

CERTIFIED BY:
Thomas Kress - 6/26/99

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**ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
SEVERE ACCIDENT MANAGEMENT SUBCOMMITTEE MEETING MINUTES
EXEMPTION REQUEST TO HYDROGEN CONTROL REQUIREMENTS AT SONGS
MAY 27, 1999
ROCKVILLE, MARYLAND**

INTRODUCTION:

The ACRS Subcommittee on Severe Accident Management held a meeting on May 27, 1999 with representatives of the Southern California Edison Company (SCE) and the NRC staff. The purpose of this meeting was to review the application of SEC for an exemption to the hydrogen control requirements for the San Onofre Nuclear Generating Station (SONGS). The entire meeting was open to the public. Mr. P. Boehnert was the cognizant ACRS staff engineer and Designated Federal Official (DFO) for this meeting. Mr. R. Christie of Performance Technology provided both written comments and oral statements to the Subcommittee. The meeting was convened by the Subcommittee Chairman at 8:30 am, May 27, 1999, and adjourned at 12:30 p.m. that day.

ATTENDEES

ACRS Members/Staff:

T. Kress, Chairman
M. Bonaca, Member
P. Boehnert, DFO

G. Wallis, Member
R. Seale, Member

NRC Staff:

G. Ho'ahan
M. Snodderly

Southern California Edison

E. Scherer
T. Hook

There were approximately 5-10 other members of the public in attendance during this meeting. A listing of those attendees who registered is available in the ACRS office files. Public participation during this meeting was limited to the presentations by the above named industry representatives.

The presentation slides and handouts used during the meeting are attached to the Office Copy of these Minutes. The presentations to the Subcommittee are summarized below.

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CHAIRMAN'S COMMENTS

T. Kress, Subcommittee Chairman, convened the meeting. He had no specific comments.

SOUTHERN CALIFORNIA EDISON PRESENTATION

Messrs. E. Scherer and T. Hook discussed the SCE request for exemption from the hydrogen control requirements for the SONGS. Issues discussed included: the specifics of the request, the Task Zero pilot projects to risk-inform Part 50, licensing basis for hydrogen control, the SONGS hydrogen control subsystems (recombiners, mixing, purge and vent, and monitoring), and, the basis for a risk-informed exemption (based on Regulatory Guide 1.174 criteria).

Points noted relative to the SCE exemption request were:

- SCE requests elimination of all regulatory requirements for the recombiners and purge subsystems. SCE will maintain the requirements for the hydrogen monitors.
- Elimination of the hydrogen control system is consistent with the move to risk-informed regulation. The system is not needed for accidents based on realistic assumptions, and is not sized to mitigate severe accident conditions. Further, its elimination will result in a reduction in both plant risk and regulatory burden.
- SCE detailed the basis for the exemption request based on risk-informed arguments pursuant to the concepts in Regulatory Guide 1.174. These arguments centered on defense-in-depth, quantification of safety margins (to containment failure), and the impact on plant risk. Key points noted included: the hydrogen control systems are only useful for a small category of DBAs, based on realistic accident scenarios, hydrogen flammability limits are not exceeded until 30 days post accident, there is a large margin to containment failure from a hydrogen burn given a severe accident - the SONGS large-dry containment can withstand a worse-case burn assuming a hydrogen concentration of 11.5%.
- The severe accident management guidelines (SAMGs) provide guidance for plant recovery if the recombiners and purge system are unavailable.

Mr. Scherer said that SCE has agreed not to remove the hydrogen control equipment. It will be classified as "non-safety related", be referred to in the SAMGs, and will be used on an "as available" basis. Further, SCE will notify the NRC staff if it intends to abandon this equipment in the future.

During discussion of the above, the following points were noted:

- SCE will not remove hydrogen mixing capability from the licensing basis. Further, the recombiners will be maintained if it is not cost prohibitive (e.g., SCE indicated that if repair costs were on the order of, say, \$1M, they would not be repaired).
- In response to Dr. Wallis, SCE indicated that the knowledge gained over the 20 years, post-TMI have lead to the understanding that this equipment is not needed.
- Mr. Holahan noted that the issue of granting regulatory credit for voluntary actions by licensees is under review by the staff. The staff believes that use of voluntary actions to address some regulatory issues has merit. For issues involving backfit considerations, one needs to be more cautious.
- In response to Dr. Wallis, Mr. Holahan said that this review was a test of the principle of "letting go" of regulatory requirements that are demonstrated to be of low risk significance.

NRC STAFF PRESENTATION

Mr. M. Snodderly, NRR, made the following points in his presentation:

- Based on the NUREG-1150 analysis of severe accidents consequences, failure of large dry containments due to a hydrogen burn is unlikely.
- Hydrogen recombiners are of value for preventing a subsequent burn in containment from long-term buildup of hydrogen due to radiolysis. While the staff agrees with SCE that hydrogen control issues are best dealt with via the SAMGs, the licensee has not committed to keep use of recombiners in the SAMGs. The staff is working with SCE to determine if any regulatory assurance is needed.
- The exemption request is based on 10 CFR 50.12. SCE has demonstrated that, pursuant to 50.12, SONGS can withstand an uncontrolled hydrogen-oxygen recombination (as directed by 50.44(d)(1)) without loss of safety function.

- The staff will require SCE maintain continuous hydrogen monitoring capability, given the need to monitor hydrogen concentration prior to obtaining and analyzing grab samples (up to a three hour delay).
- SCE meets the requirements for purge capability via a 8-inch, 10-psid design vent and a hardened (150 psid) 6-inch vent.

In response to Dr. Kress, NRR noted that for the near term similar requests for relief from hydrogen control requirements will be handed via exemption; for the long term, the staff envisions a rule change as part of risk-informing Part 50.

COMMENT FROM R. CHRISTIE

Mr. R. Christie, Performance Technology, provided comments relative to the "Whole Plant Study" effort. He discussed the history of the Task Zero exercise. He strongly endorsed the SCE exemption request and, noting that the hydrogen control system is not risk significant, urged that SCE's request be granted.

Members of the Subcommittee took issue with some of Mr. Christie's statements, pointing out that we do not have a full understanding of severe accident phenomena, therefore, the uncertainties must be dealt with. In particular, since the capability of this equipment has value for instances where risk analyses are weak, just ripping it out is not a prudent regulatory approach.

SUBCOMMITTEE CAUCUS

The Subcommittee agreed that this matter should be brought to the full Committee for review during its June Meeting. Dr. Kress instructed the SCE and NRC representatives regarding the content of its presentations before the ACRS. The Subcommittee Chairman indicated that he did not, at this time, see the need for formal Committee comments on this matter.

FOLLOW-UP ACTIONS

No specific follow-up actions were identified during this meeting.

BACKGROUND MATERIAL PROVIDED TO THE SUBCOMMITTEE PRIOR TO THIS MEETING

1. Memorandum, dated May 18, 1999 from P. Boehnert ACRS to ACRS Severe Accident Management Subcommittee Members, transmitting:

- Memorandum to T. Kress, ACRS, from P. Boehnert, ACRS staff, dated March 19, 1999, Subject: NRC Staff Meeting with SCE - Exemption Request from Hydrogen Control Requirements for the SONGS, March 17, 1999
- Letter, dated September 10, 1998, to U.S. NRC from D. Nunn, SCE, Subject: Request for Exemption from Hydrogen Control Requirements

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NOTE: Additional details of this meeting can be obtained from a transcript of this meeting available in the NRC Public Document Room, 2120 L Street, Washington, D.C. 20006, (202) 634-3274, or can be purchased from Ann Riley & Associates, LTD., 1025 Connecticut Ave., NW, Suite 1014, Washington, D.C. 20036, (202) 842-0034.