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**POLICY ISSUE**  
(Notation Vote)

SECY-90-375

November 7, 1990

For: The Commissioners  
From: James M. Taylor  
Executive Director for Operations  
Subject: FINAL VERSION OF NUREG-1150

Purpose: To summarize changes made to NUREG-1150 (Second Draft for Peer Review) as a result of peer reviews, and to transmit the final version of the report.

Background: NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants," was first published in February 1987 as a draft for comment (under the title "Reactor Risk Reference Document"). Extensive public comments were received on the report, and three independent peer reviews, as well as a review by the Advisory Committee on Reactor Safety, were performed. As a result of these reviews, substantial changes were made to the underlying risk analyses and to the report itself. A new version of NUREG-1150 was transmitted to the Commission in SECY-89-121 and published in June 1989. Because of the extent of negative comment on the first draft, this version of NUREG-1150 was published as a second draft for peer review. As described in SECY-88-337 and 89-179, an international peer review committee was established under the provisions of the Federal Advisory Committee Act, and was chaired by Dr. Herbert J.C. Kouts.

The peer review committee completed its work and briefed the Commission on June 20, 1990. The final report of the committee, as well as the final report of the American Nuclear Society's review, were transmitted to the Commission in SECY-90-296, and subsequently published. Both committees recommended that NUREG-1150 be issued in final form as soon as possible, but recommended that some modifications be made, if practical, to the report before final publication.

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NOTE: TO BE MADE PUBLICLY AVAILABLE  
WHEN THE FINAL SRM IS MADE  
AVAILABLE

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In parallel with the reviews noted above, the Advisory Committee on Reactor Safeguards has continued its review of NUREG-1150. Its technical review was completed in October 1990; a letter providing its comments is expected to be completed at their November 1990 meeting.

Discussion:

The staff has now completed its changes to NUREG-1150; a final version of the report is enclosed. The principal changes made to the report are:

- o A sensitivity study has been performed to account for changes made to the Zion plant to deal with a particular design dependency found important in NUREG-1150. This dependency was such that a complete loss of service water or component cooling water could lead to a small loss of coolant accident (via failed reactor coolant pump seals) and failure of the emergency core cooling system equipment needed to cope with such a LOCA. Recent changes made to the Zion plant to reduce the dependency of the ECCS on service and component cooling water have reduced the estimated core damage frequency and risk by roughly a factor of four. This plant change and resulting benefit have been noted where appropriate in the final version of the report.
- o The portion of NUREG-1150 providing perspectives on the risk analyses performed (Chapters 8 through 12) has been updated to reflect better the detailed results contained in the numerous underlying contractor reports.
- o Appendix C of the report, which provides supplemental technical detail on key issues, has been updated and expanded to include discussion of additional key issues.
- o A new appendix (Appendix E) has been provided which summarizes the comments made on the second draft of NUREG-1150 and provides, where appropriate, staff responses.
- o A number of minor editorial changes have been made.

The staff believes that these modifications account for the majority of changes suggested by either committee. The staff also notes, however, that a few suggested changes could not be made, most notably the provision of displays of dose versus distance. In these latter cases, significant reanalysis of the risk models would have been required, and

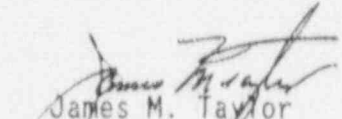
this would have led to a substantial delay in final publication of the report.

Conclusions and Staff Actions:

In a May 12, 1989 staff requirements memorandum, the staff was informed that the Commission will "consider issuance of the final version of NUREG-1150 following the comments from the Peer Review Committee and staff recommendations."

Recommendation:

The staff recommends that the Commission approve the enclosed final version of NUREG-1150 for publication.

  
James M. Taylor  
Executive Director  
for Operations

Enclosure:

Final Version of NUREG-1150 - Commissioners,  
SECY, OGC, only

Commissioners' comments or consent should be provided directly to the Office of the Secretary by COB Friday, November 30, 1990.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Friday, November 23, 1990, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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