

March 12, 2003

MEMORANDUM TO: Chairman Meserve  
Commissioner Dicus  
Commissioner Diaz  
Commissioner McGaffigan  
Commissioner Merrifield

FROM: William D. Travers */RA/*  
Executive Director for Operations

SUBJECT: INTERNATIONAL COOPERATION ON NEW REACTOR DESIGNS

PURPOSE:

To inform the Commission of the staff's intentions to participate in trilateral cooperative efforts with the Canadian Nuclear Safety Commission (CNSC) and Britain's Nuclear Installations Inspectorate (NII) on issues relating to new reactor designs that may be built domestically as well as in Canada and the United Kingdom. This document provides details on the proposed level of cooperation between the three regulatory agencies.

BACKGROUND:

The U.S. Nuclear Regulatory Commission (NRC) has existing general cooperation arrangements with Canada and the United Kingdom on a variety of subjects including information exchange, emergency notifications, sharing of technical information (including proprietary and privileged information), personnel exchanges, and cooperation in safety research. This paper does not recommend any changes in current NRC policy or arrangements with other countries.

By letter dated March 28, 2002, Westinghouse Electric Company (Westinghouse) submitted its application for final design approval and standard design certification for the AP1000. The staff has completed its acceptance review of the AP1000 design certification application and is in the process of performing the safety review. NII has recently received a request for pre-licensing action from Westinghouse on this same design. CNSC has not been contacted by Westinghouse regarding AP1000 licensing actions.

By letter dated June 19, 2002, Atomic Energy of Canada Limited (AECL) requested that the NRC begin a pre-application review of the Advanced CANDU Reactor (ACR-700) design. Additionally, AECL has requested that a similar review be conducted by NII (United Kingdom) and the CNSC (Canada).

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On October 16 and 17, 2002, members of the Office of Nuclear Reactor Regulation (NRR) and the Office of Nuclear Regulatory Research (RES) met with members of NII and the CNSC in Ottawa, Ontario. The purpose of the meeting was for the three regulatory agencies to begin discussions on proposed cooperative efforts on the ACR-700 and the AP1000. The meeting was predicated upon three options that the staff had agreed to explore:

- (1) The NRC could cooperate in confirmatory research or testing with other regulatory agencies, but each agency would make its own assessment of the results of research or testing. The staff could cooperate in interpreting the results with other regulatory agencies, but each agency should interpret them independently.
- (2) The NRC could share technical information on new designs with other regulatory agencies, including proprietary and safeguards information under appropriate arrangements.
- (3) Regulatory agencies could investigate common safety concerns in a cooperative manner, but each agency would make its own final safety determination.

The meeting included overviews of the reactor designs, each country's licensing and regulatory framework, current review plans for each design, current challenges with the operating CANDU reactors, and current issues with the AP1000 design certification review process. A brainstorming session on proposed approaches to sharing relevant information, funding of research efforts, personnel exchanges, and protocol for future meetings with applicants followed.

#### DISCUSSION:

Considering the fact that foreign regulatory authorities would be reviewing identical reactor designs, the staff has been exploring some options that support the sharing of technical information, operating experience, and safety concerns among regulators. International cooperation establishes the framework for NRC to gain access to non-U.S. safety information which can alert us to potential safety problems and help us improve safety reviews by sharing and discussing safety-related issues raised by foreign regulators. The options proposed for cooperation should improve the process for the agency to make decisions based on technically sound and realistic information available to all regulators, provide the agency with valuable lessons learned and opportunities for reducing unnecessary regulatory burden; as well as, enhance the integration of international activities in the NRC.

The three regulators agreed upon some initial bounding conditions for cooperation. These include:

- 1) No regulator would comment on the suitability of sites outside of its country, including emergency planning guidelines. However, all regulators will share their evaluations of the susceptibility of the reactor design to external events such as earthquakes, external fires, and flooding.

- 2) Management Directive 3.5, "Public Attendance at Certain Meetings Involving the NRC Staff," details the NRC's policy on opening meetings to the public. The three regulators agreed that they would not enter into any agreement that would negatively impact this policy.
- 3) Management Directive 3.4, "Release of Information to the Public," details the NRC's policy on the availability of documents to the public. The three regulators agreed that they would not enter into any agreement that would negatively impact this policy.

The staff considers the existing general cooperation arrangements with Canada and the United Kingdom to encompass most, if not all, of the three options for cooperative efforts the staff agreed to explore. One noted exception is the sharing of safeguards information, included in option (2), as an area to explore for cooperative efforts. The three regulatory bodies agreed that the sharing of safeguards information for the purpose of design reviews may not be necessary. However, if it becomes necessary to share safeguards information with Canada or the United Kingdom, the staff will obtain Commission approval as required by Title 10 of the *Code of Federal Regulations* (10 CFR) Section 73.21, "Requirements on the Protection of Safeguards Information."

Other areas of possible information sharing that were discussed include:

- (1) Proprietary information The sharing of proprietary information directly among regulators and the associated requirements for safeguarding proprietary information are addressed in the NRC's agreements with the CNSC and NII. While this option may be exercised, the three regulators agreed that the most desirable arrangement would be to request that information directly from the vendor.
- (2) Pre-decisional or other privileged information The sharing of pre-decisional or privileged information directly between regulators and the associated requirements for safeguarding information are addressed in the NRC's agreements with the CNSC and NII. The three regulators agreed that this type of information of common interest should be shared during the review process in order to enhance communications on possible regulatory positions that may affect another agency.
- (3) Probabilistic risk analysis (PRA) information and operating experience The CNSC has significant operating experience with CANDU reactors. Additionally, the CNSC has also reviewed PRA information for the operating CANDU reactors. For example, CNSC has significant experience in validating thermohydraulic codes using CATHENA. The NRC has no experience with the CATHENA code including its validation. Some countries have performed thermohydraulic code analysis for previous CANDU designs using the RELAP 5 code. The CNSC has offered to share applicable information with the NRC and NII, including providing assistance in building an input deck for the TRAC-M code. Any hardware or software issues will need to be identified early to support this effort.

- (4) Review plans and schedules The three regulators intend to share any review plans or schedules with other regulators that are reviewing the same design. The purpose of this interaction is to ensure that each agency has a common understanding of the other agency's plans and to allow for feedback. Formal concurrence on the review plans and schedules will not be part of this effort.
- (5) Technical staff interaction The three regulators agreed in principle that each agency's cognizant technical staff will consult on technical aspects of their reviews at the appropriate time. The three regulators also discussed logistical arrangements associated with these efforts.
- (6) Combined research efforts Each regulator approaches the validation of test data in a different manner. For example, the CNSC performs limited research and relies upon research results submitted by the applicant. Mostly, the CNSC directs vendor's research efforts to resolve known or potential safety issues, and then makes independent judgments of the results. The three regulators agreed that there is an opportunity for each regulator to cooperate in confirmatory research or testing with other regulatory agencies. However, each agency will make its own assessment of the research or testing.

The regulators also discussed protocol for the meetings with the applicants. The three regulatory agencies agreed to invite the other regulators to meetings with applicants in their respective countries. Each regulator will designate a single point of contact for distribution of information and coordination of activities. The point of contact in each regulatory agency will be the project manager for the reactor design under review. In the U.S., the CNSC and NII will participate in these public meetings as interested parties or members of the public. Questions received during these public meetings, including technical questions, will be addressed in accordance with current procedures by cognizant NRC staff. Each host regulatory agency will ensure that other regulators are informed of the results of these meetings. This agreement with the CNSC and NII is consistent with Management Directive 3.5, "Public Attendance at Certain Meetings Involving the NRC Staff" and Management Directive 3.4, "Release of Information to the Public."

#### CONCLUSIONS:

The staff will proceed with the following actions.

- Engage in collaborative efforts, that support cooperation in confirmatory research or testing with CNSC and NII on the review of the Advanced CANDU reactor (ACR-700) and the AP1000 designs.
- Engage in collaborative efforts with CNSC and NII to provide international regulatory and technical information exchange on new reactor designs, under appropriate arrangements.
- Engage in collaborative efforts with CNSC and NII to investigate common safety concerns and areas for international safety cooperation and assistance.
- Request Commission approval before sharing safeguards information with other governments or regulatory bodies.

The staff will consider similar collaborative efforts on other new reactor designs with other regulators, as appropriate. The Commission will be advised in advance if the staff decides to proceed with such efforts.

These collaborative efforts could provide accident and incident analyses information, including lessons learned, which could be directly applicable to the safety of new nuclear power plants both domestic and foreign. They facilitate NRC's strategic goal to support U.S. interests in the safe and secure use of nuclear materials and in nuclear nonproliferation both at home and abroad.

COORDINATION:

This document has been coordinated with the Office of International Programs. The Office of the General Counsel has no legal objection to this paper.

cc: SECY  
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\*See previous concurrence

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OFC	OGC*	RES*	NRR/ADIP*	D:NRR*	NSIR	EDO
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