



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 11, 1989

Docket Nos. 50-295
and 50-304

Attachment

MEMORANDUM FOR: Daniel Muller, Director
Project Directorate III-2
Division of Reactor Projects III, IV, V
and Special Projects

FROM: Jared S. Wermiel, Acting Chief
Plant Systems Branch
Division of Engineering and Systems Technology

SUBJECT: OFFSITE RADIOLOGICAL CONSEQUENCES OF LOCA DURING
CONTAINMENT PURGE PROPOSED IN TS CHANGES FOR ZION 1 AND 2

Reference: Letter to H. R. Denton (NRC) From P. C. Leonard dated
February 2, 1986, Subject: Zion Nuclear Power Station,
Units 1 and 2 Proposed Amendment to Facility Operating
License No. DPR-39 and DPR-48

Plant Name: Zion Nuclear Power Station, Units 1 and 2
Licensee: Commonwealth Edison Company
TAC Nos.: 55417 and 55418
Review Status: Complete

Zion Units 1 and 2 (CECo) has responded to an NRC request to propose TS to primarily constrain operation of the large (42") containment purge supply and exhaust valves on these units; see reference 1.

The former Plant Systems Branch, Section A, of the Division of PWR Licensing A, requested Section B of the same branch to review the offsite radiological consequences of this proposal.

The enclosed Safety Evaluation Report has been prepared by the technical reviewer initially assigned to this task, namely Robert B. A. Licciardo.

The licensee's proposal is to allow full power operation of the facility with the 42" purge supply and exhaust containment isolation valves open to a limited position of 50°, and capable of isolation within seven (7) seconds of the commencement of a LOCA.

The review concludes that the 42" valves at Zion should remain closed in Modes 1, 2, 3 and 4 because the consequence of the offsite dose to thyroid (from iodine) during a LOCA is unacceptable high; whole body dose has not been evaluated: The least value for the additional offsite dose which may be proposed within the licensing basis is 64,000 rem over the first seven (7) seconds.

The conventional treatment of BTP CSB 6-4 which assumes that fuel failure does not occur over the first 5-15 seconds after a LOCA and thereby that only RCS operating inventory of fission products is released to the containment, and then to the environment, cannot in general be sustained against thermal hydraulic analyses for containment response, and licensing basis requirements (including criteria) for the calculation for, and the occurrence of, fuel damage and the quantification and treatment of resulting source terms.

AP

AV
6/16/88

Daniel Muller

-2-

Our SALP input is provided in Enclosure 2. We consider our efforts on-TAC Nos. 55417 and 55418 to be complete.

Jared S. Wermiel, Acting Chief
Plant Systems Branch
Division of Engineering and Systems Technology

Enclosures:
As stated

cc w/enclosures:
C. Patel

CONTACT: R. Licciardo
X20876

Daniel Muller

-2-

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Plant Systems Branch
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C. Patel

CONTACT: R. Licciardo
X20876

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5520 NAME: Zion TACs 55417/8 Licciardo