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**POLICY ISSUE
NOTATION VOTE**

February 11, 2005

SECY-05-0030

FOR: The Commissioners

FROM: Janice Dunn Lee, Director
Office of International Programs

SUBJECT: PROPOSED EXPORTS TO CHINA OF NUCLEAR POWER REACTORS
(XR169) AND CORRESPONDING LOW ENRICHED URANIUM (LEU)
FUEL (XSNM03034-R)

PURPOSE:

To request Commission review and approval to issue two licenses requested by February 24, 2005, for Westinghouse Electric Company LLC (Westinghouse) to export to China the equipment to construct four pressurized water reactors as well as the LEU fuel for the initial core and one reload for each reactor. Commission action on these proposed exports is requested in accordance with 10 CFR 110.40(b)(1) and 110.40(b)(5).

BACKGROUND:

As the world's most populous country, China ranks second only to the United States in total energy consumption. In 2003, demand for electricity in China surged to record levels resulting

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Exemption number	<u>4, 5</u>
Nuclear Regulatory Commission review required before public release.	
<u>Stephen Dembek, Section Chief, OIP</u>	
Name and organization of person making determination.	
Date of Determination	<u>2/11/05</u>

Information in this record was deleted in
accordance with the Freedom of Information Act.
Exemptions 2, 4
FOIA/PA 2010-0018

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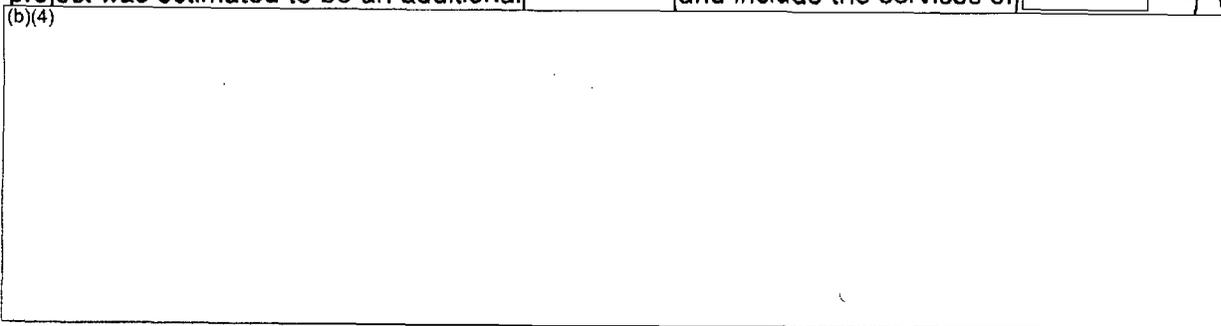
in generating capacity shortfalls, which were further exacerbated by low rainfall in some areas lasting into early 2004. China's electricity demand is currently projected to grow at a rate of approximately 4.3% per year through 2025. Although natural gas and coal will likely be the primary new sources of generating capacity, China also plans to increase installed nuclear capacity from 8.7 GW as of June 2004, to as much as 40 GW by 2020. With nine operating and two additional nuclear power plants currently under construction, the Chinese government recently designated two new sites where construction of at least two and possibly up to six next generation reactors is planned. The deadline for companies to submit bids to supply these new facilities is February 28, 2005. Westinghouse has indicated that in order to compete with foreign suppliers, it must be able to include the requested export licenses in its bid package, which means the export licenses need to be issued at the very latest by February 25, 2005.

DISCUSSION:

Application for Reactor Exports (XR169)

Westinghouse submitted an application dated February 25, 2004 (Attachment 1), for a license to export to China nuclear reactor equipment and associated engineering services for the construction, maintenance and operation of up to four pressurized water reactors of 1000 Mwe class (rated from 900 to 1500 Mwe). In a proprietary supplement to the application dated February 27, 2004 (Attachment 2), Westinghouse indicated that the reactor equipment will most likely be based on the AP1000 design and estimated the total value of items to be exported from the U.S. at approximately (b)(4). The value of expected foreign contributions to the project was estimated to be an additional (b)(4) and include the services of (b)(4).

(b)(4)



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Although the Ling Ao site at Daya Bay, Dapeng Town Province was one of the two sites originally identified for the proposed reactor exports, Westinghouse revised the application when the Chinese Government designated Yang Jiang and San Men as the next sites for new reactor construction. The designated sites are both located on the coast of South China, with Yang Jiang located in Guangdong Province, and San Men located in Zhejiang Province. If the export licenses are issued and Westinghouse is awarded the contract, the shipments of equipment to China are expected to begin around mid 2007.

Application for LEU Fuel Exports (XSNM03034-R)

After the reactor export license application was already under review, the Chinese made known the requirement that bids for the reactor project would not be acceptable unless they also

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provided for the supply of LEU fuel to operate the facilities. This meant that in addition to the reactor export license, Westinghouse would also need a separate export license as a guarantee that they could also supply the LEU fuel. On August 26, 2004, Westinghouse requested revisions (Attachment 3) to the pending export license application to remove the reference to the Daya Bay reactors and to designate the proposed Yang Jiang and San Men reactors as the ultimate consignees for the proposed export of LEU fuel to be used as the initial core and one reload for each of the proposed new reactors. The total quantity proposed for export was revised to 26,558 kilograms of U-235 contained in 542,000 kilograms uranium enriched to a maximum of 4.9%, in the form of uranium dioxide pellets in sealed fuel rods and incorporated into finished fuel assemblies.

Executive Branch Views

As required by Section 126 of the Atomic Energy Act, as amended, Executive Branch views on the proposed exports were provided to NRC in a February 11, 2005, letter from Richard Stratford to Janice Dunn Lee (Attachment 4). In the judgment of the Executive Branch, the proposed exports of reactors and LEU fuel to China will not be inimical to the common defense and security of the United States and are consistent with the provisions of the Atomic Energy Act of 1954, as amended by the Nuclear Non-Proliferation Act of 1978. The Executive Branch considered various factors in reaching this judgment including the responses from the Chinese Government dated January 5, 2005 and February 5, 2005 (Attachments 5 and 6, respectively), providing the necessary assurances to confirm that upon receipt, the nuclear reactors and LEU fuel will be subject to the terms and conditions of the U.S.-China Agreement for Cooperation in the Peaceful Uses of Nuclear Energy (Agreement for Cooperation). This Agreement for Cooperation entered into force on December 30, 1985, although Congress conditioned its implementation on receipt of the certification by the President of the United States that China has satisfied certain nonproliferation conditions. The President's certification that China meets the conditions necessary to implement the Agreement became effective on March 18, 1998.

China's Involvement in the International Nuclear Community

Since acceding to the International Atomic Energy Agency (IAEA) in 1984, China has actively participated in the negotiation and drafting of various international conventions in the nuclear field. Examples of the international conventions China has signed include:

- The Convention on Early Notification of a Nuclear Accident (October 1987)
- The Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (October 1987)
- The Convention on Physical Protection of Nuclear Materials (February 1989)
- The Agreement between the People's Republic of China and the IAEA for the Application of Safeguards in China (September 1989)
- The Treaty on the Non-Proliferation of Nuclear Weapons (March 1992)
- The Convention on Nuclear Safety (April 1996)
- The Additional Protocol to the Safeguards Agreement between the People's Republic of China and the IAEA (March 2002)

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China has also continued to demonstrate increasing levels of responsibility as a supplier of nuclear materials and equipment. China joined the Zangger Committee in 1997, and adopted controls barring assistance to nuclear facilities not subject to IAEA safeguards and to nuclear explosive programs. China has since enacted comprehensive and legally enforceable controls over exports of nuclear as well as biological, chemical, missile, and other sensitive items and technologies. In May 2004, China became a member of the Nuclear Suppliers Group (NSG) accepting the additional requirements for full-scope IAEA safeguards, physical protection, and retransfer consent rights as conditions of supply. It has also developed and implemented systems for export registration, end-user and end-use certification, and promulgated dual use and "catch-all" control lists.

U.S. Export Licensing Criteria

An analysis of the proposed exports and the relevant criteria in the Atomic Energy Act, as amended, is provided (Attachment 7). As a nuclear weapons state, China, like the U.S., is not subject to the requirements of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) to apply full-scope IAEA safeguards to all of its domestic nuclear activities. Like the U.S., the Chinese have entered into a voluntary Safeguards Agreement with the IAEA, and three Chinese facilities (a power reactor, a research reactor, and an enrichment facility) have been placed under active safeguards by the IAEA. An IAEA Facility Attachment has been negotiated and is in force for the power reactor placed under safeguards. China completed negotiation of its Additional Protocol to strengthen safeguards, which was approved by the IAEA Board of Governors and signed December 31, 1998. On March 28, 2002, China became the first nuclear weapons state to bring the Additional Protocol into force.

With regard to physical protection of nuclear material and facilities in the China, Article 6(1) of the U.S.-China Agreement provides that:

"Each party shall maintain adequate physical security with respect to any material, facility or components transferred pursuant to the agreement and with respect to any special nuclear material used in or produced through the use of any material or facility so transferred."

Other provisions of Article 6 of the U.S.-China Agreement establish the bases for ongoing consultations concerning the adequacy of physical protection measures in China, and have already served to facilitate cooperation between the United States and China. Significant cooperative relationships have been established and mechanisms are in place to ensure that appropriate levels of physical protection are being maintained.

(b)(2)

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(b)(2)

Environmental Review.

In accordance with the Executive Order (E.O.) 12114 of January 9, 1979, on the environmental effects abroad of major federal actions, and the applicable Unified Procedures (44 FR 65560), the Executive Branch prepared a Concise Environmental Review (CER) of the proposed reactor exports (Attachment 8). The CER provides an overview of relevant environmental features, site conditions, the Chinese regulatory framework, a description of pertinent features of the nuclear units proposed for export, and other general background information. The CER concludes that the likelihood that operation of the reactors proposed for export to China will result in an environmental impact on U.S. territory or on the global commons is quite remote.

In reviewing an application for a reactor export license, the NRC staff considers whether approving such an export would result in significant or adverse environmental effects on U.S. territory or the global commons. To assess such effects, NRC has used its discretion in relying on generally available literature.

The April 1976 Final Environmental Impact Statement on U.S. Nuclear Power Plant Activities (ERDA-1542) concluded, *inter alia*, that the level of nuclear power plant exports from the United States projected through the year 2000 was unlikely to entail significant or unacceptable adverse environmental impacts on U.S. territory or the global commons. In 2000, NRC reviewed ERDA-1542, and concluded that its assessment of the environmental impacts continues to be valid and should be so for the foreseeable future. NRC reported the results of this review of ERDA-1542 to the Executive Branch in a letter dated February 14, 2001 (Attachment 9).

With respect to the proposed export of reactor equipment to China, the NRC staff finds that there have been no material changes in circumstance that would affect the continued validity of the global commons assessment contained in ERDA-1542. Staff concludes that issuing the export licenses will neither significantly increase overall risks to public health and safety, nor will it adversely affect the environment of U.S. territory or the global commons.

CONCLUSION:

Based on the framework of China's bilateral commitments and assurances, coupled with its acceptance of and adherence to important international nuclear conventions and norms, the staff concludes that China meets the applicable export licensing criteria in the Atomic Energy Act, as amended. In addition, based on a continuing review of Department of State telegrams and other documents, the Office of International Programs has found no adverse information which would form the basis for objecting to issuing the proposed licenses to Westinghouse.

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The staff concurs with the Executive Branch judgment that approving the proposed exports will not be inimical to the common defense and security of the United States and that statutory criteria for issuing export licenses XR169 and XSNM03034-R are met. The Office of General Counsel has no legal objection and the Office of the Executive Director for Operations concurs.

RECOMMENDATION:

That the Commission authorize OIP to issue the two export licenses XR169 and XSNM03034-R to Westinghouse.

/RA/

Janice Dunn Lee, Director
Office of International Programs

- Attachments:
1. Letter from Westinghouse Electric Company, LLC, to E.T. Baker, NRC, dtd 02/25/04, requesting export license (XR169)
 2. Email from Westinghouse to J. Owens dtd 2/27/04 providing supplemental information
 3. Revised NRC Form 7 application from Westinghouse Electric Company, LLC dtd 08/26/04, requesting export license (XSNM03034-R),
 4. Letter from R. Stratford, DOS, to J.D. Lee, NRC, dtd 2/11/05, providing Executive Branch views
 5. Letter from Z. Jing, China Atomic Energy Authority to D. Seligson dtd 1/5/05 providing confirmations
 6. Letter from Z. Jing, China Atomic Energy Authority to C. Allen dtd 2/5/05 providing confirmations
 7. Summary of Atomic Energy Act, as amended, Sections 127 and 128 Export License Criteria
 8. Concise Environmental Review of XR 169 - Westinghouse Application for NRC License to Export Four AP1000 Nuclear Power Reactors to China
 9. Letter from J.D.Lee to R. Stratford, DOS, dtd 2/14/01, NRC review of Final Environmental Impact Statement on U.S. Nuclear Power Export Activities (ERDA-1542)

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**previously concurred

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