

NUCLEAR-RELATED TRADE AND COOPERATION DEVELOPMENTS, OCTOBER 1994-FEBRUARY 1995

EMERGING NUCLEAR SUPPLIER STATES

ALGERIA

ALGERIA WITH IAEA

9/26/94

It is reported that Algerian Foreign Minister Mohammed Salah Dembri has said that Algeria will agree to comply with the provisions of the NPT. Algeria has allowed international inspections of its nuclear facilities in the past in response to Western allegations that a clandestine nuclear program was under development in the nation.

APS Diplomat, 9/26/94; in *Nuclear Proliferation News*, 10/28/94 (12552).

1/12/95

Algeria joins the NPT and "confirms its unequivocal commitment to the peaceful use of nuclear energy." The IAEA has already

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inspected two Algerian nuclear research reactors under bilateral agreements.

Nucleonics Week, 1/19/95, pp. 6-7 (12486).

ALGERIA WITH PRC

10/5/94

It is reported that U.S. officials believe that the PRC is providing Algeria and Iran with "potential nuclear weapons technology."

Bill Gertz, *Washington Times*, 10/5/94, p. A3 (12122).

ARGENTINA

INTERNAL DEVELOPMENTS

9/94

A Nuclear Suppliers Group (NSG) representative says that Argentina hopes to join the group and therefore is adhering to all the guidelines set by the NSG and the IAEA's Zangger List. Previously, Argentine nuclear transfers could only be blocked by unilateral presidential decrees.

Mark Hibbs, *Nucleonics Week*, 10/27/94, pp. 1-2 (12117).

10/20/94

It is reported that Argentina will implement Energy Secretary Carlos Bastos' plan to divide the National Atomic Energy Commis-

sion (CNEA) into three organizations and privatize its three nuclear power plants. Under the plan, the state-owned Ente Nacional Regulador Nuclear (National Agency for Nuclear Regulation) will take over CNEA's control and regulatory activities, while the state-owned Atomic S.A. will assume responsibility for all fuel cycle facilities, including a heavy water production plant currently being built, and research and development. The privately-owned Nucleoelectrica Argentina S.A. (Argentine Nucleoelectric Corporation, NASA) will operate the three nuclear power plants: Embalse, Atucha-1, and Atucha-2.

Ann MacLachlan, *Nucleonics Week*, 10/20/94, pp. 4-5 (12118).

11/1/94

Argentine Foreign Minister Guido di Tella says that Argentina is willing to become a member of the NPT before the Treaty's Review and Extension Conference in 4/95. Argentine President Carlos Menem had earlier said that Argentina was considering signing the NPT, but refrained from indicating Argentina's position on the length of the treaty's extension.

Maria Helena Tachinardi, *Gazeta Mercantil* (Sao Paulo), 11/2/94, p. 3; in JPRS-TND-94-020, 11/17/94, p. 12 (12119). *Disarmament Times*, 10/24/94, p. 12 (12228).

Mid-12/94

Argentina's National Atomic Energy Commission (CNEA) delivers the first shipment of indigenously-manufactured heavy water to the Embalse nuclear power plant and in-

dicates that a comparable delivery will be made to the Atucha-1 nuclear power plant before 1995. An industrial plant at Arroyito, Neuquen province, manufactures Argentina's heavy water.

Comision Nacional de Energia Atomica (Argentina); in *ENS NucNet*, 12/16/94 (12116).

1/21/95

Argentina signed the NPT on 1/10/95. According to an official report, the Argentine national congress had opened the way on 12/23/94 in a decree—"Bill 24448"—that allowed Argentina to ratify the NPT in 1/95.

Telam (Buenos Aires), 1/21/95; in JPRS-TAC-92-001, 2/14/95, p. 6 (12728). *IAEA Bulletin*, 1/95, p. 60 (12728).

ARGENTINA WITH EGYPT

10/27/94

It is reported that Argentina's Invap has negotiated an \$80 million sale of an isotope production research reactor to Egypt, and has established a subsidiary in Cairo in conjunction with the sale.

Mark Hibbs, *Nucleonics Week*, 10/27/94, pp. 1-2 (12117).

ARGENTINA WITH GERMANY

10/20/94

It is reported that under the restructuring of the Argentine nuclear industry, the privately-owned firm Nucleoelectrica Argentina S.A. (NASA) will be responsible for the completion of Argentina's Atucha-2, which is being constructed with assistance from Siemens of Germany. NASA will also be responsible for the maintenance of Atucha-1, in conjunction with the joint CNEA-Siemens firm, Enace.

Ann MacLachlan, *Nucleonics Week*, 10/20/94, pp. 4-5 (12118).

ARGENTINA WITH THAILAND

9/94

Officials from Argentina's Invap SE state that the firm is negotiating a \$120 million sale of a 10-15 MWt isotope production reactor to Thailand. Thailand will not reach a decision on the deal until early 1995, but it reportedly wants the agreement to include radioactive waste treatment.

Mark Hibbs, *Nucleonics Week*, 10/27/94, pp. 1-2 (12117).

BRAZIL

BRAZIL WITH CUBA

2/14/95

The Brazilian company Inepar is considering forming a partnership with Cuba to resume construction of Cuba's first Russian-designed nuclear power plant in Juragua.

BBC Monitoring Summary of World Broadcasts, 2/14/95 (12535).

INDIA

INTERNAL DEVELOPMENTS

11/94

It is reported that the construction of two additional 500 MWe pressurized heavy water reactors (PHWRs) at India's Tarapur nuclear power station has been held up since 1992 due to lack of funds and the difficulty in obtaining technology and spare parts on the world market. Nuclear Power Corporation (NPC) Executive Director Y.S.R Prasad said that India could manufacture all the necessary equipment indigenously, but that controls in the global market have nevertheless caused delays in the project.

Nuclear Engineering International, 11/94, p. 7 (12222).

11/30/94

It is reported that India's program to develop indigenously produced fast breeder reactors (FBRs) is suffering long delays due to difficulties in importing necessary fuel and other special materials. India had hoped to achieve nuclear self-sufficiency by using

several FBRs to produce reactor fuel in a three-stage plan. The delays and expenses involved in FBR development, combined with the increased availability of low enriched uranium on the world market, have called the rationale of the entire FBR program into question.

Vijay Menon, *India Today*, 11/30/94, pp. 66-67 (12225).

12/8/94

Former head of India's Atomic Energy Commission (AEC) and Secretary of India's Department of Atomic Energy (DAE) M.R. Srinivasan says that India is building a submarine with an indigenously developed nuclear reactor. The nuclear reactor is to be tested at a recently-completed land-based prototype testing establishment. The Indian Navy, the DAE, and the Defence Research and Development Organization (DRDO) are collaborating on the project, which began in 1991.

Rahul Bedi, *Jane's Defence Weekly*, 12/17/94, p. 3 (12223). Rahul Bedi, *Daily Telegraph*, 12/9/94 (12223).

2/13/95

It is reported that formal refusals by India, Britain, and France to halt their production of plutonium and weapons-grade high-enriched uranium (HEU) have stalled negotiations toward a global cut-off of weapons-grade fissile material production.

Mark Hibbs, *Nucleonics Week*, 2/13/95, p. 16 (12273).

2/18/95

According to a poll conducted by the United News of India, 57 percent of India professionals approve of the government's official nuclear policy, 33 percent favor open possession of nuclear weapons, and 8 percent want to waive the nuclear option.

Washington Times, 2/18/95, p. A8 (12215).

2/21/95

An editorial applauds the Indian government's general statement that India will not unilaterally cap its nuclear program until a "satisfactory" multilateral agreement on the cut-off of weapons-usable fissile material production is in force.

C. Raja Mohan, *Hindu*, 2/21/95, p. 12 (12393).

INDIA WITH AUSTRIA, FINLAND,

PAKISTAN, AND UNITED ARAB EMIRATES

10/24/94

It is reported that Boehler Edelstahl of Austria sent a shipment of 6 MT of maraging steel to an unknown destination in 1990. The shipment was sent free on board (FOB) to Hamburg on a Finnish National Shipping Line ship bound for Rotterdam, Felixstowe, the United Arab Emirates, Karachi, and Bombay. Because Iraq had received 100 MT of maraging steel from the Austrian firm in 1989, there is speculation that Iraq may have been the recipient of the 1990 shipment as well; Iraq, however, has not notified the IAEA that it had acquired an extra 6 MT of maraging steel, and it has been suggested that it may have gone to Pakistan or India. Western government officials say that the 6 MT shipment is "missing."

PPNN Newsbrief, Fourth Quarter 1994, pp. 16-17 (12271). *Nuclear Engineering International*, 11/94, p. 6 (12271).

INDIA WITH GERMANY

12/94

Germany removes 24 countries, including Pakistan, the PRC, and India, from its export trigger list, called the "H-List." Any exports to a country on that list require interagency authorization as well as a permit from Germany's Federal Export Authority.

Mark Hibbs, *Nucleonics Week*, 12/15/94, pp. 10-11 (12281). Mark Hibbs, *NuclearFuel*, 12/5/94, pp. 4-5 (12281).

INDIA WITH KAZAKHSTAN

1/3/95

It is reported that Indian Ambassador to Kazakhstan Kamallesh Sharma headed a delegation which visited the Kurchatov nuclear center. After visiting with scientists and specialists at the center, Sharma discussed his intentions to present a proposal to his government on joint Indian-Kazakhstani nuclear research.

Kazakhstan Television Network (Almaty), 1/3/95; in FBIS-SOV-95-022, 1/3/95 (12452).

INDIA WITH PAKISTAN AND BANGLADESH

10/16/94

It is reported that police in Shillong, capital of the eastern Indian state of Meghalaya, have arrested four persons for smuggling uranium. The police have increased security around the nearby uranium mining site in the West Khasi Hills district, and have begun searching for the 2.5 kg of stolen uranium, which the alleged smugglers have confessed to hiding. Officials from India's Atomic Energy Commission (AEC) later verified that, apart from the 2.5 kg of semi-processed uranium, another 95 kg of unprocessed uranium had been recovered from the smugglers. Police sources said a former AEC employee now working in the Persian Gulf was linked to the deal, which gave credence to the speculation that the material was intended to be smuggled through Bangladesh to Pakistan. AEC officials refused to comment on this theory.

All India Radio Network (Delhi), 10/16/94; in JPRS-TND-94-020, 11/17/94, p. 13 (12224). *Nucleonics Week*, 11/3/94, p. 17 (12224).

INDIA WITH PRC

10/24/94

It is reported that the PRC has agreed to supply India with enrichment services and uranium that will keep the country's Tarapur reactors in operation for at least another year. Prior to the contract with China, India had faced a supply embargo on SWUs [separative work units] from U.S., France, Russia and other Western nations. India has loaded 70 kg of indigenously produced mixed-oxide (MOX) fuel into the reactors this year. India had requested an open-ended agreement, but the PRC, after talks with the U.S., limited the supply to a period of one year.

Mark Hibbs, *NuclearFuel*, 10/24/94, p. 6 (12442).

1/5/95

India receives the first shipment of enriched uranium fuel purchased from the PRC under a commercial contract. The Indian Department of Atomic Energy (DAE) says that the low-enriched uranium (LEU) was delivered to Hyderabad, where it will be combined with Indian-made mixed-oxide (MOX) fuel and fashioned into fuel assemblies for India's Tarapur nuclear power station. The DAE does not disclose the value

of the commercial contract or the total quantity of LEU it intends to import from the PRC.

UPI, 1/5/95; in Executive News Service, 1/6/95 (12391). Jawed Naqvi, Reuter, 1/5/95; in Executive News Service, 1/6/95 (12391).

INDIA WITH ROMANIA

10/94

Ontario Hydro of Canada renews talks on the supply of heavy water to Romania, indicating that an Indo-Romanian agreement signed earlier this year may be breaking down. Under the agreement, Romania was to lease 350-400 metric tons (MT) of heavy water for use in its Cernavoda-1 power station from India, and in exchange was to send Romanian-produced heavy water to India at a later date. Western countries have exerted diplomatic pressure on Romania not to re-transfer heavy water to India, as heavy water is considered to be a reactor component under the IAEA's Zangger list. Western governments will officially ask Romania not to allow such a transfer because of India's continuing refusal to allow comprehensive IAEA safeguards at all of its nuclear facilities.

Mark Hibbs, *NuclearFuel*, 10/24/94, p. 6 (12210).

INDIA WITH RUSSIA

11/16/94

It is reported that Iraq, Iran, India, Pakistan, and other nations have set up trade offices in Moscow and are soliciting Russian research laboratories to work on their nuclear programs. Foreign nuclear projects are submitted to the government for approval, but it is reportedly "easy to bribe anyone in the hierarchy to grant approval, or to change the name of the project."

Kathleen Hart, *NuclearFuel*, 11/21/94, pp. 2-3 (12152).

12/24/94

During a visit to India by Prime Minister Viktor Chernomyrdin, Russia and India sign an agreement to build two 1000 MWe reactors in Koodangulan, India. Russian Minister of Atomic Energy Viktor Mikhailov said that the contract for the two VVER-type pressurized water reactors (PWRs) is

estimated to be worth \$2.6 billion. India will pay up to 15 percent of the total cost in hard currency; the remaining costs will be financed on credit. Another source indicates that approximately \$1.7 billion of the contract will be financed in the form of counter-trade. According to Mikhailov, the deal is the Ministry of Atomic Energy's largest contract signed in 1994. Construction of the power station will begin in 1995 and is expected to take eight years. About 1,000 Russian nuclear experts are expected to work on the project. Russia is expected to begin shipping equipment to India in 1996. Western officials indicated that, based on the fact that India will only be required to pay about \$400 million in hard currency, it is not yet clear whether Russia will be able to supply the two reactors.

Nuclear News, 2/95 (12414). *Rossiiskaya Gazeta*, 1/6/95, p. 10; in FBIS-SOV-95-005, 1/6/95 (12322). *Novecon*, 1/6/95; in *Uranium Institute News Briefing*, 1/6/95-1/11/95, p. 2 (12322). Michael Mihalka, *OMRI Daily Digest*, 2/23/95 (12322). Mark Hibbs, *Nucleonics Week*, 2/2/95, pp. 10-11 (12462).

1/12/95

It is reported that member governments of the Nuclear Suppliers Group (NSG) asked the Russian government to clarify unconfirmed reports that Russia signed a contract at the end of 1994 to supply India with two VVER-1000 reactors. Unidentified officials stated that Moscow had pledged in 1991 to supply reactor equipment only to those countries which have accepted full-scope safeguards. Moscow, however, indicated its intention to fulfill previous contracts with India. According to a former Soviet official, when the USSR agreed to the terms of the NSG components transfer policy in 1991, it was generally understood "that only the sale of heavy water to India would be 'grandfathered' since the (heavy-water) commerce pre-dated" Russia's commitment to the policy. There was, at the time, no reason to believe that a future reactor sale to India would be permitted without safeguards. India's pressurized heavy water reactors (PHWRs) are subject to safeguards, and Russia has supplied heavy water to them since the 1970s. Russia's Ministry of Atomic Energy indicated that NSG concerns about India were baseless because the

reactor's design will not allow the "industrial production of war plutonium."

Michael Mihalka, *OMRI Daily Digest*, 2/23/95 (12322). Mark Hibbs, *Nucleonics Week*, 2/2/95, pp. 10-11 (12462).

2/95

Officials from Russia's Ministry of Foreign Affairs have confirmed that the Ministry of Atomic Energy's sale of two VVER-1000 reactors to India will take place "only on the basis of full-scope IAEA safeguards."

Mark Hibbs, *Nucleonics Week*, 2/2/95, pp. 10-11 (12462).

INDIA WITH UNITED NATIONS

10/24/94

Indian Minister of State for External Affairs R.L. Bhatia tells the U.N. General Assembly's Disarmament and International Security Committee that a comprehensive treaty is needed to ban all types of nuclear testing.

Press Trust of India; in *Observer*, 10/26/94 (12213).

INDIA WITH UNITED STATES

Late 9/94

Officials in Vienna report that the U.S., the IAEA and India have held talks on India's use of mixed-oxide (MOX) fuel at its two U.S.-made Tarapur reactors. The U.S. believes that loading fuel into U.S.-origin reactors requires U.S. consent and IAEA safeguards. The Clinton administration is upset as its efforts to deter use of plutonium fuels outside the U.S. are being undermined by India's use of MOX fuel at Tarapur. The U.S. is also displeased about Indian attempts to engage the IAEA in discussions on exchanging unsafeguarded plutonium produced at Rajasthan reactors with equal amounts of safeguarded plutonium. India is interested in swapping the material so that it can improve the quality of the fuel loaded into its MOX facility. One safeguards expert questioned the propriety of the transaction, alleging that it would "allow India to legitimize production of weapon-grade material for future use as a reactor fuel." The U.S. and India are continuing discussions on nuclear cooperation and the issue of enrichment service supply.

Mark Hibbs, *NuclearFuel*, 10/24/94, p. 6 (12442).

11/14/94

U.S. Energy Secretary Hazel O'Leary says that the U.S. Nuclear Regulatory Commission (NRC) and the Indian Atomic Energy Regulatory Board (AERB) have begun informal talks focusing on cooperation in the area of safety in civilian nuclear power plants.

C. Raja Mohan, *Hindu*, 11/26/94, p. 12 (12227).

1/13/95

U.S. Secretary of Defense William Perry says that his recent trip to India "was not for the purpose of putting pressure on the Indian government," and adds that the U.S. government "understands very well that India has reservations about the NPT."

Dana Priest, *Washington Post*, 1/14/95, p. A22 (12209).

IRAN

INTERNAL DEVELOPMENTS

12/18/94

Iran urges that the Middle East be declared a nuclear weapons-free zone at the 1995 NPT Review and Extension Conference. Iranian Deputy Foreign Minister for International Affairs Mohammad Javad Zarif says that the conference should address the destruction of nuclear weapons states' nuclear arsenals and their non-deployment of such weapons in other countries.

Reuter, 12/18/94; in Executive News Service, 12/18/94 (12272).

1/11/95

According to the IAEA, its inspections in Iran have yielded no evidence that the nation is developing nuclear weapons. U.S. Secretary of Defense William Perry says that although the U.S. and Israel believe that Iran is pursuing a nuclear weapons program, Iran is years away from constructing a nuclear bomb unless it is aided by other countries.

Independent, 1/11/95; in *International Security*

Digest, 1/95 (12485). Reuter, 1/11/95; in Executive News Service, 1/11/95 (12525).

1/20/95

U.S. Secretary of State Warren Christopher states that Iran is undertaking a "crash effort to develop nuclear weapons" and expresses concern that other countries are assisting Iran in developing nuclear technology.

Steven Greenhouse, *New York Times*, 1/24/95, p. A4 (12298).

1/26/95

Thomas Graham, a senior official at the U.S. Arms Control and Disarmament Agency and the lead U.S. negotiator for the NPT Review and Extension Conference, is quoted as saying that Iran has "no current program" for the production of weapons-grade nuclear material.

Mark Hibbs, *Nucleonics Week*, 2/2/95, pp. 7-8 (12297).

2/16/95

Tehran radio, quoting Iranian Foreign Ministry Spokesman Mahmoud Mohammadi, says that Iran was the first nation to propose a nuclear-free zone in the Middle East, and had consequently signed the NPT. Iran plans to stay on as a signatory to the NPT after the Review and Extension Conference in 4/95.

Reuter; in Executive News Service, 2/16/95 (12554).

IRAN WITH AZERBAIJAN

1/95

It is reported that Iran has acquired nuclear technology from Azerbaijan.

Chris Hedges, *New York Times*, 1/5/95, p. A5 (12420).

IRAN WITH GERMANY

Late 1994

The German Economics Ministry and German industry recommend the removal of Iran from Germany's export trigger list, called the "H-List." Any exports to a country on that list require interagency authorization as well as a permit from Germany's Federal Export Authority. However, due to objections from the Ministry of Foreign Affairs, Iran is not included on the list of 24 coun-

tries to be cut from the H-list as of 1/1/95.

Mark Hibbs, *Nucleonics Week*, 12/15/94, pp. 10-11 (12281). Mark Hibbs, *NuclearFuel*, 12/5/94, pp. 4-5 (12281).

IRAN WITH IAEA

10/3/94

IAEA Director General Hans Blix says that unless it is substantiated that Iran has violated the NPT, the Agency will continue to provide technological aid to Iran. Blix says the IAEA is assisting Iran in matters related to food irradiation, radioactive isotopes, and radiation protection.

Mark Hibbs, *Nucleonics Week*, 10/6/94, p. 11 (12439).

IRAN WITH IRAQ AND RUSSIA

10/17/94

Russian special services in Moscow find 27 kg of U²³⁸ and U²³⁵ in the trunk of a Volvo. The two isotopes were "mixed" together. Unofficial reports indicate that Iranian businessmen intended to buy the Russian uranium for \$1.5 million and then resell it to Iraq. The car belonged to one of the arrested businessmen.

NTV (Moscow), 10/17/94; in FBIS-SOV-94-201, 10/17/94 (12167).

IRAN WITH ISRAEL

1/11/95

In response to speculations in Western media that Israel is considering an attack on Iran's Bushehr nuclear plant, Iran warns Israel that such an attack would be a "blunder."

Ralph Joseph, UPI, 1/11/95; in Executive News Service, 1/11/95 (12270).

1/12/95

Iran cautions Israel for a second time not to attack its Bushehr nuclear power plant.

Ralph Joseph, UPI, 1/12/95; in Executive News Service, 1/11/95 (12270).

IRAN WITH KAZAKHSTAN

8/92

Western intelligence reports state that Iran has purchased large quantities of low-enriched uranium (LEU) and beryllium from

the Ulba plant. Kazakhstani officials deny that the sales occurred.

Bill Gertz, *Washington Times*, 11/24/94, pp. A1, A18 (12584).

11/25/95

It is reported that a high-ranking Russian diplomat denied rumors that Kazakhstan would have sold its 600 kg cache of highly-enriched uranium (HEU) to Iran had the U.S. not purchased it first. According to the official, the Kazakhstani fuel could not be used in Iran's nuclear research reactor; Iran has no other operational nuclear power stations. Also, the official said, "Over the recent years, Iran has not shown any nuclear ambitions." The official contends that the motive behind such rumors is to give momentum to a plan to place nuclear programs in the CIS, particularly those in Russia, under either U.S. or international control.

Aleksandr Korzun, Igor Porshnev, Yevgeniy Terekhov, and others, Interfax (Moscow), 11/25/94; in FBIS-SOV-94-228, 11/25/94 (12140).

IRAN WITH NORTH KOREA

12/14/94

Israeli Prime Minister Yitzhak Rabin states during a visit to Japan that he believes North Korea is exporting nuclear weapons technology to Iran.

Peter Kenney, UPI, 12/14/94; in Executive News Service, 12/14/94 (12522).

IRAN WITH PAKISTAN

1/11/95

U.S. Secretary of Defense William Perry says that he has no information that Pakistan is providing nuclear technology to Iran.

Reuter, 1/11/95; in Executive News Service, 1/11/95 (12525).

IRAN WITH PRC

10/5/94

It is reported that U.S. officials believe that the PRC is providing Iran and Algeria with nuclear weapons technology.

Bill Gertz, *Washington Times*, 10/5/94, p. A3 (12122).

11/17/94

The PRC's Ambassador to Iran says that the

two 300 MW reactors that the PRC is building for Iran are intended for non-military use only.

UPI, 11/17/94; in Executive News Service, 11/17/94 (12480).

IRAN WITH RUSSIA

9/23/94

Mikhail Ryzhov, Director of International Relations at Russia's Ministry of Atomic Energy, announces that the Ministry and the Atomic Energy Organization of Iran (AEOI) have drafted a contract for completion of Iran's Bushehr-1 nuclear power reactor. AEOI director Reza Amrollahi expects the project to be finished by 1999. A five-year development plan for Bushehr will begin in 3/95. Construction will entail the installation of VVER-1000 equipment, including a pressure vessel, into the existing reactor building. Iran has indicated that it would prefer U.S., German, or other Western assistance in completing Bushehr's construction. However, the German government has prevented German enterprises from providing such assistance, due in part to strong U.S. opposition.

Mark Hibbs, *Nucleonics Week*, 9/29/94, pp. 3-4 (12325). *Post-Soviet Nuclear Complex Monitor*, 10/5/94, p. 11; in *Uranium Institute News Briefing*, 10/5/94-10/11/94, p. 2 (12325). *Middle Eastern Economic Digest*, 12/2/94 (12325). *Washington Times*, 1/10/95, p. A13 (12324). Reuter, 1/8/95; in Executive News Service, 1/8/94 (12324). *Nuclear Engineering International*, 11/94, p. 10 (12325).

11/16/94

It is reported that Iraq, Iran, India, Pakistan, and other nations have set up trade offices in Moscow and are soliciting Russian research laboratories to work on their nuclear programs. Foreign nuclear projects are submitted to the government for approval, but it is reportedly "easy to bribe anyone in the hierarchy to grant approval, or to change the name of the project."

Kathleen Hart, *NuclearFuel*, 11/21/94, pp. 2-3 (12152).

1/95

It is reported that U.S. Secretary of State Warren Christopher said that Russia's plans to help Iran complete nuclear power plants "should not go forward because it enhances Iran's capacity [to produce nuclear weap-

ons]." Despite the fact that the Russian reactors are to be used for peaceful purposes, the U.S. maintains that any assistance in the nuclear field will enhance Iran's ability to obtain nuclear weapons. Senator John McCain, cosponsor of a 1992 law that requires mandatory economic sanctions and termination of aid to any country that assists Iran or Iraq in acquiring nuclear weapons, stated that he is "seriously concerned" about the Clinton administration's failure to cut off aid or impose sanctions against Russia. Russia maintains that it has the right to sell nuclear reactors to Iran, especially in light of the fact that the U.S. and its allies have arranged to give North Korea similar technology. The U.S. is pressuring Russia to include in the contract a provision for the return of Iran's spent fuel to Russia.

Sid Balman, UPI (Washington), 2/13/95; in Executive News Service, 2/13/95 (12420). Elaine Sciolino, *New York Times*, 2/23/95, p. A6 (12420). Thomas Lippman, *Washington Post*, 2/11/95; in Executive News Service, 2/11/95 (12420). James Phillips, *Washington Times*, 1/19/95, p. A18 (12420). Chris Hedges, *New York Times*, 1/5/95, p. A5 (12420). Charles W. Holmes, *Washington Times*, 2/12/95, pp. A1, A9 (12420).

1/8/95

Viktor Mikhailov, Russia's Minister of Atomic Energy, and Reza Amrollahi, President of Iran's AEOI, sign an \$800 million contract that commits Russia to complete one of two nuclear reactors in Bushehr within four years. The contract formalizes a 1993 Russian-Iranian "agreement in principle" to complete the facility.

UPI, 1/8/95 (12324). *Washington Times*, 1/10/95, p. A13 (12324).

1/20/95

It is reported that Russia may have been secretly assisting Iran in basic nuclear research since the 1980s. A Nuclear Research Center (NRC) was established in Iran with Western assistance in 1967. The NRC's reactor acquired "critical assembly capability" in 1990, which suggests that Iran—a state with little nuclear technology of its own—received assistance from Russia and/or Pakistan.

Marko Milivojevic, *Middle East International*, 1/20/95, p. 14 (12465).

2/5/95

Russian Atomic Energy Minister Viktor

Mikhailov reports that Tehran and Moscow have agreed that, in addition to completing the Bushehr nuclear power plant, Russia will train Iranian scientists, supply several Iranian universities with experimental reactors, and help Iran construct a nuclear-powered desalinization facility.

Washington Times, 2/7/95, p. 14 (12149). *PPNN Newsbrief*, Fourth Quarter 1994, p. 10 (12149).

2/20/95

The Russian Ministry of Atomic Energy reports that, in addition to one 1,000 MW reactor, Russia may later construct a second 1,000 MW reactor and two 440 MW reactors at the Bushehr site. Russia and Iran have agreed that Iranians will be trained at Russian universities on how to operate Bushehr's reactors. There are currently 150 Russian workers at the Bushehr site and their numbers are soon expected to reach 200.

Financial Times, 2/21/95, p. 4 (12324). Marina Barinova, Itar-Tass (Moscow), 2/16/95; in FBIS-SOV-95-033, 2/16/95 (12421). Interfax (Moscow), 2/15/95; in FBIS-SOV-95-031, 2/15/95 (12421).

2/21/95

Aleksei Yablokov, Chairman of the Security Council Commission for Ecological Security, states that the nuclear power plant Russia is planning to build in Bushehr will have the capability to produce weapons-grade plutonium. Yablokov says, "Thanks to Russia, Iran will be in a position to get the nuclear bomb within a few years."

Penny Morvant, *OMRI Daily Report*, 2/22/95 (12326).

2/22/95

Reuter quotes U.S. State Department spokesperson Christine Shelly as saying that, in spite of U.S. opposition to Russia's agreement to sell nuclear reactors to Iran, the Clinton administration is committed to continued aid for Russia. Speaker of the U.S. House of Representatives Newt Gingrich stated that the U.S. should end aid to Russia if it follows through with supplying the nuclear reactors to Iran. On 2/23/95, Russian Deputy Foreign Minister Georgy Mamedov will finish talks in Washington on the Russian-Iranian deal.

Michael Mihalka, *OMRI Daily Report*, 2/23/95 (12150).

IRAN WITH RUSSIA AND UKRAINE

3/94

According to Germany's Federal Intelligence Service (BND), 11 of 60 Ukrainian-origin nuclear warheads disappear "on Russian territory" during transport to Russia for dismantlement; Iran was reportedly the "interested buyer." The BND also said that, in a previously unpublicized case, arrested criminals had attempted to "blackmail the land of Baden-Wuerttemberg" by saying that there were six nuclear warheads in the Baden-Wuerttemberg area.

Gunther Schnattman, *Focus* (Munich), 10/17/94, pp. 87-89; in JPRS-TND-94-020, 11/17/94, pp. 35-36 (12062).

IRAN WITH TURKMENISTAN

1/95

It is reported that Iran has acquired nuclear technology from Turkmenistan.

Chris Hedges, *New York Times*, 1/5/95, p. A5 (12420).

IRAQ

INTERNAL DEVELOPMENTS

1981-1987

Iraq is involved in a program aimed at the acquisition and development of laser isotope separation technology. Iraq ceases work in this area before it acquires even a low-level laser enrichment capability.

PPNN Newsbrief, Fourth Quarter 1994, pp. 16-17 (12271).

9/23/94

U.S. CIA Director James Woolsey warns that despite the U.N.'s highly-advanced monitoring system, Iraq is "accelerating construction of deep underground shelters and tunnels to produce and store weapons of mass destruction." Military analyst Paul Beaver adds that reports indicate that there are 7,000 Iraqi scientists working at hidden sites in the mountains.

Washington Times, 10/7/94, p. A19 (12289).

10/14/94

It is reported that according to U.N. Special Commission (UNSCOM) Chief Field Officer Jaako Ylitako, more than 12,000 employees were once working in Iraq's nuclear program.

Mark Nicholson, *Financial Times*, 10/14/94, p. 5 (12527).

IRAQ WITH AUSTRIA, BELGIUM, DUBAI, AND PAKISTAN

10/24/94

It is reported that Boehler Edelstahl of Graz, a state-owned Austrian firm, provided Iraq with 100 tons of maraging steel in 1989 and may have supplied it with an additional 6 MT in 1990. According to the IAEA, the 1989 shipment of Austrian steel was originally meant for the manufacture of machine tools in Pakistan. However, it was diverted to Iraq via Belgium, Dubai and Saudi Arabia, with part of the route covered by two Pakistani cargo ships. The plan to obtain the steel was coordinated by Iraq's State Establishment for Mechanical Industries through a London broker named Malik, who ordered the material through Euro-Com, a firm with addresses in both the U.K. and Saudi Arabia. The 100 MT of maraging steel which Iraq received might have been sufficient for the production of 5,000 rotor endcaps and baffles, although it is believed that Iraq could not have manufactured more than 2,000 working rotors. Only 3 tons of the steel had been used prior to its discovery, and the rest was destroyed soon after. However, in 1990, Boehler Edelstahl sent another shipment of 6 MT of maraging steel to an unknown destination. The shipment was sent free on board (FOB) to Hamburg on a Finnish National Shipping Line ship bound for Rotterdam, Felixstowe, the United Arab Emirates, Karachi, and Bombay; the 1989 shipment had been sent FOB to Antwerp. Iraq, however, has not notified the IAEA that it had acquired an extra 6 MT of maraging steel, and it has been suggested that it may have gone to Pakistan or India. Western government officials say that the 6 MT shipment is "missing."

PPNN Newsbrief, Fourth Quarter 1994, pp. 16-17 (12271). *Nuclear Engineering International*, 11/94, p. 6 (12271).

IRAQ WITH IAEA

1989

The IAEA approves a program to "assist the Iraqi Atomic Energy Commission in a feasibility study towards the acquisition and utilization of a low energy cyclotron . . . [and to] help in construction and in putting the cyclotron into operation." Although the cyclotron involved in the IAEA program was not militarily significant, an IAEA spokesman stated that the agency may have unknowingly aided Iraq's nuclear weapons program. Indigenous cyclotron development was critical for Iraq's enrichment program.

Nuclear Engineering International, 2/95, p. 9 (12483).

IRAQ WITH IRAN AND RUSSIA

10/17/94

Russian special services in Moscow find 27 kg of U²³⁸ and U²³⁵ in the trunk of a Volvo. The two isotopes were "mixed" together. Unofficial reports indicate that Iranian businessmen intended to buy the Russian uranium for \$1.5 million and then resell it to Iraq. The car belonged to one of the arrested businessmen.

NTV (Moscow), 10/17/94; in FBIS-SOV-94-201, 10/17/94 (12167).

IRAQ WITH RUSSIA

10/4/94

It is reported that after a number of German nuclear smuggling-related arrests in 1994, Iraqi officials are "known" to have met with Russian businessmen and a former high-ranking employee of a Russian nuclear facility "to assess the damage and find alternative routes for the fissile material." Although intelligence organizations have no information suggesting that Iraq or other "nuclear ambitious" countries have acquired weapons grade nuclear material from Russia, there is concern within the intelligence community that the German arrests may lead the Iraqis to try to smuggle nuclear materials using "established" Far Eastern contacts.

Michael Evans and Michael Theodoulou, *Times* (London), 10/4/94 (12070).

10/11/94

It is reported that, during a recent conference in Cambridge, Massachusetts, 17 Russian General Officers stated that it was "highly likely" that Russian nuclear weapons designers had been lured to Iraq's weapons program by offers of high-paying jobs.

Arnaud de Borchgrave, *Washington Times*, 10/11/94, p. A1 (12145).

11/16/94

It is reported that Iraq, Iran, India, Pakistan, and other nations have set up trade offices in Moscow and are soliciting Russian research laboratories to work on their nuclear programs. Foreign nuclear projects are submitted to the government for approval, but it is reportedly "easy to bribe anyone in the hierarchy to grant approval, or to change the name of the project."

Kathleen Hart, *NuclearFuel*, 11/21/94, pp. 2-3 (12152).

IRAQ WITH UNITED NATIONS AND IAEA

10/11/94

According to the U.N. Special Commission (UNSCOM), the monitoring system to hinder Iraq's efforts to rebuild its weapons of mass destruction is "provisionally operational." UNSCOM Chairman Rolf Ekeus gives a 38-page report to the U.N. Security Council which portrays the present system to monitor the elimination of Iraqi weapons of mass destruction as "the most comprehensive international monitoring system ever established in the sphere of arms control." Since the end of the Gulf War, 98 inspection missions have taken place and 29 inspection teams have gone to Iraq. UNSCOM's Baghdad Monitoring and Verification Center will eventually comprise 80 staff members.

Jon B. Wolfsthal, *Arms Control Today*, 11/94, p. 29 (12526).

10/14/94

A seven-member U.N. nuclear inspection team goes to Baghdad to monitor Iraq's suspected nuclear weapons development facilities. U.N. spokesman Ronald Osphal says that the team, led by IAEA official Garry Dillon, will spend some ten days in Iraq. During the mission, Dillon takes water samples from 16 sites in Iraq. The IAEA is

keeping two inspectors in Baghdad in order to conduct unannounced inspections, Dillon says. The U.N. Special Commission has been involved in the dismantling of at least 82 sites which were known to be part of Iraq's efforts to build nuclear weapons.

Abbas Salman, Reuter, 10/15/94; in Executive News Service, 10/15/94 (12253). Mark Nicholson, *Financial Times*, 10/14/94, p. 5 (12527). Reuter, 10/21/94; in Executive News Service, 10/21/94 (12253).

Late 10/94

Iraq sends a letter to UNSCOM Chairman Rolf Ekeus pledging further cooperation with Ekeus' supervision of the destruction of Iraq's weapons of mass destruction.

Reuter, 10/31/94; in Executive News Service, 10/31/94 (12252).

11/9/94

UNSCOM Chairman Rolf Ekeus says that the U.N. Special Commission on Iraq may cease functioning by 2/95 because of critical financial difficulties. UNSCOM requires \$25 million to continue its operations in 1995, which includes \$5 million needed for 12/94.

UPI, 11/9/94; in Executive News Service, 11/9/94 (12290). *UN Weekly*, 11/15/94 (12290).

1/24/95

It is reported that during its inspections in Iraq, the IAEA had discovered a list of U.S.-made components and handed it over to U.S. investigators in 3/94. The components on the list included krytrons (used in triggering nuclear detonations), and were made by 27 different U.S. companies. A U.S. Justice Department investigation led by John M. Hogan has revealed that U.S. nuclear equipment, including krytrons, was illegally shipped to Iraq prior to the 1991 Gulf War.

John J. Fialka, *Wall Street Journal*, 1/24/95, p. A24 (12556).

2/22/95

UNSCOM Chairman Rolf Ekeus states that U.N. inspectors, with IAEA assistance, have concluded "that Iraq has no capability to produce a nuclear bomb." Ekeus adds that Iraq does not possess the fissile material needed to manufacture a nuclear bomb.

Leon Barkho, Reuter, 2/22/95 (12484).

ISRAEL

INTERNAL DEVELOPMENTS

11/9/94

It is reported that Israeli Foreign Minister Shimon Peres stated that Israel would be prepared to sign the NPT and allow international inspection of its nuclear sites, provided that a Middle East peace accord is accepted and an agreement to eliminate weapons of mass destruction from the region is concluded.

Washington Times, 11/9/94, p. A22 (12126).

12/14/94

Israeli Prime Minister Yitzhak Rabin states during a visit to Japan that he is concerned about nuclear proliferation in the Middle East and wants to establish a nuclear weapon free zone, to be monitored by all Middle Eastern nations. He says that the NPT and the IAEA have been "ineffective" in their attempts to monitor the region.

Peter Kenny, UPI, 12/14/94; in Executive News Service, 12/14/94 (12522).

12/15/94

It is reported that an Israeli government policy committee, headed by Foreign Minister Shimon Peres, has decided to change aspects of Israeli nuclear secrecy policy. Peres believes that after "a partial lifting of the secrecy that surrounds Israel's nuclear capability," Israel would be able to legitimately introduce a regional nuclear-freeze proposal, which could allow it to maintain a technological advantage while limiting regional proliferation.

Intelligence Newsletter, 12/15/94, p. 6 (12232).

1/11/95

Israeli Foreign Minister Shimon Peres indicates that Israel will not sign the NPT at the 4/95 NPT Review and Extension Conference, adding that Israel "has no intention of introducing nuclear weapons into the Middle East."

Reuter, 1/11/95; in Executive News Service, 1/11/95.

95 (12123).

2/1/95

Israeli Foreign Minister Shimon Peres announces that Israel will not sign the NPT, for two reasons. Peres said the first reason is that Israel is surrounded by countries like "Iran, Iraq, and to some extent Libya" that want to destroy it, and can only be deterred by the "fear or suspicion" that Israel has nuclear weapons. Second, Peres said, certain signatories such as Iran and Iraq have not taken their treaty commitments seriously.

Howard Goller, *Reuter*, 2/1/95; in *Executive News Service*, 2/1/95 (12335).

2/6/95

Israeli Foreign Minister Shimon Peres tells the U.N. Security Council that Israel will not sign the NPT.

Yomiuri Shimbun, 2/8/95 (12331).

2/13/95

Gan Gerald Steinberg, the Research Director at Israel's BESA Center for Strategic Studies at Bar-Ilan University in Ramat, says that the Israeli government may open its nuclear facilities to international inspections, and that "Israel has a major security interest in extending the [NPT] and would not want to see any Arab country, including Egypt, renounce its treaty obligations."

Sharone Parnes, *Defense News*, 2/20/95-2/26/95, p. 6 (12334).

Late 2/95

Israeli sources report that Israel has said that two years after a peace treaty is signed by all the Middle Eastern countries, it will sign a nuclear weapons-free zone agreement for the Middle East, and will consider signing the NPT.

Nucleonics Week, 3/9/95, p. 15 (12334).

ISRAEL WITH EGYPT

12/19/94

Israeli President Ezer Weizman arrives in Egypt for a three-day official visit, and Egyptian Foreign Minister Amr Moussa states that "the issue of weapons of mass destruction must be dealt with immediately, in conjunction with the peace process and the general vision for the future of the re-

gion."

UPI, 12/19/94; in *Executive News Service*, 12/19/94 (12333).

2/1/95

Egyptian Foreign Minister Amr Moussa says that Egypt wants the Middle East to be free from all weapons of mass destruction and "cannot accept the situation of having an (Israeli) nuclear program unknown and unaccounted for."

UPI, 2/2/95; in *Executive News Service*, 2/2/95 (12330).

2/20/95

An Israeli official says that Israel has offered Egypt a "guided tour" of its Nahal Sorek nuclear reactor facility, which is open to [IAEA] inspection. Egypt refuses; it is interested in seeing the top-secret nuclear reactor at Dimona.

Jeffrey Heller, *Reuter*, 2/20/95; in *Executive News Service*, 2/20/95 (12336).

2/23/95

Israeli Foreign Minister Shimon Peres and Egyptian President Hosni Mubarek meet to discuss their dispute over the NPT, and end the meeting without any formal conclusions. It is reported that Egyptian officials suggest that Israel pledge to sign the NPT after a mutually agreed-upon period of time and open its nuclear facilities to IAEA inspections. In late 2/95, Israeli sources report that Israel has said that two years after a peace treaty is signed by all the Middle Eastern countries, it will sign a nuclear weapons-free zone agreement for the Middle East and will consider signing the NPT.

Nucleonics Week, 3/9/95, p. 15 (12334). Chris Hedges, *New York Times*, 2/24/95, p. A5 (12336). *Reuter*, 2/23/95; in *Executive News Service*, 2/23/95 (12336). John Lancaster, *Washington Post*, 2/24/95, p. A16 (12336).

2/24/95

Israeli Foreign Minister Shimon Peres says that Israel will not give Egypt access to its Dimona facility. He says that access to Dimona would be "very dangerous" because if Egypt visits the facility and does not find anything, it would "ruin [Israel's] deterrent."

John Lancaster, *Washington Post*, 2/24/95, p. A16 (12336).

ISRAEL WITH MIDDLE EAST

12/13/94

The London-based Arabic-language newspaper *Al-Hayat* reports that the League of Arab States has asked its 22 member nations not to "ratify" the NPT unless Israel signs the treaty and permits IAEA inspections of its nuclear installations. [Presumably, the article is referring to the states' votes on NPT extension - ed.]

UPI, 12/13/94; in *Executive News Service*, 12/13/94 (12230).

1/10/95

Arab League Secretary-General Esmat Abdel-Meguid states that Israel's nuclear arsenal is a menace to Middle East stability, echoing a statement made on 1/9/95 by Egyptian Foreign Minister Amr Moussa.

Reuter, 1/10/95; in *Executive News Service*, 1/10/95 (12230).

1/13/95

Sheikh Mohammed Mahdi Shamseddine, the religious leader of Lebanon's Shi'ite Muslims, issues a "fatwa," or religious edict, prohibiting Muslim states from "signing" the NPT unless Israel signs it first and dismantles its nuclear weapons stockpile. Shamseddine also says that Arab and Muslim countries should be involved in monitoring Israel's compliance with the NPT.

Reuter, 1/14/95; in *Executive News Service*, 1/14/95 (12230).

1/24/95

The Syrian government asks the U.S. to pressure Israel to permit international inspections of its nuclear facilities and to sign the NPT. The Syrian ruling party's *al-Baath* newspaper expresses Syria's endorsement of the Egyptian stance that Arabs should have the right to acquire nuclear weapons if Israel fails to sign the NPT.

Washington Times, 1/25/95, p. A14 (12125).

1/26/95

The Arab delegation at the [Fourth] preparatory committee meeting for the NPT Review and Extension Conference announces that it will not support the indefinite extension of the NPT because Israel is not yet a signatory to the Treaty.

Rym Brahimi, *Reuter*, 1/26/95; in *Executive News Service*, 1/26/95 (12337).

1/30/95

Iraq's Permanent Representative to the Arab League Nabil Najem summons other Arab states to resist supporting an indefinite extension of the NPT, stating that "there must be a link between the extension of the [NPT] and Israel's acceptance to sign it and . . . open all its nuclear reactors to international inspection."

Reuter, 1/31/95; in Executive News Service, 1/31/95 (12337).

2/2/95

Arab League Assistant Secretary-General for Political Affairs Adnan Omran says that the Arab League hopes that an upcoming announcement of the Middle East's intentions of becoming a weapons of mass destruction-free zone, which would be endorsed by all twenty-two members of the League, would pressure Israel to sign the NPT. Omran says, "If Israel does not sign the treaty, the central countries [major Muslim powers] will in turn not sign...[and] the region will be open for a nuclear arms race."

UPI, 2/2/95; in Executive News Service, 2/2/95 (12330).

2/9/95

Algerian Foreign Minister Mohamed Salah Dembri says at a session of the Conference on Disarmament in Geneva that Israel should sign the NPT, and should support a nuclear weapon free zone in the Middle East.

Reuter, 2/9/95; in Executive News Service, 2/9/95 (12337).

ISRAEL WITH MOLDOVA, ROMANIA, AND UKRAINE

10/10/94

Romanian police from the General Police Inspectorate's Weapons, Explosives, and Drugs Department arrest seven men attempting to sell 7 kg of uranium and strontium in a lead pipe. Three Moldovans (Victor Barta, Ion Bulgariu, and Ion Baleca (a former Red Army officer)), two Israeli citizens (Fuad Abdel Hatem and Abdul Hafez Moh'D Salem), and two Romanians (Dumitru Iordan and Florin Lenghel) are arrested in the village of Urechesti near the Ukrainian border. According to Romanian Interior Minister Doru Ioan Taracila, Baleca smuggled

the nuclear material out of Ukraine to Moldova, where it was then given to a group of people in the Romanian province of Transylvania. These intermediaries tried to sell the material to Salem and Hatem, offering the uranium for \$400,000, and the strontium for \$250,000. At a 10/12/94 press conference, Romanian police and Interior Ministry officials state that they believe Hatem and Salem intended to smuggle the material to either Germany or the Netherlands.

Financial Times, 12/10/94 (12055). Patru Musat, *Adevarul* (Bucharest), 10/12/94, p. 1; in JPRS-TND-94-020, 11/17/94, p. 11 (12259). Peter Bale, Reuter (Bucharest), 10/12/94; in Executive News Service, 10/12/94 (12206).

ISRAEL WITH UNITED NATIONS

11/17/94

The U.N. General Assembly's Disarmament and International Security Committee adopts a resolution calling on all non-NPT signatory states in the Middle East, including Israel, to abstain from the development, production, and testing of nuclear arms and agree not to possess nuclear arms.

Reuter, 11/17/94; in Executive News Service, 11/17/94 (12080).

ISRAEL WITH UNITED STATES

11/94

The U.S. government grants approval for the shipment of nine supercomputers to Israeli universities that are allegedly involved in Israel's nuclear weapons program. The computers are used to gather data from simulated nuclear weapons tests.

David Hirst, *Guardian*, 2/24/95 (12547).

1/95

The U.S. State Department releases records indicating that the U.S. was aware as early as 1961 of Israel's secret efforts to develop nuclear weapons.

Jim Anderson, Deutsche Presse Agentur; in *Washington Times*, 1/28/95, p. A7 (12345).

JAPAN

INTERNAL DEVELOPMENTS

9/28/94

Japan Atomic Energy Research Institute (JAERI) Director Shohjiro Matsuura says that despite Japan's new "stabilized plutonium fuel" (SBF) technology, Japan still plans to reprocess spent fuel and to use mixed-oxide (MOX) fuel. SBF technology uses a procedure that burns weapons-grade plutonium in commercial reactors but does not result in "reprocessible" spent reactor fuel. JAERI scientists are preparing to test the SBF technology and expect it will be ready for use in conventional light water reactors (LWRs) within three years.

Margaret L. Ryan and Naoaki Usui, *NuclearFuel*, 10/10/94, p. 14 (12445).

10/20/94

Officials from Japan's Atomic Energy Commission (AEC) says the five of its ten electric power companies (Tokyo Electric Power Co., Kansai Electric Power Co., Kyushu Electric Power Co., Chubu Electric Power Co., and Japan Atomic Power Co.) plan to begin using a uranium-plutonium mix [mixed-oxide] fuel in their nuclear power plants. The AEC says that the fuel will reduce plutonium waste by 60 percent.

UPI, 10/20/94; in Executive News Service, 10/20/94 (12445).

11/11/94

Kishichiro Amae, the deputy press secretary for Japan's Foreign Ministry, indicates that Japan's new export controls are intended as a substitute for COCOM regulations, and expresses Japan's desire to see other "major exporters" of high-technology goods adhere to such a regime.

Naoaki Usui, *Defense News*, 11/14/94, p. 28 (12292).

11/22/94

Although Japan's plutonium stockpile is sufficient for the fabrication of some 500

nuclear weapons, Japan's Science and Technology Agency (STA) Director of Atomic Energy Policy Research Shinichiro Izumi stresses that Japan will "adhere strictly to the NPT."

Naoaki Usui, *Defense News*, 11/28/94, p. 4 (12523).

11/25/94

Japan's Atomic Energy Commission (AEC), in an effort to defuse international concern over its plutonium holdings, reveals the size of its plutonium reserves in its 1994 Nuclear Energy White Paper. At the end of 1993, Japan's plutonium stockpile included 4,684 kg of separated plutonium in Japan, and an additional 6,197 kg of separated plutonium oxide in France and the U.K.

Naoaki Usui, *Nucleonics Week*, 12/1/94, pp. 13-14 (12523).

1/95

Japan's FY 1995 nuclear draft budget totals 480 billion yen, an increase of 5.2 percent from 1994. The budget includes 194 billion yen in the general account, mostly for nuclear research and development, and 295 billion yen for the special power resource development account. The budget allocates 8 billion yen for engineering design work in the International Thermonuclear Experimental Reactor project under the authority of the Japan Atomic Energy Research Institute. The budget also allocates funds for research and development in spent fuel reprocessing, safe transportation of nuclear materials, the prevention of nuclear disasters, and Japan's contributions to the IAEA and OECD/NEA.

Atoms in Japan, 1/95, pp. 4-13 (12476).

JAPAN WITH AUSTRALIA

2/10/95

The Australian company ERA signs a contract to sell natural uranium from the Ranger Uranium Mine to Japan's Kansai Electric, Shikoku Electric, and Kyushu Electric. Under the contract, the three Japanese utilities will buy a total of 9,072tU, from 1997 to 2006. An earlier contract between ERA and the Japanese utilities provides for the supply of approximately 13,600tU of U³⁰⁸, from 1982 to 1996.

Atoms in Japan, 2/95, p. 21 (12378).

JAPAN WITH BELGIUM AND FRANCE

1/17/95

The Kobe earthquake damages the dock in front of Mitsubishi Heavy Industries (MHI), possibly delaying shipment of replacement steam generators destined for Belgium. MHI produced the generators for Electrabel and Electricite de France (EdF) for use at the Tihange-1 nuclear plant. The generators, ordered in 1992, are the first sold by MHI to a company outside Japan.

Ann MacLachlan and Naoaki Usui, *Nucleonics Week*, 2/2/95, p. 5 (12251).

JAPAN WITH BELGIUM, FRANCE, AND UNITED STATES

Mid-10/94

Japan Nuclear Fuel (JNF) and General Electric Nuclear Energy of the U.S. create Joint Conversion Co. (JCC), to construct and operate a nuclear fuel powder fabrication facility in Wilmington, NC. The facility will use dry process technology licensed by Franco-Belge de Fabrication de Combustibles (FBFC). FBFC will also furnish training and components for the new plant. GE, which along with Hitachi and Toshiba is a joint owner of JNF, will be the majority owner and principal operator of the JCC facility. JCC's beginning capitalization of \$50 million was provided 54 percent by GE and 46 percent by JNF. The plant will have an annual capacity of 1,000 tons of dry UO₂, of which 20-30 percent is earmarked for fuel fabrication in Japan, with the balance intended for the U.S. construction is to begin in 1995, with start-up foreseen in 1997.

Wilson Dizard III, *NuclearFuel*, 10/24/94, p. 11 (12524). *Nuclear Engineering International*, 11/94, p. 10 (12524). *Nuclear News*, 11/94, p. 60 (12524). *Atoms in Japan*, 10/94, p. 28 (12524).

JAPAN WITH CANADA

10/20/94

It is reported that the Japan Atomic Energy Research Institute (JAERI) will purchase either 10 or 20 grams of the hydrogen isotope tritium from Canada's Ontario Hydro International for delivery by the end of FY 1994. JAERI's Tokai Research Establishment head Shohjiro Matsuura says that the

accord could be reached as early as the end of 10/94, and notes that tritium is priced at approximately \$100,000 per gram.

Naoaki Usui, *Nucleonics Week*, 10/20/94, p. 13 (12293).

JAPAN WITH CUBA, IRAN, IRAQ, NORTH KOREA, AND LIBYA

10/12/94

Japanese Ministry of International Trade and Industry (MITI) officials says that Japan will expand its export controls to include 100 high-technology goods which can be used in the fabrication of weapons of mass destruction, including nuclear weapons. The new controls will cover Japanese exports of dual-use technology products including machine tools, computer components, carbon textiles and specialty metals to Iran, Iraq, North Korea, Cuba, and Libya, and 15 other countries. MITI officials say they plan to implement the new controls by early 1995.

Kyodo (Tokyo), 10/12/94; in JPRS-TND-94-020, 11/17/94, pp. 5-6 (12292).

JAPAN WITH FRANCE

11/8/94-11/9/94

French and Japanese nuclear specialists discuss activities related to fast reactors and agree to work together in promoting the use of plutonium and increase cooperation among research and development bodies and power utilities from the two countries.

NucNet, 11/18/94 (12291). *Atoms in Japan*, 11/94, pp. 19-20 (12291).

JAPAN WITH FRANCE AND UNITED KINGDOM

11/25/94

Japan's Atomic Energy Commission (AEC) releases its 1994 Nuclear Energy White Paper, which reveals that at the end of 1993, 4,911 kg of Japanese plutonium were at Cogema's La Hague reprocessing facility in France, and 1,286 kg were at British Nuclear Fuels' (BNFL) Sellafield site. Japan's Science and Technology Agency (STA) Nuclear Fuel Division Director Yasutaka Moriguchi says that Japan might require a shipment of "a few tonnes [MT]" of fissile plutonium

from Europe in order to meet its annual plutonium needs of about 0.6 MT.

Naoaki Usui, *Nucleonics Week*, 12/1/94, pp. 13-14 (12523). *Enerpresse*, 11/29/94 (12523). Shinichi Kishima, *Reuter*, 11/25/94; in *Executive News Service*, 11/28/94 (12523).

JAPAN WITH IAEA

10/10/94

It is reported that according to Western diplomatic officials, the IAEA has requested that Japan quantify the amount of plutonium "held up" at the Power Reactor & Nuclear Fuel Development Corp.'s (PNC) Tokai Mura Plutonium Fuels Processing Facility (PFPF) by 1995. The IAEA is worried about the extent and pace of the build-up of plutonium at the facility, and wants verification that plutonium is not being diverted. Sources have noted the friction between the IAEA and Japan over the PFPF issue, and an IAEA official has stressed that Japan is impeding the IAEA Department of Safeguards' efforts to account for held-up plutonium at the plant. The IAEA has asked the PNC to measure the plutonium contained in the plant's hot cells using "destructive analysis" techniques. However, PNC officials are reluctant to cut up the cells, a process which is expensive and messy.

Mark Hibbs, *NuclearFuel*, 10/10/94, pp. 12-14 (12500).

JAPAN WITH INDONESIA

9/94

A team from Japan's Council for Nuclear Fuel Cycle (CNFC) visits Indonesia to discuss cooperation on the peaceful uses of nuclear energy. Japanese nuclear engineers currently instruct staff at Indonesia's Seprong Research and Development Center of the National Atomic Energy Agency (BATAN) in the use of radio-isotopes and in research reactor operations.

Plutonium, Autumn 1994, pp. 13-15 (12498).

JAPAN WITH KAZAKHSTAN

9/6/94

Kazakhstan and Japan sign an agreement in Almaty on the establishment of a nuclear materials control and accountancy system

in Kazakhstan. The agreement stipulates that Japan will provide experts and equipment—which Kazakhstan needs to meet IAEA safeguard obligations—to help establish a control system. Funding for the agreement's implementation will come from the 1.17 billion yen Japan disbursed to the Japan-Kazakhstan Committee, an organization set up by the two countries following a 3/94 bilateral agreement to eliminate Kazakhstan's nuclear weapons.

Kyodo (Tokyo), 9/6/94; in *JPRS-TND-94-020*, 10/17/94, p. 34 (12057).

11/7/94-11/11/94

The Japanese Ministry of Foreign Affairs and the Science and Technology Agency train six Belarusian and Kazakhstani nuclear experts in Japan on nuclear materials control, in accordance with an earlier agreement. The training involves discussions with experts from Power Reactor and Nuclear Fuel Development Corporation and the Japan Atomic Energy Research Institute. Foreign Ministry Spokesman Terusuke Terada expressed the hope that the training would be helpful in preventing nuclear materials smuggling in Kazakhstan.

Kyodo (Tokyo), 11/4/94; in *JPRS-TND-94-020*, 11/17/94, p. 7 (12059). *Atoms In Japan*, 11/94, p. 24 (12422).

JAPAN WITH MULTI-COUNTRY GROUP

1993-1994

The Japan Atomic Industrial Forum's (JAIF), 1994 "State of the Nuclear Industry" report, reveals that Japanese nuclear exports increased 11-fold during FY 1993 over FY 1992, to 38.34 billion yen. Items related to reactors comprised 2.3 billion yen in exports, while fuel-cycle related exports totalled 35.02 billion yen. The report is based on JAIF's survey of 545 Japanese firms, 488 of which have been involved in nuclear-related activities.

Naoaki Usui, *Nucleonics Week*, 12/15/94, p. 7 (12284).

JAPAN WITH NETHERLANDS, PRC, SWITZERLAND, AND UNITED STATES

11/94

It is reported that during FY 1994, Japan's

Science and Technology Agency (STA) will host nuclear experts from the PRC, the Netherlands, Switzerland, and the U.S. as part of a project, allotted 1.5 billion yen for the year, intended to promote "crossover research on nuclear energy." The experts will study beam application, computer software, nuclear materials, and the biological effects of radiation. The cooperative program involves 13 Japanese government institutions and promotes work on nuclear materials, artificial intelligence, laser applications, radiation risks, radiation beam applications, and the use of computers.

Atoms in Japan, 11/94, p. 22 (12294).

JAPAN WITH NORTH KOREA

See North Korea section.

JAPAN WITH PRC

11/14/94

Japanese Prime Minister Tomiichi Murayama asks Chinese President Jiang Zemin for "understanding in efforts to ban all nuclear testing." Zemin responds that the PRC's nuclear testing is "limited" and that Chinese policy is to work toward a complete ban on nuclear weapons.

Teruaki Ueno, *Reuter*, 11/16/94 (12090).

JAPAN WITH SLOVAKIA

12/94

It is reported that Japan's Science and Technology Agency (STA) will aid in decommissioning Slovakia's A-1 Bohunice Reactor. The project is to last for five years beginning in FY 1995. STA sent a team of nuclear safety specialists to Slovakia in 3/94, at which time Slovakia sought Japanese aid in decommissioning the reactor. The STA sent another team to Slovakia in 11/94 to discuss the specifics of the Japanese role in the project. Japanese experts, mainly from the Japan Atomic Energy Research Institute (JAERI), will provide advice on the planning, costs, and environmental effects of decommissioning the Slovak reactor, and may aid in the disposal of 132 spent fuel rods from the facility. The STA has asked the Japanese Ministry of Finance for

50 million yen in FY 1995 for the A-1 project. Under the terms of the agreement, Slovak experts are to visit Japan, and further technical cooperation is envisaged for two other Slovakian reactors.

Atoms in Japan, 12/94, p. 21 (12283). *NucNet*, 12/6/94 (12283).

JAPAN WITH TAIWAN

9/94

A team from Japan's Council for Nuclear Fuel Cycle (CNFC) visits Taiwan to discuss cooperation on the peaceful uses of nuclear energy.

Plutonium, Autumn 1994, pp. 13-15 (12498).

JAPAN WITH THAILAND

12/19/94

Japan's Atomic Energy Research Institute (JAERI) and Thailand's Office of Atomic Energy for Peace are expected to renew a 1991 cooperation agreement covering research on safety issues for nuclear research reactors. Under the accord, Japan has supplied a grant of 100 million yen to Thailand for "equipment and personnel exchange."

Thai Office of Atomic Energy for Peace; in *NucNet*, 12/15/94 (12129).

JAPAN WITH UNITED KINGDOM

11/24/94

It is reported that Forgemasters Steel & Engineering Ltd. (FSEL) of the U.K. has contracted with Mitsubishi Heavy Industries to supply three steam generator transition cones for domestic Japanese use. FSEL was also awarded an order for four more steam generators, over competing Japanese suppliers. FSEL Managing Director Peter Birtles says that FSEL expects to be involved in substantial additional contracts that the Japanese market will award "in the next few months."

Pearl Marshall, *Nucleonics Week*, 11/24/94, pp. 14-16 (12286).

1/95

It is reported that the U.K.'s AEA Technology inaugurates its new Japanese office with a technical seminar on fuel reprocessing and reactor life extension and decommissioning.

Some fifty Japanese nuclear officials attend the discussions.

Nuclear Engineering International, 1/95, p. 6 (12499).

JAPAN WITH UNITED STATES

11/94

It is reported that Genden Engineering Services and Construction Company (GESC), an affiliate of the Japan Atomic Power Company, has licensed NAC Services Inc. of the U.S. to produce and distribute GESC's high-performance neutron shielding materials outside of Japan. The U.S. Nuclear Regulatory Commission has approved the shielding materials for use in nuclear containers.

Nuclear News, 11/94, pp. 63-64 (12287).

LIBYA

LIBYA WITH DENMARK, ITALY, AND RUSSIA

10/10/94

The Danish newspaper *Jyllandsposten* alleges that Danish businessman Joergen Quist Nielson had worked for PET, Denmark's secret service organization, had made contacts with "Russian bigwig" Alexander Kuzin and Italy's "extreme rightist" Marci Affatigato, and had engaged in nuclear smuggling activities on behalf of a number of parties including Libya's Muammar al-Quadhafi. PET head Birgitte Stampe said that Nielson had never been employed by the organization. Out of concern that nuclear materials could be smuggled from Russia through Denmark by way of Finland and other Scandinavian countries, PET reports that it has stepped up inspections on goods and packages coming from Eastern Europe. A special PET task force has been established to conduct surveillance on individuals and businesses suspected of trading materials such as cesium, osmium, and red mercury. The organization said that plutonium, uranium, and other nuclear materials are "brought illegally to Denmark iden-

tified as other substances."

AFP (Paris), 10/10/94; in JPRS-TND-94-020, 11/17/94, p. 35 (12242).

NORTH KOREA

INTERNAL DEVELOPMENTS

9/94

U.S. government experts say that the Taechon 200 MWe nuclear reactor in North Korea is not being built for plutonium production. According to U.S. satellite information, the activity at the Taechon site does not indicate that it is being constructed to support North Korea's suspected nuclear weapons program. The U.S. government believes the site will be connected to North Korea's electrical grid. However, U.S. officials state that intelligence data indicates that North Korea has attempted to procure equipment and non-classified information on physics for indigenous nuclear weapon development. U.S. officials say some 70 high-explosive tests conducted near the 5 MWe Yongbyon nuclear reactor may have been implosion package tests for a nuclear device.

Mark Hibbs, *Nucleonics Week*, 10/13/94, p. 5 (12349).

9/30/94

South Korea releases a Defense White Paper which assesses North Korea's nuclear capabilities and concludes that North Korea is capable of constructing a nuclear arsenal, but has not produced any weapons so far.

Robert Karniol, *Jane's Defence Weekly*, 10/22/94, p. 6 (12370).

10/5/94

North Korean Deputy Foreign Minister Choi Su-han says at a 49th U.N. General Assembly meeting that new decisions regarding the NPT should include a ban on the use of all nuclear weapons by nuclear weapon states and that a timetable should be established "for the total abolition of nuclear weapons."

Anthony Gordon, Reuter, 10/6/94; in *Washington*

Times, 10/6/94, p. A13 (12544).

NORTH KOREA WITH IRAN

12/14/94

Israeli Prime Minister Yitzhak Rabin states during a visit to Japan that he believes North Korea is exporting nuclear weapons technology to Iran.

Peter Kenney, UPI, 12/14/94; in Executive News Service, 12/14/94 (12522).

NOTE: Because multilateral activities regarding North Korea's nuclear program involve different groupings of participants at various stages, the entries have been divided by topic as follows:

I. Negotiations Preceding the U.S.-DPRK Framework Agreement:

NORTH KOREA WITH IAEA, SOUTH KOREA, AND UNITED STATES

II. The Framework Agreement and Initial Reactions:

NORTH KOREA WITH IAEA, JAPAN, SOUTH KOREA, AND UNITED STATES

III. Response to the Agreement and U.S. Follow-up:

NORTH KOREA WITH CHINA, FRANCE, GERMANY, IAEA, ITALY, JAPAN, SOUTH KOREA, UNITED KINGDOM, UNITED NATIONS, AND UNITED STATES

IV. U.S. Congressional Review:

NORTH KOREA WITH UNITED STATES

V. Status of DPRK Facilities & IAEA Monitoring and Verification:

NORTH KOREA WITH IAEA, UNITED NATIONS, AND UNITED STATES

VI. Storage of Spent Fuel Rods:

NORTH KOREA WITH CHINA, FRANCE, IAEA, JAPAN, RUSSIA, SOUTH KOREA, AND UNITED STATES

VII. Creation of the Korea Energy Development Organization (KEDO) and Financing Arrangements:

NORTH KOREA WITH AUSTRALIA, CANADA, CHINA, FRANCE, GERMANY, JAPAN, RUS-

SIA, SOUTH KOREA, UNITED KINGDOM, AND UNITED STATES

VIII. Debate on LWR Supplier:

NORTH KOREA WITH GERMANY, JAPAN, RUSSIA, SOUTH KOREA, AND UNITED STATES

IX. North-South Relations:

NORTH KOREA WITH SOUTH KOREA AND UNITED STATES

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I. Negotiations Preceding the U.S.-DPRK Framework Agreement:

NORTH KOREA WITH IAEA, SOUTH KOREA, AND UNITED STATES

9/30/94

South Korean Foreign Minister Han Sung-joo and U.S. Secretary of State Warren Christopher meet during the 49th session of the U.N. General Assembly and assert that they will not make any concessions to North Korea until North Korea guarantees that it will open its nuclear program to scrutiny and stops threatening to reload fuel into its 5 MW Yongbyon nuclear reactor. The announcement follows a stalemate in the latest round of U.S.-DPRK negotiations on the North Korean nuclear issue, which began on 9/23/94. The deadlock centers on disagreement over who is to supply light water reactors (LWRs) to replace North Korea's graphite-moderated reactors, the future of the 8,000 spent fuel rods that were removed from the 5 MW Yongbyon reactor in mid-1994, and the reinstatement of inter-Korean talks. Han and Christopher reaffirm that South Korea should be the key supplier of LWRs to North Korea if North Korea will agree to dismantle its current graphite-moderated reactors.

Yonhap (Seoul), 10/1/94; in FBIS-EAS-94-191, 10/1/94 (12360).

10/2/94

South Korea decides it will "maximize the use of North Korean labor and construction materials" to build LWRs for North Korea in an effort to convince North Korea not to reject South Korean-type LWRs in the U.S.-DPRK negotiations on the nuclear issue.

Hanguk Ilbo (Seoul), 10/3/94, p. 1; in FBIS-EAS-94-191, 10/3/94 (12360).

10/3/94

South Korean Foreign Minister Han Sung-joo cautions North Korea that, if it reloads fuel rods into the 5 MW Yongbyon nuclear reactor, it will undermine the current efforts to come to a solution on the North Korean nuclear issue, despite the fact that the IAEA would not consider that illegal. In such a case, Han says, the matter could be sent to the U.N. Security Council.

Yonhap (Seoul), 10/4/94; in FBIS-EAS-94-192, 10/4/94 (12360).

10/4/94

U.S. officials state that the U.S. will continue to insist that North Korea cease its nuclear program in exchange for the economic and political benefits that U.S. Ambassador-at-Large Robert Gallucci had offered North Korean First Vice Minister of Foreign Affairs Kang Sok-ju in previous bilateral talks.

R. Jeffrey Smith and Ann Devroy, *Washington Post*, 10/5/94 (12544).

10/5/94

North Korean Deputy Foreign Minister Choi Su-han, in an address to the 49th U.N. General Assembly, cautions the IAEA and South Korea to refrain from creating problems in the next round of high-level talks between the U.S. and North Korea. Choi warns the IAEA not to pressure North Korea about so-called "special inspections." South Korean President Kim Young-sam reiterates the stance that South Korea is preparing to take during U.S.-DPRK talks, explaining that South Korea will "play a central role in providing [North Korea] with light-water reactors [LWR] if the nuclear issue is resolved, if North Korea's transparency is assured and if [a South Korean]-style LWR is chosen." U.S. Secretary of Defense William Perry explains that a North Korean demand that the U.S. provide an additional \$2 billion for the replacement of North Korea's graphite-moderated reactors with LWRs is one cause of the current impasse in bilateral negotiations on the North Korean nuclear issue.

UPI, 10/5/94; in Executive News Service, 10/5/94 (12544). *Kyonghyang Sinmun* (Seoul), 10/6/94, pp. 3-4; in FBIS-EAS-94-194, 10/6/94 (12544). Robert Evans, Reuter, 10/7/94; in Executive News Ser-

vice, 10/7/94 (12076).

10/6/94

The U.S. and North Korea resume high-level bilateral talks, led by U.S. Ambassador-at-Large Robert Gallucci and North Korean First Vice Minister of Foreign Affairs Kang Sok-ju, to discuss the North Korean nuclear issue after a series of working level talks on 9/30/94, 10/3/94, and 10/4/94. South Korean Defense Minister Rhee Byoung-tae says the U.S. and South Korea will consider reinstating Team Spirit joint military exercises if the North Korean nuclear impasse continues.

Charles Aldinger, Reuter, 10/6/94; in Executive News Service, 10/7/94 (12077). Yonhap (Seoul), 10/7/94; in FBIS-EAS-94-195, 10/7/94.

10/8/94

South Korean President Kim Young-sam claims the U.S. is too willing to relinquish concessions to North Korea in the bilateral negotiations on North Korea's nuclear program, and warns against a compromise settlement. He suggests that the issue should go to the U.N. if the U.S. and North Korea are unable to negotiate an agreement.

James Sterngold, *New York Times*, 10/8/94, p. A3 (12077). Robert Evans, Reuter, 10/9/94; in Executive News Service, 10/9/94 (12077).

10/10/94-10/11/94

U.S. Ambassador-at-Large Robert Gallucci and North Korean First Vice Minister of Foreign Affairs Kang Sok-ju meet in Geneva to try to end the stalemate over the North Korean nuclear issue in bilateral negotiations. The U.S. proposes possible alternatives to North Korea for its nuclear program during the talks, but progress is uncertain.

Robert Evans, Reuter, 10/10/94; in Executive News Service, 10/10/94 (12364). Robert Evans, Reuter, 12/12/94; in Executive News Service, 10/12/94 (12364). AP; in *International Herald Tribune*, 10/13/94 (12364).

10/13/94

U.S. officials report that, during bilateral U.S.-DPRK nuclear talks, North Korea reversed its initial demand that the U.S. compensate North Korea financially if it converts its graphite-moderated nuclear reactors to LWRs and withdrew the threat to refuel its 5 MW Yongbyon nuclear reactor. U.S. diplomats report that U.S. and North Korean technical experts are approaching

agreement over the North Korean nuclear issue.

UPI, 10/13/94; in Executive News Service, 10/13/94 (12354).

Early to Mid-10/94

U.S. Secretary of Defense William Perry and South Korean Defense Minister Rhee Byoung-tae state, during the 26th South Korea and U.S. Security Consultative Meeting in Washington, D.C., that a decision to conduct 1994 Team Spirit joint military exercises will be postponed until the U.S. and South Korea can assess the results of the U.S.-DPRK bilateral nuclear talks.

Newsreview, 10/15/94, p. 5 (12354).

II. The Framework Agreement and Initial reactions:

NORTH KOREA WITH IAEA, JAPAN, SOUTH KOREA, AND UNITED STATES

10/17/94

Following talks in Geneva led by U.S. Ambassador-at-Large Robert Gallucci and South Korean First Vice Minister of Foreign Affairs Kang Sok-ju, the U.S. and North Korea reach a framework agreement, to be signed on 10/21/94, which provides for the replacement of North Korea's graphite-moderated nuclear reactors with light water reactors (LWRs). The accord specifies four main tasks that both countries will undertake to resolve the North Korean nuclear issue. First, the U.S. and DPRK agree to work together to substitute North Korea's graphite-moderated nuclear reactors with LWRs, which will have an approximate total generating capacity of 2,000 MW, by 2005. The U.S. will organize an international consortium (the Korean Energy Development Organization) to provide North Korea with the supplies and financial assistance for the LWR project. The U.S. will endeavor, as the representative of the consortium, to guarantee that the contract with North Korea for the LWR project is completed within six months. The U.S. and the international consortium will also help compensate North Korea for the energy loss that will occur, due to a freeze placed on its current nuclear reactors, with heavy oil and electricity production. North Korea will freeze operation of its graphite-

moderated nuclear reactors when it receives assurances that it will receive LWRs and that arrangements will be made for compensation of the energy loss. The IAEA is to supervise the freeze within one month of this accord. North Korea will also dismantle its graphite-moderated nuclear reactors when the LWR project is completed. North Korea and the U.S. agree to collaborate in finding safe storage for fuel extracted from the graphite-moderated reactors. Second, the U.S. and North Korea promise to make efforts to normalize their economic and political relations by reducing barriers to investment and trade. Third, the U.S. and North Korea will strive toward establishing a nuclear-weapon-free-zone that will ensure peace and security on the Korean Peninsula. This includes a U.S. assurance to North Korea that it will not use or threaten to use nuclear weapons against North Korea, as well as a North Korean commitment to make an effort to participate in dialogue with South Korea and to secure a joint North-South declaration that the Korean peninsula will become denuclearized. Fourth, the U.S. and North Korea agree to collaborate to fortify the nuclear nonproliferation regime in the following ways: North Korea will remain a member of the NPT and allow the IAEA to implement North Korea's safeguards agreement under the NPT; the IAEA will recommence its ad hoc and routine inspections of North Korea's active nuclear facilities when the contract for the provision of LWRs to North Korea is completed; and North Korea will fully comply with its IAEA safeguards agreement (INFCIRC/403) after the LWR project has neared completion, but before the principle nuclear components for the reactor are delivered.

U.S.-Korea Review, 9/94-10/94, p. 9 (12546). Robert Evans, Reuter, 10/17/94; in Executive News Service, 10/17/94 (12371). Alan Riding, *New York Times*, 10/18/94, pp. A1, A4. (12551). Steve Pagani, Reuter, 10/18/94; in Executive News Service, 10/18/94 (12551). Mark Hibbs, *Nucleonics Week*, 10/20/94, p. 17 (12551).

10/18/94

U.S. Ambassador-at-Large Robert Gallucci announces that North Korea will shut down its 5 MW Yongbyon nuclear reactor immediately after the U.S.-DPRK accord is signed

on 10/21/94. Gallucci also says that, under the terms of the agreement, North Korea will not remove any spent fuel rods from cooling ponds, will not restart operation of its graphite-moderated nuclear reactor, will stop construction on its other two graphite-moderated reactors, and will cease work on its reprocessing plant. It is reported that, during negotiations with the U.S., North Korea agreed for South Korea to be the key participant in financing and supplying LWRs to North Korea under the U.S.-DPRK nuclear accord.

Alan Riding, *New York Times*, 10/18/94, pp. A1, A4 (12551). Mark Hibbs, *Nucleonics Week*, 10/20/94, p. 17 (12551).

10/19/94

IAEA Director General Hans Blix states that the U.S.-DPRK nuclear accord further enables the IAEA and the world community to resolve the nuclear issue in North Korea, but expresses concern that the agreement does not allow the IAEA immediate access into two suspected North Korean nuclear waste sites at the Yongbyon nuclear facilities, and that North Korea is allowed to postpone IAEA inspections for as long as five years. An IAEA official states that the U.S.-DPRK agreement may "reward people who are playing fast and loose with compliance with the [IAEA] safeguards agreement and could allow other Third World countries to demand the same kind of treatment." A U.S. official expresses concern that the agreement does not take into account the possibility that North Korea has already developed a nuclear bomb, and that the five-year delay on IAEA inspections may prevent the IAEA from discovering this. South Korea is apprehensive about the fact that the U.S.-DPRK nuclear accord allows North Korea to postpone inspections of two suspected nuclear waste sites until "significant portions" of the LWRs are completed. South Korea has accepted the U.S.-DPRK agreement because it requires IAEA inspections of the sites before "key nuclear components" for the LWRs arrive in North Korea. Japanese chief government spokesman Kozo Igarashi states that Japan accepts the contents of the U.S.-DPRK nuclear accord.

R. Jeffrey Smith, *Washington Post*, 10/19/94; in Executive News Service, 10/19/94 (12551). Paul Eckert, Reuter, 10/19/94; in Executive News Ser-

vice, 10/19/94 (12365). Martin Sieff, *Washington Times*, 10/19/94, pp. A1, A2 (12545). UPI, 10/19/94; in Executive News Service, 10/20/94 (12361). Kyodo News Service, 10/19/94; in *Nuclear Proliferation News*, 10/28/94 (12361).

10/21/94

North Korean First Vice Minister of Foreign Affairs Kang Sok-ju and U.S. Ambassador-at-Large Robert Gallucci sign the U.S.-DPRK nuclear framework agreement.

U.S.-Korea Review, 9/94-10/94, p. 9 (12546).

III. Response to the Agreement and U.S. Follow-up:

NORTH KOREA WITH CHINA, FRANCE, GERMANY, IAEA, ITALY, JAPAN, SOUTH KOREA, UNITED KINGDOM, UNITED NATIONS, AND UNITED STATES

10/21/94

South Korean Defense Minister Rhee Byoung-tae and U.S. Secretary of Defense William Perry announce the cancellation of the 1994 Team Spirit joint military exercises between the U.S. and South Korea, scheduled to begin in 11/94, because of the U.S.-DPRK nuclear accord.

Robert Evans, Reuter, 10/21/94; in Executive News Service, 10/21/94 (12370). *Newsreview*, 10/29/94, pp. 4-5 (12402).

10/26/94

The Central Committee of the South Korean National Democratic Front (Hanminjon) announces that it supports the U.S.-DPRK nuclear accord.

KCNA (Pyongyang), 10/29/94; in FBIS-EAS-94-211, 10/29/94 (12211).

11/1/94

North Korea denounces the commencement of U.S.-South Korean joint military exercises (conducted in place of the Team Spirit exercises), after making the statement earlier in the day that such exercises might inhibit it from carrying out its nuclear accord with the U.S.

Thomas Wagner, *Washington Times*, 11/2/94, p. A11 (12494).

11/3/94

The PRC agrees during a meeting between Chinese Foreign Minister Qian Qichen and South Korean Foreign Minister Han Sung-joo to play a role in helping to ensure that

North Korea carries out its nuclear agreement with the U.S.

Washington Times, 11/4/94, p. A16 (12097).

11/4/94

The U.N. Security Council issues a presidential statement endorsing the nuclear accord signed by the U.S. and North Korea on 10/21/94. The statement acknowledges North Korea's move to comply with its safeguards agreement with the IAEA and notes with approval North Korea's decision to freeze its current nuclear program.

UN Weekly, 11/8/94 (12098).

11/9/94

U.S. Secretary of State Warren Christopher holds talks with South Korean President Kim Young-sam and Foreign Minister Han Sung-joo in Seoul about the implementation of the U.S.-DPRK nuclear accord.

Carol Giacomo, Reuter; in *Washington Times*, 11/10/94, p. A19 (12099).

11/14/94

U.S. President Bill Clinton holds a series of bilateral discussions with Chinese President Jiang Zemin, South Korean President Kim Young-sam, and Japanese Prime Minister Tomiichi Murayama in Jakarta, Indonesia, to elicit support from each country for the U.S.-DPRK nuclear accord and for renewed dialogue between North and South Korea. Zemin's expression of support represents the first explicit Chinese approval of the nuclear agreement. Clinton discusses financing for the construction of light water reactors (LWRs) and the provision of alternative fuel for North Korea with Kim and Murayama, who agree to accelerate the creation of an international consortium to help construct LWRs in North Korea to replace its graphite-moderated reactors. Murayama suggests that the G-7 nations and others should participate in financing the project.

Sid Balman Jr., UPI, 11/14/94; in Executive News Service, 11/14/94 (12102). Elaine Sciolino, *New York Times*, 11/15/94, p. A6 (12102).

12/6/94-12/9/94

U.S. and North Korean officials hold talks in Washington to discuss diplomatic liaison offices under the U.S.-DPRK nuclear accord. The talks are led by U.S. Bureau of

East Asian and Pacific Affairs Coordinator for U.S.-North Korean Affairs Lynn Turk and North Korean Foreign Ministry Deputy Director of the America Department Pak Sok-guyn. U.S. Deputy Assistant Secretary of State Thomas Hubbard says the talks were "cooperative and constructive" and that the two teams will meet again to discuss possible locations for liaison offices in early 1995.

William Scally, *Reuter*, 12/9/94; in *Executive News Service*, 12/9/94 (12520).

1/9/95

U.S. officials say the U.S. will be contributing "tens of millions of dollars" to implement the U.S.-DPRK nuclear accord, which is higher than the original estimated contribution of \$4.5 million. U.S. Assistant Secretary of State for East Asian and Pacific Affairs Winston Lord says the U.S. will be financing the disposal of spent fuel from North Korea's nuclear reactors and the "start-up costs" of the Korea Energy Development Organization (KEDO).

Ben Barber, *Washington Times*, 1/10/95, p. 1 (12369).

1/20/95

The U.S. relaxes trade restrictions on North Korea for the first time in 44 years as part of the implementation of the U.S.-DPRK nuclear accord.

Martin Sieff, *Washington Times*, 1/21/95, p. A1 (12357).

1/27/95

U.S. Deputy Secretary of State Strobe Talbott says that North Korea must begin talks with South Korea in order for the U.S. and North Korea to establish respective liaison offices and in order for the U.S.-DPRK nuclear accord to be implemented.

Reuter, 1/31/95; in *Executive News Service*, 1/31/95 (12351).

1/28/95

The U.S. and North Korea begin discussions in Berlin on the details of the U.S.-DPRK nuclear accord.

Reuter, 1/29/95; in *Executive News Service*, 1/30/95 (12548).

1/31/95

U.S. officials arrive in North Korea to hold

discussions on the establishment of liaison offices in Pyongyang and Washington, D.C. as part of the U.S.-DPRK nuclear accord.

Reuter, 1/31/95; in *Executive News Service*, 1/31/95 (12351).

2/7/95

U.S. and allied officials reject a North Korean request for an additional \$500 million to \$1 billion in economic and technical assistance under the U.S.-DPRK nuclear accord. North Korea asked for the funds during recent talks with the U.S. in Berlin. It claimed it will need the funds to install new transformer lines and electrical power substations and to build a simulator to train reactor operators. A U.S. official says the U.S. has "no intention" of supplying North Korea with a new power grid or other reactor items.

R. Jeffrey Smith, *Washington Post*, 2/8/95, p. A24 (12518).

2/8/95

While meeting with German Foreign Policy Advisor Joachim Bitterlich and other German officials, U.S. Ambassador-at-Large Robert Gallucci requests German political and financial assistance for the implementation of the U.S.-DPRK nuclear accord. Germany has not made a commitment to participate in the construction of nuclear reactors in North Korea. Gallucci has also visited France and Britain, and is expected to travel to Italy, to win support for the project.

Reuter, 2/8/95; in *Executive News Service*, 2/8/95 (12531).

IV. U.S. Congressional Review:

NORTH KOREA WITH UNITED STATES

11/27/94

It is reported that U.S. Republican legislators, including Senators Bob Dole, Jesse Helms, and Frank Murkowski, want to block the use of U.S. funds for the purchase of oil to supply North Korea with alternative energy until light water reactors (LWRs) are constructed under the U.S.-DPRK nuclear accord. U.S. Ambassador-at-Large Robert Gallucci says a Congressional move to block funding for the oil could "undo" the agreement, but notes that Congress has not yet

been briefed on the details of the accord.

Steven Greenhouse, *New York Times*, 11/27/94, p. 9 (12388). Louise Lief and Tim Zimmerman, *U.S. News & World Report*, 11/28/94, pp. 53, 54, 56 (12388).

12/1/94

U.S. Ambassador-at-Large Robert Gallucci defends the U.S.-DPRK nuclear accord before the Senate Foreign Relations Subcommittee. Gallucci admits that North Korea could withdraw from the agreement in about 15 years to reprocess plutonium from the two new LWRs after their completion, but he stressed that spent fuel from the LWRs would be highly radioactive, and that the U.S. could in that case discontinue supplying the country with new fuel rods necessary to operate the reactors. In response to independent nuclear proliferation expert Gary Milhollin's claims that North Korea could use LWRs to produce more weapons-grade plutonium than what it can currently produce (about 30 weapons per year), Gallucci notes that in "strategic terms" there is little difference between such large amounts of plutonium. Gallucci clarifies that a promise made by U.S. President Clinton in a letter to North Korean leader Kim Jong-il, stating that the U.S. will provide LWRs if other nations refuse, is not a legally binding commitment.

R. Jeffrey Smith, *Washington Post*, 12/2/94, p. A10 (12496).

12/12/94

U.S. Senator Frank Murkowski, who will be chairing the Senate's Subcommittee on East Asia in the next U.S. Congress, says he does not expect the Congress to block implementation of the U.S.-DPRK nuclear accord.

Andrew Pollack, *New York Times*, 12/13/94 (12536).

1/23/95

U.S. Senate Foreign Relations Chairman Jesse Helms, Senate Energy and Natural Resources Committee Chairman Frank Murkowski, and Senate Armed Services Committee Chairman Strom Thurmond hold a week of Senate Foreign Relations Committee hearings to discuss the U.S.-DPRK nuclear accord. Among other things, the agreement is criticized for failing to require that 8,000 spent nuclear fuel rods be re-

moved from cooling ponds at Yongbyon and transported to another country for reprocessing.

Kathleen Hart, *Nuclear Fuel*, 1/30/95, pp. 15-17 (12347).

1/24/95

U.S. Secretary of State Warren Christopher tells the U.S. Senate Foreign Relations Committee that the U.S.-DPRK nuclear agreement allows the U.S. to obtain its strategic objectives, maintain the security of Japan and South Korea, help stop the nuclear arms race in Northeast Asia, strengthen the non-proliferation regime, and provide a reduction of tensions on the Korean peninsula. Christopher notes that the implementation of the agreement is steadily proceeding.

Warren Christopher, *U.S. Department of State Dispatch*, 1/30/95, pp. 55-57 (12347).

V. Status of DPRK Facilities & IAEA Monitoring and Verification:

NORTH KOREA WITH IAEA, UNITED NATIONS, AND UNITED STATES

10/17/94

IAEA Director General Hans Blix reports to the U.N. General Assembly that North Korea's noncompliance with IAEA safeguards and transparency measures has prevented the IAEA from obtaining sufficient information concerning suspicions over North Korea's nuclear program. The IAEA has ascertained that North Korea may possess more than its declared amount of plutonium. The U.N. General Assembly is expected to pass a resolution on 10/19/94 asking North Korea to allow IAEA safeguards inspections to be implemented in compliance with the IAEA safeguards agreement.

Yonhap (Seoul), 10/18/94; in JPRS-TND-94-020, 11/17/94, p. 7 (12362).

10/21/94

North Korean First Vice Minister of Foreign Affairs Kang Sok-ju says that North Korea intends to fulfill its obligations under the U.S.-DPRK agreement and demonstrate that it has "no intentions or plans to develop nuclear weapons," but adds that IAEA inspections of two suspected nuclear waste sites in North Korea will not be al-

lowed until North Korea has the light water reactors (LWRs) "in [its] hands."

William Drozdiak, *Washington Post*, 10/22/94, pp. A1, A25 (12551).

10/25/95

The IAEA Department of Safeguards meets to discuss the Agency's role in North Korea under the U.S.-DPRK nuclear accord. The IAEA is drafting a schedule which will outline IAEA implementation of future full-scope safeguards inspections in North Korea and Agency participation in overseeing the shutdown of the 5 MW Yongbyon and 200 MW Taechon nuclear reactors. The plan will be submitted to North Korea for review and acceptance or modification, and then will be sent to the IAEA Board of Governors for approval. It is expected that before the plan is finalized, the U.N. Security Council will approve a resolution mandating the IAEA to verify the freeze of North Korea's nuclear facilities under the U.S.-DPRK agreement.

Mark Hibbs, *Nucleonics Week*, 10/27/94, pp. 17-19 (12353).

11/1/94

A North Korean Foreign Ministry spokesman states that North Korea is taking "practical steps" to implement its framework agreement with the U.S. The spokesman says that the DPRK Administration Council has ordered the cessation of construction on North Korea's 50 MW and 200 MW graphite-moderated nuclear reactors as of 11/94, and has decided to halt operation of the 5 MW Yongbyon reactor, withdrawing the fuel rods that were intended to refuel it. In addition, North Korea is continuing to keep its radiochemical laboratory and other nuclear facilities out of operation. An IAEA spokesman says the Agency is unable to confirm whether the construction on the reactors has been suspended.

KCNA, 11/1/94 (12494). Asahi Shimbun, 11/2/94 (12494).

11/4/94

The U.N. Security Council asks the IAEA to consult with North Korea in order to undertake measures to monitor the freeze defined in the U.S.-DPRK nuclear accord, and also to verify North Korea's initial report of

nuclear material in its possession, in compliance with its safeguards agreement, INFCIRC/403.

UN Weekly, 11/8/94 (12098).

11/11/94

During a special meeting, the IAEA Board of Governors decides that the Agency will contact North Korea to discuss verification of the U.S.-DPRK nuclear accord. The IAEA is also expected to send a small inspection team to North Korea to make preparations for verification.

Steve Pagani, Reuter, 11/11/94; in Executive News Service, 11/11/94 (12100).

11/16/94

IAEA Safeguards chief Bruno Pellaud meets with North Korean Ambassador in Vienna Kim Gwang-sop at IAEA headquarters and requests that a team of Agency technical experts be allowed to go to North Korea as soon as possible to consult on carrying out the nuclear freeze. The team would also be responsible for initiating measures to begin monitoring the freeze.

Steve Pagani, Reuter; in *Washington Times*, 11/17/94, p. A15 (12101).

11/18/94

A North Korean Foreign Ministry spokesman announces that North Korea has stopped work on its graphite-moderated nuclear reactors and related facilities as per its accord with the U.S. North Korea asks the U.S. to fulfil its promises under the bilateral accord and promises to comply with its obligation to dismantle the rest of the components at its suspected nuclear weapons sites, but makes no mention of inspections for its two suspected nuclear waste dumps.

North Korean Ambassador in Vienna Kim Gwang-sop announces that travel visas will be ready during the week of 11/21/94 for an IAEA inspection team to go to North Korea, where it will join two inspectors who have been stationed at the Yongbyon nuclear complex since 5/94.

UPI, 11/18/94 (12101). James Sterngold, New York Times Service; in *International Herald Tribune*, 11/19/94 (12104). *Washington Times*, 11/19/94, p. A7 (12104).

11/21/94

A group of IAEA negotiators and nuclear

inspectors is en route to Pyongyang to begin talks with North Korean officials on the process of verification to be used to ensure North Korea's compliance with the U.S.-DPRK nuclear accord. Agency officials want to establish periodic IAEA inspections of North Korean nuclear facilities and possibly permanent IAEA representation in North Korea.

Reuter, 11/21/94; in Executive News Service, 11/21/94 (12106).

11/28/94

The IAEA announces that its inspectors have visited North Korean nuclear facilities and confirmed that operations have been frozen at the 5 MW nuclear reactor, reprocessing plant, and fuel production facility in Yongbyon, and that construction has been stopped on the 50 MW Yongbyon reactor and the 200 MW Taechon reactor. The Agency carried out verification procedures following a succession of talks between an IAEA technical team and North Korean officials about the creation of an inspection plan to verify North Korea's compliance with the U.S.-DPRK nuclear accord. The IAEA is to continue dialogue with North Korea to resolve the details of further inspections.

Reuter, 11/29/94; in Executive News Service, 11/28/94 (12107).

12/8/94

IAEA Chief Hans Blix tells the IAEA Board of Governors that North Korea has demonstrated its cooperativeness during two weeks of talks with the Agency. Blix says North Korea has promised to permit more inspectors, facilitate the acquisition of visas, and improve communication between IAEA officials in North Korea and the Vienna headquarters.

Steve Pagani, Reuter, 12/9/94; in Executive News Service, 12/9/94 (12497).

12/9/94

The IAEA Board of Governors asks the Agency directors to continue seeking contacts with North Korea in order to implement procedures for verifying North Korea's nuclear freeze.

Steve Pagani, Reuter, 12/9/94; in Executive News Service, 12/9/94 (12497).

1/23/95

The IAEA and North Korea hold a second round of working-level talks in Pyongyang to discuss the freeze of North Korea's nuclear program. IAEA spokesman David Kyd indicates that substantial progress was made.

Cha Man-sun, KBS-1 Radio Network, 1/31/95; in FBIS-EAS-95-020, 1/31/95 (12548).

VI. Storage of Spent Fuel Rods:

NORTH KOREA WITH CHINA, FRANCE, IAEA, JAPAN, RUSSIA, SOUTH KOREA, AND UNITED STATES

10/94

IAEA inspectors indicate that, since North Korea has improved its care of 8,000 spent nuclear fuel rods that were removed from the 5 MW Yongbyon nuclear reactor and stored in cooling ponds in mid-1994, the fuel rods will continue to be safe for several more months if current conditions are maintained. The IAEA indicates that the rods may remain there even longer if North Korea improves the quality of the water in the cooling ponds.

J.F.O. McAllister, *Time*, 10/10/94, p. 51 (12212).

11/2/94

South Korean Foreign Minister Han Sung-joo says that South Korea hopes the PRC will play a part in the removal of spent nuclear fuel rods from North Korea.

Reuter, 11/2/94; in Executive News Service, 11/2/94 (12097).

11/14/94-11/18/94

U.S. and North Korean nuclear experts hold talks in Pyongyang about the safe storage and final disposition of North Korea's 8,000 spent nuclear fuel rods. The five-member team of U.S. experts, headed by U.S. Arms Control and Disarmament Agency Assistant Director Norman Wolf, visits the 5 MW Yongbyon reactor and the cooling pond containing the spent fuel rods.

Washington Times, 11/16/94, p. A17 (12103).

Reuter, 11/19/94; in Executive News Service, 11/19/94 (12103).

1/24/95

The U.S. and North Korea reach a "tentative agreement," after six days of expert-level talks in Pyongyang, to implement a new method to safely store North Korea's 8,000 spent nuclear fuel rods. In 1995, the fuel

rods will be placed in stainless steel canisters with non-reactive gas to slow their deterioration during storage until they are transported out of North Korea. Although the U.S.-DPRK nuclear accord provides for the rods to be transferred to a third country, North Korea has said that it wants a guarantee that the light water reactors will be constructed before it permits the fuel rods to leave North Korea.

Reuter, 1/24/95; in Executive News Service, 1/24/95 (12373). *Financial Times*, 1/25/95, p. 4 (12373).

2/2/95

It is reported that U.S. officials say that, due to difficulties finding a third country to accept North Korea's spent nuclear fuel rods, they may need to be brought to the U.S. for reprocessing. The spent fuel rods are currently being stored in cooling ponds in North Korea until they can be transferred to another country for reprocessing or disposal. A 1994 CIA estimate said the rods would begin disintegrating between 11/94 and 12/94. A group of U.S. State Department and Energy Department officials have reported from a recent visit to the North Korean nuclear facility that the cooling pond has become "clouded and infested with algae," signalling possible contamination of the rods. The IAEA has warned that some of the fuel rods in the cooling ponds may be damaged, which could result in "spontaneous combustion" when they are removed from the pond. Russia, Japan, and South Korea are not able to receive the rods, while China appears unwilling to accept them, and transport to France would be too costly.

Stewart Stogel, *Washington Times*, 2/2/95, pp. A1, A12 (12543).

VII. Creation of the Korea Energy Development Organization (KEDO) and Financing Arrangements:

NORTH KOREA WITH AUSTRALIA, CANADA, CHINA, FRANCE, GERMANY, JAPAN, RUSSIA, SOUTH KOREA, UNITED KINGDOM, AND UNITED STATES

10/19/94

It is reported that North Korea has agreed to pay for light water reactors (LWRs) provided under the U.S.-DPRK nuclear accord, and considers assistance from the interna-

tional consortium that will finance and supervise the project, temporarily called the Korean Energy Development Organization (KEDO), to be a "long-term loan." KEDO will also arrange for alternative fuel compensation under the U.S.-DPRK nuclear accord. The consortium will provide \$4 billion to North Korea, including \$3.5 billion to build two 1,000 MW LWRs and \$500 million to dismantle North Korea's current nuclear facilities. KEDO will also raise \$300 million for heavy oil, \$100 million to transfer North Korea's spent nuclear fuel rods, and \$100 million to operate the consortium itself.

Kyodo News Service, 10/19/94; in *Nuclear Proliferation News*, 10/28/94 (12551). *Newsreview*, 11/5/94, p. 11 (12389). *Korea Herald* (Seoul), 11/2/94, pp. 2, 5; in FBIS-EAS-94-212, 11/2/94 (12389).

10/25/94

Japanese Finance Minister Masayoshi Takemura says that Europe should pay for part of the estimated \$4 billion cost of replacing North Korea's graphite-moderated nuclear reactors, and that Japan may make its financial support for the project contingent on European countries' contributions.

James Sterngold, *New York Times*, 10/26/94, p. A7 (12355).

10/28/94

It is reported that South Korea is expected to contribute 55 percent of the costs to replace North Korea's graphite-moderated nuclear reactors, with the remaining costs to be divided among the five U.N. Security Council members (Russia, France, PRC, U.K., and U.S.), Germany, Canada, Japan, and Australia.

John Burton, *Financial Times*, 10/28/94, p. 4 (12355).

11/94

South Korea has devised a financing plan to raise \$3 billion to contribute to the construction of two 1,000 MW LWRs in North Korea by placing a two or three percent levy on the revenues of the Korea Electric Power Company (KEPCO) over a 10-year period while the reactors are being built. KEPCO could recoup its contribution with a portion of the output from the reactors once they are built. In order for the plan to be carried out, North Korea must accept South

Korean LWR technology as the model for the new reactors.

Nuclear News, 11/94, p. 41 (12108).

Early 11/94

A South Korean interministerial group led by Vice Foreign Minister Park Kun-woo meets to consider South Korea's participation in KEDO. South Korean Deputy Premier and Unification Minister Yi Hong-ku says that assistance to North Korea should be viewed as a way to secure an adequate supply of energy for the Korean Peninsula in the 21st century.

Newsreview, 11/5/94, p. 11 (12389). *Korea Herald* (Seoul), 11/2/94, pp. 2, 5; in FBIS-EAS-94-212, 11/2/94 (12389).

11/1/94

State Department spokesman David Johnson states that the U.S. would be the "player of last resort" if other countries such as South Korea and Japan refuse to help finance the \$4 billion nuclear reactor project in North Korea.

Thomas Wagner, *Washington Times*, 11/2/94, p. A11 (12494).

11/18/94

U.S. Ambassador-at-Large Robert Gallucci, South Korean Assistant Minister for Political Affairs Choi Dong-jin, and Japanese Foreign Policy Bureau Director General Shunji Yanai agree in Washington to take steps to set up the international consortium for the nuclear reactor project in North Korea. U.S. State Department spokesman David Johnson says the talks are "very productive" and will continue in 12/94. The delegations determine that the consortium, led by the U.S., South Korea, and Japan, should be created in the "near future" with "broad multilateral participation." South Korea will propose a management committee for KEDO that will include Japan, the PRC, Russia, South Korea, and the U.S.

Reuter, 11/18/94; in *Executive News Service*, 11/21/94 (12105). *Asahi Shimbun*, 11/18/94 (12105).

11/26/94

Japanese government officials report that the U.S., Japan, and South Korea agreed during a working-level meeting the previous week to replace KEDO with a structure under an existing international body, most

likely the United Nations Development Program. The three countries hope to set up the new body by early 1995.

UPI, 11/26/94; in *Executive News Service*, 11/28/94 (12105).

12/16/94

U.S. Ambassador-at-Large Robert Gallucci, Japanese Envoy for relations with North Korea Tetsuya Endo, and South Korean Assistant for Political Affairs Choi Dong-jin complete two days of talks in San Francisco on the creation of KEDO. According to a joint statement, the consortium will be headquartered in New York, and the first meeting is expected to be held in 2/95. The statement specifies that South Korea will play a primary role in financing and constructing two South Korean-model 1,000 MW LWRs in North Korea. Japan is expected to have "an appropriate role" in financing and overseeing construction. Gallucci has attempted to gain support for the project from other G-7 countries.

Reuter, 12/16/94; in *Executive News Service*, 12/16/94 (12493).

12/19/94

Japanese Vice Foreign Minister Kunihiko Saito says Japan is only prepared to provide limited financial assistance necessary for the construction of LWRs in North Korea.

Reuter, 12/19/94; in *Executive News Service*, 12/19/94 (12493).

1/95

Russian Deputy Foreign Minister Alaksandr Panov says that Russia will not accept a secondary role in the operations of KEDO. Russia may refuse to participate in the international consortium if it is not given an equal role in the provision of LWRs to North Korea.

Andrey Bychkov, *Itar-Tass* (Moscow), 1/25/95; in FBIS-SOV-95-016, 1/25/95 (12435).

1/11/95

After four days of deliberations, South Korea, the U.S., and Japan agree that KEDO will be headed by a U.S. ambassador or U.S. assistant vice minister-level official at the New York headquarters. Both South Korea and Japan agree to provide KEDO with a deputy secretary-general. The U.S. agrees to finance a majority of the cost of providing heavy oil to North Korea while its LWRs

are being constructed under the U.S.-DPRK nuclear accord. South Korea agrees to pay for over half the cost of construction of the LWRs, and Japan agrees to finance about 30 percent of the construction costs.

Newsreview, 1/14/95, p. 6 (12368).

2/17/95

An unidentified Chinese arms control expert says China can only play a marginal role in KEDO, since China is not one of the main partners.

Reuter, 2/17/95; in *Executive News Service*, 2/20/95 (12541).

VIII. Debate on LWR Supplier:

NORTH KOREA WITH GERMANY, JAPAN, RUSSIA, SOUTH KOREA, AND UNITED STATES

10/18/94

Russian Foreign Ministry spokesman Mikhail Demurin says that Russia approves of the U.S.-DPRK nuclear accord, and suggests that Russia could provide North Korea with light water reactors (LWRs).

Reuter, 10/18/94; in *Executive News Service*, 10/18/94 (12411).

11/94

Russian Deputy Finance Minister Aleksandr Panov says that Russia will enter into negotiations with North Korea to resume previously abandoned plans for the construction of a LWR in Pyongyang as a result of the U.S.-DPRK nuclear accord. Panov says Russia is ideally suited to participate in the international consortium that is to provide LWRs to North Korea because North Korea has expressed an interest in Russian cooperation, because Russian technology is safe and competitive, and because Russian experts have already chosen a site for the facility and conducted feasibility studies on the project.

Interfax (Moscow), 11/4/94; in FBIS-SOV-94-215, 11/4/94 (12141).

11/15/94

Russian Foreign Ministry spokesman Grigoriy Karasin indicates that, in view of the fact that Russia suspended an earlier agreement to help the DPRK build LWRs, South Korean and U.S. plans to supply the reactors to North Korea violate the principle that nuclear exporters should not use "non-

proliferation" principles for economic gain.

Valeriy Sevryukov and Vladimir Suprun, *Itar-Tass* (Moscow), 11/15/94; in FBIS-SOV-94-221, 11/15/94 (12141).

Late 11/94

South Korean Foreign Minister Han Sung-joo tells the South Korean National Assembly's Foreign Affairs and Unification Committee that the U.S., South Korea, and Japan have decided that the Korea Energy Development Organization (KEDO) will have the authority to select a contractor for the construction of two LWRs in North Korea under the U.S.-DPRK nuclear accord. Han says the LWR contract will be awarded to a South Korean firm by the 4/21/95 deadline, and will use the Korean standard LWR as a "reference model" for the construction of the new reactors in North Korea.

Newsreview, 12/3/94, p. 4 (12401).

11/30/94-12/2/94

Eight U.S. negotiators and 10 North Korean nuclear experts meet in Beijing to discuss the LWR construction outlined in the U.S.-DPRK nuclear accord. U.S. State Department Deputy Spokeswoman Christine Shelly says the U.S. and DPRK "reaffirmed their intention to cooperate" to reach agreement on the provision of LWRs according to the terms of the framework agreement. North Korean officials insist during the talks that the DPRK should be able to choose who builds the reactors, since it is paying for their construction, and opposes the provision of South Korean LWRs because they have never been exported and the safety of the model is not certain. U.S. officials are said to have responded by stating that only the international consortium that will supply the reactors can choose the model to be provided. The U.S. and DPRK agree to continue talks in 1/95.

Benjamin Kang Lim, Reuter, 12/1/94; in *Executive News Service*, 12/1/94 (12495). Reuter, 12/2/94; in *Executive News Service*, 12/2/94 (12495).

12/3/94

A senior Korea Electric Power Corporation (KEPCO) official says the South Korean company has reached an agreement with the U.S. company Combustion Engineering (CE), under which KEPCO will not be required to pay royalties to CE if Ulchin Nos. 3 and 4 LWR models, the technology for

which was originally provided by CE, are built in North Korea. In return, KEPCO promises CE a share in manufacturing parts for the North Korea-bound LWRs if KEPCO is chosen as the primary contractor in the project.

Yonhap (Seoul), 12/3/94; in FBIS-EAS-94-233, 12/5/94 (12482).

1/95

Russian Deputy Foreign Minister Aleksandr Panov says North Korea wants Russian-made LWRs because North Korean nuclear experts are familiar with Russian equipment and speak Russian, and because Russian equipment is reliable and inexpensive.

Andrey Bychkov, *Itar-Tass* (Moscow), 1/25/95; in FBIS-SOV-95-016, 1/25/95 (12435).

1/16/95

A North Korean Foreign Ministry spokesman says that the U.S.-DPRK nuclear accord will be threatened if the U.S., South Korea, and Japan plan to supply North Korea with South Korean LWRs.

Reuter, 1/16/95; in *Executive News Service*, 1/17/95 (12359).

1/23/95

South Korea sets up the Offices for Light-Water Reactor Planning to implement details concerning the provision of LWRs to North Korea.

Reuter, 1/24/95; in *Executive News Service*, 1/24/95 (12350).

1/28/95

During U.S.-DPRK talks in Berlin, the head of the U.S. delegation, Gary Samore, indicates to North Korean Vice-Chairman of the External Economy Commission Kim Jong-u that the reactors supplied to North Korea must be South Korean-style LWRs.

Reuter, 1/29/95; in *Executive News Service*, 1/30/95 (12548).

1/31/95

U.S. Deputy Assistant Secretary of State for East Asia Thomas Hubbard acknowledges that, during recent talks, North Korea refused to accept South Korean LWRs under the U.S.-DPRK nuclear accord. Former South Korean Ambassador to the U.S. Hyun Hong-joo has stated that if South Korea is not given a fundamental role in supplying

the LWRs, it will be difficult to obtain funds from the Korean Congress for the Korean Energy Development Organization (KEDO), which is to finance the LWR project.

Kathleen Hart, *Nucleonics Week*, 2/2/95, pp. 11-12 (12542).

2/6/95

U.S. officials say North Korea rejected the terms of a draft contract for the construction of two LWRs during recent talks in Berlin.

R. Jeffrey Smith, *Washington Post*, 2/7/95; in Executive News Service, 2/7/95 (12542).

2/8/95

U.S. State Department spokeswoman Christine Shelley says the U.S. requires North Korea to accept South Korean reactors because South Korea is the only nation willing to finance a large part of their construction.

Steven Greenhouse, *New York Times*, 2/9/95, p. A6 (12542). Reuter, 2/9/95; in Executive News Service, 2/9/95 (12532).

2/15/95

North Korea threatens to withdraw from the U.S.-DPRK nuclear accord if it is forced to accept South Korean LWRs. The U.S. argues that North Korea's threat is meant to serve as a bargaining tactic during renewed talks in 3/95.

John Burton, *Financial Times*, 2/16/95, p. 6 (12530). Paul F. Horvitz, *International Herald Tribune*, 2/16/95, pp. 1, 6 (12530).

2/17/95

It is reported that U.S. officials are considering a plan which would allow South Korea to construct LWRs in North Korea while using the name of a U.S. company as the contractor. A North Korean official says the DPRK does not want South Korea listed as the official contractor for KEDO. The U.S. State Department has already contacted Westinghouse Electric Corporation to see if it would be willing to provide its name for the project. Westinghouse, Bechtel Group Inc., and other companies have expressed an interest in offering their names to the project.

Ben Barber and Stewart Stogel, *Washington Times*, 2/17/95, pp. A1, A15 (12540).

2/20/95

South Korea refuses to accept a North Korean suggestion that South Korea play a secondary role in furnishing LWRs to North Korea and insists that South Korea should be defined as the main supplier of the reactors in any contracts arranged between North Korea and the international consortium responsible for constructing the reactors.

John Burton, *Financial Times*, 2/21/95, p. 6 (12529).

2/21/95

German company Siemens AG officials say North Korean experts and diplomats learned about the capabilities of the Teleperm instrumentation and control (I&C) system during a 2/95 visit to Siemens' KWU Power Engineering Division in Erlangen, Germany. The German company has said it would be willing to supply the I&C system for the North Korean pressurized water reactors (PWRs), if the German government decides to finance the project. Siemens spokesman Wolfgang Breyer says the company could modify its I&C system to fit the design of the Combustion Engineering PWR that is being considered for North Korea.

Mark Hibbs, *Nucleonics Week*, 2/23/95, p. 3 (12531).

2/23/95

U.S. Ambassador-at-Large Robert Gallucci tells the Asian Subcommittee of the U.S. House International Relations Committee that no LWRs will be built unless North Korea accepts South Korean reactors. Gallucci also says he told Russian officials, during a visit to Moscow in early 2/95, that there would be no financial backing for the construction of Russian nuclear reactors in North Korea.

Elaine Sciolino, *New York Times*, 2/24/95, p. A5 (12519).

IX. North-South Relations:

NORTH KOREA WITH SOUTH KOREA AND UNITED STATES

11/3/94

South Korean Unification Minister Lee Hong-koo suggests setting up a nuclear "consultative body" with North Korea to consider cooperative energy development in

light of the U.S.-DPRK nuclear accord.

Reuter, 11/3/94; in Executive News Service, 11/3/94 (12233). *Standard* (Austria), 4/11/94 (12233).

12/9/94

North Korea issues a statement demanding that South Korea publicly disclose its nuclear program.

Victor Zamyatin, *Kommersant Daily* (Moscow), 12/10/94, p. 4; in FBIS-SOV-94-238, 12/10/94 (12407).

2/9/95

A statement in North Korea's official newspaper *Rodong Sinmun* rejects recent U.S. demands that it recommence dialogue with South Korea as a component of the U.S.-DPRK nuclear agreement, contending that the two issues are separate.

Reuter, 2/9/95; in Executive News Service, 2/9/95 (12532).

2/16/95

North Korea refuses U.S. demands to resume a political dialogue with South Korea.

John Burton and Peter Montagnon, *Financial Times*, 2/17/95, p. 4 (12530).

PAKISTAN

INTERNAL DEVELOPMENTS

10/6/94

It is reported that Pakistan is threatening to complete and operate a secret, unsafeguarded 50-70 MW plutonium production reactor if India does not agree to end its production of fissile materials and maintain a stockpile no larger than Pakistan's. According to Russian intelligence reports, the natural uranium-fueled, heavy-water moderated reactor at Khusab, near Sargodha, is about 50 percent complete. Pakistan has acquired the ability to produce the natural uranium fuel for the Khusab reactor "on a pilot basis." However, it is unclear whether the country has stockpiled heavy water to use in the plant. *Nucleonics Week* revealed the secret

reactor project in 1989, and Western officials confirmed its existence in late 9/94. U.S. officials have indicated that the equipment for the plant was Western in origin, but "intelligence reports" say that China provided Pakistan with "key reactor equipment and engineering expertise." In about 1989-1990, the U.S. privately lobbied Pakistan to stop work on the plant, and it is still intends to ensure that the reactor will remain incomplete.

Mark Hibbs, *Nucleonics Week*, 10/6/94, pp. 10-11 (12274). C. Raja Mohan, *Hindu*, 12/10/94, p. 12 (12274).

10/23/94

Sharif Mushahid Hussein, Information Secretary to Pakistani opposition leader Mohammad Nawaz, issues a written statement declaring that Pakistan should be recognized as a nuclear weapons state within the NPT in exchange for its continued freeze on fissile material production. Pakistan has indicated that it will restart work on a secret plutonium and tritium production program if there is no progress on a global fissile material cut-off.

Mark Hibbs, Rauf Siddiqi, and Naoaki Usui, *Nucleonics Week*, 10/27/94, pp. 1, 16-17 (12279).

1/95

It is reported that Pakistan Atomic Energy Commission (PAEC) Chairman Ishfaq Ahmed has announced that the PAEC has established an institute in Islamabad for the training of nuclear engineers and scientists. The PAEC has also founded a non-destructive testing center which is scheduled to begin operations in 1996.

Nuclear Engineering International, 1/95, p. 6 (12218).

PAKISTAN WITH AUSTRIA, FINLAND, INDIA, AND UNITED ARAB EMIRATES

10/24/94

It is reported that Boehler Edelstahl of Austria sent a shipment of 6 MT of maraging steel to an unknown destination in 1990. The shipment was sent free on board (FOB) to Hamburg on a Finnish National Shipping Line ship bound for Rotterdam, Felixstowe, the United Arab Emirates, Karachi, and Bombay. Because Iraq had

received 100 MT of maraging steel from the Austrian firm in 1989, there is speculation that Iraq may have been the recipient of the 1990 shipment as well; Iraq, however, has not notified the IAEA that it had acquired an extra 6 MT of maraging steel, and it has been suggested that it may have gone to Pakistan or India. Western government officials say that the 6 MT shipment is "missing."

PPNN Newsbrief, Fourth Quarter 1994, pp. 16-17 (12271). *Nuclear Engineering International*, 11/94, p. 6 (12271).

PAKISTAN WITH FRANCE

11/2/94

During a four-day visit to Paris, Pakistani Prime Minister Benazir Bhutto proposes that France act as a mediator between India and Pakistan in their disputes over nuclear weapons. French uncertainty over Pakistani nuclear intentions and Pakistan's refusal to sign the NPT have delayed the planned sale of a nuclear reactor to Pakistan. Bhutto attempts to allay French fears of Pakistani nuclear proliferation by declaring her readiness to sign the NPT and to accept international inspection if India agrees to the same measures.

Reuter, 11/2/94 (12217).

11/3/94

Pakistani Prime Minister Benazir Bhutto and French officials are expected to discuss reviving a 1984 contract for France to supply Pakistan with a 900 MW nuclear reactor. The on-again off-again deal for the delivery of the reactor was first agreed upon in 1976 [before France signed the NPT], but at a later date France made it contingent on Pakistan's accession to the NPT. Bhutto stated that France and Pakistan are engaged in "high-level" negotiations concerning the delivery of the reactor and that she is "optimistic" that the talks will be successful.

Denholm Barnetson, UPI, 11/2/94; in Executive News Service, 11/2/94 (12276). *Nucleonics Week*, 11/3/94, p. 17 (12276).

PAKISTAN WITH FRANCE AND UNITED KINGDOM

11/24/94

It is reported that U.K. customs halted the shipment of vacuum furnaces, which can be utilized in the development of materials needed for nuclear weapons production, to Pakistan's Institute for Industrial Automation. The transaction had been arranged by a small company from France.

Foreign Report, 11/24/94 (12275).

PAKISTAN WITH GERMANY

12/94

Germany removes 24 countries, including Pakistan, the PRC, and India, from its export trigger list, called the "H-List." Any exports to a country on that list require interagency authorization as well as a permit from Germany's Federal Export Authority.

Mark Hibbs, *Nucleonics Week*, 12/15/94, pp. 10-11 (12281). Mark Hibbs, *NuclearFuel*, 12/5/94, pp. 4-5 (12281).

PAKISTAN WITH IRAN

1/11/95

U.S. Secretary of Defense William Perry says that he has no information that Pakistan is providing nuclear technology to Iran.

Reuter, 1/11/95; in Executive News Service, 1/11/95 (12525).

PAKISTAN WITH PRC

11/5/94

It is reported that Pakistani President Leghari has expressed his country's desire to acquire technology from the PRC to build a nuclear power plant.

Voice of Russia World Service (Moscow), 11/5/94; in FBIS-SOV-94-234, 11/5/94 (12088).

12/10/94

It is reported that India believes that the PRC aided Pakistan in constructing the Sargodha nuclear reactor. Certain "intelligence reports" say that China has provided Pakistan with "key reactor equipment and engineering expertise."

C. Raja Mohan, *Hindu*, 12/10/94, p. 12 (12274).

PAKISTAN WITH RUSSIA

11/16/94

It is reported that Iraq, Iran, India, Paki-

stan, and other nations have set up trade offices in Moscow and are soliciting Russian research laboratories to work on their nuclear programs. Foreign nuclear projects are submitted to the government for approval, but it is reportedly "easy to bribe anyone in the hierarchy to grant approval, or to change the name of the project."

Kathleen Hart, *NuclearFuel*, 11/21/94, pp. 2-3 (12152).

PAKISTAN WITH UNITED STATES

10/26/94

A Pakistani newspaper reports that in the mid 1980s, a minor diplomatic incident was caused by the Pakistani discovery of a covert U.S. monitoring device which had been placed in the vicinity of Pakistan's Kahuta Research Laboratory. The device, which had been disguised as a rock, is cited in the article as a primitive example of what U.S. Under Secretary of State Strobe Talbott had meant by his offer of "non-intrusive" monitoring of Pakistan's nuclear program in his talks with Pakistan in 4/94.

Muslim (Islamabad), 10/26/94, p. 1; in JPRS-TND-94-020, 11/17/94, p. 13 (12216).

11/14/94

Pakistani President Farooq Leghari states at the annual opening of the parliament that the U.S. has been explicitly told that Pakistan's nuclear program is for peaceful purposes, and "that Pakistan shares the common goal of non-proliferation."

Alistair Lyon, *Reuter*, 11/14/94; in *Executive News Service*, 11/14/94 (12282).

11/26/94

Pakistani Prime Minister Benazir Bhutto says that the U.S. refusal to deliver F-16 jets which Pakistan has paid for is strengthening the position of hardliners who want Pakistan to develop nuclear weapons. Bhutto adds that Pakistan would like recognition for following U.S. policy by refraining from detonating a nuclear device or exporting nuclear technology.

Reuter, 11/26/94; in *Executive News Service*, 11/26/94 (12280).

1/5/95

A top Pentagon official says that the goal of U.S. Secretary of Defense William Perry's

upcoming visit to the Indian subcontinent is intended to establish a more "even handed" relationship with Pakistan and India. Perry is not expected to pressure either country to sign the NPT, and a Pakistani Foreign Ministry spokesman confirms that Pakistan is not being pressed to sign the NPT unilaterally.

Washington Times, 1/5/95, p. A13 (12221).

1/5/95

U.S. Senator Larry Pressler, author of the 1985 legislation which imposed sanctions on Pakistan for its alleged development of nuclear weapons, accuses the Clinton administration of having "abandoned its anti-proliferation goals" by allowing Secretary of Defense William Perry to revive the U.S.-Pakistan Consultative Group, a forum for the discussion of common security matters.

Paul Basken, *UPI*, 1/12/95; in *Executive News Service*, 1/12/95 (12219).

1/17/95

Pakistani Foreign Secretary Najamuddin Shaikh states that Pakistani Prime Minister Benazir Bhutto will lobby key U.S. Congressmen to discuss the possible repeal of all or part of the Pressler Amendment.

Anwar Iqbal, *UPI*, 1/17/95; in *Executive News Service*, 1/17/95 (12277).

2/22/95

The Pakistani Foreign Office releases a statement in support of nuclear verification mechanisms to guarantee that its neighbors comply with "non-proliferation norms" and of the construction of a U.S.-sponsored geological observatory at Chakwal, near Islamabad. The local media and opposition politicians have said the plant could be used by the U.S. to monitor Pakistani nuclear developments. A senior Foreign Office official states that the installation could not be used to monitor Pakistani nuclear activities, but that it would help deter other nations from conducting nuclear tests.

UPI, 2/22/95 (12390).

PEOPLE'S REPUBLIC OF CHINA

INTERNAL DEVELOPMENTS

10/7/94

The PRC explodes a nuclear device at the Lop Nor underground testing site in Xinjiang province. The Australian Seismological Center detected the 40-150 kT explosion at 0325 GMT. The Verification Technology Information Center places the explosion at 41.7 degrees North, 88.8 degrees East.

Patrick E. Tyler, *New York Times*, 10/8/94, p. A3 (12382). *Trust and Verify*, 10/94, p. 1 (12382).

10/12/94

The International Institute for Strategic Studies (IISS) says that recent nuclear tests in the PRC reveal that China is developing "a number of new weapons," including small warheads for use on multiple-warhead land-based missiles.

Nicholas Doughty, *Reuter*, 10/12/94; in *Executive News Service*, 10/12/94 (12086).

10/20/94

A Chinese Foreign Ministry official states that the PRC will continue to conduct underground nuclear tests. The official says that the 1996 date projected for the conclusion of the Comprehensive Test Ban Treaty (CTBT) is "artificial" and politically motivated.

Steven Mufson, *Washington Post Service*; in *International Herald Tribune*, 10/21/94 (12478).

10/26/94

It is reported that Chinese missile scientist Hua Di, who now resides in California, says the PRC has no intention of matching the nuclear forces of the U.S. or Russia, but only wants to ensure "a survivable second strike." The PRC has indicated it will sign a comprehensive test ban treaty by 1996, but a Chinese expert has suggested that the PRC may conduct four more tests of the reliability and miniaturization of its second-generation warhead designs.

Patrick E. Tyler, *New York Times*, 10/26/94, pp. A1, A3 (12376).

12/12/94

It is reported that the PRC is converting,

dismantling, or abandoning obsolete and inefficient nuclear weapons plants in inaccessible areas. Chinese scientist Hua Di says that situating military industries in remote areas proved to be a costly mistake that did not increase the nation's security.

Patrick E. Tyler, *New York Times Service*; in *International Herald Tribune*, 12/12/94 (12092).

PRC WITH ALGERIA

10/5/94

It is reported that U.S. officials believe that the PRC is providing Algeria and Iran with nuclear weapons technology.

Bill Gertz, *Washington Times*, 10/5/94, p. A3 (12122).

PRC WITH CANADA

11/7/94

The PRC and Canada sign a 30-year nuclear cooperation agreement which makes possible the sale of Candu reactors and gamma processing equipment to the PRC. The equipment sold will be subject to IAEA safeguards. Under the agreement, which will be subject to renewal every 10 years, the PRC and Canada pledge not to enrich any uranium above 20 percent or establish new agreements for any reprocessing.

Ray Silver, *Nucleonics Week*, 11/10/94, pp. 13-14 (12247).

11/8/94

The China National Nuclear Corporation (CNNC) and Atomic Energy of Canada, Ltd. (AECL) sign letters of intent that will allow Canada to begin negotiating the sale of two Candu-6 reactors which are to be built near existing plants at Qinshan. The sale is worth about Cdn\$3.5 billion, of which Canada will finance Cdn\$2 billion.

Financial Times, 11/9/94, p. 4 (12247).

11/12/94

It is reported that Canadian and U.S. companies have indicated their desire to be involved in the construction of two new nuclear power plants that the PRC is planning to build in Sanmen Bay and Lianyung.

Reuter, 11/12/94; in *Executive News Service*, 11/12/94 (12087).

PRC WITH FRANCE

11/25/94

The Xinhua News Agency announces that the French Atomic Energy Commission (CEA) and the China National Nuclear Corporation (CNNC) have signed a protocol promising to strengthen their cooperation in developing nuclear technology for peaceful purposes. The two organizations will share research findings regarding pressurized water reactors and will conduct joint research on fast neutron reactors and nuclear waste disposal.

Reuter, 11/25/94; in *Executive News Service*, 11/25/94 (12084). *Enerpresse*, 11/28/94 (12084).

1/20/95

It is reported that the PRC's Yibin plant has produced French-design fuel assemblies for unit 2 at the Daya Bay-1 plant. The PRC produced the fuel following a 1991 technical cooperation agreement between Framatome of France and the China Nuclear Energy Industry Corporation. Delivery to Daya Bay is expected by the end of 1/95.

Framatome; in *NucNet*, 1/20/95, p. 1 (12096).

1/25/95

Framatome, GEC-Alsthom, and Electricite de France (EdF) sign contracts to supply two 900 MW nuclear reactors for China's Lingao nuclear power plant (Daya Bay-2). The agreement totals \$2.07 billion, and includes core nuclear components (\$1.13 billion), conventional components (\$567 million), equipment to connect the nuclear and conventional parts (\$189 million), and engineering work to be performed by EdF (\$189 million). According to Framatome representative Jacques Fettu, the agreement reached with the China Guangdong Nuclear Power Co. (CGNPC) is a firm "award intention agreement" and a full contract will be signed by 7/15/95.

Mark O'Neill, Reuter, 1/15/95; in *Executive News Service*, 1/15/95 (12246). Ann MacLachlan, *Nucleonics Week*, 1/19/95, pp. 1, 9-10 (12246).

PRC WITH GERMANY

12/94

Germany removes 24 countries, including Pakistan, the PRC, and India, from its export trigger list, called the "H-List." Any

exports to a country on that list require interagency authorization as well as a permit from Germany's Federal Export Authority.

Mark Hibbs, *Nucleonics Week*, 12/15/94, pp. 10-11 (12281). Mark Hibbs, *NuclearFuel*, 12/5/94, pp. 4-5 (12281).

PRC WITH INDIA

10/24/94

It is reported that the PRC has agreed to supply India with enrichment services and uranium that will keep the country's Tarapur reactors in operation for at least another year. Prior to the contract with China, India had faced a supply embargo on SWUs [separative work units] from U.S., France, Russia and other Western nations. India has loaded 70 kg of indigenously produced mixed-oxide (MOX) fuel into the reactors this year. India had requested an open-ended agreement, but the PRC, after talks with the U.S., limited the supply to a period of one year.

Mark Hibbs, *NuclearFuel*, 10/24/94, p. 6 (12442).

1/5/95

India receives the first shipment of enriched uranium fuel purchased from the PRC under a commercial contract. The Indian Department of Atomic Energy (DAE) says that the low-enriched uranium (LEU) was delivered to Hyderabad, where it will be combined with Indian-made MOX fuel and fashioned into fuel assemblies for India's Tarapur nuclear power station. The DAE does not disclose the value of the commercial contract or the total quantity of LEU it intends to import from the PRC.

UPI, 1/5/95; in *Executive News Service*, 1/6/95 (12391). Jawed Naqvi, Reuter, 1/5/95; in *Executive News Service*, 1/6/95 (12391).

PRC WITH IRAN

10/5/94

It is reported that U.S. officials believe that the PRC is providing Iran and Algeria with nuclear weapons technology.

Bill Gertz, *Washington Times*, 10/5/94, p. A3 (12122).

11/17/94

The PRC's Ambassador to Iran says that the two 300 MW reactors that the PRC is building for Iran are intended for non-military use only.

UPI, 11/17/94; in Executive News Service, 11/17/94 (12480).

PRC WITH JAPAN

11/14/94

Japanese Prime Minister Tomiichi Murayama asks Chinese President Jiang Zemin for "understanding in efforts to ban all nuclear testing." Zemin responds that the PRC's nuclear testing is "limited" and that Chinese policy is to work toward a complete ban on nuclear weapons.

Teruaki Ueno, Reuter, 11/16/94 (12090).

PRC WITH JAPAN, NETHERLANDS, SWITZERLAND, AND UNITED STATES

11/94

It is reported that during FY 1994, Japan's Science and Technology Agency (STA) will host nuclear experts from the PRC, the Netherlands, Switzerland, and the U.S. as part of a project, allotted 1.5 billion yen for the year, intended to promote "crossover research on nuclear energy." The experts will study beam application, computer software, nuclear materials, and the biological effects of radiation. The cooperative program involves 13 Japanese government institutions and promotes work on nuclear materials, artificial intelligence, laser applications, radiation risks, radiation beam applications, and the use of computers.

Atoms in Japan, 11/94, p. 22 (12294).

PRC WITH KAZAKHSTAN

10/7/94

Kazakhstan's Foreign Ministry releases a statement denouncing China's 10/7/94 underground nuclear explosion at the Lop Nor nuclear test site. In the statement, Kazakhstan calls on China to stop its nuclear explosions and participate in the establishment of a universal nuclear test ban.

Vladimir Akimov, Itar-Tass (Moscow), 10/7/94; in JPRS-TND-94-020, 11/17/94, p. 32 (12061). Reuter (Almaty), 10/7/94; in Executive News Service, 10/7/94 (12061). Reuter (Almaty), 12/11/94; in Executive News Service, 12/12/94 (12061).

2/8/95

According to the Xinhua news agency, China gives Kazakhstan security guarantees that it

will not use or threaten to use nuclear weapons against Kazakhstan. In the government statement, China calls upon other nuclear weapon states to give similar security assurances "so as to enhance the security of all non-nuclear weapon states, including Kazakhstan." The action is undertaken in the framework of the Chinese initiative to codify a comprehensive ban on nuclear weapons. The initiative was announced in Geneva in 2/95 by Hou Zhitong, the Chinese Ambassador for Disarmament Affairs.

Reuter (Beijing), 2/8/95; in Executive News Service, 2/8/95 (12175).

PRC WITH MULTI-COUNTRY GROUP

11/6/94

Chinese Academy of Sciences professor He Zhaxiu is quoted as saying that China refused a \$2 billion offer to sell nuclear weapons to an undisclosed African country, and has refused requests from Southeast Asian countries to cooperate in the development of nuclear weapons.

Kyodo (Japan), 11/6/94; in JPRS-TND-94-020, 11/17/94, p. 2 (12091).

PRC WITH NORTH KOREA

See North Korea section.

PRC WITH PAKISTAN

11/5/94

It is reported that Pakistani President Leghari has expressed his country's desire to acquire technology from the PRC to build a nuclear power plant.

Voice of Russia World Service (Moscow), 11/5/94; in FBIS-SOV-94-234, 11/5/94 (12088).

12/10/94

It is reported that India believes that the PRC aided Pakistan in constructing the Sargodha nuclear reactor. Certain "intelligence reports" say that China has provided Pakistan with "key reactor equipment and engineering expertise."

C. Raja Mohan, *Hindu*, 12/10/94, p. 12 (12274).

PRC WITH RUSSIA

10/7/94

It is reported that as many as 1,000 Russian specialists may currently be working in China to improve Chinese nuclear and rocket programs.

Mikhail Urusov, *Moscow News*, 10/7/94-10/13/94, p. 8 (12038).

11/18/94

It is reported that China has awarded a contract to the Atomenergoproekt Institute, a Russian export company based in St. Petersburg, to design a nuclear power plant which will be built in Liaoning. China wants construction to begin in 1996.

Post-Soviet Nuclear & Defense Monitor, 11/18/94, p. 22; in *Uranium Institute News Briefing*, 11/23/94-11/29/94, p. 2 (12412).

11/26/94

It is reported that, after a visit to China, Russian Minister of Atomic Energy Viktor Mikhailov said that Russia is interested in participating in China's peaceful nuclear power program and is currently entering into cooperative agreements with China. Mikhailov denied that any Russian nuclear experts are currently working illegally in China.

Baoktikov, *Voice of Russia World Service (Moscow)*, 11/26/94 (12344).

11/30/94

Hong Kong's *Eastern Express* reports that Russian and Chinese officials have confirmed that secret Sino-Russian nuclear projects are underway in Haikou and Shenzhen. A deal was apparently struck during secret negotiations last weekend, when Russian Minister of Atomic Energy Viktor Mikhailov and First Deputy Minister of Nuclear Power Engineering Vitaly Konovalov were in Shenzhen. The deal makes Shenzhen the center of a \$10 million joint venture known as "The China-Russia Nuclear Company." According to the *Eastern Express*, Kong Fandai, president of the company, said that there were already three Russian scientists working in Shenzhen and that as the firm enters into production near the end of 1995, "we will bring in more and more of their scientists because this is Russia's strong point." According to Mikhailov, China also expressed an interest in substantial supplies of cobalt⁶⁰ for use in another project in Haikou, but an agreement

has yet to be reached.

Reuter, 11/30/94; in Executive News Service, 11/29/94 (12038). Mikhail Urusov, *Moscow News*, 10/7/94-10/13/94, p. 8 (12038).

PRC WITH SOUTH AFRICA

11/2/94

It is reported that the PRC's China National Nuclear Corporation (CNNC) has signed a contract with South Africa's Atomic Energy Corporation (AEC) under which the AEC will provide the CNNC with nuclear technology, including fission molybdenum-99. The agreement entails the transfer of nuclear technology for medical purposes, and is one of several contracts that the PRC is negotiating with South Africa.

Atomic Energy Corporation of South Africa; in *NucNet*, 11/2/94 (12112). Ian MacKenzie, Reuter, 10/5/94; in Executive News Service, 10/5/94 (12112).

PRC WITH SOUTH KOREA

10/31/94

The PRC and South Korea sign the China-South Korea Nuclear Cooperation Agreement, in which South Korea agrees to "co-operate" in Chinese nuclear power projects.

Yomiuri Shimbun, 11/1/94 (12443).

12/13/94

The PRC and South Korea sign a protocol on requiring cooperation between the two countries in monitoring radioactivity and in alerting one another of any nuclear accidents. The protocol will provide for the exchange of information and nuclear experts.

Reuter, 12/13/94 (12385).

1/95

The South Korean consortium set up by the Hanjung company and the Gohap Group wins a \$20 million contract to supply reactor pressure vessels for the China Nuclear Energy Industry Corporation (CNEIC). The pressure vessels will be used for the second phase of the PRC's Qinshan nuclear power station. Hanjung will be the sole supplier of one of the two pressure vessels, with the remaining vessel to be manufactured jointly by Hanjung and CNEIC. Delivery is expected in 1998. Hanjung was competing against suppliers from the U.S.,

France, and Japan for the contract.

Korea Atomic Industrial Forum; in *Nucnet*, 2/16/95 (12534). *Korea Economic Daily*, 1/23/95 (12095).

2/7/95

Officials from the China National Nuclear Corporation (CNNC), led by CNNC Vice-President Yi Yulan, meet with South Korean nuclear energy officials and industry leaders, including South Korea's Vice International Trade and Industry Minister Pak Un-so and Korea Electric Power Corporation President Yi Chong-hun, to discuss cooperation in the field of nuclear energy.

Yonhap (Seoul), 2/7/95; in FBIS-EAS-95-025, 2/7/95 (12557).

2/11/95

The PRC's China National Nuclear Corporation and the Korea Electric Power Corporation (KEPCO) sign a memorandum of understanding to study the technical and economic feasibility of building South Korean light-water reactors in the PRC's coastal areas. KEPCO also plans to help the PRC finance the construction of the plants.

Reuter; in *Washington Times*, 2/12/95, p. A7 (12248).

PRC WITH TAIWAN

11/2/94

It is reported that the state-owned Taiwan Power Company (Taipower) agrees in principle to purchase uranium concentrates from the PRC in return for authorization to store nuclear waste in the PRC. A Taipower spokesman disavows any knowledge of a decision made on the uranium purchase, but adds that talks with the PRC on waste storage are continuing.

Reuter, 11/2/94; in Executive News Service, 11/2/94 (12081).

PRC WITH UNITED STATES

10/4/94

The PRC and the U.S. sign a statement pledging to work together on a universal agreement banning the production of "fissile material for nuclear weapons or other nuclear explosive devices."

Jon B. Wolfsthal, *Arms Control Today*, 11/94, p. 28 (12089).

10/18/94

Secretary of Defense William Perry says that the U.S. has offered to send computer technology which simulates nuclear explosions to the PRC. The offer is intended to allow China to maintain a dependable nuclear arsenal while refraining from nuclear tests; it is not intended to help the Chinese develop nuclear weapons.

Charles Aldinger, Reuter, 10/19/94; in *Washington Times*, 10/19/94, p. A13 (12082). *Arms Control Today*, 12/94, p. 28 (12082).

10/31/94

Arms Control and Disarmament Agency Director John Holum reiterates U.S. apprehension over the PRC's continued nuclear testing program. Recent discussions between the U.S. and the PRC cover a prompt agreement on a comprehensive test ban treaty, the indefinite extension of the NPT, and the beginning of negotiations on a fissile material cut-off pact.

Reuter, 10/31/94; in Executive News Service, 10/31/94 (12375).

11/12/94

It is reported that U.S. and Canadian companies have indicated their desire to be involved in the construction of two new nuclear power plants that the PRC is planning to build in Sanmen Bay and Lianyun.

Reuter, 11/12/94; in Executive News Service, 11/12/94 (12087).

12/19/94

It is reported that officials at the State Department and the Pentagon are considering easing sanctions against the PRC to permit the sale of dual-use supercomputers and related technology.

Barbara Opall, *Defense News*, 12/19/94, pp. 1, 21 (12085).

1/31/95

At the reopening of disarmament talks in Geneva, U.S. officials charge the PRC and France with seeking to postpone the signing of the Comprehensive Test Ban Treaty (CTBT) for one year.

Joseph Fitchett, *International Herald Tribune*, 2/1/95, p. 2 (12380).

2/16/95

U.S. officials say that the PRC and France are reluctant to sign a statement promising to stop production of weapons-grade plutonium and uranium.

Lorien Holland, UPI, 2/17/95; in Executive News Service, 2/20/95 (12446).

2/17/95

A Chinese government arms control expert disagrees with U.S. allegations that the PRC is reluctant to sign a joint statement in favor of a fissile material production ban, and says that the PRC and the U.S. agreed to such a ban in 10/94.

Benjamin Kang Lim, Reuter; in Washington Times, 2/18/95, p. A18 (12446).

2/24/95

The U.S. and the PRC sign an agreement that allows the U.S. firm Westinghouse Electric Corporation to sell generators, turbines, and other non-nuclear equipment to the Qinshan nuclear plant. This agreement is the first since 1989 to allow the U.S. to supply China with high technology equipment for a nuclear power plant.

Patrick E. Tyler, New York Times, 2/25/95, p. 19 (12381).

SOUTH AFRICA

INTERNAL DEVELOPMENTS

1980s

The Armaments Corporation of South Africa (Arm Scor) builds six 10-18 kT nuclear weapons, all of which have since been destroyed.

Martin Navias, Jane's Intelligence Review, 11/94, pp. 522-524 (12477).

10/5/94

It is reported that Atomic Energy Corporation (AEC) of South Africa Chief Executive Officer Waldo Stumpf says that the AEC plans to shut down its uranium enrichment facility at Pelindaba within the next 18 months because it is less expensive to buy enriched uranium on the world market.

Ian MacKenzie, Reuter, 10/5/94; in Executive News Service, 10/5/94 (12112).

11/94

It is reported that a Defense Working Group, comprised of officials from the Armaments Corporation of South Africa (Arm Scor), drafts a document called the National Policy for the Defense Industry, which states that the nation should not produce or trade nuclear weapons or nuclear technology and should use its influence to make Africa a nuclear weapons-free continent.

Martin Navias, Jane's Intelligence Review, 11/94, pp. 522-524 (12477).

1/25/95

South African Minerals and Energy Affairs Minister Pik Botha states that South Africa will close its uranium enrichment facility at Pelindaba, called the Z plant, in 3/95. The date of the facility's closure was moved forward by a year because South Africa has gained access to world markets for enriched uranium at a substantially lower cost.

Reuter, 1/25/95; in Executive News Service, 1/25/95 (12113).

SOUTH AFRICA WITH PRC

11/2/94

It is reported that South Africa's Atomic Energy Corporation (AEC) has signed a contract to provide nuclear technology, including fission molybdenum-99, to the PRC's China National Nuclear Corporation (CNNC). The agreement entails the transfer of nuclear technology for medical purposes, and is one of several contracts that South Africa is negotiating with the PRC.

Atomic Energy Corporation of South Africa; in NucNet, 11/2/94 (12112). Ian MacKenzie, Reuter, 10/5/94; in Executive News Service, 10/5/94 (12112).

SOUTH KOREA

INTERNAL DEVELOPMENTS

12/22/94

The South Korean government announces that it has chosen the island of Kurop-do to be the country's first radioactive waste disposal location. According to the Korean Ministry of Science and Technology, the island was chosen for its solid granite base, which can support a deep waste repository. The nuclear waste site will be managed by the Nuclear Environment Management Centre, a branch of the Korea Atomic Energy Research Institute, with construction to begin in 1996 and end in 2001. The Kurop-do waste site will contain an underground low-level waste repository, with room to house 250,000 canisters of 200 liter capacity, and will also contain a temporary spent fuel storage facility capable of storing 3,000 tHM. The project is estimated to cost \$885 million, and will be financed by nuclear companies through the Fund for Radioactive Waste Management.

Nuclear Engineering International, 2/95, p. 8 (12386).

2/8/95

South Korea's first indigenous multi-purpose reactor, Hanaro (High-flux Advanced Neutron Application Reactor), goes critical. The 30 MWt reactor is located at the Korea Atomic Energy Research Institute's (KAERI) Taegon site and was first fueled on 2/2/95. KAERI will use Hanaro for experiments with nuclear fuel and materials and for the production of radioisotopes for medical and industrial purposes.

NucNet, 2/95 (12533). Nuclear News, 3/95, p. 51 (12533).

SOUTH KOREA WITH CANADA

2/95

It is reported that the initial core fuel for South Korea's Hanaro reactor was supplied by Atomic Energy of Canada, Ltd. (AECL).

NucNet, 2/95 (12533).

SOUTH KOREA WITH NORTH KOREA

See North Korea section.

SOUTH KOREA WITH PRC

10/31/94

The PRC and South Korea sign the China-South Korea Nuclear Cooperation Agreement, in which South Korea agrees to "co-operate" in Chinese nuclear power projects.

Yomiuri Shimbun, 11/1/94 (12443). Reuter, 12/13/94 (12385).

Early 11/94

Chinese Prime Minister Li Peng and South Korean President Kim Young-sam sign a bilateral nuclear energy agreement that will allow South Korean companies to take part in the construction of nuclear power plants in the PRC, which plans to build 30 new plants by 2010.

Newsreview (South Korea), 11/5/94, pp. 4-5 (12097).

12/13/94

The PRC and South Korea sign a protocol on cooperation between the two countries in monitoring radioactivity and in alerting one another of any nuclear accidents. The protocol will provide for the exchange of information and nuclear experts.

Reuter, 12/13/94 (12385).

1/95

The South Korean consortium set up by the Hanjung company and the Gohap Group wins a \$20 million contract to supply reactor pressure vessels for the China Nuclear Energy Industry Corporation (CNEIC). The pressure vessels will be used for the second phase of the PRC's Qinshan nuclear power station. Hanjung will be the sole supplier of one of the two pressure vessels, with the remaining vessel to be manufactured jointly by Hanjung and CNEIC. Delivery is expected in 1998. Hanjung was competing against suppliers from the U.S., France, and Japan for the contract.

Korea Atomic Industrial Forum; in *NucNet*, 2/16/95 (12534). *Korea Economic Daily*, 1/23/95 (12095).

2/7/95

Officials from the China National Nuclear Corporation (CNNC), led by CNNC Vice-President Yi Yulan, meet with South Korean nuclear energy officials and industry leaders, including South Korea's Vice International Trade and Industry Minister Pak Un-so and Korea Electric Power Corpora-

tion President Yi Chong-hun, to discuss cooperation in the field of nuclear energy.

Yonhap (Seoul), 2/7/95; in FBIS-EAS-95-025, 2/7/95 (12557).

2/11/95

The PRC's China National Nuclear Corporation and the Korea Electric Power Corporation (KEPCO) sign a memorandum of understanding to study the technical and economic feasibility of building South Korean light water reactors in the PRC's coastal areas. KEPCO also plans to help the PRC finance the construction of the plants.

Reuter; in *Washington Times*, 2/12/95, p. A7 (12248).

SOUTH KOREA WITH RUSSIA AND UNITED KINGDOM

12/5/94

It is reported that, in 1996 and 1997, British Nuclear Fuels, Ltd. (BNFL) will supply Russia's Technobexport with UF⁶. The material will be enriched in Russia and then supplied to the Korea Electric Power Corporation.

Pearl Marshall, *NuclearFuel*, 12/5/94, p. 13 (12538). *Nuclear Engineering International*, 1/95, p. 7 (12538).

SOUTH KOREA WITH TURKEY

12/29/94

The Korea Atomic Energy Research Institute (KAERI) signs an agreement with the Turkish Electricity Generation-Transmission Company (TAES) under which KAERI will advise Turkey on its proposed 600 MW nuclear power plant at Akkuyu. KAERI will evaluate and report upon all accepted international commercial reactor types, study and update previous bids, create new specifications for commercial reactors, and assist TAES with bid and contract negotiations.

Jack Ashton, *NucNet*, 12/30/94 (12537).

SOUTH KOREA WITH UNITED KINGDOM

12/5/94

It is reported that the Korea Electric Power Corporation (KEPCO) and British Nuclear Fuels, Ltd. (BNFL) have signed a contract under which BNFL will begin producing

uranium hexafluoride (UF⁶) for KEPCO. The BNFL-KEPCO contract is estimated to be worth "several million pounds" and stipulates that BNFL will begin supplying KEPCO's Urenco and Technobexport processing plants in St. Petersburg, Russia, with UF⁶ between 1996 and 1997, where it will be enriched before being made into fuel for KEPCO.

Pearl Marshall, *NuclearFuel*, 12/5/94, p. 13 (12538). *Nuclear Engineering International*, 1/95, p. 7 (12538).

SOUTH KOREA WITH UNITED KINGDOM AND UNITED STATES

11/24/94

It is reported that U.K.-based Forgemasters Steel & Engineering Ltd. (FSEL) has supplied U.S.-based ABB-Combustion Engineering with core barrel forgings for use in South Korea's Ulchin-3 and -4 reactors, for which FSEL has also provided lugs.

Pearl Marshall, *Nucleonics Week*, 11/24/94, pp. 14-16 (12286).

SPAIN

INTERNAL DEVELOPMENTS

9/26/94

Spain's nuclear utilities form a partnership called the Asociacion Electrica para el Desarrollo Tecnologica Nuclear (Electrical Association for Nuclear Technology Development, DTN). Headed by chairman Enrique Garcia Alvarez from Endesa, the DTN will focus on three issue areas: the development of new utility projects, including advanced fission and fusion reactors; the management of Spanish nuclear programs in Eastern Europe; and the promotion of collaborative R&D projects.

Ann MacLachlan, *Nucleonics Week*, 10/20/94, p. 8 (12231).

2/24/95

It is reported that Spanish Nuclear Industry Association (UNESA) Vice President Pedro

Rivera says that Spain spent more than \$150 million in nuclear research and development in 1994. Projects include studying the effects of nuclear accidents and setting up a data bank for Spain's nuclear plants.

Spanish Atomic Forum; in *NucNet*, 2/24/95 (12444).

SPAIN WITH EUROPEAN COUNTRIES

10/20/94

It is reported that Spain's new nuclear utility consortium DTN will play an important role in the creation of European-wide nuclear standards, the European Utility Requirements, for advanced light water reactors. Spain seeks to have the new guidelines allow for boiling water reactors, as well as the evolutionary European pressurized reactor under development by Franco-German interests.

Ann MacLachlan, *Nucleonics Week*, 10/20/94, p. 8 (12231).

SPAIN WITH FRANCE

11/24/94

A shipment of eight tons of spent fuel elements from Spain is due to arrive at the Marcoule reprocessing plant in France. The two carloads of uranium mark the last shipment from the decommissioned Vandellós-1 reactor and bring to an end the first phase of that plant's decommissioning. Since the reactor began operating on 1/12/74, more than 149 train-loads carrying a total of 186,700 fuel elements have been transported between Vandellós and Marcoule.

El País, 11/25/94 (12128).

SPAIN WITH UNITED KINGDOM AND UNITED STATES

11/24/94

It is reported that U.K.-based Forgemasters Steel & Engineering Ltd. (FSEL) has supplied replacement forgings to Spain's Equipos Nucleares S.A. for its Asco and Almaraz stations.

Pearl Marshall, *Nucleonics Week*, 11/24/94, pp. 14-16 (12286).

SPAIN WITH UNITED STATES

10/20/94

It is reported that Westinghouse of the U.S. has constructed six pressurized water reactors (PWRs) in Spain, and that control of Westinghouse's Spanish operations has been switched to a Brussels subsidiary, Westinghouse Energy Systems Europe.

Ann MacLachlan, *Nucleonics Week*, 10/20/94, p. 8 (12231).

SYRIA

SYRIA WITH GERMANY

Late 1994

The German Economics Ministry and German industry recommend the removal of Syria from Germany's export trigger list, called the "H-List." Any exports to a country on that list require interagency authorization as well as a permit from Germany's Federal Export Authority. However, due to objections from the Ministry of Foreign Affairs, Syria is not included on the list of 24 countries to be cut from the H-list as of 1/1/95.

Mark Hibbs, *Nucleonics Week*, 12/15/94, pp. 10-11 (12281). Mark Hibbs, *NuclearFuel*, 12/5/94, pp. 4-5 (12281).

TAIWAN

TAIWAN WITH MULTI-COUNTRY GROUP

1/19/95

It is reported that Taiwan received bids from Westinghouse of the U.S., Framatome of France, and ABB-Combustion Engineering, a consortium of companies from Switzerland and the U.S., for its Lungmen nuclear project. Six vendors, including General Electric and Westinghouse of the U.S., Hitachi and Mitsubishi of Japan, ABB Power Generation of Switzerland and the U.S., and GEC Alsthom of the U.K. are expected to

submit bids by 2/28/95 to supply the turbine generators for the plant. The Ebasco division of Raytheon of the US, supported by its Ebasco-CTCI joint venture and in association with Belgatom, was awarded the phase one A/E, and executed certain duties during the preliminary stages of the project. Ebasco/Belgatom, Stone & Webster of the U.S., and Sargent & Lundy of the U.S. are bidding for the phase two A/E contract. Taipower is planning to secure part of its funding domestically and part from foreign bank loans.

Donald Shapiro and Dave Airozo, *Nucleonics Week*, 1/19/95, pp. 11-12 (12475).

TAIWAN WITH PRC

11/2/94

It is reported that the state-owned Taiwan Power Company (Taipower) agrees in principle to purchase uranium concentrates from the PRC in return for authorization to store nuclear waste in the PRC. A Taipower spokesman disavows any knowledge of a decision made on the uranium purchase, but adds that talks with the PRC on waste storage are continuing.

Reuter, 11/2/94; in Executive News Service, 11/2/94 (12081).