



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D.C. 20555-0001

ACRSR-1863

PDR

November 12, 1999

Dr. William D. Travers  
Executive Director for Operations  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Dr. Travers:

**SUBJECT: PROPOSED RESOLUTION OF GENERIC SAFETY ISSUE (GSI)-148, "SMOKE CONTROL AND MANUAL FIRE-FIGHTING EFFECTIVENESS"**

During the 467<sup>th</sup> meeting of the Advisory Committee on Reactor Safeguards, November 4-6, 1999, we completed our review of the proposed resolution of GSI-148, "Smoke Control and Manual Fire-Fighting Effectiveness." During our review, we had the benefit of discussions with representatives of the NRC staff. We also had the benefit of the documents referenced.

Conclusion and Recommendation

- We concur with the staff's proposal for resolving GSI-148.
- Section 3 of Reference 1 should be revised to include guidance on addressing the effects of smoke on manual fire fighting.

Discussion

Smoke has a major influence on fire brigade response times and can hamper the operators' ability to shut down the plant safely. GSI-148 has been classified as a "licensing issue." The staff proposed that plant-specific reviews be performed to evaluate the significance of this issue. Such reviews have been performed as part of the Individual Plant Examination of External Events (IPEEE) program.

On the basis of IPEEE submittals and fire brigade training programs, and observations made by resident inspectors, the staff believes that smoke control and manual fire-fighting effectiveness have been adequately addressed.

In Reference 1 the staff discusses how smoke can impact plant risk, however, the effects of smoke are not addressed in Section 3 of this document that discusses review guidance for the staff. This section should be revised to include guidance for use by the staff in evaluating the impact of smoke on manual fire-fighting effectiveness.

Licensee assessments have focused on the localized effects of smoke on manual fire fighting. Smoke can spread well beyond the area of generation and create immediate and delayed

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effects on instrumentation and control circuits. These effects of smoke are not being addressed in GSI-148. The Office of Nuclear Regulatory Research is studying the effects of smoke from cable fires on digital electronic circuits. The results of this study should help to assess the potential impact of these effects.

Based on the results of the staff review of IPEEE submittals to date, anticipated revision to Section 3 of Reference 1, and the research activities in the area of smoke propagation, we agree with the staff's proposal to resolve GSI-148.

Sincerely,



Dana A. Powers  
Chairman

References:

1. Memorandum dated July 22, 1999, from Thomas L. King, Office of Nuclear Regulatory Research, NRC, to Ashok C. Thadani, Office of Nuclear Regulatory Research, NRC, Subject: Staff Review Guidance for Generic Safety Issue (GSI) 148, "Smoke Control and Manual Fire-Fighting Effectiveness."
2. U. S. Nuclear Regulatory Commission, Generic Letter No. 88-20, Supplement 4, "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities - 10 CFR 50.54(f)," dated June 28, 1991.
3. SECY-89-170, "Fire Risk Scoping Study: Summary of Results and Proposed Staff Actions," dated June 7, 1989.
4. U. S. Nuclear Regulatory Commission, NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," June 1991.