



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

April 7, 1978

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Docket No. 50-312

MEMORANDUM FOR: ✓ Darrell G. Eisenhut, Assistant Director for Systems and Projects

Brian Grimes, Assistant Director for Engineering and Projects

FROM: Victor Stello, Jr., Director, Division of Operating Reactors

SUBJECT: TECHNICAL SPECIFICATIONS FOR REACTOR COOLANT SYSTEM HEATUP AND COOLDOWN RATES AND PRESSURE-TEMPERATURE LIMITS

The recent severe cooldown transient at Rancho Seco Unit No. 1 (March 20, 1978) has served to point out a significant deficiency in the present custom and standard technical specifications for RCS heatup/cooldown rates and pressure-temperature limits. The deficiency is that there is no provision which requires prompt shutdown and NRC review following a substantial violation of these limits. Such a requirement would appear to be appropriate under such conditions since gross violations of these limits could threaten reactor vessel integrity. At the same time, it is probably true that minor violations of the limits do not necessarily warrant prompt shutdown and NRC approval of restart. One problem, therefore, is to define the boundary between a minor and a major violation of these limits and to specify the required action for each class of violation.

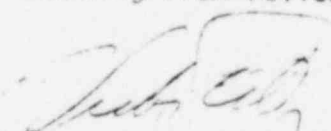
A second problem is determining the susceptibility of nuclear plants to major cooldown transients such as that experienced by Rancho Seco and minimizing this susceptibility. As noted in the attachment the consequences of the Rancho Seco cooldown were significantly ameliorated because the transient occurred fairly early in reactor life. By extension, however, it follows that the consequences might have been more severe if the transient had occurred after the reactor vessel had received a higher neutron exposure.

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In order to address these two problems, it is requested that you:

1. (ADEP) Develop and recommend a criterion to be included in facility technical specifications which will define when a violation of RCS heatup or cooldown rates or pressure-temperature limits will require plant shutdown and NRC approval prior to resumption of operation, and
2. (ADSP) Evaluate the susceptibility of nuclear plants to cooldown transients which could cause violation of the technical specification limits, and recommend any design or procedural modifications that are needed to provide reasonable assurance that such limits will not be significantly exceeded.

It is requested that the recommendation resulting from review of Part 1 of the above request be available within 60 days of the date of this memorandum, and the recommendations resulting from review of Part 2 be available within 180 days.



Victor Stello, Jr., Director
Division of Operating Reactors

Attachment:

D. Eisenhower memo to V. Stello, Jr.,
of March 30, 1978, Sub. "Rancho
Seco Nuclear Generating Station -
Evaluation of the NSS Cooldown
Transient - Docket No. 50-312."

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