

September 16, 1992

MEMORANDUM FOR: James M. Taylor, Executive Director
for Operations

FROM: Samuel J. Chilk, Secretary /S/

SUBJECT: SECY-92-219 - NRC-SPONSORED CONFIRMATORY
TESTING OF THE WESTINGHOUSE AP-600 DESIGN

This memorandum supplements the August 11, 1992, memorandum that authorized the staff to proceed with the AP-600 confirmatory test program at the ROSA-V facility.

The Commission has agreed that the staff has provided adequate justification for sole-source procurement of services and components necessary for modification of the ROSA facility to support AP-600.

Staff should provide, when available, for Commission information, (1) a copy of the final contract(s), (2) information on how the intellectual property issue was resolved, (3) similar information on non-disclosure agreements, and (4) information on the test program matrix and instrumentation. The ACRS should be consulted on the adequacy of the test matrix and proposed modifications and additions to the ROSA facility, including instrumentation and controls, prior to carrying out the proposed test program.

The Commission has agreed on a triple concept of (1) continuing development and extrapolation of our thermal-hydraulic codes, (2) reconstituting an outside group with expertise in thermal-hydraulic model and code development, and (3) maintaining world class status of our staff in the thermal-hydraulic sciences.

SECY NOTE: THIS SRM AND THE SUBJECT SECY PAPER WILL BE MADE PUBLICLY AVAILABLE IN 10 WORKING DAYS FROM THE DATE OF THIS SRM.

The Commission recognizes that NRC-sponsored thermal-hydraulic computer codes have a long history of extensive development and assessment against test data from LOFT, ROSA, SEMISCALE, MIST, FIST, PKL, 2D/3D, and many other test facilities. These codes are used internationally by every major country with nuclear power plants and are used domestically by the nuclear industry. However, the codes now have to be applied to new designs with passive safety features under thermal-hydraulic conditions for which they may not have been adequately assessed.

In this regard, the research effort is extremely important. The staff should, therefore, be involved to the fullest extent possible in pre-and post-test analytical efforts associated with both vendor- and NRC-sponsored thermal hydraulic-test activities in order to enhance staff knowledge and expertise.

The Commission endorses the ACRS's recommendation to establish a review group of outside experts in thermal-hydraulic model and code development and other related specialties. The staff should seek assistance from members of the review group to assess the development, improvement, and maintenance of our analytical tools and experimental programs necessary to perform independent evaluations of new reactor designs.

The review group should be composed of knowledgeable individuals with hands on experience in code/model development, applications, and thermal-hydraulics scaling methods. Membership on this review group should consist of individuals other than the ACRS consultants, NSRRC members, and consultants to the staff that have recently provided views and recommendations on this topic. Staff should submit, for Commission approval, the list of recommended members for the review group (including a brief description of their qualifications).

(EDO)

(SECY Suspense: 9/30/92)

The staff and the review group should initially concentrate on the models being proposed for AP600 and SBWR analysis and on the adequacy of the supporting experimental data base. Subsequently, the review should be broadened to an assessment of the overall status of the NRC's thermal-hydraulic research and analytical capabilities. The staff should also carefully consider the ACRS recommendation of possible additional separate effects tests to support the modeling needs for the passive plant designs (primary, secondary, and containment systems modeling). Based on this assessment and the staff's considerable experience in this area, the staff should prepare for Commission review and approval a status report on the adequacy of our codes and models for analyzing and reviewing passive plant designs, and an action plan for further validation and refinement.

In the event that shortcomings in NRC's computer programs for auditing vendor's submittals of passive plant design features are identified, timely input from the review group is needed. The Commission requests that the staff report any relevant initial findings before the end of the calendar year. Thereafter, the staff should periodically report the status of the review, and any findings to the Commission.

(EDO)

(SECY Suspense: 12/30/92)

cc: The Chairman
Commissioner Rogers
Commissioner Curtiss
Commissioner Remick
Commissioner de Planque
OGC
OIG
CAA
ACRS