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Nuclear Business Unit

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ADEQUACY OF TECHNICAL SPECIFICATION COMPLIANCE
SALEM GENERATING STATION
UNIT NOS. 1 AND 2
DOCKET NOS. 50-272 AND 50-311

Gentlemen:

At our March 6, 1997 meeting in Rockville Md. to discuss design basis issues for the Salem facilities, a request was made by the NRC that PSE&G provide additional information relative to the "Adequacy of Technical Specification Compliance". The requested information is provided in the attachment. Should there be any questions regarding this submittal, please contact us.

Sincerely,

David R. Powell

David R. Powell
Manager -
Licensing and Regulation

Attachment

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ADEQUACY OF TECHNICAL SPECIFICATIONS COMPLIANCE
SALEM GENERATING STATION

This discussion provides PSE&G's basis for reasonable assurance that compliance with the current Plant Technical Specifications (TS) is adequate to support safe operation of the Salem Units. This basis was discussed with the NRC at the senior management meeting on March 6, 1997, in Rockville, Maryland.

The Salem Units were removed from service in the Spring of 1995 to address long standing problems with plant performance. As part of the Salem Restart Plan, several different reviews have been conducted that included evaluation of Technical Specifications implementation. The results of these reviews and the associated corrective actions provide the basis for reasonable assurance that the plant Technical Specifications Surveillance Requirements are adequately implemented to support restart. The reviews credited include: 1) Phase 1 of the Technical Specifications Surveillance Improvement Program (TSSIP); 2) UFSAR Macro-reviews for Unit 2 Systems as part of the FSAR project; 3) UFSAR Chapter 15 Safety Analysis Input Reviews as part of the FSAR project; 4) UFSAR Vertical Slice Reviews of Selected Systems conducted as part of the FSAR Project; 5) reviews of recent Technical Specifications related LERs; and, 6) Additional technical reviews of master time response test procedures, ventilation system test procedures and, Inservice Test (IST) procedures. Each of these reviews is summarized below:

Technical Specifications Surveillance Improvement Program - Phase 1

Phase 1 of TSSIP has been completed for Unit 2 and will be completed for Unit 1 prior to restart of the Unit. This review involved a general review of the TS Surveillance Requirements and implementing procedures, along with an evaluation of scheduling controls. The Phase 1 general review included 1) a comparison of the TS Surveillance Requirements to their associated implementing procedure(s) in order to verify that the Purpose Statement of each implementing procedure accurately reflects and references the Surveillance Requirements and, 2) that the stated acceptance criteria are consistent with the associated TS Surveillance Requirements. The scheduling review involved a comparison of surveillance-related Managed Maintenance Information System (MMIS) Recurring Tasks (RTs) against the TS requirements to ensure proper frequencies and mode applicability for the TSs. A detailed evaluation of operating mode transition procedures was completed to ensure the proper surveillances will be completed prior to each mode change. Conditional, or event-driven, TS Surveillance Requirements were reviewed to ensure requirements have a formalized mechanism for recognizing the condition and initiating the appropriate response.

The Phase 1 review resulted in over 750 procedure revision requests and over 2100 MMIS RT surveillance task change requests. While performing the Phase 1 reviews, there were also a number of deficiencies identified that resulted in Action Requests (ARs) to be resolved via the Corrective Action Program. In some cases, additional technical review of the procedure was

performed when there was reason to believe that the procedure was technically inadequate. A total of 77 ARs were generated during Phase 1. These consisted of 14 administrative errors, 1 scheduling issue and 62 procedural adequacy issues. Fourteen of the procedural adequacy issues resulted in LERs, which are included in the discussion of LERs below. Completion of the TSSIP Phase 1 provides assurance that each TS Surveillance Requirement has an implementing procedure, that the stated purpose and acceptance criteria are consistent with the Technical Specifications and, that the surveillances are scheduled at the appropriate periodicity and performed in the correct modes or conditions.

FSAR Project Reviews

The UFSAR Macro-reviews conducted for each of the systems included in the System Readiness Review Program encompassed a review of select design bases parameters and system attributes (flow rates, temperatures, pressures, setpoints, automatic start features, etc.) from the UFSAR. These parameters and system attributes were reviewed against the appropriate TS and/or plant procedures to determine proper incorporation of the system attributes into these documents.

As part of the UFSAR Chapter 15 Safety Analysis Input Reviews, system and component-related inputs and assumptions to the Salem UFSAR Chapter 15 accident analyses were identified in a matrix with a reference to the licensing basis calculation file that demonstrates the safety limits are met for the analyzed accident. These inputs and assumptions were then reviewed against current plant testing procedures, including applicable Technical Specifications surveillance procedures, to validate that current testing of the parameters is consistent with the assumptions used in the accident analyses. Five input parameters still need to be validated after the applicable vendor calculations are received.

The UFSAR Vertical Slice reviews conducted also assessed adequacy of Technical Specifications implementation for the systems reviewed. During the FSAR project, vertical slice reviews were conducted for the seven safety-significant systems identified below:

- Fuel Pool Cooling
- Safety Injection
- Reactor Protection System
- Auxiliary Building Ventilation (ABV)
- Fuel Handling Ventilation (FHV)
- Containment Building Ventilation (CBV)
- Miscellaneous Ventilation Systems (Service Water Intake Structure, EDGs, Switchgear and Penetration Area) were added as additional scope.

These vertical slice reviews were multi-disciplinary team reviews starting with the licensing and design bases documents such as the UFSAR and the plant Technical Specifications. Key descriptions, parameters (i.e., setpoints, response times, etc.) and procedures were reviewed to assess whether the plant is operated in accordance with the licensing/design bases.

There were 16 Technical Specifications related deficiencies identified from the FSAR Project Reviews. The Technical Specifications issues consisted of documentation inconsistencies between reference documents and the Technical Specifications. These Technical Specification reviews did not identify any Technical Specification violations or any safety significant issues. The deficiencies are being addressed in accordance with the Corrective Action Program.

LER Review

A review of recent LERs (since May, 1995) was conducted to gain a better understanding of past surveillance deficiencies. The problems documented in these LERs consisted of personnel errors, scheduling errors and procedural adequacy problems. Based on the review of these LERs, the TSSIP Phase 1 findings and findings from various restart activities, there were three areas that were considered significant and required further reviews in order to validate the adequacy of Technical Specifications implementation. Thus, additional reviews were initiated for master time response test procedures, ventilation system test procedures and IST procedures. These reviews are discussed separately in the next section below. The deficient Unit 2 surveillances that have been re-performed using the corrected implementing procedures had satisfactory results. The remainder of the deficient Unit 2 surveillances will be re-tested prior to entering the Mode or condition in which they become applicable. The completion of TSSIP Phase 1, as discussed above, provides assurance that scheduling problems have been identified and corrected.

Additional Technical Reviews

As discussed above, additional technical reviews were conducted in three areas based on the number of problems discovered in these areas. Each of these reviews is discussed below.

The master time response review involved a review of the Engineered Safety Features Response Times listed in Table 3.3-5 of the Salem Technical Specifications. This review was initiated as a result of LER 272/96-020-00, Containment Fan Coil Units Outside Plant Design Basis, which identified that the ESF Response Time for the Containment Fan Coil Units (CFCUs) was inadequate. The response time was determined to be approximately 56 seconds which exceeds the 45 second limit specified in TS Table 3.3-5. However, a subsequent analysis (for a License Change Request) using a response time of 60 seconds demonstrated that the containment pressure and temperature remained below their design values.

The master time response review was performed to ensure that all the proper components are tested and the acceptance criteria are consistent with the TS response times. The scope of this evaluation consisted of the following:

1) Determine success paths required to support accident mitigation. A success path is comprised of all major plant components required to actuate to support an ESFAS function. Success paths were developed for each ESFAS function. P&IDs, logics, and electrical schematics were used as input.

2) Verify success path response time acceptance criteria (from event detection to completion of final element response). TS Table 3.3-5 was the main source of input.

3) Assign, where possible, acceptance criteria to individual components in the success path. The acceptance criteria were based on Technical Specifications and the SAR.

4) Confirm these components are included in the Master Time Response procedure.

The deficiencies identified from this review included some components not included in the response time testing, some of the acceptance criteria being incorrect, inconsistencies in documentation and several procedural enhancements. There were no safety significant findings from the review of the ESF master time response testing.

The reviews of the ventilation test procedures included a review of the Auxiliary Building Ventilation, the Control Area Ventilation and the Fuel Handling Building system test procedures. The purpose of this review was to ensure that the testing methodology and acceptance criteria were consistent with applicable ANSI standards and the plant Technical Specifications. For the Auxiliary Building and the Fuel Handling Building, deficiencies were identified relative to the adequacy of the testing used to meet the Technical Specification requirements. However, after the testing procedures were upgraded as required, most of the suspect surveillance tests were conducted satisfactorily. In one case, where the system bypass limits were tested, some dampers had to be repositioned in order to satisfy the surveillance. However, for this case the amount of bypass measured was still less than that assumed in the dose calculations. Thus, the safety significance of these deficiencies was low. For the control room area, the review focused on developing procedures that were consistent with the new control room design implemented during the current outage and the new requirements contained in a license amendment recently received. Testing is still in progress to ensure that the control room area ventilation meets the new TS requirements. Prior to startup of the Salem Units, these TS surveillances will be satisfactorily completed.

The IST review consisted of a complete upgrade and verification/validation of the IST program This upgrade included:

- Applicable Codes and Standards, commitments, NRC issued NUREGs, Generic Letters, Information Notices and Bulletins, Technical Specification & UFSAR sections, and applicable Configuration Baseline Documents for IST program development were reviewed.
- Controlled plant P&ID drawings were used to identify those safety related components subject to IST requirements.
- An IST BASIS document was developed for approximately 1800 Salem Unit 1 and Unit 2 pumps and valves identifying applicable component classification and category, safety function, test requirements, and a list of references from which the information was derived.
- Recurring tasks were prepared for applicable IST components and incorporated into MMIS. Additionally, Functional Equipment Groups in MMIS were corrected or are being corrected and cross referenced to specific IST surveillance test procedures.
- IST surveillance procedures were reviewed to ensure correct implementation of applicable component test requirements. Where necessary, procedures were or are

being revised and where necessary new test methodologies and procedures are being developed.

- Currently approved IST Program relief requests were revised or are being revised to enhance the basis for alternative testing. Some Relief Requests were reclassified as Cold Shutdown Justifications and Refueling Outage Justifications. Several new Cold Shutdown Justifications were created and some were eliminated.
- New process procedures were developed to control IST implementation.

From this review, deficiencies were identified relative to improper testing of some IST components and some required components not included in the program. Testing subsequent to procedural upgrades and inclusion of additional required components has proven the components capable of performing their safety functions. There were just a few cases where corrective maintenance was required. In one case a manual isolation valve took longer than expected to close. In another case, the Unit 1 service water pumps failed their surveillance which was expected based on trend data. These pumps were already planned to be replaced during the current outage. Thus, the safety significance of these deficiencies was low. Corrective actions have been taken or are being taken to assure compliance with the Technical Specifications in the three areas of concern discussed above.

Summary

The results of the multiple reviews combined with the corrective actions taken to address deficiencies provide reasonable assurance that implementation of the Salem Technical Specifications is adequate to support restart. While there have been many Technical Specification deficiencies identified to date, the issues have generally not had significant plant safety implications. Areas that were deemed to have potential safety significance (e.g., time response testing, ventilation system testing and IST testing) are being thoroughly evaluated prior to restart. The large number of deficiencies discovered as part of the various reviews conducted in support of the Salem restart readiness is an indication of the thoroughness of the reviews and provides confidence that most of the significant problems have been identified. Completion of TSSIP Phase 1 assures that all Surveillance Requirements have an implementing procedure and are properly scheduled. While the reviews discussed are not a complete review of all TS requirements, they do represent a significant sampling to support the basis for reasonable assurance. Phase 2 of TSSIP will continue the review of surveillance procedures for technical adequacy. There are no known deficiencies that could preclude safe plant operation and, while it is expected that additional issues will be identified from the continuing Phase 2 reviews, evidence from the comprehensive reviews conducted to date suggest that it is unlikely that safety significant problems will surface.