July 7, 2006

MEMORANDUM TO: Chairman Klein
Commissioner McGaffigan
Commissioner Merrifield
Commissioner Jaczko
Commissioner Lyons

FROM: Janice Dunn Lee, Director /RA/
Office of International Programs

SUBJECT: VISIT OF VICE MINISTER WANG YUQING OF THE NATIONAL NUCLEAR SAFETY ADMINISTRATION OF THE PEOPLE'S REPUBLIC OF CHINA

Mr. WANG Yuqing, Vice Minister of the Chinese State Environmental Protection Administration (SEPA) and Administrator of the National Nuclear Safety Administration (NNSA), will visit the NRC on Friday, July 14, 2006 to meet with the Commissioners and discuss future NRC-NNSA cooperation. Vice Minister WANG wishes to suggest that SEPA and NRC begin cooperation in the areas of new reactor construction, China's consideration of the Westinghouse AP 1000 reactor design, NNSA's participation in NRC research activities, exchange of technical personnel, and China's participation in the Multinational Design Approval Program (MDAP). Vice Minister WANG will also propose the establishment of an NRC-NNSA annual technical bilateral meeting. This will be his first official visit to the NRC.

Vice Minister WANG will be accompanied by: Mr. SONG Tiedong, Deputy Director General, Administrative Office, SEPA; Mr. WANG Jun, Deputy Director General, Department of Nuclear Safety and Radioactive Management, NNSA/SEPA; Dr. JIANG Wei, Director, Division of International Cooperation on Nuclear Safety, Department of International Cooperation, NNSA/SEPA; Mr. WANG Zhibin, Assistant to Vice Minister WANG Yuqing, Administrative Office, SEPA; and Mr. ZHAO Xiangdong, First Secretary for Science and Technology, Embassy of China, Washington, D.C.

Attached are the meeting schedule, biographical information, country information, map, background information, and suggested talking points.

CONTACT: Cindy Rosales-Cooper, OIP
415-1168

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By copy of this memorandum, SECY, OGC, EDO, NMSS, RES, NRR, NSIR and OPA are being advised of Vice Minister WANG Yuqing's visit.

Enclosures: 1. Meeting Schedule
2. Biographical Information
3. Country Information
4. Map of China's Reactors
5. Background and Talking Points

cc w/ attachments: SECY
OGC
EDO
NMSS
RES
NRR
NSIR
OPA

By copy of this memorandum, SECY, OGC, EDO, NMSS, RES, NRR, NSIR and OPA are being advised of Vice Minister WANG Yuqing's visit.

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OFFICE	OIP/ICA	OIP/ICA/SC	OIP/DD	OIP/D
NAME	CRosalesCooper*	BDoroshuk*	MDoane	JDunnLee*
DATE	06/29/06	07/7/06	07/ /06	07/7/06

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VISIT OF VICE MINISTER WANG YUQING
NATIONAL NUCLEAR SAFETY ADMINSTRATION
PEOPLE'S REPUBLIC OF CHINA
JULY 14, 2006

Meeting Schedule

9:10am	Meet Cindy Rosales-Cooper (OIP) in Lobby of One White Flint
9:30am	Courtesy visit with Commissioner Merrifield
10:00am	Courtesy visit with Commissioner McGaffigan
10:45am	Courtesy visit with Commissioner Jaczko
11:15-12:00pm	Meeting with Chairman Klein
12:00- 1:30pm	Chairman Hosted Luncheon (Commission Dinning Room)
2:00pm	Tour of the NRC's Emergency Operations Center
2:45pm	Meeting with Janice Dunn Lee, Director, Office of International Programs

Delegation Members

- Mr. WANG Yuqing, Vice Minister of the Chinese State Environmental Protection Administration (SEPA) and Administrator of the National Nuclear Safety Administration (NNSA)
- Mr. SONG Tiedong, Deputy Director General, Administrative Office, SEPA
- Mr. WANG Jun, Deputy Director General, Department of Nuclear Safety and Radioactive Management, NNSA/SEPA
- Dr. JIANG Wei, Director, Division of International Cooperation on Nuclear Safety, Department of International Cooperation, NNSA/SEPA
- Mr. WANG Zhibin, Assistant to Vice Minister WANG Yuqing, Administrative Office, SEPA.\
- Mr. ZHAO Xiangdong, First Secretary for Science and Technology, Embassy of China, Washington, D.C.

Visit with the Commission

- This is Vice Minister Wang's first official visit to the NRC. Former NRC Chairman Diaz met Mr. Wang during Dr. Diaz's 2004 visit to China. Mr. Wang raised some of the issues he intends to discuss today during this visit with Dr. Diaz.

Topics of Discussion

Future NRC-NNSA cooperation in the areas of new reactor construction, China's consideration of the Westinghouse AP 1000 reactor design, NNSA's participation in NRC Research activities, exchange of technical personnel, and China's participation in the Multinational Design Approval Program (MDAP).

Enclosure 1

Exemption 6

WANG Yuqing

Family Name:	**Wang Yuqing**
Given Name:	**Yuqing**
Gender:	(b)(6)
Date of Birth:	
Place of Birth:	
Nationality:	
Marital Status:	
Present Job:	Vice-Minister, State Environmental Protection Administration Administrator, National Nuclear Safety Administration People's Republic of China

E- 6

EDUCATION

Beijing University, Beijing, China
Bachelor's Degree: Biological Science
Wuhan University, Wuhan, China
Master's Degree: Environmental Law

WORKING EXPERIENCE

1982 –1994	**Deputy Division Director** Nature Conservation Division State Environmental Protection Administration. **Division Director** Planning and Standards Division State Environmental Protection Administration. **Director General,** Planning and Finance Department State Environmental Protection Administration,
1998 – Present	**Vice-Minister** State Environmental Protection Administration.
2004 – Present	***Administrator*** National Nuclear Safety Administration.

Enclosure 2

Exemption 6

SONG Tiedong

Family Name: **SONG**
Given Name: **Tiedong**
Gender:
Date of Birth: (b)(6)
Place of Birth:
Nationality:
Marital Status:
Present Job: Director General, General Office,
State Environmental Protection Administration
People's Republic of China

Ex. 6

EDUCATION

Nankai University, Tianjing, China
Bachelor's Degree: Environmental Engineering

WORKING EXPERIENCE

Jun.1988 –	State Environmental Protection Administration
Jul. 1994	**Deputy Division Director** General Office State Environmental Protection Administration
Sep. 1996	**Division Director** General Office State Environmental Protection Administration
Feb. 2000	**Deputy Director General** General Office State Environmental Protection Administration
Sep. 2005– Present	**Director General** General Office State Environmental Protection Administration

Exemption 6

WANG Jun

Family Name:	**WANG**
Given Name:	**Jun**
Gender:	(b)(6)
Date of Birth:	
Place of Birth:	
Nationality:	
Marital Status:	
Present Job:	Deputy Director General, Department of Nuclear Safety National Nuclear Safety Administration, SEPA People's Republic of China

EDUCATION

Harbin Shipbuilding Engineering Institute, Harbin, China
Bachelor's Degree: Nuclear Engineering
Tsinghua University, Beijing, China
Master's Degree: Nuclear Engineering

WORKING EXPERIENCE

Dec. 1994 – Aug. 1998	**Deputy Division Director** Senior Engineer National Nuclear Safety Administration
Jul. 1998 – Jul. 2001	**Senior Engineer** State Environmental Protection Administration
Jul. 2001 – Present	**Deputy Director General** Department of Nuclear Safety National Nuclear Safety Administration State Environmental Protection Administration

Exemption 6

WANG Zhibin

Family Name: **WANG**
Given Name: **Zhibin**
Gender:
Date of Birth:
Place of Birth:
Nationality:
Marital Status:
Present Job: Deputy Division Director, General Office
State Environmental Protection Administration.
People's Republic of China

(b)(6)

(b)(6)

EDUCATION

Nanjing University, Nanjing, China
Bachelor's Degree: Eco-Science

WORKING EXPERIENCE

Jul. 1995 – Nov. 1996	Ministry of Coal Industry
Nov. 1996 – Present	**Deputy Division Director**, General Office State Environmental Protection Administration

Exemptions
6

JIANG Wei

Family Name:	JIANG
Given Name:	Wei
Gender:	(b)(6)
Date of Birth:	
Place of Birth:	
Nationality:	
Marital Status:	
Present Job:	Director, Division of International Cooperation on Nuclear Safety Department of International Cooperation, National Nuclear Safety Administration (NNSA), State Environmental Protection Administration People's Republic of China

EDUCATION

(b)(6)	Harbin Shipbuilding Engineering Institute, Harbin, China Bachelor's Degree: Missile Design
Aug. 1984 – Jul. 1986	Harbin Shipbuilding Engineering Institute, Harbin, China Master's Degree: Space Science
Aug. 1986 – Dec. 1989	Tsinghua University, Beijing, China Ph. D.: Mathematical Mechanics
Apr. 1992 – Nov. 1992	Consejo de Seguridad Nuclear, Madrid, Spain Major in Nuclear Safety

WORKING EXPERIENCE

Dec. 1989 – Dec. 1994	National Nuclear Safety Center, Ministry of Science and Technology (MOST) China
Dec.1989- Dec.1990	Engineer, Division of Nuclear Equipment, (MOST)
Aug. 1990- Oct. 1990	Visiting Scholar, Commissariat Energie Atomique, Paris, France
Jan. 1991 - May 1991	Inspector, Guangdong Regional Office of National Nuclear Safety Administration, Daya Bay Nuclear Power Station, China
May 1991- Dec. 1994	Deputy Director, Division of Nuclear Equipment
Jan. 1995 – Jan. 1996	Deputy Director, State Mission of Poverty Alleviation to Shaan Xi Loess Plateau Ecological Region, Shaan Xi Province, China
Jan. 1996 – Jun. 1996	Vice Chief Engineer, National Nuclear Safety Center, MOST
Jun. 1996 – Jan. 2000	First Secretary, Science, Technology & Environment Office, The Embassy of the People's Republic of China, Washington D.C.
Jan. 2000 – Jan. 2003	Director, Division of General Affairs, Department of International Cooperation, State Environmental Protection Administration (SEPA)
Jan. 2003 – Mar. 2006	Coordinator, EANET Secretariat, United Nations Environment Programme, Regional Resources Center for Asia and the Pacific Asian Institute of Technology, Pathumthani, Thailand
Apr. 2006 – Present	Director, Division of International Cooperation on Nuclear Safety Department of International Cooperation, NNSA/ SEPA

LANGUAGES

Chinese	Japanese	Thai
English	French	Spanish

CHINA

History

China's nuclear industry began in the 1950s with assistance from the Soviet Union. Until the early 1970s, it had primarily military applications. However, in August 1972, Premier Zhou Enlai issued a directive ordering the development of a reactor for civilian energy needs. After Mao Tse Tong's death in 1976, support for the development of nuclear power increased significantly primarily to augment the country's thermal and hydro-power capacity. Contracts were signed to import two French-built plants, but economic retrenchment and the Three Mile Island incident in the United States abruptly halted the nuclear program. After a few years of additional research and analysis, China decided to proceed with nuclear power development. China used four different vendors to supply the first four nuclear power plants as a result of financing constraints. These vendors included indigenous suppliers from China, France, Canada, and Russia.

In November 1981, the first nuclear project proposal, the Qinshan 310 MWe PWR, was reviewed and approved. In June 1983, site construction began. In December 1991, the Qinshan nuclear power plant was connected to the grid for the first time. In 1982, another proposal for building a nuclear power plant with two 984 MWe PWR units at the Daya Bay site was put forward and adopted by the Chinese Government. In February 1985, Guangdong Electricity Power Company and China Light and Power Company Limited (Hong Kong) established a joint venture, Guangdong Nuclear Power Joint Venture Company, to construct the Daya Bay nuclear power station. The first pouring of concrete took place in August 1987. The 2 units began commercial operation in February and May 1994, respectively.

Over the last 40 years, a relatively complete nuclear fuel cycle system has been built in China. With the commercial operation of Unit 1 of the Qinshan nuclear power station phase 2, China now possesses full ability to design, construct, manage and operate PWR nuclear power plants of the 650 MWe capacity, a solid foundation for China's future plans to design and construct a nuclear power plant with a capacity of one million kilowatts. However, China's current plans are to import foreign designs for the next four nuclear power plants it will construct. (b)(4) eight 4

(b)(4)

Facilities

On mainland China there are 6 commercial nuclear power stations with 10 units in operation and 5 under construction as of May 2006. The 10 units currently in operation have a combined capacity of 7,572 megawatts (MWe). All of these units are located in coastal areas of the eastern part of the country, where the economy is well developed but energy resources are poor.

Qinshan NPP (Phase 1) is a 310 MWe PWR and is the first NPP in China with an indigenous design, which has been built by the Chinese and is operated by the Chinese. Commercial operation begin in April 1991. It is currently operating with an output of 288 MWe (March 2006).

Daya Bay NPP (Guangdong) has two 984 MWe PWR units imported from France. Since commercial operation in February 1994 and May 1994 for Units 1 and 2 respectively, the units have maintained a good record of operation. As of March 2006, both units are operating with an output of 944 MWe.

Qinshan Nuclear Power Station Phase 2 is located at Yangliushan, 3 km south of the Qinshan Phase 1 site. The station has two 650 MWe PWR units which are also of an indigenous design and have been built by the Chinese. Some heavy equipment was imported from foreign countries for the Phase 2 units. The first unit started commercial operation in April 2002; the second unit began operation in early 2004. Both units are currently operating with an output of 610 MWe.

Lingao NPP (Guangdong), is located 1 km northeast of the Daya Bay Nuclear Power Station, and has 2 French-designed PWR units of 990 MWe each. The first concrete was poured in May 1997 and the installation of the nuclear island was started in January 1999, ahead of schedule. Units 1 and 2 started commercial operation in May 2002 and January 2003, respectively. At present, the project is proceeding satisfactorily and both units are operating at 938 MWe.

Qinshan Nuclear Power Station Phase 3, which is located at Tanglangshan, 800m east of the Qinshan Phase 1 site, is comprised of two 728 MW CANDU-6 (PHWR) units. Atomic Energy of Canada Limited (AECL) contracted the turnkey project with Canadian export credit and commercial financing. The first concrete was poured in June 1998. Unit 1 and unit 2 started commercial operation in December 2002 and July 2003, respectively. Both units are currently operating at 650 Mwe.

Tianwan Nuclear Power Station is located in Lianyungang City, Jiangsu Province, which is 300 km north of Shanghai. This site is comprised of two Russian advanced VVER-1000 91-Type PWR units with 1060 MWe of installed capacity each. Russia supplied the design of the project and the main equipment for both nuclear and conventional islands. Some of the equipment was procured from third parties both within and outside of China. The civil engineering, erection and project management were all accomplished indigenously. The first concrete was poured in October 1999. Unit 1 was completed in 2005 and placed in commercial operation in early 2006 at 1000 MWe. Unit 2 is still under construction and is expected to be completed and operating by 2007.

Plans for New Reactor Construction

In the 11th Five-Year Plan (2006-2011), its most recent published program for Economic and Social Development, the Chinese government reiterated its commitment to construct at least 40 new nuclear power plants in order to achieve its goal of producing over 40 million KWe by 2020.

Released in March 2006, the Plan also published the Chinese government's immediate plan to construct two new nuclear power stations, consisting of two units each, in China's Northeast Providence of Liaoning and the East Province of Shangdong in addition to the earlier plans for new construction published in 10th Five-Year Plan (2000-2005). Both stations will consist of two 1080 MWe reactors of indigenous design which China will construct and operate. Some heavy components are expected to be purchased from foreign vendors.

The Liaoning Nuclear Power Station will be located at Hongyanhe, in the coastal city of Dalian. The China Guangdong Nuclear Power Group (CGNPG) and the China Power Investment Corp (CPI) have formed a joint venture with local companies to construct the station. The station to be constructed in Shandong Province will be built under a joint venture with CPI and the China National Nuclear Group (CNNC) at Haiyang. The Chinese government has committed to constructing both stations at the same time.

In late 2005, the Chinese government also launched construction of two 1000 MWe reactors at Ling'ao, known as Ling'ao Phase 2. (b)(4)

(b)(4)

Furthermore, coastal and inland provinces like Zhejiang, Shandong, Jiangsu, Fujian, Hunan, Jiangxi and Jilin, are considering the development of nuclear power. Preliminary work is planned and continuing for these provinces and a few sites have already been selected and approved by the relevant authorities.

Nuclear Fuel Cycle and Waste Management

The Chinese operate a complete fuel cycle, including the manufacture of fuel assemblies for China's domestic pressurized water reactors (PWR) and CANDU reactors. The fuel assembly program was built with technical assistance and components from France. Although China's known uranium resources appear to be sufficient for the short-term (China has approximately 1.7 billion tons of uranium in reserve), a closed fuel cycle strategy has been adopted.

CNNC is responsible for nuclear waste management under regulation by the National Nuclear Safety Administration (NNSA). The NNSA, under the State Environmental Protection Administration (SEPA), also reviews and approves environmental impact studies. Local environmental authorities will be responsible for the environmental monitoring of the repositories.

Enrichment

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Reprocessing

China has adopted a closed fuel cycle, but it does not yet have the facilities to reprocess spent fuel and then use the MOX. A pilot reprocessing plant is under construction at CNNC's fuel complex in Lanzhou, with a designed throughput of about 3.7 metric tons. A commercial plant is also planned, but a location has not been selected. Because of the logistical problems of trucking spent fuel from the east coast to the Lanzhou complex, consideration is underway to locate the commercial reprocessing plant in the east near China's power reactors.

Waste Management

Low-Level Radioactive Waste

Near surface and above ground disposal have been adopted as the methods for managing low-level radioactive waste in China. Since nuclear facilities and producers of radioactive waste are scattered among several regions of the country, China sends its radioactive wastes to regional disposal locations.

China still has plans to construct four to five repositories for low-level radioactive waste in order to dispose of accumulated wastes from the nuclear industry, the decommissioning of nuclear facilities, and from nuclear power plant operation. These wastes will be delivered to the disposal facilities after a five-year interim storage period.

The CNNC is responsible for site selection, construction and operation of each repository and the NNSA is responsible for its regulation. Germany has assisted China with its LLW technology.

High-Level Radioactive Waste (HLW)

China took an active part in the drafting and consultations on the IAEA Joint Convention of the Safety of Spent Fuel Management and on the Safety of Waste Radiological Management, and is working towards joining the Convention. However, to date, China has not been able to successfully address the issue of HLW. The waste issue is of concern to many of China's neighbors including Australia which currently exports approximately 10 tons of uranium to China. China's planned expansion of its NPPs is expected to lead to production of over 3,000 tons of HLW by 2010. (b)(4) Exemption 4

China's current plan is to store the spent fuel at the reactors in cooling pools for 15 to 20 years. After removal, the spent nuclear fuel will be moved to dry cask storage on site, or be sent to the Lanzhou Nuclear Fuel Complex, China's national spent fuel management center. The ultimate plan calls for all LWR spent fuel to be reprocessed and vitrified, and then the waste deposited in deep geological formations.

CNNC is responsible for the transportation, reprocessing and final disposal of HLW.

Deep Geological Disposal Plans

China is unique in that its repository plans are being developed concurrently with the early stages of nuclear power plant construction. The CNNC has delegated its responsibility to develop a HLW repository to the Beijing Research Institute of Uranium Geology (BRIUG). Current plans call for conducting feasibility studies between 2010 and 2020, followed by site licensing. Repository operation will begin no earlier than 2040.

BRIUG is evaluating five potential repository sites, including its proposed underground research laboratory (URL) site in the Gobi Desert. This URL is planned to become operational around the year 2030. Field investigations are under way at the Beishan granite site in the Gansu province of the Gobi Desert in northwest China. The Gobi Desert is sparsely populated, has a low precipitation rate, a high evaporation rate, and a shallow water table.

The IAEA is assisting China in its review of a possible high-level repository.

Research and Development

Although China has opened many doors to the outside world, there is still a strong emphasis on self-reliance that is coupled with the desire to incorporate international advances and experience. However, technical isolation is still a problem to the more than 80 technical design and manufacturing organizations located around China that support the industry. (b)(4) (b)(4) (b)(4)

China currently operates 14-15 research reactors, one of which is a Pebble Bed Modular Reactor design China constructed in conjunction with South Africa. Most of these are very old units and do not meet today's licensing requirements, although they are permitted to continue operating.

International Agreements

China, a nuclear weapons state, has experienced a steep learning curve on nuclear proliferation since it joined the IAEA in 1984. In 1992, it signed the Nuclear Nonproliferation Treaty (NPT) after being its critic for 20 years. China joined the Nuclear Suppliers Group in May 2004 and the Zangger Committee in October 1997, and is a signatory to the Convention on Nuclear Safety. In addition, China also has a number of bilateral agreements with other countries including Brazil, Peru, South Africa, France, Canada, United Kingdom, and the United States.

In May 2004, then-Secretary of the United States Department of Energy, Spencer Abraham, signed a Memorandum of Understanding (MOU) with China's National Development and Reform Commission (NDRC) that launched the U.S.-China Energy Policy Dialogue. The Dialogue has strengthened energy-related interactions between China and the United States, the world's two largest energy consumers. The U.S.-China Energy Policy Dialogue builds upon the two countries' existing cooperative ventures in high energy nuclear physics, fossil energy, energy efficiency and renewable energy and energy information exchanges. The NDRC and the Department of Energy also exchange views and expertise on Peaceful Uses of Nuclear Technologies. The U.S. also convenes an annual Oil and Gas Industry Forum with China.

Priorities

China's main priority is meeting its energy demands. China's electricity consumption is expected to grow by over 4% a year through 2030, which will require more than $2 trillion in electricity infrastructure investment to meet the demand. China expects to add approximately 15,000 megawatts of generating capacity a year, with 20% of that coming from foreign suppliers.

The 11th Five-Year Plan calls for greater energy conservation measures, including development of renewable energy sources and increased attention to environmental protection. Moving away from coal, which currently makes up more than half of the energy consumption, towards cleaner energy sources including oil, natural gas, renewable energy, and nuclear power is an important component of China's development program. China has abundant hydroelectric resources. The Three Gorges Dam, for example, will have a total capacity of 18 gigawatts when fully operational (projected for 2009). In addition, the share of electricity generated by nuclear power is projected to grow from 1% in 2000 to 5% in 2030. China's renewable energy law, which went into effect in 2006, calls for 10% of its energy to come from renewable energy sources by 2020.

In order to accomplish this, in 2003 China's National Development and Reform Commission promulgated a long-term program of nuclear power development that sets a target of 36 gigawatts (GW) in total capacity by 2020. This plan was again reiterated in 2005 and 2006. The program aims to help reduce dependence on coal and contribute to a cleaner energy structure. The tremendous potential for nuclear power to ease serious power shortages on the east coast and other areas is expected to answer demands in China. Therefore, a major part of China's national energy policy is the construction of new nuclear power plants. China plans to have at least four new NPPs constructed and online by 2010.

According to the 11th Five Year Plan, China will aggressively promote nuclear power generation through the construction of 1 million kW class reactors and through the domestic design, manufacture, construction and operation of Advanced Pressurized Water Reactor (APWR) nuclear power plants, strengthen the prospecting, procurement and development of uranium resources domestically, improve processing technologies and further develop nuclear power technologies while enhancing the training/education of human resources in the nuclear energy field.

Historical context of Relationship with NRC

"The Protocol between the NRC and the State Scientific and Technological Commission of the People's Republic of China on Cooperation in Nuclear Safety Matters" was originally signed in 1981 and has been renewed twice. After the implementation of the US-China Agreement on the Peaceful Cooperation of the Use of Nuclear Energy in March 1998, the NRC and NNSA signed an expanded Protocol on Cooperation in Nuclear Safety Matters in September 1998. During NRC Chairman Diaz's visit to Beijing in April 2004, the NRC and the NNSA renewed the Protocol for another five years.

Current Relationship with NRC

NRC's interaction with China includes visits by the Commissioners and the hosting of foreign assignees. In the past 15 years, more than 27 Chinese regulators from the NNSA have been placed at NRC on temporary assignment to learn NRC's rules and regulations from hands-on experience, and become more familiar with safety culture in the U.S. Currently, there are no assignees from the NNSA at NRC headquarters or the Regions. The following Commissioners visited China within the past 4 four years: Commissioner Merrifield (2001), Chairman Meserve (2002) and Chairman Diaz (2004). Other previous Commissioners and Chairmen visited the country as well.

China's rapidly expanding nuclear power program faces many operational and regulatory challenges. Therefore, within the limits and availability of resources, and consistent with U.S. Government policies and NRC priorities, the NRC is committed to fostering an understanding of the U.S. approach to nuclear safety, assisting in the development of sound regulatory and safety practices in China's civil nuclear program, exchanging publicly available information on nuclear power reactor safety, radiation protection, nuclear material and waste handling and storage and sharing of lessons learned from the U.S. nuclear power program.

U.S. Foreign Policy

Currently, China plays a key role in assisting the U.S. to address the threat posed by North Korea's nuclear weapons program. Given its commendable efforts, the Department of State has verified that China continues to meet its nonproliferation assurances to the United States.

On April 18, 2006, the U.S. and China renewed their Bilateral Agreement for Cooperation on Science and Technology.

Level of Interaction

To date, NRC's level of interaction with China has been sparse, and takes place primarily in the area of training. With the NNSA's request to augment the relationship and expressed desire to participate in the Multinational Design Approval Program (MDAP), the level of interaction between our agencies is expected to increase. Moreover, with China's aggressive plan to construct four new reactors over the next 10-15 years, interaction in the area of nuclear safety and regulation is expected to increase as well.

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NRC Licensed Exports

In February 2005, the NRC issued a license authorizing Westinghouse to export to China the reactor systems, components and associated equipment and engineering services to build and operate as many as two PWRs at the San Men site and two PWRs at the Yang Jiang site. A second license was also issued at the same time authorizing Westinghouse to export LEU to be used in the initial cores. A third license was issued in June 2005 to Curtis Wright to export to China complete reactor coolant pumps for the Qinshan Phase II units 1,2,3, and 4.

Nuclear Regulatory List of Principles

State Environmental Protection Administration (SEPA)
Minister XIA Zhenhua
Vice Minister: Wang Yuqing

National Nuclear Safety Administration (NNSA)
Administrator: Wang Yuqing
Director General:
Deputy Director General: LIU Hua
Deputy Director General: WANG Jun (former NRC assignee, 2000)

NRC generated

BACKGROUND AND TALKING POINTS

General Cooperation

(b)(4)

Exemption 3

- Welcome Vice Minister Wang and his delegation.

- Express the NRC and United States' interest in augmenting cooperation with China in the area of science and technology, and especially in the area of nuclear safety.

(b)(4)

Exemption 3

1. Establishment of an NRC-NNSA steering committee on cooperation (annual technical bilateral meeting);

2. Cooperation on a joint review and personnel training for the AP 1000 reactor design;

3. Participation in NRC's research codes;

4. Participation in the Multinational Design Approval Program (MDAP).

In addition to these four areas of cooperation, the Chinese are prepared to request visits of high level NRC representatives as well as technical staff for which China will provide travel funding.

Establishment of a Steering Committee on Cooperation (Annual Technical Bilateral)

The Chinese wish to establish an NRC-NNSA Steering Committee on Cooperation in order to establish an annual technical bilateral meeting or forum where NNSA and NRC can plan upcoming and ongoing activities. NRC currently has similar yearly or biennial meetings with: Japan, South Korea, (Taiwan), India, Russia, Ukraine, Canada, Mexico, Brazil, Argentina, and Spain. Some of these annual meetings are conducted under the auspices of the State Department.

China is one of a few countries currently constructing new reactors. NRC's technical staff could benefit from such a forum by gaining reactor construction experience from China.

- The establishment of "a steering committee on cooperation" could be beneficial to our agencies.
- The merits of establishing such a committee could prove beneficial for the NRC, given our interest in China's regulatory experience in the construction of new reactors.
- If China decides to purchase the AP 1000 design, this committee could serve as a venue for areas of cooperation on the construction and operation of this reactor design.

Purchase of the Westinghouse AP 1000 design

Since 2000, the Chinese have consistently announced their intentions to build more than 30 nuclear power plants by 2020. Subsequently, China opened an international bidding process for NPP designs in 2003 and closed the bids in February 2005. Bids were placed by Atomic Energy of Canada Limited (AECL) for its CANDU 3000 reactor design; AREVA/Framatome placed a bid for the EPR reactor design; and Westinghouse placed a bid for its AP1000 reactor design. In early 2005 the Chinese narrowed their choice to the EPR and AP1000 designs.

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(b)(4)

(b)(4)

In March and May of 2006, the Chinese announced the ground breaking for the construction of six new nuclear power plants in the Northeast region of the country. China also declared that the new nuclear power plants were of indigenous Chinese design. Even though the site identified for the construction of either the AP1000 or EPR reactors is located further south than this region, there has been no additional information concerning Chinese acceptance of Westinghouse's bid.

- Acknowledge China's huge undertaking to construct 30 NPPs in the next 14-15 years.
- Inquire as to the status of the NPPs being constructed in the Liaoning Province and at Dalian
- Inquire as to the status of the Westinghouse and Framatome bids.
- Acknowledge Chinese concerns about Toshiba's purchase of Westinghouse and confirm that the sale does not affect Westinghouse's export license from the NRC.

Exchange of Foreign Assignees

In the past 15 years, more than 27 Chinese regulators from the NNSA have been placed at NRC on temporary assignment to learn the rules and regulations of the NRC from hands-on experience, and become more familiar with safety culture in the U.S. There are currently no Chinese assignees at NRC and no request for placement has come in over 3 years.

In his letter dated November 7, 2005, NNSA Acting Director General, LIU Hua, indicated the NNSA's desire to place their technical staff at the NRC for assignments on the review of the AP 1000. Since China has not officially announced a decision to purchase the AP 1000 design, this request is premature.

- The NRC is committed to cooperating with the NNSA on the exchange of technical personnel.
- The NRC is not able to begin the necessary arrangements for cooperation on a joint review and personnel training for the AP1000 until the bids are accepted.

Participation in NRC Research Activities

Exemption 4

(b)(4)

- The NRC welcomes China's participation in these research activities.
- (b)(4)

Exemption 4