

January 13, 1999

FOR: The Commissioners

FROM: William D. Travers /s/  
Executive Director for Operations

SUBJECT: PROPOSED COMMERCIAL USE OF NRC-DEVELOPED CODES BY NON-U.S. ORGANIZATIONS

## PURPOSE:

To respond to a Staff Requirements Memorandum and to forward to the Commission the staff's recommendation clarifying permissible uses of NRC codes by international organizations under the Cooperative Severe Accident Research Program (CSARP) and Cooperative Probabilistic Risk Assessment Program (COOPRA) agreements. The recommended clarifications are similar to those approved by the Commission for the NRC thermal-hydraulic codes obtained by international organizations under the Code Applications and Maintenance Program (CAMP) agreements.

## BACKGROUND:

In the Staff Requirements Memorandum, "SECY-97-134 - Commercial Use of NRC-Developed Thermal-Hydraulic Codes by Non-U.S. Organizations," dated August 13, 1997, the Commission approved the staff's proposal to define more explicitly the permitted commercial uses of NRC-developed thermal-hydraulic codes by international organizations. The staff's proposal allowed non-U.S. entities to perform safety analyses with NRC-developed thermal-hydraulic codes for commercial purposes in the non-U.S. market, but prohibited them from competing in the U.S. or from using the codes as a design tool for new reactor designs or for other commercial purposes. The Commission directed the staff to seek Executive Branch review and clearance (which is coordinated through the U.S. Department of State), before proceeding with the proposed modifications to the CAMP agreements. For the longer term item, the Commission directed the staff to take a broader look at other NRC-developed codes and to explore with the Executive Branch the advantages and disadvantages of further lifting restrictions on the use of codes by foreign organizations. The Commission directed that the staff take into account the need for (a) consistency with the policies of other government agencies and (b) intellectual property rights (IPR) protection, and be accomplished in consultation with the Office of the U.S. Trade Representative.

## DISCUSSION:

As a result of the Department of State's review of the modifications discussed in SECY-97-134, the NRC was granted Executive Branch clearance to incorporate the limited commercial use clauses in the CAMP agreements. In pursuing the long-term action item to take a broader look at other NRC-developed codes, the staff found that the only other codes (besides the thermal-hydraulic codes) that place commercial use restrictions on foreign organizations are related to the severe accident and probabilistic risk assessment (PRA) programs. Codes such as MELCOR and SCDAP/RELAP5 are made available to the international community through the CSARP. PRA codes, e.g., SAPHIRE, are made available through the COOPRA. Regarding the advantages and disadvantages of further lifting restrictions on the use of codes by foreign organizations, two options, similar to those presented in SECY 97-134, were considered. (Both options are explored in greater detail in the "Discussion Paper on Possible Commercial Use of U.S. Nuclear Regulatory Commission (NRC)-Developed Codes by Non-U.S. Organizations," which is part of [Attachment 1](#).)

**Option 1**

Lift all restrictions on commercial use by foreign organizations.

By deleting the restrictions on commercial use of the codes, the NRC would help to ensure that international participation in CAMP, CSARP and COOPRA would be maintained. This action would likely improve worldwide safety assessment, since the NRC codes would be more widely used by the international community. Furthermore, the in-kind contributions from the participant countries would allow for a more extensive code assessment and maintenance effort, thereby increasing the quality of the codes. The disadvantage of this option involves the appearance that the NRC would, in effect, be subsidizing international organizations' competitive status and that U.S. entities would have to contend with potentially enhanced competition in the international market.

**Option 2**

Eliminate commercial use restrictions by foreign organizations but prohibit (1) commercial use to develop a new reactor design and (2) use in the U.S. market, unless it is by a U.S. subsidiary.

This option was approved in the SRM dated August 13, 1997, for the CAMP agreements.

The agreements can be modified to define more specifically the meaning of commercial use that is consistent with the agreements' original intent, i.e., the intent of NRC in providing the codes to the international community that they be used to promote and enhance nuclear safety worldwide and not to defray or eliminate code development costs by international organizations. Under this option, international users could perform safety analyses with the codes in the non-U.S. market, but could not use them to compete in the U.S. market, unless used by a U.S. subsidiary of the foreign entity. This option would contribute to continued international participation in NRC's code programs, benefit NRC code development, and also enhance worldwide reactor safety assessment.

The disadvantage of this alternative is that it could give some foreign organizations the opportunity to compete against U.S. companies in the non-U.S.

market for commercial applications.

#### COORDINATION:

As directed by the Commission, the staff requested Executive Branch review of the above options (see [Attachment 1](#)). Department of Energy personnel requested a meeting with the staff. Members of the NRC staff met with DOE personnel at DOE Headquarters. The DOE reviewers uniformly expressed serious reservations about Option 1, particularly because (a) countries and/or foreign organizations can be expected to start copyrighting the NRC codes once they have made improvements to the codes, (b) in the absence of securing a copyright, there are substantial questions about whether adequate mechanisms exist to enforce any agreement between a foreign government entity and any private (third party) entity which it permits to use the NRC codes for commercial purposes, (c) there are no provisions to create or preserve an advantage for U.S. companies in either the domestic or the international markets, even though these codes have been developed with U.S. taxpayer monies, and (d) some NRC-partner foreign institutes/organizations may be encouraged to broaden their use of NRC-supplied thermal-hydraulic codes beyond civilian reactor safety. The DOE reviewers indicated no problems with or objection to Option 2. A summary of the DOE meeting is provided in [Attachment 2](#).

DOE raised an issue for NRC to consider in conjunction with either option: the need to copyright or trademark all the codes. If the U.S. Government were to copyright or trademark the codes with NRC as the administrator, the NRC could strengthen or loosen control over the codes as necessary. This issue does not impact the decision requested in this paper, but the staff is considering it as a separate issue. If the staff determines that copyrights or trademarks are desirable, a paper will be forwarded to the Commission for its decision.

Department of Commerce personnel requested a conference call. The Commerce reviewers felt that Option 1 needed much more detailed analysis of the issues involved before any informed decision could be made. They found acceptable a lifting of the commercial use prohibitions so long as there is a restriction against any use in areas/activities specifically excluded under Section 744.2 of the Export Administration Act: nuclear weapons, unsafeguarded fuel cycle facilities, and chemical and biological warfare. They had no concerns about or objections to Option 2. A summary of the Department of Commerce conference call is provided in [Attachment 3](#).

The other agencies surveyed, viz. the Department of State, the U.S. Trade Representative, the Office of Science and Technology Policy, and the Office of Management and Budget, indicated that they saw no need for direct involvement in the issue.

None of the reviewing agencies identified any problems with NRC's continued use of current IPR provisions.

Within NRC, the Office of the General Counsel has reviewed this paper and has no legal objections. OIP coordinated the Executive Branch review. Both offices participated with RES in the development of the Discussion Paper provided in [Attachment 1](#).

#### RECOMMENDATION:

In light of serious concerns with Option 1 voiced by DOE and the Commerce Department's advice that some commercial restrictions must be maintained, and because neither agency had any objections to Option 2, the staff recommends Option 2, which would provide clarification in the COOPRA and CSARP agreements on commercial use of the codes similar to that added in 1998 to the CAMP agreements.

William D. Travers  
Executive Director for Operations

Contact: A. Notafrancesco, RES/DST/AEB  
415-6499  
D. Chaney, OIP  
415-2644

[Attachments:](#)

1. Letter dated October 30, 1998 from R. Hauber to Multiple Addressees
2. Consultations with the Department of Energy (Summary)
3. Conference call with the Department of Commerce (Summary)