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U.S. Nuclear Regulatory Commission
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Gentlemen:

SALEM GENERATING STATION, UNITS 1 AND 2
DOCKET NOS. 50-272 AND 50-311
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

By letters LR-N970074 and LR-N970093 dated February 11, 1997, Public Service Electric & Gas Company (PSE&G) forwarded pursuant to 10 CFR 50.54(f) responses to the Nuclear Regulatory Commission's (NRC) request for information regarding adequacy and availability of design bases information for the Salem and Hope Creek Generating Stations. In addition, by letter LR-N970234, dated May 14, 1997, PSE&G further described the scope, methodology and schedule for a project (Design/Licensing Bases Review Project, DLBRP) initiated to provide further assurance that Salem and Hope Creek are operated in accordance with their design bases.

Since those above referenced responses, numerous activities have been completed which re-affirm PSE&G's reasonable assurance that Salem and Hope Creek are being operated in accordance with their design and licensing bases.

A review of these completed activities and lessons learned has led PSE&G to re-assess the strategy for the DLBRP, and to re-focus our DLBRP activities.

On June 16, 1998, PSE&G met with your staff to brief them on the status of the DLBRP. The purpose of this letter is to formally docket the information exchanged in that June 16 meeting, which presented the activities conducted over the past year, the lessons learned, and the future focus of our DLBRP.

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The summary of these activities, lessons learned and planned future actions are presented below:

Attachment 1 to this letter compares the original DLBRP methodology with our planned future actions. As stated in our May 14, 1997 letter, the project scope, methodology and schedule is subject to refinement based on continued self-assessment of project activities and results.

SUMMARY OF COMPLETED ACTIVITIES

Since those above referenced responses, PSE&G has completed a number of activities that have improved our understanding of our design and licensing basis. The results and status of some of these efforts are below:

Pilot Design Bases Documents (DBD)

The first 2 system Hope Creek DBDs (Emergency Diesel Generators and Safety Auxiliary Cooling Systems) were developed in accordance with Revision 0 of the Design/Licensing Bases Review Project Plan, dated May 1997. After completion of these 2 DBDs, a self-assessment of the project was completed, and the Project Plan was revised. A third Hope Creek DBD (Standby Liquid Control System) was developed based on the revised project plan (Revision 1, September 19, 1997.)

The issues identified during the development of the three DBDs were reviewed. The DBD development, which took approximately 100 man-weeks of effort, identified 33 items. These items were included in the PSE&G corrective action program. Of these 33 items, 15 were designated as corrective maintenance items, business processes or enhancements that are not conditions adverse to quality. Further, 17 of the remaining 18 items were designated level 3 Action Requests which have minimal impact on plant or personnel safety.

The remaining item concerned a low temperature discrepancy for SACS Chiller Operation. This condition was reported in Licensee Event Report (LER) 354-97-020, dated September 29, 1997. As detailed in this LER, there were no actual safety consequences as the event involved a scenario which is extremely unlikely and has not occurred. Further, had the scenario occurred there would have been limited safety significance.

While minor discrepancies between the UFSAR and the station's operating, maintenance and as built condition may exist, these discrepancies are not safety significant. The minor discrepancies not withstanding, the pilot DBD effort added to our reasonable assurance that the UFSAR is sufficiently accurate to support translation of design basis information into the operating maintenance and testing procedures.

System Readiness Review Program (SRRP)

The Salem SRRP was fully discussed in PSE&G's response to Question C of the Salem February 11, 1997 response to the 10 CFR 50.54(f) letter. At that time phases I through III of the project had been completed. Phase IV, the Startup and Power ascension portion of the program is also now completed. As a result PSE&G has reasonable assurance that equipment operability and reliability issues have been identified at Salem Generating Station, and that effective corrective actions have been implemented to addresses these issues. In addition, this effort further supports the belief that critical plant systems are installed and designed to meet their design bases.

Technical Specification Surveillance Improvement Project (TSSIP)

The TSSIP consisted of a thorough review of each Technical Specification Surveillance requirement and the surveillance procedures. The purpose was the validation of the surveillance procedures to ensure that the functionality of each system was actually demonstrated by the performance of the procedures. The project also included a review to demonstrate the existence of adequate overlap between tested channel segments as indicated in Generic Letter 96-01.

At Salem, the project reviewed 1,293 Technical Specification implementing procedures and was completed in May of 1998. Discrepancies were entered in the corrective action program. The more significant ones were documented in LER 311/95-008. At Hope Creek, the project had been completed by December 1996 and prior to submittal of the 10CFR50.54(f) letter.

UFSAR Updates

We have improved the fidelity of our UFSARs by completing all of our required 10CFR50.71(e) updates for the recently completed outages at Salem Unit 2 and Hope Creek. Revision 16 to the Salem UFSAR was submitted by letter LR-N980049, dated January 30, 1998. Revision 9 to the Hope Creek UFSAR was submitted by letter LR-N980303, dated June 12, 1998.

Design Basis Tools

Over the past year, we have strengthened our understanding of the design basis by development and refinement of design basis tools. For example, we have refined computerized flow models for the Hope Creek Station Service Water System and the Hope Creek Station Auxiliary Cooling System in support of our Ultimate Heat Sink analyses. This involved recalculating the suppression pool temperature following

design basis events, analyzing additional configurations, and re-analysis of HVAC heat loads. Similar examples for Salem include use of computerized tools to gain new understanding of the containment fan coolers and the service water system design attributes to avoid overpressure transients.

Safety Evaluation Independent Review Team (SEIRT)

Improving the 10 CFR 50.59 process is considered the cornerstone because it is the means for maintaining the plant procedures and configuration within the design bases. The Safety Evaluation Independent Review Team (SEIRT) is intended to provide a level of assurance that proposed changes meet the requirements of 10 CFR 50.59 by reviewing Safety Evaluations prior to submittal to the Station Operations Review Committee (SORC).

The Safety Evaluation Independent Review Team is staffed by experienced and technically competent individuals from the Nuclear Business Unit, with broad based expertise in Engineering, Licensing, Operations and Safety Analysis. A major function of SEIRT is to provide prompt and effective feedback of lessons learned to the NBU, and monitoring implementation for continual improvement.

SEIRT has been initiated throughout the entire Engineering Department. The results have been assessed and this process has been found to be an effective means of improving the overall quality of safety evaluations.

Modification Review Board

The Modification Review Board (MRB) is intended to help insure that a proposed design change will perform as expected and accomplish the desired results. The MRB will complete a conceptual review and a final review for design changes selected by the Engineering Management Team. Generally, projects which have an affect on nuclear safety and are prepared under normal time constraints, or of significant financial impact to the NBU will be reviewed by the MRB. The Modification Review Board is staffed by experienced and technically competent individuals from the Nuclear Business Unit, including Operations, Maintenance, Engineering, Training and Licensing. Specific areas that the MRB will focus their review are defined in the MRB Charter and include, post installation testing details, constructability, licensing and technical adequacy.

The MRB has been initiated, with 2 Design Change Packages (DCP) as pilot packages. The results of the MRB have been assessed, and it has been found to be an effective means of improving the overall quality of the DCP.

Program Benchmarking

We continue to perform internal and external assessments. We benchmarked our program with Pennsylvania Power and Light, PECO Energy, and Arizona Public Service. In addition, we share information on approaches to address UFSAR accuracy through the UFSAR Verification Utility Group - Region I. PSE&G continues to stay involved with the General Electric BWR Owners Group Design Basis information meetings and the Licensing and Design Basis Clearinghouse.

Engineering Audits

Our Quality Assurance Department performed a detailed Engineering Audit in 1997. The audit team was composed of 17 members over a period of 5 weeks and involved approximately 1,200 audit hours. The audit team composition included members with NRC inspection experience, and two of whom made significant contributions to NUREG -1397, "An Assessment of Design Control Practices and Design Reconstitution Programs in the Nuclear Power Industry." No weaknesses where identified in our design and licensing bases information.

LESSONS LEARNED

- The Hope Creek pilot DBD efforts required significant engineering resources to complete and did not find any safety issues.

- As stated previously, an independent evaluation team was contracted to evaluate the pilot efforts. The team was lead by an experienced team leader and design engineer who has been used by other utilities and the NRC to assess design basis and licensing basis efforts. Other team members included key contributors to NUREG -1397, "An Assessment of Design Control Practices and Design Reconstitution Programs in the Nuclear Power Industry". This team concluded that our resources were not effectively used in developing the DBDs in that we had not taken enough credit for the extensive reviews conducted of our SARs and the substantial efforts expended in developing the CBDs.

- While the Configuration Baseline Documents are not a source for design input, they provide a good road map to the design bases. Likewise, our Programmatic Standards provide a good source of the design and licensing basis for topical issues.

- Through the Technical Specification Surveillance Improvement Program (TSSIP) we validated that the design and licensing bases issues are captured within our Technical Specifications through to the surveillance procedures.

- The Salem System Readiness Review was effective in identifying design and licensing basis problems and having them resolved. This is important in that Salem units are our oldest and did not have the level of documentation that Hope Creek enjoys.

- A Design Basis Document for the accident analysis (other than the UFSAR) does not exist. Such a document could be very useful in performing 10CFR 50.59 evaluations.

FUTURE ACTIONS

The results of these activities re-affirm PSE&G's belief that Salem and Hope Creek are being operated in accordance with their design bases. While this is the primary objective of the DLBRP activities, PSE&G also has a secondary objective, that of centralizing valuable information to support operating, maintaining and designing the facility. This objective can be better achieved by refocusing some DLBRP activities, as detailed below:

Chapter 15 Design Basis Information

The design/licensing basis review project will re-focus our efforts around Chapter 15 and not individual system design basis documents.

The UFSAR Chapter 15 document will consolidate the 10 CFR 50.2 design bases information in an accident specific method. The Chapter 15 centric approach to documenting design bases information will be developed from a review and validation of the Chapter 15 analyses and extend back to the UFSAR sections that include the systems and components which mitigate those accidents and events. Therefore, Chapter 15 will receive an extensive review and associated sections of the USFAR will be reviewed based on their impact to Chapter 15. After completion of this activity, the review of the balance of the UFSAR will be reassessed.

Shutdown Logic Diagrams/System Function Diagrams

To further document the plant's response to those events postulated in Chapter 15 of the UFSAR, Shutdown Logic Diagrams (SLD) will be developed. The SLDs will be representations of the integrated plant response to design basis accidents and other postulated events analyzed in Chapter 15 of the UFSAR. In addition, SLDs will be prepared for specific events such as 10 CFR 50 Appendix R safe shutdown, Anticipated Transient Without SCRAM and Station Blackout. The SLDs will be similar to the ones shown in Appendix E of NUREG-1397 "An Assessment of Design Control Practices and Design Reconstitution Programs in the Nuclear Power Industry." System Function Diagrams (SFD) will also be developed. The System Function Diagrams present in logic diagram format the complete set of equipment that must function in order for the applicable system to fulfill its design basis safety function in support of safe shutdown.

UFSAR Validation

As stated above, our FSAR validation efforts will validate the remaining sections of the UFSAR that support Chapter 15. The FSAR Review Plan includes FSAR Chapters 5, 6, 7, 8 and those sections of Chapter 9 which cover the safety related cooling water and ventilation systems.

Configuration Management Tool (CMT)

The objective of the CMT is to establish a process link to Information Systems, controlled documents and applicable databases. This linking will create a centralized, user friendly system and improve the dissemination of critical design information. As an added advantage, the CMT will simplify the Configuration Control of the NBU's Design and Licensing Bases information.

The focus of the CMT will be to utilize the UFSAR Chapter 15 Accident Analysis information which will allow for information searches by systems needed to support identified accidents. The CMT will provide a means to assure that configuration management information is maintained accurately and consistently throughout the UFSAR, Technical Specifications, Emergency Operating Procedures and the Design & Licensing Bases Documents. In addition, reference material such as operator training materials will be easily retrievable for research purposes.

Implementation and Training

PSE&G recognizes that the approach outlined in this letter will only be fully effective if proper training and implementation is developed. Mandatory Continuing Training was held in the second quarter of 1998 to describe the project scope and approach to the entire Engineering Population (as defined for INPO accreditation purposes). Additional specific training and implementation instructions will be developed, as these projects develop and reach their conclusion.

In summary, we continue to have reasonable assurance that we are operating our facilities in accordance with our design and licensing bases. We also believe the approach we have chosen will utilize our resources for a better return on safety.

If you have any questions, we will be pleased to discuss them with you.

Sincerely,

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Attachment 1

DESIGN/LICENSING BASIS REVIEW PROJECT UPDATE COMPARISON

Category	Original Scope Activity (5/14/97)	Revised Scope
Preparatory Review		
Configuration Management Program	Review and integrate DLBRP into the CMP to assure continued validity of the DBD.	The output of the Chapter 15 based design basis review will be incorporated into the CMP to protect the integrity and long term usefulness of the project.
Regulatory Commitment Review	Perform Review of commitments made since 1/92 to ensure they are known and implemented.	A review of Salem regulatory commitments docketed between 1/90 and 7/95 was completed. Enhancements to the tracking system were made to ensure continuing commitment implementation.
Design Basis Document	Develop a DBD for each system under review.	A design basis information system will be developed for systems or portions of systems that affect UFSAR Chapter 15. After this effort is complete, the development of other DBDs as well as the validation of older issued CBDs will be evaluated.
UFSAR Review	Perform UFSAR review for consistency between sections and an SER review for consistency with UFSAR.	Initially, a review of UFSAR Chapter 15 will be performed to ensure its consistency with other UFSAR sections. This review will validate the inputs and assumptions made in Chapter 15. The findings from this review will determine the depth necessary for any other UFSAR reviews.

Attachment 1

DESIGN/LICENSING BASIS REVIEW PROJECT UPDATE COMPARISON

Category	Original Scope Activity (5/14/97)	Revised Scope
Document Identification	Identify in DBD all controlled documents associated with reviewed system.	Will be performed based on the scope described above.
Inspection		
Design	Review major components and system functions explicitly assumed in the safety analysis.	No change to original scope.
	Review the design calculations that support each input assumption.	No change to original scope.
	For systems that are not specifically relied upon in the accident analysis, review a sample of the design calculations.	The extent of review for systems that are not specifically relied upon in the accident analysis will be evaluated after completion of the Chapter 15 project.
Operations	Review procedures for the adequacy of normal, abnormal and emergency operations.	The Chapter 15 oriented design basis review will validate required operator action for Emergency Operating Procedures. Other reviews are to be reevaluated after initial project completion.
	Review alarm response procedures.	As above
	Review Configuration assumptions identified for design basis parameters.	As above

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DESIGN/LICENSING BASIS REVIEW PROJECT UPDATE COMPARISON

Category:	Original Scope Activity (5/14/97)	Revised Scope
	Perform walkdown of the reasonably accessible portions of the systems and review for consistency with design basis parameters	To be initially performed for Chapter 15 systems. Other systems to be determined at a later date
Maintenance	Ensure PM tasks implement calculation Requirements	Not in current scope
Surveillance and Testing	Review test procedures associated with Technical Specifications.	This is included in the scope of the Technical Specification Surveillance Improvement Project (TSSIP). Hope Creek was complete by the end of 1996. Salem was completed in May of 1998.
	Review Technical Specification Interpretations for consistency with design basis documents.	Technical Specification Interpretations are being eliminated and replaced by actual changes or clarifications where needed. This activity will not be needed.
	Review testing procedures for effect on instrument accuracy on design basis parameters.	Performed by TSSIP for testing procedures associated with Tech Spec surveillances.
	Review test procedures to verify acceptance criteria is consistent with Technical Specifications.	Performed by TSSIP
	Review procedures for surveillance and testing to determine if they address system response times and are consistent with the values and functions referenced in the UFSAR or other relevant documents.	Performed by TSSIP

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DESIGN/LICENSING BASIS REVIEW PROJECT UPDATE COMPARISON

Category	Original Scope Activity (5/14/97)	Revised Scope
	Review Technical Specification values to verify that they are consistent with the UFSAR and other relevant documents and the conservatism of the LCO relative to the design basis.	Technical Specification values associated with Chapter 15 related systems will be reviewed for consistency with the UFSAR.
Documentation		
Validated DBD	Following implementation of the Design Basis Inspection Plan, an updated, accurate, validated Design Basis Document (DBD) will be completed.	Design basis information system to be completed for systems or portions of systems that affect the Chapter 15 accident analysis.
DBD Validation Table	A DBD validation Table will be created that compiles the results of a review of implementing documents, design output documents, and selected design documents associated with each designated parameter.	Results of the Chapter 15 based design basis reviews will be properly documented. Specific format details are currently being evaluated.