.02

SECTION I **ITEM IDENTIFICATION**

Existing Condition	Proposed Condition
Item Description:Temp. indicator 0-2,000 °F	Item Description:Temp. indicator 0-1,999 °F
Mfr. Name:Honeywell	Mfr. Name:Chromalox
Mfr. Model:R7351	Mfr. Model:N/A
Mfr. Part No.:R7351A1080	Mfr. Part No.:3901-1-1-1-12
Vendor Name:Wilson-Mohr, Inc.	Vendor Name:N/A
Vendor Model:R7351	Vendor Model:N/A
Vendor Part No.:R7351A1080	Vendor Part No.:N/A

SECTION II **CHANGE DESCRIPTION / SCREENING**

Type of Change:Administrative or Equivalent Change (completion of Sections III through VI is **not required**)

Alternate Replacement (completion of sections III through VI is **required** to evaluate acceptance)

Note: IEE cannot be performed for replacement items which impact the design basis

Description of Change(s): The Honeywell temperature indicator P/N R7351A1080 is obsolete with no direct replacement. This IEE identifies the Chromalox temperature indicator P/N 3901-1-1-1-12 as an alternate replacement.

Check all that apply:

DCP required For installation?	Safety Related?	Equipment Qualification Requirements Applicable?	Seismic Requirements Applicable ?

ENVIRONMENTAL QUAL PKG NO: N/A SEISMIC QUAL PKG NO: TO BE ASSIGNED
ENVIRONMENTAL REQUIREMENTS: N/A SEISMIC REQUIREMENTS:

Comparison results: (check box for item evaluation result)	X	Alternate Item is **Acceptable**
		Alternate Item is **NOT Acceptable**
This ITEM EQUIVALENCY EVALUATION applies to:		Bulk commodity for plant wide use without restriction.
		Bulk commodity for use in mild environment.
	X	Specific TPNS tags or applications.
		Item may not be used in applications not evaluated in this package. Contact Procurement Engineering if item may be required in other applications. (Specific TPNS are listed in Section III)

DED:	X	NPMM:	X	OTHER:		RMS:	X

IEE Originator: Date: Revision	Interdisciplinary Review: Date: Description of Changes(s)	Reviewed By: Date:	Engineering Supervisor: Date:

Replacement Item Equivalency Evaluation Program

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Item Equivalency Evaluation (IEE) No:	99-1566-2	Rev.:	0

SECTION III	**APPLICATION IDENTIFICATION**		
Parent Component Description / Function: (Item to be linked to this parent(s))	N/A	Parent TPNS and/or MPL(s)	N/A
Item Description / Function:	Provides an indication of hydrogen recombiner temp.	ItemTPNS and/or MPL(s)	B1(2)CGTI9975 C1(2)CGTI9980
Description of specific applications or limitations (if applicable):	N/A		

QC Class:	4	GQA:	LRS	Class Bin (s)	501-59523	P.O. (s)	4000 / 8000

SECTION IV **ITEM COMPARISON**

Critical Characteristics	Existing	Proposed	Results	Justification (if applicable)
1) Power	1) 120 VAC	1) 120 VAC	Same - Acceptable	
2) Input signal	2) Type K thermocouple	2) Type K thermocouple	Same - Acceptable	
3) Indicator Type	3) Analog	3) Analog	Same – Acceptable	
4) Temperature Range	4) 0 – 2,000 ° F	4) 0 – 1,999 ° F	Different - Acceptable	The 1 degree temperature difference is negligible. Recombination temperature is assured by maintaining temperature above 1225 ° F and the unit is not used at it's max. range.
5) Accuracy	5) +/- 1% nominal	5) +/- 0.5% of span over mid-80% of scale	Different - Acceptable	The proposed has a better accuracy and is acceptable.
6) Dimensions Hole Length Width Depth Face Length Width Mounting	6) 5.43" 5.43" 7" 6" 6" Two pressure type mounting bracket and screws.	6) 3.6" 3.6" 3.2" 3.8" 3.8" Two pressure type screw in mounting tabs.	Different - Acceptable	A DCP is needed to provide guidance for fabrication and installation of a cover plate.
7) Indicator display	7) Needle	7) LED	Different – Acceptable	Needle can be read to nearest 20 ° F mark, the LED can be read to the nearest ° F.
8) Power consumption	8) 6.5 watts maximum	8) 10 watts	Different - Acceptable	The proposed will draw approx. 30 mA more than the existing. This is increase is negligible.

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SECTION V — RELATED DOCUMENTATION UPDATE / DATABASE UPDATE

New Documents / Drawings: Required prior to Installation? Yes – No –

Doc. Type	New Document/ Drawing Number	Rev	Title / Description
VTD	VTD-C332-0026	0	3901 Chromalox Overtemperature Controller Users Manual

Revised Documents:

Doc. Type	Document/ Drawing Number	Rev	Title / Description	DCP or CR # for rev. as applicable:

Affected Databases: Change Required? Yes – No –

MPL	Sequence No.	Rev	Description of Changes Required
To be created			Add a new MPL for the Chromalox temperature indicator as indicated on pages 1 and 2 of this IEE.

SECTION VI — GENERAL COMMENTS / REFERENCES

Comments:

Note to NPMM: THIS ITEM IS TO BE PLACED ON RESTRICTED ISSUE. A DCP IS REQUIRED FOR INSTALLATION. A cover plate must be fabricated to secure the units in the panel as they are physically smaller than the existing ones. These indicators are in the plant scaling manual and the main control panel equipment list. Additionally, wiring labels on several plant drawings must be updated.

* This item must be dedicated to be safety related, Class 1E and seismically qualified. Select an AVL Appendix B Supplier to dedicate and supply a seismic qualification report.

General Note: At the time of issue of IEE 99-1566-2 all the temperature indicators were still operational and there was no immediate need. There is a 30 day T.S. associated with these indicators. The purpose of these documents was to facilitate purchase, dedication, and availability of this item in the warehouse in the event one fails. Replacement of all the indicators was considered. However, IAW FC-990025 to 0PGP04-ZE-0309, rev. 6, changes which impact the simulator are a minor Mod. As there was no immediate need, it was decided not to pursue a minor Mod. The restriction notes in the IEE identify design activities needed to install this item.

References:

VTD-W351-0042, Electric Hydrogen Recombiners
VTD-C332-0026, 3901 Chromalox Overtemperature Controller User's Manual
ES 953426, Westinghouse Electrical Specification for Recombination Unit
3Z349ZS0120, Specification for Main Control Panels
DWG 14926-4304-00250, Electrical Wiring Diagram for Control Panel CP002-WD1
DWG 4304-00188-MMD, Front Arrangement CP002
DWG 14926-0917-1(2)-00004, H2 Recombiner Power Schematic
DWG 14926-0917-1(2)-00002-AWN, H2 Recombiner BOM
DWG 9-E-CG10-1 #1(#2), Elementary Master Block Diagram Elec. Hydrogen Recombiner
DWG 5-Z-01-9-Z-47511 #1(#2), Main Control Panel Equipment List
DWG 5-Z-34-9-Z-44520, Main Control Panel Plates & Cut Out Details

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(IEE Continuation Page)

IEE Section:	ITEM COMPARISON			
Critical Characteristics	Existing	Proposed	Results	Justification (if applicable)
9) Weight	9) 8 lbs. shipping	9) 614 g or 1.35 lbs. (Field measured at the warehouse as no weight was provided in vendor literature)	Different – Acceptable	The proposed weighs less than the existing.
10) Indicating lights	10) Red and green LED indicate the process condition ie. above or below setpoint.	10) No red/green LEDs	Different – Acceptable	This instrument is not used for automatic control and is not programmed for a setpoint so indication above or below is not needed.

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.

RESPONSE: (R. Grantom)

STP is requesting an exemption from the Type C test requirements in Appendix J, Option B, Section III.B to 10 CFR Part 50, to the extent that those requirements pertain to containment isolation valves that meet the following criteria:

1. The valve has been categorized as LOW or NRS

2. The valve meets one or more of the following criteria:

   a. The valve is required to operate (i.e., open) under accident conditions to prevent or mitigate core damage events (e.g., CC-MOV-0057, Component Cooling Water to Reactor Containment Fan Coolers).

   b. The valve is normally closed and in a physically closed, water-filled system. (e.g., containment isolation valves in the Demineralized Water system)

   c. The valve is in a physically closed system whose piping pressure rating exceeds the containment design pressure rating and that is not connected to the reactor coolant pressure boundary (e.g., containment isolation valves in the Main Feedwater system).

   d. The valve is in a closed system whose piping pressure rating exceeds the containment design pressure rating, and is connected to the reactor coolant pressure boundary. The process line between the containment isolation valve and the reactor coolant pressure boundary is non-nuclear safety (i.e., the valve itself would have been classified as non-nuclear safety were it not for the fact that it penetrates the containment building). An example is the Safety Injection accumulator nitrogen supply valve.

   e. The valve size is 1 inch or less (i.e., by definition the valve failure does not contribute to large early release).

The above criteria describe a set of penetrations where leakage paths which would threaten public health and safety are not credible. The penetrations meeting criterion 2.a are in a closed system which is under duty during accident conditions and, therefore, represent pathways for mass and inventory to enter containment and, if exiting containment (e.g., recirculation cooling post LOCA), represent mass and inventory which is contained in a closed system. Criterion 2.b penetrations, which are normally water-filled and closed, are eliminated since, in addition to the physical barriers of piping and water inventory, the CIVs are already in a closed position (i.e., the containment isolation function is already satisfied), thus providing an additional physical barrier to prevent leakage. Criterion 2.c represents penetrations where leakage is not possible due to the physical barriers of piping (which is rated higher than containment design pressure), existing water inventories, and actuated valve barriers of various types contained within these closed systems. Criterion 2.d represents containment isolation valves in a closed system where the rating exceeds the containment design pressure rating. This criterion applies to valves connected to the reactor coolant boundary where the process line between the CIV and the reactor coolant boundary is non-nuclear safety. Criterion 2.e is for valves of 1 inch or less in size whose failure will not, by definition, lead to a large early release.

The following table is a listing of all containment isolation valves. The last column indicates whether the valve is in the scope of the exemption based on satisfying the above criteria.

Penetration	Full Tag	Description	Valve Size	Risk	Current GDC	Current LLRT	Proposed Exemption	Basis
M-01(3)	2S141TMS0143	TERRY TURBINE MAIN STEAM SUPPLY ORC ISOLATION MOV	4	HIGH	57	NO	N/A	
M-01(3)	A1MSFV7442	SG 1D MN STM ISOLATION BYPASS VALVE	4	MEDIUM	57	NO	N/A	
M-01(3)	D1AFFV0143	TERRY TURBINE WARM-UP VALVE	1	LOW	57	NO	N/A	
M-01(3, 5)	A1MSFSV7444	STEAM GENERATOR 1D MAIN STEAM ORC ISOLATION VALVE	30	MEDIUM	57	NO	N/A	
M-01(4)	2S101TMS0546	MAIN STEAM ISOL VALVE 1D ABOVE SEAT DRAIN ISOL	2	LOW	57	NO	N/A	
M-02(3)	A1MSFV7412	SG 1A MN STM ISOLATION BYPASS VALVE	4	MEDIUM	57	NO	N/A	
M-02(3, 5)	A1MSFSV7414	STEAM GENERATOR 1A MAIN STEAM ORC ISOLATION VALVE	30	MEDIUM	57	NO	N/A	
M-02(4)	2S101TMS0543	MAIN STEAM ISOL VALVE 1A ABOVE SEAT DRAIN ISOL	2	LOW	57	NO	N/A	
M-03(3)	A1MSFV7422	SG 1B MN STM ISOLATION BYPASS VALVE	4	MEDIUM	57	NO	N/A	
M-03(3, 5)	A1MSFSV7424	STEAM GENERATOR 1B MAIN STEAM ORC ISOLATION VALVE	30	MEDIUM	57	NO	N/A	
M-03(4)	2S101TMS0544	MAIN STEAM ISOL VALVE 1B ABOVE SEAT DRAIN ISOL	2	LOW	57	NO	N/A	
M-04(3)	A1MSFV7432	SG 1C MN STM ISOLATION BYPASS VALVE		MEDIUM	57	NO	N/A	
M-04(3, 5)	A1MSFSV7434	STEAM GENERATOR 1C MAIN STEAM ORC ISOLATION VALVE	30	MEDIUM	57	NO	N/A	
M-04(4)	2S101TMS0545	MAIN STEAM ISOL VALVE 1C ABOVE SEAT DRAIN ISOL	2	LOW	57	NO	N/A	
M-05(3)	B1FWFV7145A	STEAM GENERATOR 1D FEEDWATER INLET ORC ISOLATION VALVE BYPASS	3	MEDIUM	57	NO	N/A	
M-05(3, 7)	A1FWFV7144	STEAM GENERATOR 1D ORC FEEDWATER ISOLATION VALVE	18	MEDIUM	57	NO	N/A	
M-06(3)	A1FWFV7148A	STEAM GENERATOR 1A FEEDWATER INLET ORC ISOLATION VALVE BYPASS	3	MEDIUM	57	NO	N/A	
M-06(3, 7)	A1FWFV7141	STEAM GENERATOR 1A ORC FEEDWATER ISOLATION VALVE	18	MEDIUM	57	NO	N/A	
M-07(3)	A1FWFV7147A	STEAM GENERATOR 1B FEEDWATER INLET ORC ISOLATION VALVE BYPASS	3	MEDIUM	57	NO	N/A	
M-07(3, 7)	A1FWFV7142	STEAM GENERATOR 1B ORC FEEDWATER ISOLATION VALVE	18	MEDIUM	57	NO	N/A	
M-08(3)	B1FWFV7146A	STEAM GENERATOR 1C FEEDWATER INLET ORC ISOLATION VALVE BYPASS	3	MEDIUM	57	NO	N/A	
M-08(3, 7)	A1FWFV7143	STEAM GENERATOR 1C ORC FEEDWATER ISOLATION VALVE	18	MEDIUM	57	NO	N/A	
M-09	2N101XCS0006	CONTAINMENT SPRAY HEADER	8	*	56	YES		
M-09(6)	2N101XCS0001C	CONTAINMENT SPRAY TO RING HEADER	8	*	56	YES		
M-10	2N121XSI0004C	HI HEAD SAFETY INJECTION PUMP 1C DISCHARGE MOV (ORC)	6	MEDIUM	55	YES	NO	
M-10	2N121XSI0005C	HI HEAD SAFETY INJECTION PUMP 1C DISCHARGE CHECK VALVE (IRC)	6	HIGH	55	YES	NO	
M-11	2N121XSI0018C	LO HEAD SAFETY INJECTION PUMP 1C DISCHARGE MOV (ORC)	8	MEDIUM	55	YES	NO	
M-11	2N121XSI0030C	LO HEAD SAFETY INJECTION PUMP 1C DISCHARGE CHECK VALVE (IRC)	8	HIGH	55	YES	NO	
M-12	2S201TSL0027	CHEMICAL CLEANING RETURN	6	*	56	YES		
M-12	2S201TSL0029	CHEMICAL CLEANING RETURN	6	*	56	YES		
M-13	2N101XCS0004	CONTAINMENT SPRAY HEADER	8	*	56	YES		
M-13	2N101XCS0005	CONTAINMENT SPRAY HEADER	8	*	56	YES		
M-13(6)	2N101XCS0001B	CONTAINMENT SPRAY TO RING HEADER	8	*	56	YES		
M-14	2N121XSI0004B	HI HEAD SAFETY INJECTION PUMP 1B DISCHARGE MOV (ORC)	6	MEDIUM	55	YES	NO	
M-14	2N121XSI0005B	HI HEAD SAFETY INJECTION PUMP 1B DISCHARGE CHECK VALVE (IRC)	6	HIGH	55	YES	NO	
M-15	2N121XSI0018B	LO HEAD SAFETY INJECTION PUMP 1B DISCHARGE MOV (ORC)	8	MEDIUM	55	YES	NO	
M-15	2N121XSI0030B	LO HEAD SAFETY INJECTION PUMP 1B DISCHARGE CHECK VALVE (IRC)	8	HIGH	55	YES	NO	

Penetration	Full Tag	Description	Valve Size	Risk	Current GDC	Current LLRT	Proposed Exemption	Basis
M-16	2S201TSL0002	SLUDGE LANCING HIGH PRESSURE	2	*	56	YES		
M-16	2S201TSL0004	SLUDGE LANCING HIGH PRESSURE	2	*	56	YES		
M-17	2N101XCS0002	CONTAINMENT SPRAY HEADER	8	*	56	YES		
M-17(6)	2N101XCS0001A	CONTAINMENT SPRAY TO RING HEADER	8	*	56	YES		
M-18	2N121XSI0004A	HI HEAD SAFETY INJECTION PUMP 1A DISCHARGE MOV (ORC)	6	MEDIUM	55	YES	NO	
M-18	2N121XSI0005A	HI HEAD SAFETY INJECTION PUMP 1A DISCHARGE CHECK VALVE (IRC)	6	HIGH	55	YES	NO	
M-19	2N121XSI0018A	LO HEAD SAFETY INJECTION PUMP 1A DISCHARGE MOV (ORC)	8	MEDIUM	55	YES	NO	
M-19	2N121XSI0030A	LO HEAD SAFETY INJECTION PUMP 1A DISCHARGE CHECK VALVE (IRC)	8	HIGH	55	YES	NO	
M-20	2N121XSI0016C	CONTAINMENT EMERGENCY SUMP 1C TO SI TRAIN C PUMPS SUCTION ORC ISOLATION M	16	HIGH	56	YES	NO	
M-21	2N121XSI0016B	CONTAINMENT EMERGENCY SUMP 1B TO SI TRAIN B PUMPS SUCTION ORC ISOLATION M	16	HIGH	56	YES	NO	
M-22	2N121XSI0016A	CONTAINMENT EMERGENCY SUMP 1A TO SI TRAIN A PUMPS SUCTION ORC ISOLATION M	16	HIGH	56	YES	NO	
M-23	2R201TCC0208	(IRC) CC-MOV-0208(TR C CCW FROM RCFC'S CNTMNT ISO)	14	LOW	56	YES	YES	1, 2.c
M-23	2R201TCC0209	CC-MOV-0209 (CHILL H2O RETURN FROM "C" RCFC'S)	8	LOW	56	YES	YES	1, 2.c
M-23	2R201TCC0210	CC-MOV-0210 (TRAIN C CCW FROM 11/12 C RCFCS MOV)	14	LOW	56	YES	YES	1, 2.a, 2.c
M-23	A1CCFV0864	RCFC CHILLED WATER RETURN	8	NRS	56	YES	YES	1, 2.c
M-24	2R201TCC0197	CC-MOV-0197 (TRAIN C CCW SUPPLY TO RCFC'S MOV)	14	LOW	56	YES	YES	1, 2.a, 2.c
M-24	2R201TCC0198	(IRC) CCW INLET TO RCFC CHECK VALVE	14	LOW	56	YES	YES	1, 2.a, 2.c
M-24	2R201TCC0199	CC-MOV-0199 (CHILL H2O SUPPLY TO "C" RCFC'S MOV)	8	LOW	56	YES	YES	1, 2.c
M-25	2R201TCC0057	CC-MOV-0057 (A CCW TO RCFC UPSTREAM MOV)	14	LOW	56	YES	YES	1, 2.a, 2.c
M-25	2R201TCC0058	(IRC) A TRAIN CCW TO RCFC'S ICIV CHECK VALVE	14	LOW	56	YES	YES	1, 2.a, 2.c
M-25	2R201TCC0059	CC-MOV-0059 (CHILL H2O INLET TO TRAIN A RCFC'S)	8	LOW	56	YES	YES	1, 2.c
M-26	2R201TCC0068	(IRC) CC-MOV-0068 (A CCW FROM RCFC'S CNTMNT ISOL)	14	LOW	56	YES	YES	1, 2.c
M-26	2R201TCC0069	CC-MOV-0069 (CCW TRAIN A DISCHARGE FROM RCFC'S)	14	LOW	56	YES	YES	1, 2.a, 2.c
M-26	2R201TCC0070	CC-MOV-0070 (CHILL H2O RETURN FROM A TRAIN RCFC'S)	8	LOW	56	YES	YES	1, 2.c
M-26	B1CCFV0862	RCFC CHILLED WATER RETURN	8	NRS	56	YES	YES	1, 2.c
M-27	2R201TCC0136	CC-MOV-0136 (CCW TRAIN B INLET TO RCFC'S MOV)	14	LOW	56	YES	YES	1, 2.a, 2.c
M-27	2R201TCC0137	CC-MOV-0137 (CHILL H2O SUPPLY TO "B" RCFC'S MOV)	8	LOW	56	YES	YES	1, 2.c
M-27	2R201TCC0138	(IRC) B TRAIN CCW TO RCFC'S ICIV CHECK VALVE	14	LOW	56	YES	YES	1, 2.a, 2.c
M-28	2R201TCC0147	(ICIV) CC-MOV-0147 (B CCW FROM RCFC'S ICIV)	14	LOW	56	YES	YES	1, 2.c
M-28	2R201TCC0148	CC-MOV-0148 (B CCW FROM RCFC'S MOV)	14	LOW	56	YES	YES	1, 2.a, 2.c
M-28	2R201TCC0149	CC-MOV-0149 (CHILL H2O DISCHARGE FROM "B" RCFC'S)	8	LOW	56	YES	YES	1, 2.c
M-28	C1CCFV0863	RCFC CHILLED WATER RETURN	8	NRS	56	YES	YES	1, 2.c
M-29(1)	B1PSFV4466	SI ACCUMULATORS SAMPLE HEADER ORC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-29(1)	C1PSFV4824	SI ACCUMULATOR SAMPLE HEADER IRC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e

Penetration	Full Tag	Description	Valve Size	Risk	Current GDC	Current LLRT	Proposed Exemption	Basis
M-30	A1WLFV4920	REACTOR COOLANT DRAIN TANK VENT TO GASEOUS WASTE PROCESSING IRC ISOLATION	1	LOW	56	YES	YES	1, 2.c, 2.e
M-30	B1WLFV4919	REACTOR COOLANT DRAIN TANK VENT TO GASEOUS WASTE PROCESSING ORC ISOLATION	1	LOW	56	YES	YES	1, 2.c, 2.e
M-32		ILRT PENETRATION TEST CONNECTION		*	56	YES		
M-33	2R201TCC0012	CC-MOV-0012 (CCW SUPPLY TO RHR "A" MOV)	16	LOW	56	YES	YES	1, 2.c
M-33	2R201TCC0013	M-33 CHECK VALVE	16	MEDIUM	56	YES	NO	
M-34	2R201TCC0049	(IRC) CCW FROM "A" RHR ISOLATION (LOCAL HANDWHEEL)	16	LOW	56	YES	YES	1, 2.c
M-34	2R201TCC0050	(OCIV) CC-MOV-0050 CCW FROM TRAIN "A" RHR OCIV	16	LOW	56	YES	YES	1, 2.c
M-35	2R201TCC0122	(OCIV) CC-MOV-0122 (CCW B SUPPLY TO RHR OCIV)	16	LOW	56	YES	YES	1, 2.c
M-35	2R201TCC0123	(IRC) ICIV FOR CCW TO B TRAIN RHR COMPONENTS	16	MEDIUM	56	YES	NO	
M-36	2R201TCC0129	(ICIV) CC-MOV-0129 (CCW B FROM RHR HEADER ICIV)	16	LOW	56	YES	YES	1, 2.c
M-36	2R201TCC0130	CC-MOV-0130 (CCW B FROM RHR CONTAINMENT ISO MOV)	16	LOW	56	YES	YES	1, 2.c
M-37	2R201TCC0182	CC-MOV-0182 (CCW C SUPPLY TO RHR MOV)	16	LOW	56	YES	YES	1, 2.c
M-37	2R201TCC0183	(IRC) CCW RHR HX 1C INLET CHECK VALVE	16	MEDIUM	56	YES	NO	
M-38	2R201TCC0189	(IRC) CC-MOV-0189 (CCW C FROM RHR HEADER ISO MOV)	16	LOW	56	YES	YES	1, 2.c
M-38	2R201TCC0190	CC-MOV-0190 (CCW C SUPPLY FROM RHR)	16	LOW	56	YES	YES	1, 2.c
M-39	2R201TCC0291	(OCIV) CC-MOV-0291 (CCW TO RCP'S OCIV MOV)	12	LOW	56	YES	YES	1, 2.c
M-39	2R201TCC0318	(OCIV) CC-MOV-0318 (CCW TO RCP'S OCIV MOV)	12	LOW	56	YES	YES	1, 2.c
M-39	2R201TCC0319	(IRC) CCW TO RCP'S INLET CHECK VALVE	12	LOW	56	YES	YES	1, 2.c
M-40	2R201TCC0403	(ICIV) CCW RETURN FROM RCP ICIV (CC-MOV-0403)	12	LOW	56	YES	YES	1, 2.c
M-40	2R201TCC0404	CC-MOV-0404 (CCW FROM RCP'S ISOLATION MOV)	12	LOW	56	YES	YES	1, 2.c
M-40	2R201TCC0446	(IRC) CCW FROM RCP CHECK AROUND CC-0542	1	LOW	56	YES	YES	1, 2.e
M-40	2R201TCC0542	(IRC) CC-MOV-0542 (CCW FROM RCP ISOLATION MOV)	12	LOW	56	YES	YES	1, 2.c
M-40	D1CCFV4493	RCP CCW RETURN OCIV (CC-FV-4493)	8	LOW	56	YES	YES	1, 2.c
M-41	2V141ZHC0009	REACTOR CONTAINMENT BUILDING NORMAL PURGE EXHAUST (IRC) ISOLATION DAMPER	48	MEDIUM	56	YES	NO	
M-41	2V141ZHC0010	REACTOR CONTAINMENT BUILDING NORMAL PURGE EXHAUST (ORC) ISOLATION DAMPER	48	MEDIUM	56	YES	NO	
M-42	2V141ZHC0007	REACTOR CONTAINMENT BUILDING NORMAL PURGE SUPPLY (ORC) ISOLATION DAMPER	48	MEDIUM	56	YES	NO	
M-42	2V141ZHC0008	REACTOR CONTAINMENT BUILDING NORMAL PURGE SUPPLY (IRC) ISOLATION DAMPER	48	MEDIUM	56	YES	NO	
M-43(2)	2V141THC0003	REACTOR CONTAINMENT BUILDING SUPPLEMENTARY PURGE SUPPLY (IRC) ISOLATION D	18	MEDIUM	56	YES	NO	
M-43(2)	A1HCFV9776	REACTOR CONTAINMENT BUILDING SUPPLEMENTARY PURGE SUPPLY ISOLATION VALVE O	18	MEDIUM	56	YES	NO	
M-44(2)	2V141THC0005	REACTOR CONTAINMENT BUILDING SUPPLEMENTARY PURGE EXHAUST (IRC) ISOLATION	18	MEDIUM	56	YES	NO	

Penetration	Full Tag	Description	Valve Size	Risk	Current GDC	Current LLRT	Proposed Exemption	Basis
M-44(2)	A1HCFV9777	REACTOR CONTAINMENT BUILDING SUPPLEMENTARY PURGE EXHAUST ISOLATION VALVE	18	MEDIUM	56	YES	NO	
M-45	2R141XRC0046	(ICIV) RMW TO PRT INLET CHECK VALVE	3	LOW	55	YES	YES	1, 2.d
M-45	B1RCFV3651	PRT SPRAY ISOL VALVE (OCIV)	3	LOW	55	YES	YES	1, 2.d
M-45(1)	C1APFV2458	LIQUID POST ACCIDENT SAMPLE DISCHARGE	1	*	55	YES		
M-46	2R171TCV0022	(IRC) OVERPRESS PROT FOR CVCS LETDOWN AT PEN M46	0.75	LOW	55	YES	YES	1, 2.e
M-46	2R171XCV0023	(IRC) CVCS LETDOWN ISOLATION (CV-MOV-0023)	4	LOW	55	YES	NO	
M-46	2R171XCV0024	OCIV FOR CVCS LETDOWN (CV-MOV-0024)	4	LOW	55	YES	NO	
M-47	2R171TCV0077	(IRC) SEAL WATER RETURN ISOLATION (CV-MOV-0077)	2	LOW	55	YES	NO	
M-47	2R171TCV0078	RCP SEAL WATER|IRC BYPASS CHECK VALVE	0.75	LOW	55	YES	YES	1, 2.e
M-47	2R171TCV0079	(OCIV) SEAL WATER RETURN ISOLATION (CV-MOV-0079)	2	LOW	55	YES	NO	
M-48	2R171XCV0025	CHARGING ISOLATION (CV-MOV-0025)	4	MEDIUM	55	YES	NO	
M-48	2R171XCV0026	(IRC) CHARGING LINE IRC CHECK VALVE	4	MEDIUM	55	YES	NO	
M-51	2R171TCV0033A	(OCIV) CV-MOV-0033A, 1A RCP SEAL INJECTION OCIV	2	MEDIUM	55	YES	NO	
M-51	2R171TCV0033B	(OCIV) CV-MOV-0033B, 1B RCP SEAL INJECTION OCIV	2	MEDIUM	55	YES	NO	
M-51	2R171TCV0034A	(IRC) RCP 1A SEAL INJECTION LINE ICIV CHECK VLV	2	MEDIUM	55	YES	NO	
M-51	2R171TCV0034B	(IRC) RCP 1B SEAL INJECTION LINE ICIV CHECK VLV	2	MEDIUM	55	YES	NO	
M-52	2R171TCV0033C	(OCIV) CV-MOV-0033C, 1C RCP SEAL INJECTION OCIV	2	MEDIUM	55	YES	NO	
M-52	2R171TCV0033D	(OCIV) CV-MOV-0033D, 1D RCP SEAL INJECTION OCIV	2	MEDIUM	55	YES	NO	
M-52	2R171TCV0034C	(IRC) RCP 1C SEAL INJECTION LINE ICIV CHECK VLV	2	MEDIUM	55	YES	NO	
M-52	2R171TCV0034D	(IRC) RCP 1D SEAL INJECTION LINE ICIV CHECK VLV	2	MEDIUM	55	YES	NO	
M-53	2R171XCV0157	(OCIV) LOW PRESS LETDOWN TO RHR OCIV	4	LOW	55	YES	NO	
M-53	2R171XCV0158	(IRC) CVCS LETDOWN TO RHR PUMP ICIV CHECK VALVE	4	LOW	55	YES	NO	
M-55	2R161XRH0063B	RHR LOOP 1B RETURN TO RWST IRC ISOLATION VALVE	8	MEDIUM	55	YES	NO	
M-55	2R161XRH0064B	RHR LOOP 1B RETURN TO RWST ORC ISOLATION VALVE	8	MEDIUM	55	YES	NO	
M-56	2R301TWL0312	RCDT HEAT EXCHANGER OUTLET LINE ISOLATION MOV (IRC)	3	LOW	56	YES	YES	1, 2.c
M-56	B1WLFV4913	RCDT HEAT EXCHANGER OUTLET ISOLATION VALVE (ORC)	3	LOW	56	YES	YES	1, 2.c
M-57	2Q101TSA0505	SERVICE AIR	2	*	56	YES		
M-57(4)	2Q101TSA0504	SERVICE AIR	2	*	56	YES		
M-58	2Q111TIA0541	RCB INSTRUMENT AIR HEADER IRC CHECK VALVE	2	LOW	56	YES	YES	1, 2.c
M-58	B1IAFV8565	INSTRUMENT AIR SUPPLY TO REACTOR CONTAINMENT BUILDING ORC ISOLATION VALVE	4	LOW	56	YES	YES	1, 2.c
M-61	2S191TDW0502	DEMINERALIZED WATER SUPPLY	2	*	56	YES		
M-61(4)	2S191TDW0502	DEMINERALIZED WATER SUPPLY	2	*	56	YES		
M-62(3)	A1SBFV4150	STEAM GENERATOR 1D BLOWDOWN ORC ISOLATION VALVE	4	MEDIUM	57	NO	N/A	
M-63(3)	A1SBFV4153	STEAM GENERATOR 1A BLOWDOWN ORC ISOLATION VALVE	4	MEDIUM	57	NO	N/A	
M-64(3)	B1SBFV4152	STEAM GENERATOR 1B BLOWDOWN ORC ISOLATION VALVE	4	MEDIUM	57	NO	N/A	

Penetration	Full Tag	Description	Valve Size	Risk	Current GDC	Current LLRT	Proposed Exemption	Basis
M-65(3)	C1SBFV4151	STEAM GENERATOR 1C BLOWDOWN ORC ISOLATION VALVE	4	MEDIUM	57	NO	N/A	
M-68	2N121TSI0058	SAFETY INJECTION ACCUMULATORS IRC NITROGEN SUPPLY CHECK VALVE	1	NRS	55	YES	YES	1, 2.d, 2.e
M-68	A1RCFV3653	(IRC) PRT NITROGEN ISOL VALVE (ICIV) FLOW VALVE	1	LOW	55	YES	YES	1, 2.d, 2.e
M-68	A1SIFV3971	SIS CHECK VALVE TEST LINE ORC ISOLATION VALVE	0.75	LOW	55	YES	YES	1, 2.d, 2.e
M-68	A1SIFV3983	SAFETY INJECTION ACCUMULATORS ORC NITROGEN SUPPLY VALVE	1	LOW	55	YES	YES	1, 2.d, 2.e
M-68	B1RCFV3652	PRT NITROGEN ISOL VALVE (OCIV) FLOW VALVE	1	LOW	55	YES	YES	1, 2.d, 2.e
M-68	B1SIFV3970	SIS CHECK VALVE TEST LINE IRC ISOLATION VALVE	0.75	LOW	55	YES	YES	1, 2.d, 2.e
M-69	2R211XFC0013E	SFP COOLING & PURIFICATION DISCH TO RX CAVITY OR ICSA ORC ISOLATION VALVE	10	LOW	56	YES	YES	1, 2.c
M-69	2R211XFC0013F	SFP COOLING & PURIFICATION DISCHARGE TO ICSA IRC ISOLATION VALVE	10	LOW	56	YES	YES	1, 2.c
M-69	2R211XFC0050	SFP COOLING & PURIFICATION TO RX CAVITY IRC ISOLATION VALVE	3	LOW	56	YES	YES	1, 2.c
M-70	2R211XFC0006C	SFP COOLING PUMPS 1A&B SUCTION FROM ICSA IRC ISOLATION VALVE	10	LOW	56	YES	YES	1, 2.c
M-70	2R211XFC0007C	SFP COOLING PUMPS 1A&B SUCTION FROM ICSA ORC ISOLATION VALVE	10	LOW	56	YES	YES	1, 2.c
M-72	2Q061TED0064	CONTAINMENT NORMAL SUMP DISCHARGE	3	*	56	YES		
M-72	2Q061TED7800	CONTAINMENT NORMAL SUMP DISCHARGE	3	*	56	YES		
M-72(1)	A1APFV2453	CONTAINMENT SUMP POST ACCIDENT SAMPLE	1	*	56	YES		
M-75	2R371TPO0217	RCP OIL RETURN	2	*	56	YES		
M-75	2R371TPO0218	RCP OIL RETURN	2	*	56	YES		
M-76	2R161XRH0063C	RHR LOOP 1C RETURN TO RWST IRC ISOLATION VALVE	8	MEDIUM	55	YES	NO	
M-76	2R161XRH0064C	RHR LOOP 1C RETURN TO RWST ORC ISOLATION VALVE	8	MEDIUM	55	YES	NO	
M-77	2Q271TFP0756	CONTAINMENT FIRE PROTECTION	6	*	56	YES		
M-77	2Q271TFP0943	CONTAINMENT FIRE PROTECTION	6	*	56	YES		
M-79	2S201TSL0012	SLUDGE LANCING LOW PRESSURE	6	*	56	YES		
M-79	2S201TSL0014	SLUDGE LANCING LOW PRESSURE	6	*	56	YES		
M-80	2V141TRA0001	RCB EXHAUST|RT-8011 SUPPLY|IRC ISOLATION MOV	1	LOW	56	YES	YES	1, 2.e
M-80	2V141TRA0003	RCB EXHAUST|RT-8011 RETURN|IRC ISOLATION MOV	1	LOW	56	YES	YES	1, 2.e
M-80	2V141TRA0004	RCB EXHAUST|RT-8011 SUPPLY|ORC ISOLATION MOV	1	LOW	56	YES	YES	1, 2.e
M-80	2V141TRA0006	RCB EXHAUST|RT-8011 RETURN|ORC ISOLATION MOV	1	LOW	56	YES	YES	1, 2.e
M-80(1)	A1CMFV4101	CONTAINMENT HYDROGEN MONITORING	1	*	56	YES		
M-80(1)	A1CMFV4127	CONTAINMENT HYDROGEN MONITORING	1	*	56	YES		
M-80(1)	A1CMFV4128	CONTAINMENT HYDROGEN MONITORING	1	*	56	YES		
M-80(1)	A1CMFV4135	CONTAINMENT HYDROGEN MONITORING	1	*	56	YES		
M-81	2R371TPO0203	RCP OIL SUPPLY	2	*	56	YES		
M-81	2R371TPO0204	RCP OIL SUPPLY	2	*	56	YES		
M-82	2Q121TBA0006	BREATHING AIR TO CONTAINMENT	1	*	56	YES		
M-82(1)	A1APFV2456	CONTAINMENT ATMOSPHERE POST ACCIDENT SAMPLE	1	*	56	YES		
M-82(1)	A1APFV2457	CONTAINMENT ATMOSPHERE POST ACCIDENT SAMPLE	1	*	56	YES		

Penetration	Full Tag	Description	Valve Size	Risk	Current GDC	Current LLRT	Proposed Exemption	Basis
M-82(1)	C1CMFV4104	CONTAINMENT HYDROGEN MONITORING	1	*	56	YES		
M-82(1)	C1CMFV4133	CONTAINMENT HYDROGEN MONITORING	1	*	56	YES		
M-82(1)	C1CMFV4134	CONTAINMENT HYDROGEN MONITORING	1		56	YES		
M-82(1)	C1CMFV4136	CONTAINMENT HYDROGEN MONITORING	1	*	56	YES		
M-82(4)	2Q121TBA0004	BREATHING AIR TO CONTAINMENT	1	*	56	YES		
M-83(3)	2S141TAF0019	(OCIV) AFW TO SG 1D OCIV (AF-MOV-0019)	4	HIGH	57	NO	N/A	
M-83(3)	A1FWFV7192	STEAM GENERATOR 1D PREHEATER ORC BYPASS VALVE	4	MEDIUM	57	NO	N/A	
M-84(3)	2S141TAF0085	STEAM GENERATOR 1C ORC AFW ISOLATION MOV	4	HIGH	57	NO	N/A	
M-84(3)	A1FWFV7191	STEAM GENERATOR 1C PREHEATER ORC BYPASS VALVE	4	MEDIUM	57	NO	N/A	
M-85(1)	A1APFV2455	RCS POST ACCIDENT SAMPLE	1	*	55	YES		
M-85(1)	A1APFV2455A	RCS POST ACCIDENT SAMPLE	1	*	55	YES		
M-85(1)	B1PSFV4450	PRESSURIZER VAPOR SAMPLE LINE IRC SOLENOID CHECK VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-85(1)	B1PSFV4451	PRESSURIZER LIQUID SAMPLE LINE IRC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-85(1)	B1PSFV4456	RCS HOT LEG SAMPLE HEADER ORC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-85(1)	C1PSFV4451B	PRESSURIZER LIQUID SAMPLE LINE ORC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-85(1)	C1PSFV4452	PRESSURIZER VAPOR SAMPLE LINE ORC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-85(1)	C1PSFV4454	RCS HOT LEG 1A SAMPLE LINE IRC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-85(1)	C1PSFV4455	RCS HOT LEG 1C SAMPLE LINE IRC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-86(1)	A1APFV2454	RHR POST ACCIDENT SAMPLE	1	*	55	YES		
M-86(1)	B1PSFV4823	RHR SAMPLE HEADER IRC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-86(1)	C1PSFV4461	RHR SAMPLE HEADER ORC CONTAINMENT ISOLATION VALVE	1	LOW	55	YES	YES	1, 2.b, 2.e
M-86(3)	A1SBFV4186	STEAM GENERATOR 1D SAMPLE LINE ORC FLOW CONTROL VALVE	0.38	LOW	57	NO	N/A	
M-86(3)	A1SBFV4189	STEAM GENERATOR 1A SAMPLE LINE ORC FLOW CONTROL VALVE	0.38	LOW	57	NO	N/A	
M-86(3)	B1SBFV4188	STEAM GENERATOR 1B SAMPLE LINE ORC FLOW CONTROL VALVE	0.38	LOW	57	NO	N/A	
M-86(3)	C1SBFV4187	STEAM GENERATOR 1C SAMPLE LINE ORC FLOW CONTROL VALVE	0.38	LOW	57	NO	N/A	
M-88	2R341TRD0008	REACTOR COOLANT VACUUM DEGASSING	3	*	55	YES		
M-88	2R341TRD0010	REACTOR COOLANT VACUUM DEGASSING	3	*	55	YES		
M-94(3)	2S141TAF0048	(OCIV) AFW TO SG 1A OCIV (AF-MOV-0048)	4	HIGH	57	NO	N/A	
M-94(3)	A1FWFV7189	STEAM GENERATOR 1A PREHEATER ORC BYPASS VALVE	4	MEDIUM	57	NO	N/A	
M-95(3)	2S141TAF0065	(OCIV) AFW TO SG 1B OCIV (AF-MOV-0065)	4	HIGH	57	NO	N/A	
M-95(3)	A1FWFV7190	STEAM GENERATOR 1B PREHEATER ORC BYPASS VALVE	4	MEDIUM	57	NO	N/A	
N.A.	A1XCFV1025	PERSONNEL AIR LOCK AIR SUPPLY		*	57	YES		
N.A.	A1XCFV1026	PERSONNEL AIR LOCK AIR SUPPLY		*	57	YES		
N.A.	A1XCFV1027	PERSONNEL AIR LOCK AUTO LEAK RATE MONITORING		*	57	YES		
N.A.	A1XCFV1028	PERSONNEL AIR LOCK AUTO LEAK RATE MONITORING		*	57	YES		

* Component has not gone through the risk ranking process.

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.)*

RESPONSE: (R. Grantom)

STP does not plan to revise the allowable leakage values contained in the Technical Specifications. Assuming that the scope of Appendix J is amended as described in Question 16, it is STP's intent to maintain the current Type B and C testing acceptance criteria for those penetrations remaining within the scope of Appendix J. In this way, the penetrations within the revised scope of Appendix J will retain continuity in testing, trending, and schedule. Verification that the Technical Specification allowable leakage values are satisfied will be performed using the individual values for those penetrations remaining within the scope of Appendix J. Those penetrations which have been removed from Appendix J scope by this exemption request will be assumed to contribute zero leakage value. The basis for assuming zero leakage value is that the penetrations removed from the scope of Appendix J have no real contribution to leakage rates which could result in a threat to public health and safety in terms of CDF or LERF. These subject penetrations meet the criteria described in the response to RAI #16.

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.

RESPONSE: (R. Grantom)

The response to RAI #16 and its accompanying table describe the configurations of CIVs which will not be leak tested under the Appendix J exemption.

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.

RESPONSE: (R. Chackal)

- Safety related (Class 1E) electrical SSCs that are not risk categorized will not be in the scope of this exemption request and will retain current special treatment requirements.

- STP will ensure that the above SSCs as well as electrical SSCs categorized as HSS or MSS are appropriately protected from potential failures of LSS or NRS electrical components by at least one fully qualified Class 1E device, as described in the response to Question 12.

- STP confirms that safety-related LSS or NRS SSCs will be isolated using qualified safety-related (Class 1E) isolation devices as defined in the UFSAR. Currently qualified Class 1E cables from the isolation device to the safety-related LSS or NRS SSCs will not be replaced with non-qualified commercial grade cables if such replacement would result in the non-qualified cables being located in raceways or electrical containment penetrations that contain fully qualified Class 1E cables. Where the UFSAR requires two Class 1E isolation devices between non-safety related SSCs and safety related SSCs, STP intends to satisfy the isolation requirement between safety related LSS or NRS SSCs and MSS or HSS SSCs by providing at least one fully qualified Class 1E isolation device. For justification, please refer to the response to Question 12.

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.*

RESPONSE: (R. Grantom)

The response to RAI #16 specifies the risk basis for concluding that certain CIVs do not require leakage rate testing as currently specified in Appendix J.

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.

RESPONSE: (G. Schinzel)

The referenced rating scale is used in the deterministic input to the risk categorization process for both PRA-modeled and non-modeled components. <u>Deterministic input</u> is defined in procedure 0PEP02-ZA-0001, Graded Quality Assurance Process, as:

> "An assessment of risk significance based on the collective input from a panel of individuals experienced with the pertinent aspects of managing and operating a nuclear generating facility (e.g., operations, maintenance, design, engineering, and risk analysis). Deterministic input is used to supplement PRA risk rankings, and/or to compensate for PRA limitations and assumptions. Deterministic input is also used for components not modeled in the PRA."

The GQA Working Group membership, as defined in procedure 0PGP02-ZA-0003, Comprehensive Risk Management, is made up of experienced personnel with diverse knowledge and backgrounds. In order to provide the Working Group members with a mechanism to collect and categorize their deterministic input in a consistent and documented manner, a set of five critical questions related to risk categorization are answered. Initially, during the development portion of the risk categorization process, these critical questions were just answered either "Yes" or "No". It quickly became evident, as experience was gained, that this method did not permit enough flexibility to adequately capture the risk insights and technical bases between various system functions or components. For example, the initiating event for loss of Essential Cooling Water has much more impact than the initiating event for loss of Instrument Air. Under the old method, both cases would only have answered "Yes" for the initiating event question, even though the risk significance impact would be quite different. Thus, the current rating scale was developed.

With this scale, the Working Group has a consistent means to assign a positive response value that reflects the relative impact on the public health and safety resulting from the loss of a system function or component. By definition, the deterministic process is a subjective process based on the collective wisdom and experience of qualified individuals. The rating scale provides a consistent means to generate gradations in possible responses. The terminology used to define each gradation of the scale (having insignificant impact, minor impact, low impact, etc; or occurring very rarely, infrequently, occasionally, etc) serve as aids to the Working Group members in the selection of the proper scale value for each positive critical question response. While these terms (insignificant, minor, rarely, infrequently, etc) were not specifically defined up to this point, the terminology did provide adequate guidance to the Working Group members to arrive at consensus agreements in this subjective portion of the categorization process, and to document a technical basis for each response. As the positive response value increases through the scale from "1" through "5", it denotes progressive increases in risk significance impact, which is reflected in the proceduralized guidelines provided for using the rating scale. Usage of a smaller scale range would result in less flexibility and therefore less accuracy allowed to the Working Group in its deterministic assessment. Considering the wide variety of system functions and components, the present rating scale provides a good balance between providing enough flexibility in the risk categorization process and the complexity associated with varying degrees of responses.

Considering the terminology used by the Working Group in the deterministic evaluations as specified in procedure 0PEP02-ZA-0001, the following general definitions for these terms can be stated:

Frequency Definitions –

- Occurring Frequently – continuously or always demanded
- Occurring Regularly – demanded > 5 times per year
- Occurring Occasionally – demanded 1-2 times per cycle
- Occurring Infrequently – demanded < once per cycle
- Occurring Very Rarely – demanded once per lifetime

Impact Definitions –

- High Impact – a system function is lost which likely will result in core damage and/or may have a negative impact on the health and safety of the public

- Medium Impact – a system function is lost which may, but is not likely to, result in core damage and/or is unlikely to have a negative impact on the health and safety of the public

- Low Impact – a system function is significantly degraded, but NO core damage and/or negative impact on the health and safety of the public is expected

- Minor Impact – a system function has been moderately degraded, but NO core damage or negative impact on the health and safety of the public

- Insignificant Impact – a system function has been challenged, but NO core damage or negative impact on the health and safety of the public

To ensure consistent, future replication of the responses and categorization results developed by the Working Group, these definitions will be added to procedure 0PEP02-ZA-0001, Graded Quality Assurance Working Group Process, as a working aid in the categorization process.

The following table provides examples for how the deterministic definitions are used for various responses to the accident/transient mitigation question as applied to system functions:

SYS	FUNC	FUNC_DESC	ANS	DETERMINISTIC_INPUT
CV	1.2.6	SUPPLY COOLING WATER TO THE CVCS SEAL WATER COOLER	0	ACC: FUNCTION NOT REQUIRED FOR ACCIDENT/TRANSIENT MITIGATION
DG	1.4.2	CIRCULATE HEATED WATER THROUGH THE DIESEL ENGINE JACKET TO MAINTAIN TEMPERATURE WHEN THE ENGINE IS NOT OPERATING	1	ACC : LOSS OF THIS FUNCTION WOULD NOT BY ITSELF PREVENT THE DIESEL FROM STARTING/RUNNING AND WOULD BE INDICATED BY A GRADUAL DECREASE IN TEMPERATURE ALLOWING OPERATOR RECOVERY ACTIONS
RA	3.15	PROVIDE CONTAINMENT ATMOSPHERIC GASEOUS AND PARTICULATE RADIOACTIVITY INSTRUMENT SIGNALS TO DETECT REACTOR COOLANT LEAKAGE (RT-8011)	2	ACC : DOES NOT BY ITSELF MITIGATE ACCIDENT OR TRANSIENT BUT DOES PROVIDE INFORMATION WHICH AIDS IN IDENTIFYING THE OCCURENCE OF AN ACCIDENT SO THAT OTHER MITIGATION ACTIONS CAN BE TAKEN. MINOR IMPACT

SYS	FUNC	FUNC DESC	ANS	DETERMINISTIC INPUT
HE	1.1.1	EAB MAIN AREA – MAINTAIN ROOM TEMPERATURES WITHIN THE DESIGN RANGE (AREAS CONTAINING RISK SIGNIFICANT EQUIPMENT)	3	ACC: THIS HAS A SIGNIFICANT IMPACT ON ABILITY TO MITIGATE SINCE IT IS A SERVICE SYSTEM, BUT PROGRESSION IS SLOW.
DG	1.3.1	INJECT SUFFICIENT CLEAN FUEL OIL INTO THE DIESEL ENGINE FOR ENGINE OPERATION AND RETURN THE FUEL OIL OVERAGE BACK TO THE FOST	4	ACC : LOSS OF THIS FUNCTION WOULD IMPACT THE ABILITY TO MITIGATE AN ACCIDENT/TRANSIENT BUT THE FREQUENCY OF A LOOP IS RELATIVELY LOW
CH	1.3	CIRCULATE CHILLED WATER THROUGH THE FUEL HANDLING BUILDING ESF PUMP CUBICLE AIR HANDLING UNIT COOLING COILS (HF, CS, AND SI SYSTEMS)	5	ACC: CHILLED WATER IS REQUIRED TO SUPPORT HEAT REMOVAL VIA AHUs DURING ACCIDENT/TRANSIENT MITIGATION.

In addition to the rating scale, weighting factors are used to account for the relative impacts among the five critical questions. For example, the accident mitigation question is considered to have more risk significance impact on public health and safety than the initiating event question, assuming both were answered with the same positive response value. The Working Group determined that the five questions could be categorized into three weighting groups as follows:

- Accident/Transient, and EOPs — Weight multiplier of 5 (most important)
- Fails Risk Significant System — Weight multiplier of 4 (moderate importance)
- Initiating Event, and Shutdown/Mode Change — Weight multiplier of 3 (least important)

In order to utilize a maximum overall score of “100”, the weighting factors of “3”, “4”, and “5” were used, as detailed in procedure 0PEP02-ZA-0001, Graded Quality Assurance Process. Thus, a maximum positive response of “5” to all five questions for a specific system function or component would result in a score of “100”. The scale was then divided into four sections corresponding with the four risk significance categories. For conservatism, only the lower 40% of the scale was reserved for NRS/LSS components and the upper 60% for MSS/HSS components. In addition, special exceptions were incorporated into the process to account for a high positive response to any one question which might be masked by a low overall score due to low values for the other four questions. For example, a maximum value for “5” for initiating event would result in a minimum risk categorization of “MSS”, even if all other questions were answered in the negative.

It should be emphasized that the above process is an iterative process where initial responses to the questions are discussed, challenged, justified, and revised where appropriate. These discussions occur during the Working Group meetings where the members’ insight and varied experience ensure that the final result reflects a comprehensive and justifiable deterministic judgment. If during this iterative process a consensus agreement cannot be reached by the Working Group members, a ‘Dissenting Opinion’ is documented and forwarded to the Expert Panel for resolution prior to documenting a final risk categorization.

The Working Group developed the above process after extensive discussion. This proposed process was then presented to the Comprehensive Risk Management Expert Panel for approval prior to use. Use of the rating scale has provided risk significance categorizations that are consistent with both the Working Group members’ overall sense and judgment and that of the Expert Panel members. It should also be noted that the rating scale is provided as a guideline, and the Working Group and Expert Panel can and have deviated, in a conservative manner, from the guideline, based on special circumstances.

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.

RESPONSE: (G. Schinzel)

Note: a clarification is necessary in support of this Question's response. As stated in the response to Question #27, STP is modifying the documentation requirements in the Risk Significance Basis Documents (RSBDs) to eliminate individual responses to each critical question at the component level. Therefore, while redundancy is considered at a component level, individual component critical question scores are not lowered a specific amount; the component's overall risk categorization is considered for lowering by one level. With this consideration in mind, additional insights to this question are provided below.

A component's categorization may be considered for one level lower than the most limiting system function supported when there are diverse means of satisfying the system function. In addition, if there are multiple, independent means of satisfying the system function, a reduction in categorization may be considered. Merely having multiple trains of a component available in a system did not automatically result in a lower risk categorization for a component.

When considering whether component redundancy or diversity is a factor, the Working Group evaluates redundancy based on system operating configuration, reliability history, recovery time available, and other factors. The Working Group examines the effect of the component failure on each system function supported by that component. The primary consideration is whether failure of the component will fail or severely degrade the function. If the answer is no, then component redundancy may be factored in, as long as the component's reliability and that of its redundant counterpart have been satisfactory. Component reliability is subjectively evaluated through reviews of Condition Reports, System Health Reports, inputs from the System Engineer, and input from the Operations representative on the Working Group. A component could be considered reliable when the component demonstrates strong operating performance with few deficiencies, the component has no open concerns based on industry operating experience, and site operating experience reflects no negative reliability trends or concerns. The final risk of the component cannot be "NRS" if the system function is "LSS", and cannot be more than one risk level lower than the system function.

STP's risk significance determination process requires that the justification used to support a risk categorization be documented. At the system function level, this is done by answering the critical questions and documenting the basis for each question response. For components, the first step in the risk categorization process consists of identifying the system function(s) that each component supports. This is documented in Attachment H of the Risk Significance Basis Document. Next, the component is initially assigned the same risk as the most limiting system function that it supports. If the Working Group reaches consensus that the initial risk is satisfactory, no additional documentation is required since the justification has already been provided within the function categorization. Only in the case where component redundancy or other insight is used to rank the component risk lower than the risk of its most limiting supported system function would additional documentation be required. This additional documentation is typically provided in Attachment I, under the General Notes or specific to the subject component under the "Additional Deterministic Input" column.

STP has concluded that answering the critical questions at the component level provides little value and introduces a greater potential for administrative documentation errors. The majority of components are risk categorized the same as the most limiting system function(s) that they support. Therefore, they were automatically assigned the same responses to the critical questions as the most limiting response from the supported system function(s). Clearly, there is no value gained in answering the critical questions for these components. For the other components where the risk is lower than the most limiting system function(s), STP had been providing additional documentation and relying on general notes to support the risk categorization. The responses to the critical questions were also adjusted downward to correspond with the risk categorization agreed to by the Working Group. In some cases, the linkage between the lower risk categorization and the documented justification was not clear and the numerical responses to the critical questions did not provide the clarification needed.

Based on the above, STP has decided to forego answering the critical questions at the component level and to bolster the documentation that justifies the risk categorization for those components whose risk is lower than the most limiting system function. As discussed in the response to Question 27, STP has initiated a condition report to review this issue and to strengthen the documentation, where necessary.

It is emphasized that the risk categorizations assigned to these components are considered satisfactory as they are the result of Working Group discussions and consensus, and do adhere to procedural guidance concerning component redundancy. As noted in the procedure, the Working Group utilizes conservative judgment when taking credit for component redundancy. The risk categorization recommendations and their bases are not finalized until the GQA Working Group presents these recommendations to the Comprehensive Risk Management Expert Panel for review and approval.

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?*

RESPONSE (part a):

The large majority of components at STP are non-safety related, and are commercially procured and maintained. It is in the best interest of the utility (both from a safety perspective and from an economic perspective) to ensure that these components operate reliably and within their design functional requirements. In order to ensure that these components meet our safety and performance objectives, appropriate codes, standards, and site procedures are currently used to provide this assurance. Some of the codes and standards that are currently in effect on the balance-of-plant include ANSI B31.1 piping specifications, IEEE electrical specifications, etc. These specifications are used world-wide in a number of varied industrial applications. The systems and components that these specifications are applied against operate reliably to meet the safety and competitive challenges that exist.

For safety-related LSS and NRS components that are removed from the scope of special treatment requirements, STP proposes to impose sound commercial practices that are currently in place on the balance-of-plant and have a proven track record of demonstrated reliability and functionality. Since these codes and standards are already in place and proven, STP is not recommending that additional evaluations of the suitability of these codes and standards be performed. STP considers that the use of these codes and standards is sufficient to ensure the satisfactory procurement, installation, testing, and maintenance of LSS and NRS components. Additional evaluations are not necessary to provide assurance that these LSS and NRS components can reasonably perform their design functional requirements.

In addition, STP has programmatic procedures in place which will apply appropriate administrative controls over the LSS and NRS components that have been removed from the scope of special treatment. It is not anticipated that significant revisions to these procedures will be necessary; rather, clarification of the system/component scope to which the procedures apply will be updated.

RESPONSE (part b):

The components in question are risk categorized as LSS or NRS. By definition, these components serve little, if any, function in mitigating the consequences of an accident or protecting the health and safety of the public during a design-basis event or any other credible event. However, commercial treatment, as specified in the response to part (a), will be applied to these components and will provide reasonable assurance that the design functional requirements are met. During a design-basis event, the LSS or NRS component does not recognize that a more severe event has occurred; it simply responds to external inputs or signals to change state or otherwise function. For components that must change state, the majority of these signals will be generated early in the accident sequence which is generally well before the environmental conditions have changed significantly. For components that must remain in service, it is reasonable to conclude that a commercial component that has similar design features and identical functional characteristics can and will perform its function when demanded. STP further notes that, except for normally open valves and other components that do not change state, very few, if any, components that must remain in service during a design basis event are risk categorized as either LSS or NRS.

For example, if an LSS transmitter that is both EQ and seismically qualified fails in normal service, the failed component will be replaced with a commercially available transmitter that satisfies the components functional requirements. This replacement transmitter will be procured with appropriate seals to meet the temperature rating and humidity rating that the transmitter is reasonably expected to see. The transmitter housing would be similarly robust compared to the failed transmitter's housing. If a design-basis event were to occur while the replacement transmitter was in service, it is reasonable to conclude that the replacement transmitter would perform its function. However, if the transmitter did unexpectedly fail, a component categorized as LSS is not necessary to mitigate the consequences of the accident.

RESPONSE (part c):

During the risk categorization process, non-safety related HSS and MSS components have critical attributes identified and documented in the Risk Significance Basis Document (RSBD). These critical attributes specify the risk significant functions that the component must perform. These critical attributes are also entered into the electronic Master Equipment Database which is available for query by Station personnel. These critical attributes are referenced during the procurement process (purchasing and receipt inspection), maintenance process (corrective maintenance, preventive maintenance, post-maintenance testing, etc), design process (engineering evaluations, design changes, etc), and others to provide appropriate insight into the administrative processes which ensure reliable component operation.

Non-safety related HSS and MSS components are placed under the TARGET program at STP. Once these components are identified as safety-significant through the risk categorization process, a Condition Report is generated to evaluate the existing controls that are placed on these components, and to identify what, if any, additional controls are needed to provide reasonable assurance that the component can satisfy its risk significant functional requirements. In addition, these components will be placed under the Maintenance Rule monitoring program at the component level. The reliability of these components will be assessed on a periodic basis through the GQA feedback process. This process will evaluate the reliability of the component, the adequacy of the existing controls and risk categorization, and the need for any changes.

These identified processes provide the appropriate assurance that the non-safety related, safety-significant SSCs would be properly monitored and their risk significant functionality ensured.

RESPONSE (part d):

Equipment Qualification (EQ) is a special treatment requirement that is not necessary to provide reasonable assurance that LSS and NRS components can satisfy their risk significant functional requirements. It is expected that when a safety-related LSS or NRS EQ-qualified component fails, the replacement commercial component will be of a similar robust design as the component being replaced, and can reasonably be expected to operate under the design environments that are expected.

For safety-related LSS/NRS components that are currently EQ-qualified, these components will not be replaced once the EQ qualified end-of-life is reached. It is expected that these components will continue to meet their risk significant design functional requirements with reasonable assurance. These components will not be replaced unless another circumstance (i.e., failed component, design change, etc) justifies the replacement.

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?*

RESPONSE (part a and b): (P. Petty)

The basic intent of post-maintenance testing (PMT) following corrective or preventive maintenance activities is to verify that the SSC can perform its intended function, to ensure that the original deficiency has been corrected, and to verify that no new deficiency has been introduced during the performance of the maintenance activity. In addition, post- maintenance testing requirements should be commensurate with the work performed and (based upon existing programs/procedures at the specific site) designed to make the program effective and efficient.

The current STP post-maintenance testing program includes a set of testing matrices, based upon component type and work completed, which detail the recommended testing to be performed. This approach, when utilized as a “standard”, invokes consistent PMT requirements for ALL components regardless of classification (excluding specific PMT requirements invoked by Technical Specifications, Industry Codes, Special Engineering testing, commitments, etc.).

The incorporation of risk insights into the post-maintenance/post-modification testing matrices is intended to mirror the tiered or graded maintenance approach of Full, Basic, and Target (see the response to Question 47 for an expanded discussion on this). The risk categorization bases provides the PMT planner with additional data (including component critical attributes) to utilize in evaluating and specifying PMT requirements. In addition, the PMT planner evaluates additional factors in determining specific PMT requirements such as component impact to overall plant/system reliability, economic impact, resource requirements, system health, technical experience, etc. in finalizing the post-maintenance testing scope. Factoring in risk insights into the PMT process permits resources to be focused on those components which are most important.

The grant of the Exemption would remove any mandatory PMT requirements stated for SSCs which are NOT safety significant. This will allow STP to apply PMT controls commensurate with the safety significance in a “tiered” or “graded” approach combined with additional factors to produce the most effective process.

The procedure governing PMT activities at STP is 0PGP03-ZM-0025. This procedure applies to maintenance requirements ONLY rather than requirements specified in Technical Specifications, Industry Codes and Standards, or Special Engineering testing. As stated in the subject procedure, the following draft directions have been proposed when determining PMTs for maintenance activities (Note: this procedure is currently undergoing revision, and the revision is not finalized):

- NON RISK SIGNIFICANT (NRS) components - Post-Maintenance testing is not required. The Planner/Supervisor has the option to prescribe PMT activities as deemed necessary based upon commercial business practices factoring in the significance of the work performed AND the component NOT affecting Technical Specifications, plant operability/reliability and personnel safety. Acceptance criteria for testing NRS components will be based upon proper component functioning using standard commercial practices.

- LOW RISK SIGNIFICANT (LRS) components - Post Maintenance Testing activities may be performed to ensure the original deficiency was corrected. If the component's critical attributes were affected, post maintenance testing will be performed to ensure the component can satisfactorily perform its critical functions. Acceptance criteria for testing will be based upon proper functioning of affected critical attributes using standard commercial practices.

- HIGH and MEDIUM RISK SIGNIFICANT components - Post Maintenance Testing is required to ensure the original deficiency was corrected and to ensure that the component can perform its critical functions. Appropriate acceptance criteria will be selected based upon required design/functional requirements.

The application of risk insights is not intended to delete the requirements for PMT for SSCs which are not safety significant. Other factors must also be considered to ensure SSC functionality. Risk insights provide the opportunity to streamline PMTs based upon sound business/maintenance practices, thus making PMTs optional for NRS/LSS components should all other data indicate that this is prudent. The majority of applications when PMTs will not be performed will include lube/inspect, inspect, or test-types of maintenance activities. Validation of proper system operation will generally provide assurance of proper component function. Surveillance testing may also be used, as appropriate, as a PMT for LSS/NRS SSCs.

The Design Change Process procedure (0PGP04-ZE-0309) provides specific requirements for post installation testing of design changes, and includes two specific requirements when determining testing. These requirements state: 1) Testing shall assure that the modification accomplishes the desired intent of the design, and 2) Testing shall assure that the installed modification functions properly with interfacing plant systems. Adequate verification of these two requirements generally demands a more complex approach to post-modification testing than that required for routine maintenance activities. Applying risk insights, which provide reasonable assurance that SSCs affected by design changes can perform their design/functional requirements, is appropriate for post-modification testing.

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.*

RESPONSE: (G. Sandlin)

Components that are risk categorized as LSS or NRS, by definition, serve little, if any, function in mitigating the consequences of an accident or protecting the health and safety of the public during a design basis event or any other credible event. As LSS or NRS components (which are currently EQ-qualified) require replacement, a commercial replacement component will be procured. Procuring a commercial component is accomplished by performing an engineering evaluation to ensure that the replacement component satisfies the required form, fit, and function. The replacement component will be capable of meeting the risk significant design functional requirements (including environmental considerations), however, the component will not be environmentally qualified. Additional details and insight on the procurement process of commercial components is provided in the response to Question #13.

By purchasing functionally equivalent replacement components, and by procuring from reputable vendors, reasonable assurance is provided that a quality product (which will meet the various challenges of service operation) is received. Upon receipt, an inspection is performed to validate that the received component satisfies the purchase requisition. If discrepancies are noted during this receipt inspection, the discrepancy will be attempted to be resolved. If the discrepancy can not be resolved, the component will be returned to the vendor for credit.

By purchasing functionally equivalent replacement components which meet the environmental considerations of the original component, and by performing a receipt inspection to validate that what was received is what was ordered, reasonable assurance is provided that the component can, and will, perform to its risk significant design functional requirements. Even if the subject component is exposed to a harsh environment, as long as these harsh environmental parameters are within the stated design functional requirements for the component, it is reasonable to expect that LSS and NRS components will be able to satisfactorily perform.

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 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?

RESPONSE: (G. Sandlin)

For safety-related components that are risk categorized as NRS, it should be noted that these components have no critical attributes. NRS components are not taken credit for functioning during a design basis event; however, it is likely that these components will perform their function during these challenges. Replacement NRS components are procured to be capable of meeting their design functional requirements (including environmental considerations). These components receive a receipt inspection, and are appropriately post-maintenance tested to validate that they satisfy their design functional requirements. This provides reasonable assurance that NRS components can perform their function.

For safety-related LSS components, replacement components will be procured commercial grade. Similar to NRS components, replacement LSS components are procured to be capable of meeting their design functional requirements (including environmental conditions). These functional requirements will envelope the credible design basis conditions that the components can be expected to see. However, these components will not be subjected to qualification testing. Since LSS components have assigned critical attributes, these attributes will be factored into the engineering evaluation that is performed during the procurement process. See the response to Question 13 for additional insight into the procurement process. In addition, the post-maintenance testing for LSS replacement components will focus on ensuring that the critical attributes are properly demonstrated.

While it is true that the critical attributes stated in the Risk Significance Basis Document are not specific in nature (i.e., the stated critical attribute does not specify the design basis conditions under which the attribute must be accomplished), the critical attributes as stated do provide adequate insight to ensure that the component is properly procured, installed, and tested. For the example specified in the question, if the critical attribute for a valve was to open to provide flow to a heat exchanger, the safety-related, qualified valve that is currently installed is expected to meet this critical attribute through appropriate design features and testing. If this valve requires replacement and is replaced by a commercial valve, the procured valve will be capable of meeting the design functional requirements (including environmental considerations). The received replacement valve will be similarly robust in design features and function compared to the installed valve. Upon installation, the critical attributes will be validated through post-maintenance testing to ensure that the function can be performed. However, the valve will not be tested at design basis conditions, but it is designed to meet these conditions. When in operation, and in the unlikely event that design basis conditions challenge the valve, the valve itself does not recognize that a design basis challenge exists; the valve simply responds to the signal to operate under conditions that it is designed to meet. In the unlikely event that the valve fails to perform its function when challenged, the component is not relied on to mitigate the accident or to protect the health and safety of the public. Through this process, reasonable assurance is demonstrated that the valve can satisfy its critical attributes when called upon.

For non-safety related components that are risk categorized as MSS/HSS, similar procurement, installation, and testing processes will be followed as specified for the safety-related LSS components above. Additional quality inspection points may be designated during component receipt, and quality hold points may be designated during installation. During critical installation steps, independent/dual verification points may be used to provide additional confidence. In addition, these components are included in the Maintenance Rule monitoring program. This program evaluates failures and provides solutions to any problems that may occur in the future.

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*.

RESPONSE:

The STPEGS process for considering spatial relationships such as seismic interaction or fire is based on sound engineering insight and practices. In general, spatial relationships are considered to be a functional requirement of the SSC, providing the component is expected to survive the spatial event. When considering fire spatial events, relatively few, if any, components at STPEGS are expected to survive the fire events. Likewise, relatively few components are qualified for the high energy line-break / pipe whip impact or pipe jet impingement regardless of their current risk categorization. In addition, relatively few components are currently qualified for flooding, and therefore are not expected to survive the flood event. With this in mind, no LSS/NRS components are taken credit for mitigating spatial events, and therefore, these LSS/NRS components are not qualified to survive the event.

In contrast, seismic interaction is a standard which is currently maintained between commercial equipment and equipment subject to special treatment requirements regardless of safety classification. Seismic interaction would be considered a functional requirement and would be maintained. STPEGS would maintain provisions that would preclude adverse interactions between HSS/MSS components and LSS/NRS components where required. Where STPEGS deviates from current methodologies to achieve this functional objective, STPEGS would provide a justification with the new methodology, again based on sound engineering insight and practices.

For example, if a Seismic II/I LSS component fails in normal service and requires replacement, a commercial replacement component that is non-seismically-qualified would be procured. The replacement component would be evaluated to determine if the component size, weight, orientation, and mounting are equivalent to the failed component. The following conclusions could be drawn:

- If equivalency exists, the component would continue to be mounted in its previously analyzed II/I configuration.

- If the replacement component varies in relative size, weight, orientation, or mounting, a further evaluation would occur that factors in spatial interactions. If the only components that the replacement component could credibly interact with during a spatial event are categorized as LSS or NRS, then the evaluation would conclude that no adverse spatial interactions are credible.

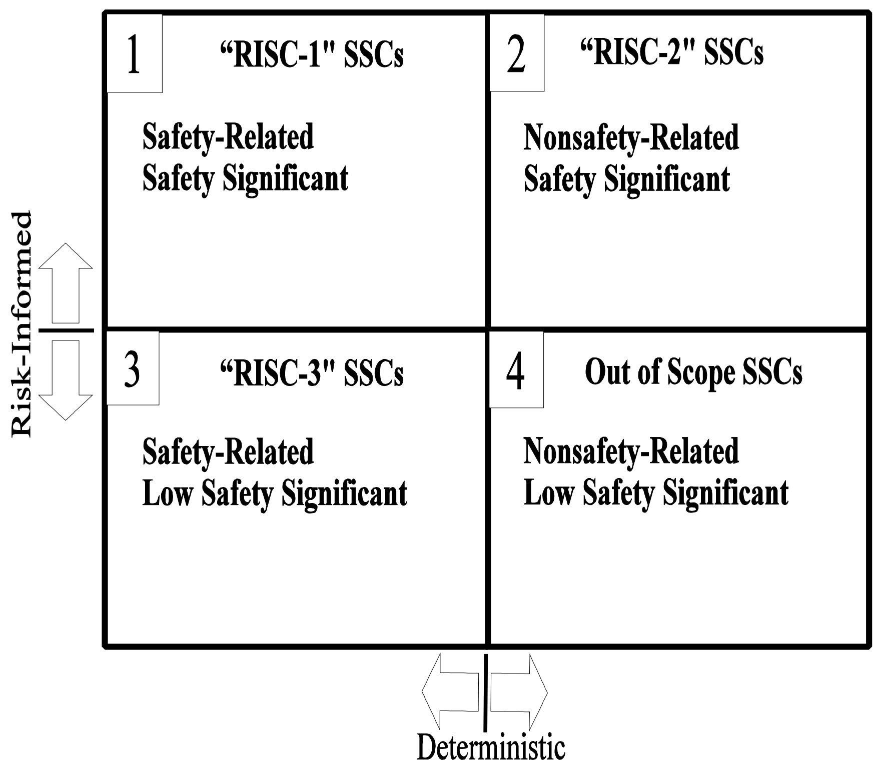
- If the replacement component varies in relative size, weight, orientation, or mounting, and the evaluation concludes that there exists either HSS or MSS components that the replacement component could credibly interact with during a spatial event, then a design change package would be created to fully evaluate and ensure that the Seismic II/I separation criteria is satisfied.

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

47) *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.

: **Diagram of Categorization and Treatment**



RESPONSE:

The STP NRC-approved risk categorization process also classifies components into four categories as follows:

- HIGH,
- MEDIUM,
- LOW, and
- NON-RISK SIGNIFICANT (NRS)

These risk categorizations are procedurally covered in 0PEP02-ZA-0001, Graded Quality Assurance Working Group Process.

As discussed in procedure 0PGP02-ZA-0003, Comprehensive Risk Management, STP further defines programmatic controls of the categorized components as follows:

- FULL,
- BASIC,
- TARGET, and
- NONE.

These programmatic controls define the level of both regulatory and administrative treatment that individual components will receive.

Figure 2: STP Programmatic Controls

		Safety Related	Non-Safety Related
Risk-Informed Application	High	Full	Target
	Low	Basic	None
		High	Low
		Deterministic	

FULL controls apply to safety significant, safety-related SSCs that have been risk-categorized as HIGH or MEDIUM. These components currently receive full regulatory controls and special treatment applications. These full controls will continue once the Exemption request is granted. FULL controls would equate to the controls that are recommended for RISC-1 SSCs.

BASIC controls apply to non-safety significant, safety-related components that have been risk-categorized as LOW or NRS. BASIC controls are defined as commercial practices which provide reasonable assurance that these SSCs can satisfy their design/functional requirements. These controls reflect the most economical and efficient means of conducting business on non-safety significant components. Upon grant of the Exemption, LOW and NRS components would be exempt from the regulatory special treatment requirements, however, since LOW components also have critical attributes defined for them, these critical attributes would be factored into the administrative treatment for LSS components. LOW and NRS components would be procured commercial, and the Corrective Action Program (CAP) would still fully apply to these components. In addition, these components would be monitored on a system/train/plant level per the Maintenance Rule, and the GQA feedback process would evaluate the satisfaction of performance for possible reinstatement of special treatment requirements or possible component recategorization.

Comparing these controls to the proposed ‘four boxes’, BASIC controls would apply to the proposed RISC-3 box (See Figure 3).

In addition, the proposed RISC-1 box defines these components as ‘safety-related, safety significant’. The STP approach would place HIGH and MEDIUM safety-related components into the RISC-1 box. The RISC-3 box is defined as ‘safety-related, low safety significant’. STP would place LOW and NRS safety-related components into the RISC-3 box.

TARGET controls apply to non-safety-related, safety significant components that have been risk-categorized as HIGH or MEDIUM. TARGET controls are subject to specific regulatory special treatment requirements and to additional administrative controls. These controls will be specifically ‘targeted’ to the critical attributes that resulted in the component being categorized as HIGH or MEDIUM. Components under these controls will remain non-safety-related and will be procured commercial, but the special treatments will be appropriately applied to give additional assurance that the component will be able to perform its function when demanded. TARGET controls directly equate to the RISC-2 proposed box of ‘non-safety-related, safety significant’.

Currently, STP specifies non-safety-related, non-safety-significant, augmented quality SSCs (seismic, fire protection, radwaste, post-accident monitoring) as being under a Targeted program. The attributes which makes these SSCs important from a quality perspective currently receive enhanced treatment controls. However, upon grant of the exemption, these non-safety-significant SSCs will be removed from the scope of augmented quality control. These SSCs will have standard commercial treatment applied to them which provide reasonable assurance that these non-safety-significant SSCs can satisfy all of their functional requirements. These SSCs would be non-safety-related, non-safety-significant and would equate to the proposed RISC-4 box.

NO regulatory controls are currently applied to the non-safety significant, non-safety-related LOW and NRS categorized components, and upon grant of the Exemption, no regulatory controls would be added. Components in this category would still receive appropriate administrative controls to give reasonable assurance that these components will perform their design function efficiently and reliably. The components (whose additional controls are NONE) equate directly to the proposed RISC-4 box, ‘non-safety-related, low safety significant’.

Figure 3: Comparison of STP Programmatic Controls
to NRC Proposed Categorization and Treatment

Risk-Informed Application	High	RISC-1 High/Medium Full	RISC-2 High/Medium Target
	Low	RISC-3 Low/NRS Basic	RISC-4 Low/NRS None
		High	Low
		Deterministic	