

June 24, 2004

MEMORANDUM TO: James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Daniel Collins, Project Manager, Section 2 */RA/*
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2,
FACSIMILE TRANSMISSION, DRAFT REQUEST FOR
ADDITIONAL INFORMATION (RAI) TO BE DISCUSSED IN AN
UPCOMING CONFERENCE CALL (TAC NOS. MB5710 AND
MB5711)

The attached draft RAI was transmitted by facsimile on June 14, 2004, to Mr. Brian Thomas, PSEG Nuclear LLC (licensee). This draft RAI was transmitted to facilitate the technical review being conducted by Office of Nuclear Reactor Regulation (NRR) and to support a conference call with the licensee to discuss the RAI. The RAI was related to the licensee's submittal dated July 29, 2002, concerning the refueling operations - relaxation of requirements applicable during movement of irradiated fuel. Review of the RAI would allow the licensee to determine and agree upon a schedule to respond to the RAI. This memorandum and the attachment do not convey or represent an NRR staff position regarding the licensee's request.

Docket Nos. 50-272 and 50-311

Attachment: Draft RAI

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DRAFT-REQUEST FOR ADDITIONAL INFORMATION
REQUEST FOR CHANGES TO TECHNICAL SPECIFICATIONS - RELAXATION OF
REQUIREMENTS APPLICABLE DURING MOVEMENT OF IRRADIATED FUEL
SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2

By letter dated July 29, 2002, PSEG Nuclear (the licensee) submitted a proposed amendment to the Technical Specifications for Salem Nuclear Generating Station, Units 1 and 2. The proposed amendment would revise the Technical Specifications based on a re-analysis of the design basis Fuel Handling Accident (FHA).

The Nuclear Regulatory Commission (NRC) staff has reviewed the information the licensee provided that supports the proposed Technical Specification changes. In order for the staff to complete its evaluation, the following additional information is requested:

1. The proposed Technical Specification change proposes changing the definition of CORE ALTERATIONS. As a result of the proposed change the applicability section of several technical specifications are proposed to be changed. The applicability is changed from: "During CORE ALTERATIONS or movement of irradiated fuel within the containment" to "During movement of irradiated fuel within the containment."

IN 90-77, "Inadvertent Removal of Fuel Assemblies from the Reactor Core," discusses events during removal of upper guide structures and upper internals. During these events fuel assemblies were inadvertently removed from the reactor creating the high potential for a fuel handling accident.

A review of the Salem licensing bases in UFSAR Section 15.4.6.1¹ does not specify how the spent fuel assembly is dropped inside of containment.

CORE ALTERATIONS, as presently defined in the Technical Specifications, is the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. This definition would bound inadvertent movement of a single fuel assembly.

The combination of the proposed change in the definition of CORE ALTERATIONS and applicability statements appear to not bound the known potential for inadvertent

¹ The Salem UFSAR Section 15.4.6.1 states:

"The accident is defined as dropping of a spent fuel assembly onto the spent fuel pit floor in the fuel handling building or inside containment resulting in the rupture of the cladding of all the fuel rods in the assembly despite many administrative controls and physical limitations imposed on fuel handling operations. All refueling operations are conducted in accordance with prescribed procedures under direct surveillance of a supervisor."

movement of fuel assemblies. In light of these considerations please justify why the proposed technical specification change should not include applicability for a fuel handling accident occurring during the movement of other core components.

2. Proposed Technical Specification 3.9.4 proposes the following: "The equipment hatch inside door is capable of being closed and held in place by a minimum of four bolts, or an equivalent closure device installed and capable of being closed." Please define what criteria are used to determine whether a device is an equivalent closure device to the equipment hatch. Please define the devices to be used.
3. The staff has reviewed Salem's May 1, 2003 response (LR-N03-0136) to the staff's request for additional information related to the proposed license amendment. The response to question 5 does not appear to be responsive to the staff's question. Please describe the outage activities that could prevent the establishment of fuel handling building closure and the compensatory actions that would need to be taken. It would also be helpful for the staff to understand that in the event of a fuel handling accident that the fuel building would be closed promptly (or within a reasonable time frame) to limit the release of radioactivity.
4. Per page 6 of the July 29, 2002 amendment request, the ability to close the Salem equipment hatch is dependent on AC power. In the case of a loss of AC power coincident with a fuel handling accident, electrical power may not be available for closing the hatch. Please explain what measures are in place to promptly close the equipment hatch without AC power. NUREG-1449² also states that with four bolts installed that the Salem equipment hatch had gaps between the equipment hatch seals. How many bolts will be needed to close the equipment hatch to prevent the release of radioactivity?
5. The proposed amendment requires the Containment Purge or the Auxiliary Building Ventilation System with suction from the containment atmosphere to be available during fuel movement. Closure controls are in place for the personnel airlock and the containment equipment hatch along with a definition for closure time (defined as 1 hour). The flows out the Containment Purge or the Auxiliary Building Ventilation Systems are forced flow pathways and will likely release a much greater amount of radioactivity than either the containment equipment hatch or personnel airlock after a fuel handling accident. No provisions are made to close these dominant flow paths whereas time limiting provisions are made for closing the personnel airlock and the containment equipment hatch. Please explain why there are no defense-in-depth measures taken promptly to secure the Containment Purge or the Auxiliary Building Ventilation Systems after a fuel handling accident.
6. Provide the criterion used to decide if the containment personnel airlock and the containment equipment hatch are capable of being closed within 1 hour.

² NUREG-1449, "Shutdown and Low-Power Operation at Commercial Nuclear Power Plants in the United States," page B-5.

7. What criteria will be used to determine if closure of the containment is necessary in the event of adverse weather? Has the impact of wind on fuel handling been evaluated (for example, reduced pool visibility due to pool surface disruption)? What steps would be taken in the event of severe weather to minimize the impact of flying debris or missile hazards?
8. Will your Emergency Plan be updated to include an accident release through the equipment hatch? Will your Emergency Operating Procedures be updated to address the specific details needed to respond to this accident scenario?
9. Will you inform the State Emergency Response personnel about this accident scenario?
10. The proposed technical specification specifies that a "designated" crew is available to close the Containment Structure Equipment Hatch Shield Doors rather than a "dedicated" crew who would have no other duties. Specify what other duties the designated crew will have and where they will be stationed relative to the air lock doors.