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Electric and Gas
Company

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Vice President - Nuclear Operations

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LCR 87-10

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

INADEQUATE CORE COOLING
REQUEST FOR ADDITIONAL INFORMATION
SALEM UNITS NOS. 1 AND 2
FACILITY OPERATING LICENSE NOS. DPR-70 AND DPR-75
DOCKET NOS. 50-272 AND 50-311

PSE&G received your letter dated October 31, 1989 regarding the Subcooling Margin Monitor (SMM) and Reactor Vessel Level Instrumentation System (RVLIS). In response to that letter, PSE&G has revised the SMM installation schedule for Salem Unit 2 to coincide with the spring 1990 outage.

PSE&G hereby submits changes to the proposed Technical Specifications for RVLIS to provide interim requirements until the RVLIS can be upgraded. This change consists of an ACTION STATEMENT that will allow continued operation provided the SMM and the Core Exit Thermocouples are operable. This change contains a footnote to terminate applicability of this interim action at the end of the appropriate refueling outages.

In order to address the SMM interim Technical Specification requirements, we request that the implementation date for this amendment for Unit 1 be prior to startup from the 9th Refueling Outage (Fall 1990). For Unit 2, we request 60 days, or prior to the startup from the 5th Refueling Outage (Spring 1990), whichever is later. At this time, the SMM will have been upgraded and the need for an interim Technical Specification will be eliminated.

Attachment 1 contains a description, reason, justification and significant hazards analysis for the proposed changes. Attachment 2 contains the Technical Specification pages revised with pen and ink changes.

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Should you have any questions regarding this transmittal, please feel free to contact us.

Sincerely,



Attachments

C Mr. J. C. Stone
USNRC Licensing Project Manager

Mr. T. Johnson
Senior Resident Inspector

Mr. W. T. Russell, Administrator
Region I

Mr. Kent Tosch, Chief
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Attachment 1

NLR-N90013

LCR 87-10

PROPOSED CHANGE TO TECHNICAL SPECIFICATIONS SALEM UNIT NOS. 1 AND 2

REACTOR VESSEL LEVEL INSTRUMENTATION SYSTEM AND SATURATION MARGIN MONITOR

I. Description of Change

Add Reactor Vessel Level Instrumentation System (RVLIS) to Tables 3.3-11 and 4.3-11 and Table Notation pages associated with Specification 3.3.3.7, Accident Monitoring Instrumentation. Tables 3.3-11a and 3.3-11b in the Salem Unit 1 Technical Specifications have been combined into a single table (3.3-11) and the Total Number of Channels column has been omitted as its inclusion in the Technical Specification is irrelevant. An interim action has been added for RVLIS until the system can be upgraded.

The Action Statement for the Saturation Margin Monitor (SMM) has been changed to meet the requirements of GL 83-37, "NUREG-0737 Technical Specifications".

II. Reason for the Change

These proposed changes will add specifications for instrumentation dealing with inadequate core cooling to provide assurance that the RVLIS and SMM equipment installed at the facility are operated and maintained within acceptable limits. This proposed change is in response to NUREG-0737, Technical Specifications guidance provided in NRC Generic Letter 83-37 and an additional request (Varga to Uderitz, dated November 17, 1983) for Technical Specifications for Inadequate Core Cooling (ICC) instrumentation. Until the RVLIS can be upgraded, an interim Action Statement is being proposed to eliminate the need for two separate License Change Requests.

III. Justification for the Change

RVLIS neither replaces nor couples with any existing safety system. Although it does act to provide additional information to the operator during postulated accident conditions, it is not the only indicator of an approach to, or a recovery from a potential Inadequate Core Cooling event.

The Core Exit Thermocouple (CET) system provides an indication of radial distribution of temperature rise across representative regions of the core. CET response to the presence of superheated steam is one of the indicators of an approach to a postulated ICC situation. The CETs do not provide an indication of the amount of core voiding, but their response provides direct indication of the existence of an ICC event, the effectiveness of the recovery action, and the restoration of adequate core cooling.

The SMM indicates the approach to a postulated ICC event by detecting saturation conditions. The SMM is being upgraded during the Salem Unit 1 9th Refueling and the Salem Unit 2 5th Refueling to meet the redundancy requirements of NUREG 0737. The proposed change will meet the Technical Specification requirements of GL 83-37. The significant parameter continuously displayed is:

Reactor Coolant delta T (T saturated - T actual)

Wide range Reactor Coolant System (RCS) pressure indication displays general RCS pressure trends.

Wide range RCS temperature indication is available for determining trends of ICC recovery actions.

Steam Generator (SG) level indication in conjunction with Auxiliary Feedwater (AFW) flow indication assure the adequacy of make-up water and hence heat sink availability for the RCS. Also, SG Pressure indication may be used in conjunction with other indications in determining heat sink availability and heat removal capability during ICC mitigating actions.

The significant parameter changes for which the above noted indications are used in determining the adequacy of core heat removal are:

- RCS delta T less than Full Load delta T.
- RCS or CET temperatures constant or decreasing.
- SG pressure constant or decreasing at a rate equivalent to the rate of decrease of RCS temperature while maintaining SG level with continuous AFW flow.

Other plant parameters which may indicate an approach to a postulated ICC event are unexplained changes in Pressurizer level and Letdown flow greater than Charging flow.

Current operating guidance for Small Break Loss of Coolant Accident (LOCA) response with no Reactor Coolant Pumps running requires the operator to perform the following:

- Control natural circulation with AFW flow and steam dumping.

- Monitor natural circulation with the following trended parameters:
 - CETs stable or decreasing.
 - RCS Hot Leg temperature stable or decreasing.
 - SG pressure stable or decreasing.
 - RCS Cold Leg temperature at saturation temperature for SG pressure.
 - RCS Subcooling greater than 10 deg. F.

Cautions are provided to the operator that voiding may occur in the RCS during depressurization. This will result in a rapidly increasing Pressurizer level. The operator is also required to monitor subcooling margin. In addition, natural circulation rapid cooldown procedural guidance exclusive of RVLIS operability also exists.

In summary, plant instrumentation exclusive of RVLIS is adequate to determine heat sink availability, detect the onset of a postulated ICC event, and monitor the effectiveness of mitigating actions. While RVLIS is provided to permit a more continuous indication of the approach to ICC, its availability is not absolutely necessary to ensure safe shutdown. Therefore, no significant hazard exists and the margin of plant safety is not significantly reduced by the proposed Technical Specification.

IV. Significant Hazards Consideration

In accordance with 10 CFR 50.92, PSE&G has reviewed the proposed changes and concluded the proposed changes do not involve a significant hazards consideration because the changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously analyzed.

The proposed change is associated availability of two information systems (RVLIS and SMM). In accordance with GL 83-37, RVLIS is being added to Technical Specifications and SMM requirements for availability are being changed to be more restrictive.

The requirements of GL 83-37 cannot be met until the RVLIS is upgraded. An interim requirement to address RVLIS in its present configuration will provide a method of monitoring RVLIS availability. The RVLIS upgrade will be completed during the Salem Unit 1 10th Refueling and Salem Unit 2 6th Refueling Outages.

2. Create the possibility of a new or different kind of accident.

The RVLIS and SMM are information systems that are being upgraded. The proposed changes are to monitor the availability of these systems. There are no new failure modes being introduced by the proposed changes. Therefore, there can be no impact on plant response to the point where a different accident is created.

3. Involve a significant reduction in a margin of safety.

The proposed changes are to monitor the availability of informational systems and have no impact on the consequences of an accident or any of the protective boundaries. Therefore, there is no reduction in any margin of safety.

V. Conclusions

Based on the information presented above, PSE&G has concluded there is no significant hazards consideration.

ATTACHMENT 2