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POLICY ISSUE
NOTATION VOTE

April 30, 2007 SECY-07-0076

FOR: The Commissioners

FROM: Janice Dunn Lee, Director
Office of International Programs

SUBJECT: PROPOSED PLAN FOR COOPERATION WITH CHINA ON THE AP1000

PURPOSE:

To provide the Commission with the staff's proposed response to the Chinese request for immediate and extensive cooperation regarding the AP 1000 power reactor. The staff proposes implementing a non-binding Memorandum of Cooperation (MOC) between NRC and its Chinese counterpart to serve as the basis for this cooperation (b)(4) (b)(4) (b)(4) A Commission vote on the proposed plan of cooperation and the MOC is requested.

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SUMMARY:

The Chinese National Nuclear Safety Administration (NNSA) has requested extensive cooperation and assistance from NRC on the design review, construction, and inspection of the four AP 1000 power reactors China has decided to purchase from Westinghouse. (b)(5) (b)(5)

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The staff has reviewed the NNSA request for cooperative activities and assistance and has developed a proposed plan it believes to be of mutual benefit. The staff proposes a non-binding MOC stating NRC's intent to cooperate and agreement to explore methods to provide access to relevant research programs after an Executive Branch review. Among other things, the proposed MOC establishes an NRC/NNSA Steering Committee, which would meet annually to establish the parameters of the cooperation and serve in an advisory capacity once work is underway. (b)(5)

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BACKGROUND:

On December 16, 2006, the Chinese government signed a Memorandum of Understanding (MOU) with the U.S. Department of Energy (DOE) concerning the purchase of four Westinghouse AP1000 reactors. The following day, the NNSA submitted a request to NRC to initiate discussions on NRC-NNSA cooperation in this area, in response to which the Director of the Office of International Programs (OIP) and the Deputy Director of the Office of New Reactors (NRO) met with NNSA representatives in Beijing the following month. (b)(5)

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(b)(5) NNSA proposed that the draft MOU be signed in May 2007 during the scheduled US-Sino Strategic Economic Dialogues (SEDs), with the goal of initiating cooperation immediately. The SEDs are an Executive Branch led initiative intended to engage China on major economic issues currently facing both countries. The first set of SEDs was held in December 2006 in Beijing and included the signing of the MOU with DOE on the AP1000 sale.

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An NRC-NNSA Protocol for Cooperation, which is the agency-to agency umbrella arrangement for Technical Information Exchange and General Cooperation with China, currently exists and was last renewed for a five year period on April 23, 2004. The Protocol, which is a binding

international agreement, is broader in terms of general cooperation on nuclear safety, unlike the MOC which is specific to cooperation on the AP1000. (b)(5)

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(b)(5) Further, the staff proposed that, in keeping with the MOC's terms, the first NRC-NNSA Steering Committee meeting be tentatively scheduled for Fall 2007 to further negotiate the scope of cooperative work between the agencies.

DISCUSSION:

Executive Branch Review

In keeping with U.S. foreign policy requirements, the staff is closely coordinating the development of the MOC, the proposed plan of work, the review of a revised NRC-NNSA Protocol for Cooperation, and NNSA access to CAMP and CSARP, with the Executive Branch. When Executive Branch clearance is received on sensitive areas of cooperation, the staff is prepared to work with China on the regulatory aspects of construction of the AP1000 units. Other existing concerns with China are also being coordinated closely with the intelligence community.

MOC

During the March 2007 meeting, NNSA requested that the MOC signing coincide with the signing of the final contract with Westinghouse in May 2007. (b)(5)

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Typically, foreign regulators are invited to participate in the NRC's cooperative research programs subject to their signing of an international implementing agreement which specifies the terms of their participation, including cash contribution to defray the cost of code development and assessment and/or in-kind contributions in the form of analysis on data to the program. These agreements fall under the umbrella of the agency-to-agency Arrangements for Technical Information Exchange and General Cooperation that OIP administers. The NRC-NNSA Protocol serves this purpose, but the current version was developed largely from 1981 text and does not contain the binding language necessary for full cooperation usually found in other arrangements the NRC has with foreign counterparts.

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Proposed Areas of Technical Cooperation

The technical areas of cooperation the Chinese have identified fall within the scope of responsibilities of NRO and the Office of Nuclear Regulatory Research (RES). The staff's proposed plan for addressing the request is discussed below.

Proposed Areas Addressed by NRO

In its original proposal, NNSA requested that the NRC provide extensive support on technical materials and consultation on the nuclear safety review, the inspection of key nuclear components, and personnel training. Under the proposed course of action, NRC staff would provide NNSA with information in the areas of new license application review, technical reviews, and vendor and construction inspections. While NRC would incur some increased costs in these areas of support, the staff would benefit from access to the AP1000's first-of-its-kind engineering and design changes, and Quality Assurance (QA) oversight of vendors and construction activities, well in advance of when those activities could occur domestically. This will provide opportunities for training and lessons learned on the AP1000 which could not otherwise be realized.

Exchange of Publicly-Available Documents

The staff proposes to provide NNSA with publicly-available documents relevant to the review and approval of the AP1000 design and construction, including rules, guidance documents,

safety evaluations, independent test and analysis reports, review questions and responses. Release of non-public documents will be addressed on a case-by-case basis. The staff intends to refer the NNSA to Westinghouse for access to any requested proprietary information.

Resources: While sharing these documents will not provide any direct benefit to the NRC, there will also be no associated costs, as staff is already compiling them for use in its review of the COL applications.

Technical Consultation and Training

NNSA has requested technical consultation for assistance in carrying out regulatory reviews on the AP1000. This would include review, comments, and recommendations on the NNSA's Safety Evaluation Report (SER) on the Preliminary Safety Analysis Report (PSAR) and the Final Safety Analysis Report (FSAR), environmental reviews, and related questions and responses. Such consultation would fall into two categories: (1) topics for which the NRC has completed its review during the design certification process; and (2) new topics not yet resolved by the NRC, such as design changes, Design Acceptance Criteria, piping, instrumentation and controls, and first-of-its-kind engineering. The staff envisions that this could consist of the exchange of documents and written recommendations and comments, as well as the exchange of personnel to perform on-the-job training. With respect to personnel exchanges, NNSA proposed that selected NNSA staff have three to six months of on-the-job training at NRC; and that selected NRC experts present one to two weeks of specialized training seminars in China. NNSA has offered to fund the travel and living expenses for NRC staff who would provide training in China.

This portion of the NNSA's proposal is consistent with elements of the Multinational Design Evaluation Program (MDEP) Stage 1 program for sharing information on the Evolutionary Power Reactor (EPR) design review and its U.S. counterpart, the U.S. Economic Pressurized Reactor. Specific activities with China would differ from those in the MDEP Stage 1 because the EPR and AP1000 projects are at different stages (i.e., the AP1000 design is certified by the NRC while the EPR design certification application has yet to be submitted). Staff expects to receive minimal, if any, benefit from the review of NNSA documents related to areas that the NRC has already reviewed and approved in its AP1000 design certification. However, staff anticipates that the review of information related to new technical issues could provide useful input to NRC's review. In addition, the placement of NNSA staff at the NRC for on-the-job training could reduce the workload on NRO staff while providing valuable insights.

NNSA has requested personnel training, including comprehensive training courses on all aspects of NRC review activities, and exchanges of technical staff. The staff proposes integrating the NNSA requests into a broader program of training and infrastructure development that would be useful to NRC staff, its contractors, the Advisory Committee on Reactor Safeguards, NNSA, and most likely regulatory authorities from other countries. Training would be provided in a staged approach. Initially, a course or courses would be

presented in China in Summer 2007 using currently existing NRC training material. This would include a course on the Part 52 licensing process; an overview of the differences between the AP1000 design and the current fleet of pressurized water reactors; the use of probabilistic risk assessment in regulatory applications; and NRC regulatory system. NRO and its contractors would staff any training given in China. In addition, NRC could support allowing a minimal number of NNSA staff to attend training courses at NRC on a space-availability basis. Additional training materials that are developed in the future to support NRC reviewers would also be provided to NNSA after being agreed upon by the NRC-NNSA Steering Committee.

Resources: There would be minimal resource expenditure in areas associated with exchanges of guidance documents, completed safety evaluations, and training. NRO has included 0.5 full-time equivalent (FTE) staffing in the NRO budget as infrastructure, which would be allocated for adapting training material for the Chinese audience and preparing and presenting the material. The staff would devote significantly more resources to evaluating issues that the NRC is also interested in resolving, and 3.0 FTE would be allocated from the NRO budget for infrastructure development.

Inspection of Manufacturing Activities

NNSA has requested that NRC provide expert support and participation in NNSA inspection of manufacturing activities. The staff proposes to join NNSA inspectors at sites manufacturing key nuclear components if those facilities will also be supplying components for U.S. plants. In addition, the staff proposes to consult with NNSA on its inspections at new plant sites when construction begins.

Resources: This is the area from which the NRC will get the most benefit. NRC inspectors will gain valuable experience and training and will be able to directly apply lessons learned to NRC construction inspection procedures. In addition, the staff may be able to gain efficiencies by sharing information on the inspection of component manufacturers that the NRC also will be inspecting. Resources (1.0 FTE) would be allocated from the existing NRO budget as part of Construction Inspection Program development and inspector training.

Proposed Areas to be Addressed by RES

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RESOURCES:

OIP does not anticipate that any additional FTE staffing will be needed in fiscal year (FY) 2007 for the expanded program of work with China. All anticipated OIP activities with China have been incorporated in the FY 2008-2009 budget planning.

NRO has budgeted resources for developing infrastructure for new reactor reviews and for construction inspection program development. In FY 2008 and FY 2009, NRO will use the activities with NNSA to support these efforts. No additional resources will be required.

RES does not anticipate that any additional FTE will be needed in FY 2008-2010 because no additional staff is required to administer the current CAMP and CSARP activities. However, if additional training on the use of the NRC safety codes is needed, an additional, currently unbudgeted FTE will be needed in FY 2008-2010.

The Office of Human Resources (HR) has not incorporated China training activities into its FY 2008-2010 budget planning. If space in existing courses is insufficient to meet China's needs and additional courses must be scheduled, HR estimates an additional 2 FTE will be needed.

RECOMMENDATIONS:

It is recommended that the Commission approve: (1) the NRC-NNSA MOC, which provides for the establishment of an NRC-NNSA Steering Committee to oversee technical cooperation on the AP1000; and (b)(5)

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COORDINATION:

This paper has been coordinated with NRO, RES, and HR. The Executive Director of Operations (EDO) concurs on this paper. The Office of the General Counsel (OGC) has no legal objection. The Office of the Chief Financial Officer (OCFO) has reviewed the paper for resource impacts and has no objection.

/RA/

Janice Dunn Lee, Director
Office of International Programs

Enclosures:
1. MOC on Westinghouse AP1000 between NRC/NNSA
2. R. Goorevich ltr regarding DOE 10 CFR 810 authorization issued to Westinghouse dtd May 3, 2005

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