

NUCLEAR-RELATED TRADE AND COOPERATION DEVELOPMENTS FOR SELECTED STATES, JULY-OCTOBER 1996

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OVERVIEW

During the period July-October 1996, nuclear activities in several states of concern continued to pose challenges to the nonproliferation regime, as did problems in the **Newly Independent States (NIS)** and **China**. In South Asia, development of uranium enrichment (**Pakistan**) and plutonium reprocessing (**India**) facilities heightened tensions. In the Middle East, **Iraq's** recalcitrance vis-à-vis the **United Nations Special Commission's (UNSCOM's)** continuing inspections was overshadowed by new revelations that a **German** nuclear technician contributed significantly to Baghdad's uranium enrichment program. In the **NIS**, several smuggling incidents occurred. Finally, the incursion of a **North Korean** submarine into **South Korea**, among other factors, interrupted implementation of the **Korean Peninsula Energy Development Organization (KEDO)** agreements.

Incidents of nuclear and radioactive materials smuggling were reported in six former Soviet republics: **Azerbaijan**, **Belarus**, **Georgia**, **Lithuania**, **Russia**, and **Ukraine**. The largest seizure—110 kilograms of zirconium powder (a dual-use material used in fuel rod claddings as well as in nuclear weapon components)—was made in Saratov, **Russia**. Other seizures included gram and kilogram quantities of uranium, gram quantities of plutonium, and gram quantities of an unidentified radioactive substance. In order to combat such smuggling across its territory, the **Cypriot** parliament passed legislation allowing the government to seize a shipment of nuclear-related goods from **Georgia** that was bound for an unnamed destination in the **Middle East**.

Nuclear-related cooperation between the **United States** and **Russia** gathered pace as the two countries agreed to a five-year program to develop fuel cell technologies (the Russian-American Fuel Cell Consortium). About 150 companies are expected to join the program, which may be extended beyond the initial five years. Also, the **United States** during the fall of 1996 was considering the sale of Convex SPP-2000 supercomputers to Russia, which planned to use the computers for activities related to the Comprehensive Test Ban Treaty. However, nonproliferation analysts warned of possible misuse of the supercomputers, which are powerful enough to be used for nuclear weapon development.

KEDO held its first general conference at its New York

headquarters. At the meeting, members approved plans to begin physical work at the Sinpo site. The reactors are scheduled to be completed in 2003, but **KEDO** officials admitted that this is a "difficult timetable," particularly in light of the delays caused initially by **U.S.** funding problems and, during the fall, by **North Korean** actions. A **North Korean** submarine incursion into **South Korean** territory in September caused **South Korea** to halt construction at the Sinpo site. **South Korea** was awaiting an apology from Pyongyang before it resumed construction. Also raising concerns was the fact that **North Korea** still has not allowed the **IAEA** to verify its initial declaration of nuclear materials.

The arms race between **India** and **Pakistan** continued as both sides augmented their respective nuclear capabilities. **U.S.** intelligence sources accused Islamabad of building a uranium enrichment plant near Rawalpindi that can produce highly enriched uranium. The plant is being built in cooperation with **China**, which has also shipped a specialized industrial furnace and diagnostic equipment to **Pakistan's** heavy-water reactor site at Khushab. Meanwhile, **India** expanded its nuclear capability, as a new plutonium reprocessing plant at Kalpakkam neared completion.

In the Persian Gulf region, the **Iranian** nuclear program suffered a setback when **U.K.** customs officials seized a shipment of maraging steel bound for Tehran, which could have been used to make uranium-enrichment centrifuges. At the Bushehr nuclear power plant, **Russian** contractors have also experienced significant engineering difficulties that could substantially raise construction costs and delay completion of the plant until after 2003. In particular, **Russian** workers are having trouble fitting the **Russian**-designed VVER reactor equipment into the **German**-designed plant due to differences in the equipment's technical specifications.

Meanwhile, **Iraq** continued its pattern of confrontation with **UNSCOM**, as inspectors were denied access to a suspect site on two occasions, in July and August 1996. Evidence about Baghdad's nuclear weapons program continued to surface following Hussein Kamel's defection in August 1995. In particular, new evidence suggests that **German** nuclear technician Karl-Heinze Schaab, the owner of Rosch GmbH and former MAN Technologie employee, was a major supplier of uranium enrichment technology to **Iraq**.

Schaab allegedly provided **Iraq** with drawings and equipment for uranium enrichment centrifuges. He also sold Baghdad a carbon-fiber-filament winding machine, which was later confiscated in **Jordan** along with other centrifuge equipment. Schaab did not deny helping the **Iraqi** uranium enrichment program, adding that other **German** specialists were also involved.

In Latin America, **Brazil** resumed expansion of its previously stalled nuclear program with the benefit of international assistance, a result of its 1994 ratification of a safeguards agreement. Brasilia plans to complete the Angra-2 reactor by mid-1999, and may build Angra-3 as the first of an advanced pressurized water reactor design to be called the Brazil Standard Nuclear Power Plant.

Kimber Cramer, Andrew Koch, and R. Adam Moody

NOTE:

A date marked with an “” indicates that an event was reported on that date; a date without an “*” is the date when an event actually occurred.*

*The numbers listed in parentheses following the bibliographic references refer to the identification number of the document in the CNS Nuclear Database from which the news summaries are abstracted. Because of the rapidly changing nature of the subject matter, **The Nonproliferation Review** is unable to guarantee that the information reported herein is complete or accurate, and disclaims liability to any party for any loss or damage caused by errors or omissions.*

ARGENTINA

INTERNAL DEVELOPMENTS

9/9/96

Felipe Sapag, governor of Argentina's Neuquen province, and Anibal Nunez, head of the Neuquen Engineering Service Company, signed an agreement to provide \$130 million for modernizing the Arroyito heavy water plant. Initially, it will produce 508 MT of heavy water for use in Argentina's nuclear power plants.

Telam (Buenos Aires), 9/9/96; in FBIS-LAT-96-185, 9/23/96 (15749).

9/29/96*

In response to budget cuts and the reduction of the National Nuclear Regulatory Agency's (ENREN) staff to 200, general manager Antonio Oliveira said, "ENREN will be rendered incapable of conducting inspections." ENREN is responsible for implementing Argentina's safeguards obligations, including monitoring fissile material at 41 facilities.

Clarín (Buenos Aires), 9/29/96; in FBIS-LAT-96-194, 9/29/96 (15973).

ARMENIA

ARMENIA WITH EUROPEAN UNION AND RUSSIA

8/25/96

In Moscow, Russian First Deputy Premier Aleksei Bolshakov and Gagik Shakhbazyan, Armenia's minister for relations with the CIS, the EU, and international economic organizations, signed an agreement that includes an Rb100 billion loan to Armenia for the purchase of nuclear fuel.

Nezavisimaya gazeta (Moscow), 8/28/96, p. 3; in FBIS-SOV-96-168, 8/28/96 (15619).

AZERBAIJAN

INTERNAL DEVELOPMENTS

8/16/96*

Azerbaijani police arrested four Baku residents, one of whom was a scientist from the Azerbaijani Academy of Sciences, for possession of 2 kg of uranium. The four had acquired the uranium for \$38,000 and intended to sell it abroad. The origin of the confiscated material has not yet been determined, and an investigation is under way.

Arif Useinov, Segodnya, 8/16/96, p. 6 (15642).

AZERBAIJAN WITH KYRGYZSTAN, UKRAINE, AND UNITED KINGDOM

8/20/96

The Ukrainian Customs Service detained an aircraft with 229 kg of radioactive materials and more than 3 MT of explosive substances, including detonators and fuses, on board. The IL-76, belonging to the Lviv State Aviation Enterprise, was on international flight UKR 9463 from Maastricht (Netherlands) to Lviv (Ukraine) then Baku (Azerbaijan), and was detained after landing at Lviv Airport. The crew of the aircraft had permission to transport the cargo of Radium-226, Cesium-137 and Americium-261 to Baku, where another aircraft was to fly the fissile material to Bishkek, Kyrgyzstan. However, Ukrainian nuclear specialists suspect that the radioactive materials were illegally brought to Ukraine for burial in Zheltyye Vody. The Azerbaijani International Operational Company (AIOC) had signed an agreement with the State Petroleum Company to develop three oil fields off the Caspian shelf two years earlier. Having obtained permission to import the explosives to Azerbaijan, AIOC experts said the cargo was to be used to bore wells in the open sea, 150–180 km southeast of Baku. The radioactive materials and explosives were being transported without appropriate documentation. An investigation in Ukraine revealed that the cargo belonged to the British company Cayun Aviation Ltd. According to the Ukrainian Customs Code, all

transit cargoes crossing Ukrainian territory are subject to customs control and must have appropriate documentation, including permission from the Ukrainian Governmental Commission on Export Control.

Yanina Sokolovskaya, Izvestiya, 9/6/96, p. 3; in WPS, 9/17/96, p. 1 (15662). Aleksandr Korchinskiy, Kievskiy Vedomosti, 8/31/96, pp. 1, 9 (15662). Mikhail Melnik, ITAR-TASS (Moscow), 8/30/96; in FBIS-SOV-96-171, 8/30/96 (15984).

BELARUS

BELARUS WITH CZECH REPUBLIC, GERMANY, POLAND, RUSSIA, AND SLOVAKIA

10/13/96

German customs officials detained a truck transporting radioactive scrap metal from Russia to Germany at a checkpoint on the German-Czech border near the Czech town of Yirzhikov. An investigation revealed that the truck belonged to a Slovak transportation firm, which was transporting the scrap metal purchased by a German firm in Russia via Belarus and Poland. The truck was returned to the Czech Republic.

Pravda-Pyat', 10/15/96, p. 3 (15696).

BELARUS WITH RUSSIA

7/3/96

Belarusian presidential aide Sergey Posokhov announced Belarus' intention to postpone the transfer of the remaining 18 strategic nuclear missiles on its territory unless Russia provides adequate compensation for the nuclear material. Belarusian officials denied Russia's accusation that Belarus had not fulfilled its commitment to withdraw the weapons, and insisted that Belarus was committed to the 12/31/96 deadline. However, Russian Defense Minister Pavel Grachev had agreed in Minsk in 1995 to transfer the 18 Topol SS-25 nuclear missiles from Belarus to Russia by 9/1/96. Belarus cited financial problems as the cause of the delay and is now asking Russia to pay for the nuclear materials in the warheads. According to Posokhov, Moscow plans to pay the requested compensation after estimates are made and Belarus

meets the original transfer schedule.

Disarmament Diplomacy, 7/96-8/96, pp. 48, 49 (15692). *Interfax* (Moscow), 7/3/96; in FBIS-SOV-96-130, 7/3/96 (15794). *The Current Digest Of The Post-Soviet Press*, 7/3/96, p. 19 (15794). Ustina Markus, *OMRI Daily Digest*, 7/8/96 (15794).

7/11/96

Belarusian Deputy Foreign Minister Andrey Sannikov said that Russia's deal to compensate Belarus was almost settled, and that transfer of the last 18 of 76 Russian ICBMs should be completed before the end of 1996.

Disarmament Diplomacy, 7/96-8/96, pp. 48, 49 (15692).

8/1/96

Officers from the elite Alpha unit of the Belarusian National Security Committee (KGB) in Borisov arrested five Belarusian businessmen attempting to sell 42 g of a radioactive substance, most likely of Russian origin, to middlemen. Six containers had been stored in the cellar of one of the businessmen's homes. According to Gennadiy Senukov, spokesman for the Belarusian KGB, the confiscated materials could not have come from Belarusian facilities because Belarus has no facilities that produce radioactive substances. The value of the confiscated nuclear material was estimated at \$50,000. When asked to identify the nuclear material, Senukov responded: "All I will say is that these containers were being readied for shipment out of Belarus."

Belarusian Review, Fall 1996, p. 19 (15913). *Krasnaya zvezda*, 8/6/96, p. 1 (15652).

9/13/96

Russian Security Council Secretary Aleksandr Lebed and his Belarusian counterpart, Viktor Sheyman, reached an agreement to remove the remaining 18 SS-25 ICBMs from Belarus to Russia by the end of 1996. Implementation has been obstructed by Belarus' concerns over disarmament funding and NATO expansion. Aleksandr Barkhatov, Lebed's spokesman, said the fact that the agreement involved no formal written procedure would not impede its fulfillment.

Doug Clarke and Saulius Girmius, *OMRI Daily Digest*, 9/16/96 (15689).

10/31/96

Reacting to the Council of Europe's concern that Belarus may not remove the remaining 18 SS-25 nuclear missiles from its territory, Belarusian Deputy Foreign Minister Mikhail Khvostov said that Belarus would transfer the weapons to Russia by 2001, the deadline stipulated in the 1992 Lisbon Protocol. While Belarus has demanded "substantial compensation," Russia either cannot or does not want to pay the amount requested. Khvostov said that the Council of Europe's concern that Belarus might break its promise was "overly politicized."

Jamestown Foundation Monitor, 11/1/96 (15793). *Interfax* (Moscow), 10/31/96; in FBIS-SOV-96-213, 10/31/96 (15838).

BRAZIL

INTERNAL DEVELOPMENTS

9/23/96

The planning director of the Brazilian Electric Power Company (Electrobras), said that his firm is negotiating with the Brazilian government to resume construction of the Angra-3 nuclear power plant. The statement, made by Benedito Carraro at the Fifth Rio de Janeiro Energy Meeting, said construction of Angra-3 will be resumed by 6/98. A study conducted by the National Nuclear Energy Commission (CNEN) and Furnas Electric Power Plants estimated that more than 3.5 billion reals would be needed to complete the plant.

Jornal Do Brasil (Rio de Janeiro), 9/24/96, p. 18; in FBIS-LAT-96-188, 9/24/96 (15926).

10/19/96

During a symposium on nuclear energy in Brazil, Brazilian Strategic Affairs Secretary Ronaldo Sardenberg outlined the future of the Brazilian nuclear program. Sardenberg said Brazil currently operates a pilot-scale uranium enrichment lab. Nuclear Industries of Brazil (INB) has signed an agreement with the Navy Technology Center to build an enrichment plant with a 12,000 SWU capacity at the Resende Industrial Complex, at a cost of 15.5 million reals.

Ronaldo Mota Sardenberg, Brazilian Secretaria De

Assuntos Estrategicos, 10/19/96; in FBIS-LAT-96-210, 10/19/96 (15930).

BRAZIL WITH GERMANY

8/6/96*

According to Pedro Figueiredo, director of thermonuclear production at Furnas Electric Power Plants, \$1.2 billion is being invested in the final stage of construction of Brazil's 1,300 MW Angra-2 nuclear power plant. German consortia headed by Dresdner Bank and KfW will invest almost 50 percent of the funds for the project. The remainder will be provided by Electrobras and Furnas. Testing of the reactor will begin when all of the plant's equipment is fully assembled, which is expected by 12/98. Angra-2 is scheduled to commence operations in 6/99. In order to finish the project, Nuclebras Engineering Inc. (Nuclen) will receive Furnas' 1997 budget allocation for construction, as well as funds from the sale of the government-owned Light Power Services.

Mariza Louven, *Gazeta Mercantil* (Sao Paulo), 8/6/96, p. C3; in FBIS-LAT-96-156, 8/6/96 (15675). Mark Hibbs, *Nucleonics Week*, 10/31/96, pp. 2, 3 (15993). George Vidor, *O Globo* (Rio de Janeiro), 11/4/96; in FBIS-LAT-96-217, 11/4/96 (15993).

10/31/96*

Nuclen will head a project to design a standardized advanced pressurized water reactor (PWR) in Brazil; Germany's Siemens will provide design technology. According to Brazilian officials, construction of the first advanced PWR for the Brazil Standard Nuclear Power Plant could begin in 2002, and the reactor could be operational by 2008.

Mark Hibbs, *Nucleonics Week*, 10/31/96, pp. 2, 3 (15993).

CHINA

INTERNAL DEVELOPMENTS

7/29/96

China detonated a nuclear device at its Lop Nor test site (41.77 degrees N, 88.39 degrees E) that measured 5.0 on the Richter scale. After the test, Chinese officials stated that the 7/29 detonation would be the final test and announced an "indefinite moratorium"

on nuclear testing.

Trust & Verify, 8/96, p. 1 (15743).

9/11/96*

After three years of trial commercial operation, China's Daya Bay nuclear power plant received its operating certificate from the National Nuclear Safety Administration. The plant, located in Shenzhen, Guangdong Province, is China's first nuclear power station to obtain formal certification to operate.

China Daily, 9/11/96, p. 5 (15951).

9/14/96*

China's Chongqing Chuanyi Co., one of China's three largest producers of meter instruments, has "mastered the technology" to manufacture nuclear reactor instrumentation and control systems, a significant indigenous development. Few countries are capable of producing these instruments, and developed countries prohibit the transfer of such technology to China.

China Daily, 9/14/96, p. 2 (15950).

9/24/96

China was one of the first five countries to sign the Comprehensive Test Ban Treaty (CTBT) after the United States, when the treaty was opened for signature at the United Nations on 9/24/96.

Judy Aita, US Information Agency [Online] Gopher WWW, 9/24/96 (15843).

9/25/96

Qian Qichen, China's vice-premier and minister of foreign affairs, outlined China's positions on arms control and disarmament before the U.N. General Assembly. Qian said China supports the goal of complete elimination of all nuclear weapons and views the CTBT as only the first step in that direction. Qian also outlined five major steps that need to be taken in order to reach that goal. First, the nuclear weapon states should renounce the policy of nuclear deterrence and continue the reduction of their nuclear arsenals. Second, nuclear states should pledge not to be the first to use nuclear weapons under any circumstance. Third, nuclear weapons deployed overseas should be completely withdrawn, and nuclear-weapon-free zones should be established and respected. Fourth, no state should deploy nuclear weapons or

missile defense systems in outer space. Last, negotiations should commence to conclude an international convention on the prohibition and eradication of nuclear weapons.

Qian Qichen, Press Release, Embassy of the People's Republic of China to the United Nations, 9/26/96 (15966).

CHINA WITH INDIA, IRAN, AND RUSSIA

8/16/96*

According to Lev Ryabev, Russia's first deputy minister for atomic energy, Russia has signed agreements to provide India, Iran, and China with VVER-640 reactors.

Ivan Cheberko, *Kommersant-daily* (Moscow), 8/16/96, p. 8 (15946).

CHINA WITH IRAN

10/1/96*

According to an Iranian military source, Iran made a formal request to China regarding the dispatch of an Iranian observation team to China's next scheduled nuclear test. Iran also requested training for 10 or more Iranian personnel at Chinese nuclear weapon test sites.

Iran Brief, 10/1/96, pp. 4, 5 (15742).

CHINA WITH PAKISTAN

2/12/96*

Additionally, China transferred 5,000 ring magnets to Pakistan for use in a uranium enrichment centrifuge. The ability to hold the Chinese government responsible for such transfers is complicated by China's party-government structure. According to a U.S. Congressional Research Service report, "many analysts believe that sensitive Chinese arms sales are controlled by only a few very influential military and political officials in the Central Military Commission and Politburo—and not the weaker Foreign Ministry."

Robert Shuey and Shirley A. Kan, Congressional Research Service, U.S. Library of Congress, 2/12/96, pp. 1-15 (15964).

7/2/96*

China has manufactured its first nuclear reactor pressure vessel for a project in Pakistan. The vessel's total weight is 205 MT.

Harbin Heilongjiang, People's Radio Network, 7/2/96; in FBIS-CHI-96-130, 7/2/96 (15841).

10/10/96*

In 9/96, China admitted that it had sold dual-use equipment to Pakistan in 1995 and early 1996, but said that the transfer occurred before the 5/11/96 pledge not to provide assistance to unsafeguarded nuclear facilities. U.S. intelligence officials confirmed the Chinese claim. The equipment included a specialized industrial furnace and some diagnostic equipment, apparently headed for a heavy-water reactor site at Khushab.

R. Jeffrey Smith, *Washington Post*, 10/10/96, p. A38 (15840).

CHINA WITH RUSSIA

10/9/96

Russian Atomic Energy Minister Viktor Mikhailov arrived in China to discuss projects to build a nuclear power plant and a uranium enrichment facility in China. Mikhailov is scheduled to meet Chinese Prime Minister Li Peng on 10/11/96. Rumors have circulated that the Russian Ministry of Atomic Energy (Minatom) is offering to sell highly enriched uranium (HEU) to China, possibly as part of a wide-ranging nuclear cooperation deal which includes production of two VVER-design reactors at either Liaoning or Shanghai. Any reactor deal is subject to further approval by Chinese agencies. Mikhailov may offer HEU to China as an incentive to close the deal on the VVERs. Russian sales of HEU to China would be contingent on a commitment to its peaceful use.

Mark Hibbs, *NuclearFuel*, 10/21/96, p. 10 (15968).

GEORGIA

GEORGIA WITH CYPRUS

7/13/96

An unnamed senior Cypriot official said that equipment "related to nuclear facilities" was seized at the port of Limassol, Cyprus. The official denied a 7/12/96 report by the television station Antenna that the seized materials included spare parts that "could be assembled into a weapon that could carry nuclear warheads." Antenna reported that the shipment originated in Georgia and was bound for a country in the Middle East via Cyprus. The Cypriot parliament passed a law on 7/11/96 temporarily granting the government the right to confiscate goods "for reasons of public interest or to maintain good diplomatic relations." The seized equipment had arrived in Limassol in 5/96.

Reuter, 7/13/96; in Executive News Service, 7/16/96 (15718).

INDIA

INTERNAL DEVELOPMENTS

7/11/96*

India will have to wait 10 to 15 years before testing a nuclear-powered submarine, Rahul Roy-Chaudhury, a defense analyst at the Institute of Defence Studies and Analyses said. Scientists working on the Indian nuclear submarine program, also known as the advanced technology vessel (ATV), may soon test an indigenously built reactor at an undisclosed land-based testing facility. "The main technological problem is to miniaturize the nuclear reactor, provide it with a suitable containment vessel, and make it compatible with the hull design," unnamed Indian experts said. The reactor will burn plate-type fuel using uranium enriched at a facility in Rattenhalli. The submarine is being developed at centers in Mumbai [Bombay], Hyderabad, Delhi, Kalpakkam, and Vishakhapatnam. [Note: On 7/8/96, All In-

dia Radio Network (Delhi) made a contradictory report on the progress of the ATV, alleging that India had already successfully tested a nuclear submarine at an undisclosed location on the east coast.]

Atul Aneja, *Hindu*, 7/11/96, p. 14 (16019). All India Radio Network (Delhi), 7/8/96; in FBIS-NES-96-132, 7/8/96 (16019).

7/15/96

D. D. Sood, director of the radio-chemistry and isotope group of the Bhabha Atomic Research Centre (BARC), said that a reprocessing plant at Kalpakkam was nearing completion. Sood added that two reprocessing plants are already functioning, at BARC and Tarapur.

Hindu, 7/16/96, p. 16 (15977).

7/15/96*

From 12/96-6/97, three plants will be built at India's Nuclear Fuel Complex (NFC) in Hyderabad, doubling its ability to manufacture uranium dioxide (UO₂) pellets. When completed, the NFC will have the capacity to manufacture 600 MT of UO₂ pellets per year. The three new plants will produce UO₂, zirconium, and uranium fuel assemblies. NFC Chief Executive K. K. Sinha said on 7/13/96 that "budgetary sanctions" have allowed the expansion plans, at a cost of Rs2.15 billion. The NFC provides fuel assemblies to all nuclear reactors in India and produces zircaloy components for the Fast Breeder Test Reactor (FBTR) at Kalpakkam. The facility also houses special-purpose furnaces and specialized welding machines.

Hindu, 7/15/96, p. 6 (16018).

7/17/96*

BARC has had problems with loose inventory control. For example, a 2 cm radioactive "self-serve aluminum ball" was discovered in a desk drawer in 3/93. Investigators found no inventory record for any such ball, indicating that no one knows how many may have left the facility.

Sumit Ghoshal, *Indian Express*, [Online] <http://www.express.indiaworld.com>, 7/17/96 (15747).

7/17/96*

According to a report by the U.S. Congressional Research Service (CRS), India may be "pursuing" the development of thermonuclear weapons. Testifying before the Sen-

ate Government Affairs Committee in 1989, Director of Central Intelligence William Webster said that indicators of work on thermonuclear weapons, such as research on lithium separation of stable isotopes, reveal that India has an "interest leading towards capability." India's program includes uranium and tritium production facilities and an inertial confinement fusion program at BARC. Inertial confinement fusion technology is useful in studying hydrogen blast-related phenomena. The report concludes that, due to its thermonuclear program, India may have a greater need than Pakistan to conduct nuclear tests (Pakistan is believed to be developing less sophisticated nuclear weapons). India has the capacity to weaponize its thermonuclear capability rapidly following "modest" testing.

Jonathan Medalia, *CRS Report For Congress*, 7/17/96 (16014).

10/14/96

India's Nuclear Power Corporation (NPC) established the Indian Atomic Industrial Forum (IAIF) to assist in commercializing the country's nuclear power sector. Commercialization would affect 40 major and 500 smaller Indian companies, including Bharat Heavy Electrical Ltd. (BHEL), Larsen and Toubro, Electronics Corporation of India, Keltron, MTAR, BARC, Indian Rare Earth, NEERI, and the Alloy Steel Plant. The IAIF plans to develop nuclear power plants both domestically and internationally.

India Power Daily, [Online] <http://www.power.indiaworld.com>, 9/27/96 (15976). *India Power Daily*, [Online] <http://www.power.indiaworld.com>, 10/15/96 (15976).

10/24/96*

As part of a plan to expand its nuclear capacity to 20,000 MW by 2020, India wants to build 22 nuclear power plants over the next 20 years at an estimated cost of \$25-30 billion. According to Atomic Energy Commission Chairman R. Chidambaram, six 500 MW reactors are under construction, two of which are close to completion.

Neel Patri, *Nucleonics Week*, 10/24/96, p. 8 (16020).

10/29/96

India's 30 kW Kamini research reactor, which burns Uranium-233 separated from thorium as fuel, went critical. The reactor was

developed and built in Kalpakkam by BARC and the Indira Gandhi Centre for Atomic Research (IGCAR). India will use the reactor for conducting neutron radiography studies of irradiated fuel from the FBTR, also located in Kalpakkam.

Neel Patri, *Nucleonics Week*, 11/7/96, p. 2 (15991). *Indian Express*, [Online] <http://www.express.india-world.com>, 10/31/96 (15991).

INDIA WITH CANADA

10/16/96*

Following a trip to Canada by Indian Minister of External Affairs I. K. Gujral, India and Canada decided to renew their nuclear cooperation. Canada had withheld such cooperation with India after New Delhi tested a nuclear device in 1974.

Express News Service, 10/15/96; in *Indian Express*, [Online] <http://www.express.india-world.com>, 10/16/96 (15780).

INDIA WITH:

China, Iran, and Russia, 121

INDIA WITH RUSSIA

10/96

During a visit to India by Russia's Minister of Foreign Economic Relations Oleg Davydov, Indian and Russian officials discussed a deal for the provision of two VVER-1,000 reactors, expected to be built in Koodankulam. During a 10/28/96 press conference, Davydov said the two sides are close to signing a deal, possibly by the end of 1996. However, a problem may arise over credit terms set by Russia. Furthermore, India's Nuclear Power Corp. Chairman Y. S. R. Prasad said New Delhi wants the project to be provided on a turnkey basis. The project's cost has not been announced, but the world market price for two VVER-1,000 reactors, generators, design, and construction is approximately \$1.7 billion. In 1989, Soviet President Mikhail Gorbachev and Indian Prime Minister Rajiv Gandhi signed an accord to supply the two reactors, but the deal was suspended following the collapse of the Soviet Union.

Aleksandr Koretskiy, *Kommersant-daily* (Moscow), 10/31/96, p. 4; in FBIS-SOV-96-213, 10/31/96 (16020). *Wall Street Journal*, [Online] <http://www.interactive5.wsj.com>, 10/28/96 (16020). Neel Patri, *Nucleonics Week*, 10/24/96, p. 8 (16020).

INDIA WITH UNITED STATES

7/17/96*

The United States transferred a dual-use Cray super-computer to India that might facilitate its nuclear weapons development effort.

Ghani Eirabie, *Nation* (Islamabad), 8/28/96, p. 6; in FBIS-NES-96-170, 8/28/96 (16014).

IRAN

INTERNAL DEVELOPMENTS

7/5/96*

Iran was reportedly able to "steal or secretly buy" two nuclear weapons. Unnamed U.S. sources are cited as saying that there are 200 specialists and 2,000 researchers working in the nuclear field in Iran.

Adil Hussein, *Al-Sha'b* (Cairo), 7/5/96, p. 5; in FBIS-NES-96-137, 7/16/96 (15667).

8/4/96*

According to nuclear specialists, Iran could acquire a nuclear weapon by 2001. Iran reportedly has several top-secret nuclear facilities that are not safeguarded, the largest being an underground nuclear facility at Isfahan. Other clandestine Iranian nuclear installations are the Neka facility, built near the Caspian Sea, and a facility at Darkhovin, run by the Revolutionary Guard.

Con Coughlin, *Sunday Telegraph* (London), 8/4/96, p. 20; in FBIS-NES-96-151, 8/4/96 (15703).

8/11/96*

Pentagon officials have reportedly considered destroying an Iranian nuclear weapons-related facility, located 25 miles north of Tehran in the Argoz Mountains. An attack on the facility, which is reported to be located "deep underground" and "invulnerable" to attack by conventional weapons, would halt further development of the Iranian nuclear weapons program. Iran is not expected to have the capability to produce a nuclear weapon before 2000.

Uzi Mahnaimi and James Adams, *Sunday Times*, [Online] <http://www.sunday-times.co.uk>, 8/11/96 (15811).

IRAN WITH AUSTRALIA AND

UNITED STATES

9/9/96*

The Australian subsidiary of Varian Associates, a California-based manufacturer specializing in scientific equipment, supplied high-technology items to Iran. According to shipping documents, Varian's Australian manufacturing unit Optical Spectroscopy Instruments, formerly known as Tektron, delivered 140 mass spectrometers, spectrographs, and photospectrometers to Iran over three years without obtaining U.S. export licenses. According to a Varian spokesman, the spectrometers were produced in Australia, and the shipments "were made in compliance with applicable Australian export control laws." The company also required that the shipments be made in accordance with the Enhanced Proliferation Control Initiative (EPCI), which stipulates that products may not be sold to any entity determined to be engaged in weapons production. U.S. licensing officials admitted that current provisions of the U.S. trade embargo are unclear about restrictions on U.S. overseas subsidiaries' trade with Iran. Since spectrometers and similar equipment could be used in uranium enrichment, exporters of such devices are required to obtain export licenses from the U.S. Department of Commerce. The 13 unlicensed exports involved spare parts ordered by the Atomic Energy Organization of Iran. The last shipment, delivered by Varian's Salt Lake City branch in 7/95, included x-ray tubes. Iran was able to repeatedly avoid the EPCI's catch-all clause by purchasing sensitive dual-use items through unidentified front companies, hospitals, universities, and foundations.

Iran Brief, 9/9/96, pp. 3, 4 (16008).

IRAN WITH:

China, 121

China, India, and Russia, 121

IRAN WITH GERMANY

7/24/96

An Iranian construction worker was irradiated by Iridium-142 at the Gilan combined-cycle gas plant near the city of Rasht. The worker found the unshielded iridium, which had been misplaced for about two hours, and

“carried it to another part of the construction site.” The incident was reported to the IAEA by the Atomic Energy Organization of Iran (AEOI) on 7/31/96. According to *Hamshahri*, a Tehran city government newspaper, 50 people were exposed to radiation, including seven engineers from the German firm Siemens. The paper also reported that the incident resulted in the hospitalization of 21 people. The AEOI denied the reports, referring to testing results that showed that only the one worker was injured. According to a press release issued by Siemens, no German workers were injured. According to “Western intelligence experts” the radiation incident occurred at the secret Neka nuclear facility near the Caspian Sea. Unnamed Iranian reports cited in London’s *Sunday Telegraph* state that the Neka facility is part of Iran’s nuclear weapons development program.

Nucleonics Week, 8/8/96, p. 6 (15770). *Nuclear News*, 9/96, p. 32 (15770). *New York Times*, 8/1/96, p. A4 (15770). *NucNet News*, [Online] <http://www.aey.ch>, 7/31/96 (15770). Con Coughlin, *Sunday Telegraph* (London); in *Washington Times*, 8/15/96, p. A15 (15770).

IRAN WITH GERMANY, RUSSIA, AND SWITZERLAND

9/26/96*

Russian companies participating in the construction of Iran’s Bushehr nuclear power plant failed to supply Tehran with VVER-type reactor equipment as stipulated under an \$800 million contract. Officials from the Russian firms said “metallurgical specifications” of the German equipment, installed at the Bushehr plant by Siemens, do not match specifications for the Russian equipment. According to Russian industry sources, the “optimal solution...would be for Minatom [the Russian Ministry of Atomic Energy] to exactly match the metallurgy of the [Russian] equipment” with that of the equipment installed by Siemens. Such a move would greatly increase the construction costs and delay completion of the reactor until after 2003. Russian firms are having trouble fitting VVER steam generators into the German plant design, causing Iran to seek to acquire Siemens steam generators. Iran also seeks to expand participation in the project to include Western firms such as Electrowatt of Switzerland and Hochtief of Germany.

However, Western firms will not join the project as long as the United States opposes it. Iran has paid Russia less than \$100 million for its work and will not make further payments until Minatom commits to a “firm completion deadline.” Participating Russian companies refuse to accept a deadline because of numerous unsolved technical problems at Bushehr, as well as concerns about having to pay large penalties if the reactors are not completed on time.

Mark Hibbs, *Nucleonics Week*, 9/26/96, pp. 3, 4 (16009).

IRAN WITH KAZAKSTAN AND UNITED STATES

10/10/96

According to a U.S. Department of Energy (DOE) memo, a discrepancy exists between the amount of highly enriched uranium (HEU) acquired from Kazakstan in 11/94 under Project Sapphire and the amount measured during processing at a U.S. plant. A DOE official said the difference amounts to 120 lb, enough to produce two nuclear weapons. The DOE source, as well as other government sources, are concerned that the material may have been diverted, through theft or sale, to a state like Iran that is actively seeking materials to build a nuclear arsenal. The memo said that independent analysis conducted by a DOE laboratory confirmed the discrepancy. A DOE source said the diversion could have occurred during the time between the plant inspection and the arrival of the air force C-5 cargo jets that transported the HEU from Kazakstan. Technicians noticed the 120 lb discrepancy while dissolving the uranium-beryllium alloys. But on 10/23/96, a DOE spokeswoman said there is no conclusive evidence that any material was diverted, since the process of blending-down the HEU into low-enriched uranium (LEU) for use at commercial power plants is still in its early stages. The spokeswoman also said that the exact amount of HEU contained in the 2.4 tons of discarded metals, oxides, and uranium-beryllium alloys is difficult to determine. According to a DOE statement, “lower recovery values during the beginning of a material recovery process are not unusual. Until the campaign is completely finished it would be premature to apply these results to the entire material in-

ventory.”

Rowan Scarborough, *Washington Times*, 10/24/96, p. 3 (15923).

IRAN WITH RUSSIA AND UKRAINE

7/4/96*

Ukraine will participate in a Russian-Iranian nuclear project by supplying a turbine for the Bushehr nuclear power plant. The turbine will be manufactured at the Kharkiv Turbatom factory. According to the terms of the contract, Ukraine will supply the 1,000 MW turbine and other equipment to Iran by the end of 1998. The Sumy Pump Factory, also in Ukraine, produces pumps for nuclear power plants and is expected to participate in the \$50 million project.

Peter Coryn, *Nucleonics Week*, 7/11/96, pp. 1, 11 (15812). Interfax (Moscow), 7/4/96; in FBIS-SOV-96-131, 7/4/96 (15812).

IRAN WITH UNITED KINGDOM AND UNITED STATES

8/11/96*

British Customs seized a 110 lb consignment of U.S.-origin maraging steel bound for the Iranian military. The shipment of specialized steel, which could be used to produce centrifuges for a uranium enrichment program, was estimated to cost \$25,000. Customs officers at the London port of Barking discovered the steel in a container depot in 3/96. A U.S. company delivered the steel, believing that the order was made by Eurotrade, a British defense company. A spokesman for the unnamed U.S. company stated, “Eurotrade said they wanted it for resale in the United Kingdom, and gave us specific assurances it was not for re-export.” According to British Customs, the smuggler Ali Asghar Manzarpour is a British citizen of Iranian nationality residing in Brighton.

Con Coughlin, *Washington Times*, 8/11/96, p. A8 (15758). *Iran Brief*, 9/9/96, p. 2 (15758). UPI, 8/14/96; in Executive News Service, 8/14/96 (15758).

IRAQ

INTERNAL DEVELOPMENTS

7/1/96

Following a five-day confrontation between United Nations inspectors and Iraqi officials in 6/96, UNSCOM head Rolf Ekeus declared that UNSCOM will expand its inspections of suspected Iraqi missile and nuclear facilities. The standoff prompted UNSCOM to issue "two condemnations and a resolution demanding access to the inspectors." Summarizing a new "joint program of action" reached by Ekeus and Iraqi Deputy Prime Minister Tariq Aziz in 6/96, Ekeus said that UNSCOM "will intensify [its] activities in Iraq." Ekeus confirmed that Iraq had given the United Nations two parts of a weapons of mass destruction (WMD) declaration regarding chemical and biological weapons, and "most probably" had submitted the nuclear and missile sections as well.

UPI, 7/1/96; in Executive News Service, 7/2/96 (15666).

7/20/96

Following a 60-hour standoff at an unidentified Iraqi facility, an UNSCOM team began inspecting Iraqi sites suspected of hiding WMD equipment and documents. The inspections, part of a mission to investigate Iraqi concealment techniques, were conducted by Nikita Smidovich and three other UNSCOM inspectors after the United Nations Security Council demanded that Iraq grant unrestricted access to the sites. The team was escorted by General Dhaif Akbulmajeed, Iraq's Military Industrialization Commission chairman. UNSCOM head Rolf Ekeus said that during the confrontation, the inspectors "were not even allowed to come close" to the site. Iraqi guards barred the inspectors from using a road to the site, claiming that it led through a "presidential area."

Reuter, 7/20/96; in Executive News Service, 7/22/96 (15945). Leon Barkho, Reuter, 7/22/96; in Executive News Service, 7/22/96 (15945). Robert H. Reid, *Washington Times*, 7/18/96, p. A11 (15945).

8/16/96

Iraq barred UNSCOM inspectors from a "suspected" weapons storage facility that was the site of a similar confrontation in 7/96. While the UNSCOM team was denied access to the facility for two hours, Iraqi oil minister Lt. Gen. Mohammed Rasheed, escorting the U.N. inspectors, was permitted to enter the facility. According to UNSCOM head Rolf Ekeus, Iraq hid prohibited items prior to the team's delayed inspection.

Evelyn Leopold, Reuter, 8/22/96; in Executive News Service, 8/26/96 (15704).

9/96

During a 9/96 private discussion in Washington, Israeli Prime Minister Benjamin Netanyahu said Iraq possesses enough fissile material to build a nuclear weapon. Netanyahu's comments were initially reported in the Israel newspaper *Ha'aretz*. Later, U.S. defense sources said that neither the CIA nor the Mossad, Israel's foreign intelligence agency, have any evidence to substantiate Netanyahu's claim.

Martin Sieff, *Washington Times*, 10/22/96, p. A11 (15992).

10/10/96

Speaking before the U.N. Security Council, IAEA Director General Hans Blix said that IAEA inspectors have found no forbidden Iraqi nuclear activities over the past six months. Blix added that the IAEA will continue monitoring Iraq's compliance with U.N. resolutions because "the know-how and expertise acquired by Iraqi scientists and engineers could provide an adequate base of reconstituting a nuclear weapons-based program."

AFP, 10/10/96; in FBIS-NES-96-199, 10/10/96 (15940).

IRAQ WITH GERMANY

9/16/96*

German technician Karl-Heinz Schaab, accused of contributing to Iraq's nuclear weapons program, has been in hiding since 1/96, attempting to avoid prosecution by Germany's Federal Public Prosecutor. Schaab allegedly supplied Iraq with classified centrifuge technology used for enriching uranium. In addition to the German government accusations, the United Nations

said Schaab is a principal supplier to Iraq's nuclear weapons program. A report prepared by a customs authority unit of the Hesse state government says that, according to UNSCOM, the know-how, production equipment, and materials for Iraq's gas centrifuge program are almost exclusively of German origin. In 12/95, the 500-page report on German firms suspected to be involved in the deals was released. The report accuses 16 managers and employees from firms such as Frankfurt's Degussa AG, Hanau's Leybold AG, and Dieburg's Reutlinger of participating in the development of Iraq's missile and gas centrifuge programs. The deals were worth more than DM21 million. The firms named in the report deny any involvement with Iraq. Although investigators did not find any corroborating evidence in Germany, they believe evidence had been destroyed before the firms' offices could be searched. Most of the evidence was found in filing cabinets and safes during searches by U.N. inspectors in Iraq. The seized documents included inspection reports of German-built gas centrifuge equipment. The report notes that Baghdad's gas centrifuge was built using designs from MAN Technologie. According to Schaab, his involvement with Iraq began in spring 1989, when four Iraqis visited him at his firm Rosch GmbH in Kaufbeuren. Dietrich Hinze, co-owner of H+H Metalform, was also there. Schaab said the Iraqis wanted special pipes and other high-tech equipment. In addition to Schaab, Iraq sought engineers who had once worked for MAN, a firm specializing in gas centrifuge technology. Schaab worked for MAN from 9/70 until the end of 1981, and he "almost exclusively dealt with GUZ [gas centrifuge]" technology. Schaab said two former senior MAN employees, Bruno Stemmler, who was a separation process expert and Walter Busse, who "knew a lot about pipes," were involved in the gas centrifuge program as well. Schaab said "they supplied the [gas centrifuge] plans to Baghdad," and noted that one Iraqi told him "other German experts were also involved, at least two people." He said that even though everything "went in the direction of GUZ" he thought "they [Iraq] would never make it." It was only after U.N. inspectors found 147 boxes of information about Iraq's defense program that Schaab

was suspected of being a major supplier. According to Horst Robert Puetter, one of the U.N. inspectors, and a former colleague of Schaab, the boxes contained important gas centrifuge drawings. The documents carried a "MAN logo and a separate stamp." The name "Rosch" also appears frequently as one of the main suppliers of "key components of GUZ" technology. Puetter said Baghdad described Schaab as the "key figure in the development of the Iraqi GUZ program." Schaab later admitted that he earned DM980,000 from the deals, and that he "traveled to Iraq four or five times" and "helped the authorities there." Investigators from Germany's Federal Office of Criminal Investigations (BKA) believe Schaab is somewhere in Brazil.

Der Spiegel, 9/16/96, pp. 29-33 (16016). *Der Spiegel*, 9/16/96, pp. 32, 33 (16016). *Focus* (Munich), 9/16/96, p. 11; in FBIS-WEU-96-181, 9/16/96 (15816).

IRAQ WITH GERMANY, JORDAN, SINGAPORE, AND SWITZERLAND

9/19/96*

In Jordan, the IAEA has confiscated an Iraqi carbon-fiber-filament winding machine, which can be used to produce gas centrifuges. The equipment was allegedly built for Iraq's uranium enrichment program by Karl-Heinz Schaab, a former employee of German's MAN Technologie. Schaab arranged to send the equipment to Iraq through a Swiss company and a middleman in Singapore, and then to Jordan. Although Iraq was the intended final destination, the delivery to Baghdad was hindered by the 1990-91 Gulf War and subsequent U.N. inspections. Iraq allegedly ordered Jordan to "dispose of" the machine as well as other related components. On 9/16/96, German officials said the IAEA had confirmed in 1995 that Jordan kept a carbon-fiber-filament winding machine built by Schaab for Iraq. Sources say that Schaab is known to have built at his German company another winding machine, which was programmed to wind about 50 carbon-fiber rotor tubes. The tubes were sold to Iraq around 1989. According to unnamed sources, Schaab built the winding machine at his consulting firm, Rosch GmbH in Kaufbeuren, Germany, using electronic control equipment

built by Siemens. In addition to the winding machine, the IAEA also discovered auxiliary equipment such as O-rings and uranium hexafluoride (UF₆) resistant valves in Jordan; these were produced by the Swiss company Cetec. The centrifuge equipment's seizure raised suspicion that, prior to the 1990-91 Gulf War, Iraq may have diverted to Jordan even more of its nuclear technology than has been tracked by the IAEA. An unnamed U.S. arms control official said: "We're worried they may have an entire centrifuge manufacturing set-up outside Iraq."

Mark Hibbs, *Nucleonics Week*, 9/19/96, pp. 1, 11, 12 (15970).

ISRAEL

INTERNAL DEVELOPMENTS

7/24/96

A U.S. military source said that U.S. defense officials do not know the extent of Israel's nuclear weapons program, nor the amount of money invested in it, because Israel has not disclosed information on its nuclear capacity. Experts in the U.S. military believe that Israel has 20 to 30 nuclear weapons and would likely deliver them by air.

Barbara Opall, *Defense News*, 7/29/96, pp. 3, 56 (15700).

7/25/96*

Disputes about Israel's budget revealed that the Nuclear Research Center (NRC) at Dimona is funded through the defense budget and that soldiers from the Israel Defense Forces (IDF) are stationed there. The preliminary version of the 1997 budget allocates 110.55 million shekels to the Israel Atomic Energy Commission (IAEC) for the nuclear reactors at Dimona and Nahal Soreq. According to the IDF, the NRC is funded by the Ministry of Defense at a level far beyond the IAEC budget allocation.

Aluf Ben, *Ha'aretz* (Tel Aviv), 7/25/96, p. B4; in FBIS-NES-96-145, 7/25/96 (15698).

8/24/96*

National Infrastructure Minister Ariel Sharon met with the Israel Electric Corporation (IEC) board of directors and said he "does

not foresee any possibility of setting up a nuclear power plant in Israel in the near future." The IEC was prepared to build a nuclear power plant and conducted a survey of possible sites in the Negev desert. Sharon proposed that the IEC delay construction of a nuclear power plant until a more appropriate time.

Qol Yisrael (Jerusalem), 8/24/96; in FBIS-NES-96-166, 8/24/96 (15679).

8/31/96*

According to a report published by the British defense publisher Jane's Information Group, Israel possesses 100 to 300 nuclear warheads. Several unnamed retired Israeli generals confirmed the Jane's estimate, saying "everything that was said is true."

Dmitriy Kulik, *Komsomolskaya pravda*, 8/31/96, p. 3 (15665).

JAPAN

INTERNAL DEVELOPMENTS

7/22/96*

According to the North Korean state-run radio station, Japan has stockpiled enough plutonium to build 3,000 crude nuclear weapons. Japan is building a plutonium reprocessing plant with a capacity of 5 MT of plutonium per year in Rokkasho-mura and plans to stockpile 100 MT of plutonium over the next 20 years. The Japanese have 150 firms and 3,200 plants capable of producing nuclear warheads, enabling Tokyo to produce a nuclear weapon within a week.

Korean Central Broadcasting Network (Pyongyang), 7/22/96; in FBIS-EAS-96-144, 7/22/96 (15711).

9/6/96

Shumpei Tsukahara, head of Japan's Ministry of International Trade and Industry (MITI), said the Japanese government will not abandon plans to build a nuclear power plant in the town of Maki, despite results of a local referendum opposing the project. However, Maki Mayor Takaki Sasagushi said the town will not sell a parcel of land the Tokyo Electric Power Co. (Tepco) needs to build the plant. In 1981, MITI approved plans to build at least one 825 MW boiling

water reactor (BWR) in Maki. The referendum is not legally binding. The Maki referendum is a major setback to Japan's nuclear power industry, may affect nuclear power policy, and is likely to prompt referenda in other municipalities. A petition for a similar referendum has been filed in Hamaoka, where Chuba Electric Power Co. operates four BWRs. In the towns of Kushima, Kubokawa, Nanto, and Kisei, referenda are required before proposed nuclear sites are accepted, but none of these cities have requested a referendum.

Kyodo (Tokyo), 9/6/96; in FBIS-EAS-96-174, 9/6/96 (15997). Naoaki Usui, *Nucleonics Week*, 8/8/96, pp. 1, 1011 (15997). Kyodo (Tokyo), 8/4/96; in FBIS-EAS-96-152, 8/4/96 (15997). *Atoms In Japan*, 9/96, p. 57 (15997).

9/17/96

The Panamanian-registered ship "Eastern Hero" arrived at the Japanese port of Mutsuogawara carrying 600 tons of uranium hexafluoride (UF₆). The shipment was bound for the Rokkasho-mura uranium enrichment plant, which produces 600 SWU per year. According to the plant's operator, Japan Nuclear Fuel Ltd. (JNFL), production capacity will be increased by 1.75 times by 1999, and 2.5 times by 2000.

Kyodo (Tokyo), 9/17/96; in FBIS-EAS-96-181, 9/17/96 (15936).

10/7/96

Hamaoka town officials decided to support the construction of Hamaoka-5, a 1,358 MW advanced boiling water reactor (ABWR). The decision was taken despite a petition by town residents for a referendum on the issue. The Chubu Electric Power Co. will start building the plant in 1999, with commissioning expected in 2005.

Naoaki Usui, *Nucleonics Week*, 10/10/96, p. 8 (15702).

JAPAN WITH RUSSIA

7/30/96*

A new training simulator, built in cooperation with the Japanese firms Mitsubishi and Marubeni, was opened at the Russian Novovoronezh nuclear power plant after almost three years of research, development, and construction. The new facility is a replica of the fourth power unit of the Balakovo nuclear power plant and can simulate about

1,000 "operation regimes," including accidents. The training center in Novovoronezh will train specialists from Russia, other countries in the CIS, and Western Europe.

Gennadiy Litvintsev, *Rossiiskaya gazeta*, 7/30/96, p. 1 (15646).

JAPAN WITH UNITED STATES

8/96

In 8/96, diplomatic notes were exchanged by U.S. and Japanese officials in order to permit five European mixed-oxide (MOX) fuel plants to be added to Annex 1 of the U.S.-Japan nuclear cooperation agreement. The additions were approved by the U.S. Congress on 7/31/96. U.S. House International Affairs Committee Chairman Benjamin Gilman requested that a letter of assurance from the State Department acknowledge the need for similar security measures when shipping MOX as when shipping bulk plutonium. The letter stops short of requiring an armed escort for the shipments, although Japanese proposals for alternatives have thus far been rejected. An unnamed Capitol Hill source said the United States and Japan are negotiating which security measures are to be taken.

Kathleen Hart, *NuclearFuel*, 8/12/96, p. 5 (15760). Kathleen Hart, *NuclearFuel*, 8/26/96, pp. 11-12 (15760).

LIBYA

LIBYA WITH GUINEA BISSAU, ITALY, PORTUGAL, RUSSIA, UNITED STATES, AND ZAIRE

6/13/96

Sicilian arms dealer Pietro Bellia, Portuguese businessman Belarmino Vilarino, and Carlos Monteiro from Guinea Bissau, were arrested for smuggling a 25 kg bar of uranium from Zaire to Italy. The uranium has an estimated value of \$4.25 million. According to the Italian police investigation, the uranium was brought to Milan, where Monteiro traded it to Bellia for red mercury concealed in two champagne bottles. The uranium was next delivered to Vilarino in the Sicilian city of Avola; it was then concealed for several days prior to its attempted sale on the black mar-

ket. Police in Sicily wire-tapped a phone conversation in which Vilarino told Monteiro that, "with this material we can build a poor man's nuclear bomb, something that can always be sold to the Mafia, to Libya, or in the United States." Monteiro denied that he was a smuggler, insisting that he was helping the Russian secret service to retrieve red mercury smuggled out of the Soviet Union in 1989. According to Sicilian police, five additional uranium bars are hidden "somewhere."

Alfio Sciacca, *Corriere Della Sera* (Milan), 7/2/96, p. 1; in FBIS-WEU-96-177, 7/2/96 (15813). Peter Shadbolt, UPI, 7/1/96; in Executive News Service, 7/1/96 (15813). *Segodnya*, 7/2/96, p. 3 (15813).

LITHUANIA

LITHUANIA WITH RUSSIA

10/31/96*

According to Lithuanian officials from the Visaginas Prosecutor's Office, part of the 100 kg of uranium stolen from the Ignalina nuclear power plant in 1992 has been recovered. Sixteen "pills" [fuel pellets] were unearthed not far from Ignalina. Investigators believe the fuel came from the shipment stolen in 1992. So far, only 10 kg of the 100 kg that was stolen has been recovered. The whereabouts of the suspects in the case are unknown. However, one of the suspects, former Ignalina engineer Rinat Salikhov, is believed to be hiding in Russia or one of the southern states of the former Soviet Union.

Interfax (Moscow), 10/31/96; in FBIS-SOV-96-212, 10/31/96 (15918).

LITHUANIA WITH UKRAINE

7/96*

In Klaipeda, Lithuania, six people were arrested for attempting to sell 13 kg of uranium for \$300,000. The uranium may have come from a military base in Ukraine or from the Ignalina nuclear power plant, a police spokesman said. However, Stanislovas Kayris, an Ignalina official, said the radioactive material did not come from Ignalina because the nuclear power plant is "closely guarded." Lithuanian nuclear experts said the

confiscated uranium could be used in nuclear weapons. This is the fifth such incident in Lithuania in three years. After each incident, security has been increased at Ignalina due to fears that the stolen nuclear materials may have come from this nuclear power plant.

Juris Benders, Dmitriy Novikov, and Tereza Smirnova, NTV (Moscow), 7/2/96; in FBIS-SOV-96-135, 7/2/96 (15624).

NORTH KOREA

NORTH KOREA WITH KEDO (KOREAN PENINSULA ENERGY DEVELOPMENT ORGANIZATION)

7/1/96

In response to actions taken recently by the U.S. Congress to cut KEDO funding, North Korea, through its official news agency, declared that if "heavy oil is not supplied in time as scheduled, we will be compelled to reconsider our nuclear freeze." As part of the foreign aid appropriations bill, Congress has allocated only \$13 million of the \$25 million requested by the Clinton administration to fund KEDO's purchase of heavy fuel oil for North Korea. Despite the statement issued by North Korea, the U.S. State Department remains confident that the United States will uphold its end of the bargain. "The agreement calls for the delivery of 500,000 metric tons of oil per annum, and that will take place," said State Department Spokesman Nicholas Burns.

KCNA (Pyongyang), 7/1/96; in FBIS-EAS-96-127 (15727). Terukaki Ueno, *Washington Times*, 7/2/96, p. A11 (15727). *New York Times*, 7/2/96, p. A2 (15727).

7/26/96

South Korea's Korea Exchange Bank announced that it is one of four banks that KEDO has selected to manage the finances of the \$5 billion light water reactor project in Sinpo, North Korea. The other three are Citibank, Tokyo Bank, and Mitsubishi Bank.

KoreaUpdate, 8/5/96, pp. 4-5 (15767).

8/15/96*

Duke Engineering & Services, based in Charlotte, North Carolina, will serve as the pro-

gram coordinator for the KEDO light water reactor project in Sinpo, North Korea. A contract has not yet been signed. BNFL Inc., the U.S. subsidiary of British Nuclear Fuels, received a \$500,000 contract to help NAC International, based in Atlanta, Georgia, to complete the canning of 8,000 spent fuel rods from North Korea's Yongbyon reactor. The canning is expected to be completed in the first half of 1997.

Kathleen Hart, *Nucleonics Week*, 8/15/96, p. 6 (15741).

9/18/96

South Korea caught a North Korean submarine team on an incursion into South Korea. As a result of the incursion, South Korea has delayed construction of the Sinpo light water reactors until North Korea apologizes for the incident.

Washington Times, 11/8/96, p. A16 (15798). *Deseret News: World & Nation*, [Online] <http://www.desnews.com>, 11/7/96 (15798).

9/23/96*

From 9/10/96 through 9/12/96, KEDO held its first General Conference at its New York headquarters. At the conference, the United States, South Korea, Japan, Australia, Canada, Chile, Finland, Indonesia, and New Zealand approved plans to begin physical work at the Sinpo, North Korea site, particularly before the November-December winter season. KEDO's light-water reactor advisory committee and the spent fuel advisory committee also held sessions. One of the important issues remaining is the amount and type of compensation that North Korea should receive for suspending its nuclear power program. Steven Bosworth, KEDO's executive director, said that the compensation package might include aid in the form of food. Despite Bosworth's generally optimistic outlook at the conference, he admitted that the scheduled 2003 date of completion presented "a very difficult timetable," due largely to financing problems. In addition, North Korea has not yet been cooperative with the IAEA's verification requirements. On 9/16/96 at the IAEA's Annual General Conference in Vienna, Director General Hans Blix said that the 1995 safeguards implementation report states that "the IAEA remained unable to verify the initial declaration of nuclear material made by the

DPRK... and that this is still the case." It is of particular importance with regard to the spent fuel that North Korea may have removed from its Yongbyon facility, to which North Korea has not given the IAEA access. On 9/17/96, Ho Jin Yun, a DPRK representative to U.N. agencies in Vienna, stated that North Korea "will not give the IAEA any information whatsoever" about spent fuel from their Yongbyon reactor "until the new reactors are finished and begin operating." This statement contradicts North Korea's agreement in the *KEDO-DPRK Supply Agreement* that North Korea must be in compliance with IAEA safeguards before they receive delivery of key nuclear components for the reactors. North Korea and the IAEA are scheduled to hold a technical cooperation meeting at the end of 9/96, and the IAEA may request clarification of the official's statement.

NuclearFuel, 9/23/96, p. 3 (15956). Hans Blix, *Disarmament Diplomacy*, 9/96, pp. 28-30 (15952).

10/17/96*

The Executive Board of KEDO had its first ambassador-level meeting with representatives from the European Commission in Brussels, Belgium, where it was decided that the European Union (EU) would become a member of KEDO by the end of 1996. At their next meeting in Brussels, scheduled for 11/11/96, the parties are expected to reach an agreement making EU membership possible by the end of the year.

Jiji Press Newswire, 10/17/96 (15947).

PAKISTAN

INTERNAL DEVELOPMENTS

9/2/96*

According to an unpublished IAEA report acquired by *The Muslim*, Pakistan, Algeria, Argentina, Brazil, China, the former Soviet Union, India, Iran, Iraq, Israel, North Korea, and South Africa have been identified as having undeclared nuclear facilities and "hidden quantities" of nuclear material. The report says that Pakistan is "an active nuclear importer and has been willing to use secret

or illegal means to gain access to the material and technologies it desires." The report cautions that Pakistan has a number of undeclared nuclear sites, including a uranium conversion plant at Dera Ghazi Khan, uranium enrichment facilities at Kahuta, Golra, and Sihala, a fuel fabrication plant at Chashma, a heavy water production facility at Multan, and a tritium purification plant south of Rawalpindi. U.S. intelligence sources suspect that these facilities are being used to produce highly enriched uranium (HEU). The United States believes that Pakistan broke its promise not to construct an enrichment plant by building one near Rawalpindi-Islamabad with Chinese help. According to an anonymous official source in Pakistan, the United States is demanding on-site inspections of the Pakistani nuclear facilities that do not fall under IAEA safeguards, but Pakistan has resisted these demands. Pakistan admitted having a facility that can produce low-enriched uranium (LEU), but the United States said Pakistan is building an enrichment facility that can produce HEU.

Aroosa Alam, *The Muslim* (Islamabad), 9/2/96, pp. 1, 11; in FBIS-NES-96-173, 9/2/96 (15994). Aroosa Alam, *The Muslim* (Islamabad), 7/3/96, p. 1; in FBIS-TAC-96-008, 7/3/96 (15994).

9/7/96

Abdul Qadeer Khan, head of Pakistan's Kahuta Research Laboratories, said that his organization has achieved a breakthrough in research on controlling vibrations in its ultracentrifuge machinery.

Sohail Abdul Nasir, *Nawa-I-Waqt* (Rawalpindi), 9/8/96, pp. 1, 11; in FBIS-NES-96-178, 9/8/96 (15980).

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PAKISTAN WITH UNITED KINGDOM

7/96

Mohammed Saleem, an employee at Pakistan's high commission in London, was deported after the U.K.'s Security Service (MI-5) identified him as the head of Pakistan's nuclear procurement network. Saleem was deported for recruiting a network of Pakistani-born scientific students at U.K. universities to collect sensitive nuclear in-

formation. Saleem also sought to procure nuclear-related materials and arrange lines of credit and export licenses for Pakistan's nuclear program. The British Home Office said that "since late 1991, Mohammed Saleem has been conducting covert nuclear procurement activities in Britain." The information and materials were provided to the A.Q. Khan Research Laboratories in Kahuta.

Ciaran Byrne and Tim Kelsey, *Sunday Times*, [Online] <http://www.sunday-times.co.uk>, 8/4/96 (15995).

RUSSIA

INTERNAL DEVELOPMENTS

8/5/96

A special train delivered the first shipment of spent nuclear fuel from Russia's Pacific Fleet to the Mayak reprocessing plant in Chelyabinsk. The shipment is being monitored by a special interdepartmental commission. This transfer has been under way since 8/1/96, but was kept secret due to potential terrorist activity. No shipment had taken place in the last two years due to financial constraints and railroad repairs. It is expected that 700 nuclear fuel rods from the Pacific Fleet will be delivered to the Mayak plant by the end of 1996. According to Russian officials, it could take up to 10 years to deliver all the spent fuel from the Pacific Fleet for reprocessing.

Yevgeniy Tkachenko, *ITAR-TASS* (Moscow), 8/5/96; in FBIS-TEN-96-009, 8/5/96 (15637). *Nuclear Engineering International*, 9/96, p. 8 (15637). Nikolay Litkovets, *Krasnaya zvezda*, 8/7/96, p. 1 (15660). *Interfax* (Moscow), 7/19/96; in FBIS-TEN-96-008, 7/19/96 (15660).

8/8/96

Law enforcement agents from the Saratov organized crime unit arrested eight Saratov residents as they attempted to sell 110 kg of zirconium powder to a buyer who paid \$28,000 for the material. The suspects include: two unemployed persons with prior convictions, the director of the Saratov joint stock company "Progress" (who was identified only as "Sh."), a lawyer from the Saratov law firm Advokat, two private detectives, and two prosecutors from the medical and foren-

sics branches of the Saratov District Prosecutor General's Office. The day before their arrests, the suspects had already sold four boxes containing 60 kg of zirconium to middlemen. Saratov law enforcement agents had learned earlier that 1.5 tons of zirconium had been stolen from one of Saratov's defense plants.

Oleg Bedula, *Krasnaya zvezda*, 8/8/96, p. 4 (15643).

8/10/96*

Several containers holding radioactive isotopes were discovered in a wooded region of the Russian Khanty-Mansiyskiy autonomous district. Local law enforcement agents expect to find the owner of the containers within two to three days by tracing the container's markings.

Izvestiya, 8/10/96, p. 1 (15653).

8/21/96

Vladimir Fortov, newly appointed vice-prime minister in charge of Russian scientific and technical policy and chairman of the State Committee on Science and Technology, said that preventing "brain drain" from Russia and providing sufficient financing for Russian science will be the top priorities of the State Committee on Science and Technology.

Aleksei Makarkin, *Segodnya*, 8/21/96, p. 2 (15650).

8/26/96

Russian President Boris Yeltsin signed Decree No. 1268 "On Controls Over the Export of Dual-Use Goods and Technologies from the Russian Federation," which approves the list of dual-use items and technologies whose export from Russia is to be controlled by the government. Implementation of the decree will bring Russia into compliance with the Wassenaar agreements on export regulations of conventional arms and dual-use technologies and goods. The decree will enter into force on 11/26/96.

Nikolay Nikonorov, *Rossiiskaya gazeta*, 9/3/96, p. 6 (15657). *Segodnya*, 8/29/96, p. 1 (15657).

RUSSIA WITH:

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Poland, and Slovakia, 119**

RUSSIA WITH BULGARIA AND UKRAINE

9/11/96*

In an interview, an unnamed former captain in the Soviet Army alleged that a top-secret Soviet base near Sofia, Bulgaria, existed until it was closed in 1988. The captain said the base, located across from the Borovets ski-resort, held about 70 nuclear warheads aimed at Turkey and Greece. The captain served in "GUMO Unit 12," under the leadership of Marshal Baychuk, from 6/16/87 to 1988. The base's nuclear warheads were transferred from Bulgaria to Ukraine. According to a well-placed Bulgarian source, the base was established in response to NATO's 1979 decision to deploy new-generation tactical and strategic nuclear weapons. The Bulgarian source said the base was not located in Borovets but refused to reveal its location.

Elena Ardabatskaya, *Komsomolskaya pravda*, 9/11/96, pp. 1, 2 (15934). Olesya Nosova, *Komsomolskaya pravda*, 10/23/96, pp. 1, 2 (15934).

RUSSIA WITH:

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RUSSIA WITH FRANCE

9/9/96*

The implementation of a deal for Russia's Ministry of Atomic Energy (Minatom) to provide France's Institut Max von Laue-Paul Langevin (ILL) with highly enriched uranium (HEU) has been delayed. Implementation was delayed until negotiations between ILL and the Russian subcontractors in charge of the deal are completed. The current contract stipulates that the HEU will be delivered sometime in 1997, but ILL wants the delivery to be made by mid-1997. The deal was part of an intergovernmental agreement signed by Minatom head Viktor Mikhailov and Commissariat a l'Energie Atomique (CEA) Director General Yannick d'Escatha. In exchange for providing ILL with 55 kg of HEU per year for nine years, Minatom would become a partner in the institute, which operates the 58 MWt high-flux reactor.

Ann MacLachlan, *NuclearFuel*, 9/9/96, p.11 (16015).

RUSSIA WITH FRANCE AND

UNITED STATES

9/13/96

U.S. Energy Secretary Hazel O'Leary authorized General Atomics' (GA) request to deliver technology and designs for a plutonium burning, gas turbine modular, helium reactor (GT-MHR) to Russia. GA's program to consume weapons-grade plutonium in the GT-MHR is authorized for five years. The U.S. Department of Energy can renew the agreement "in light of experience and circumstances at that time." The conditions for authorization require that the technology delivered to the Russian Ministry of Atomic Energy (Minatom) be used only for peaceful purposes, that retransfers have prior U.S. approval, and that any Russian reactor using the technology must meet the Russian voluntary safeguards agreement with the IAEA. Moreover, GA must inform the DOE and other U.S. agencies about the status of the program, when such information is requested. Walt Simon, GA senior vice-president for reactor programs, confirmed that the French firm Framatome joined GA's partnership with Russia's Minatom in 1/96.

Michael Knapik, *Nucleonics Week*, 9/19/96, p. 5 (15620).

RUSSIA WITH GERMANY

8/16/96*

Construction of the \$800 million Russian Northwest Scientific-Industrial Center for Atomic Energy has begun in the city of Sosnovyy Bor. The center will be equipped with a newly designed VVER-640 pressurized water reactor (PWR), which is expected to go on-line in 2002-03. Cooperation agreements for work on the project have been signed by Russian and German companies. Minatom signed contracts with Siemens head Wulf Buerkle, Gesellschaft fuer Reaktorsicherheit (GRS) director Adolf Birkoffer, and Minister of Bavaria Tomas Goppel. Siemens also signed an agreement with the St. Petersburg-based Atomenergoprojekt Institute to supply equipment for a large test stand. Siemens will oversee work on the reactor, which will take place at the Izhorskiy, Metallicheskiy, and Elektrosila factories in St. Petersburg. The Atomenergoprojekt Institute is the project's

general designer. GRS will participate in the project as an independent expert. Minatom and Siemens signed an additional agreement that calls for Siemens to sell Russian-origin low-enriched uranium (LEU) in Europe. The deal will allow Minatom to pay for Siemens' work on the reactor project. According to Buerkle, the LEU deal, which includes the cost of enrichment, is estimated to be worth DM50 million-DM100 million a year. Russia plans to build eight units equipped with VVER-640 reactors, including one in Sosnovyy Bor, four at the Far East Atomic Power Plant, and three at Kola-2.

Ivan Cheberko, *Kommersant-daily* (Moscow), 8/16/96, p. 8 (15946). X-USSR *Antinuclear Campaign Newsletter*, 8-9/96 (15981). Viktor Kostyukovskiy, *Izvestiya*, 8/15/96, p. 2 (15822).

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RUSSIA WITH NORWAY AND SWEDEN

Fall 1996

Representatives of atomic energy agencies, police, customs, and armed forces of Norway, Sweden, and Russia met in the Norwegian city of Pasvik to discuss joint measures to prevent nuclear smuggling from Russia. Scandinavian countries will provide Russia with computer programs to track possible nuclear smuggling routes and will provide financial assistance to reinforce security measures at Russian nuclear facilities.

Zelenyy, No. 21, 1996 (15639).

RUSSIA WITH SLOVAKIA AND UKRAINE

10/14/96*

A Russian and a Ukrainian were arrested on the border between Ukraine and Slovakia for attempting to smuggle 29 g of Pu-239 out of Ukraine. According to the State Customs Committee of Ukraine, the nuclear material was hidden in the fuel tank of the smugglers' vehicle and was detected using radiation detection equipment.

Unian (Kiev), 10/14/96; in FBIS-SOV-96-200, 10/14/96 (15687).

RUSSIA WITH SOUTH KOREA

8/5/96*

South Korea has agreed to accept a \$75 million shipment of enriched uranium from Russia as partial payment of that country's \$450 million debt to South Korea. In addition to the uranium shipment, Russia will supply South Korea with military hardware, including anti-tank and anti-aircraft missiles. The first arms transfer is expected to be complete by 9/1/96.

Doug Clarke, *OMRI Daily Digest*, 8/5/96 (15728).

Doug Clarke, *OMRI Daily Digest*, 8/13/96 (15728).

RUSSIA WITH TAIWAN

10/30/96*

Radio Canada International reported that Taiwan and Russia are ready to sign an agreement allowing 5,000 barrels of Taiwanese nuclear waste to be delivered to, and stored at, Russian storage facilities. However, according to Andrei Pechkurov, deputy head of the Ecological Safety Department of the Russian State Committee on Ecology, in 11/95 the Russian scientific and industrial association Radon and the Taiwanese firm Yu Sheng Technology Limited signed a 10-year technological agreement to "compare" new methods of reprocessing "not nuclear but radioactive waste." According to the agreement, the Taiwanese firm will deliver radioactive materials to Radon where they will be reprocessed to make them ready for burial and then transported back to Taiwan. The contract was endorsed by the Russian government, and its implementation is being monitored by the Russian Federal Inspectorate for Nuclear and Radiation Safety (Gosatomnadzor) and the State Committee on Ecology.

Tatyana Smolyakova, *Rossiiskaya gazeta*, 10/30/96, p. 3 (15800). Reuter, 9/23/96 (15844).

RUSSIA WITH UKRAINE

7/1/96

At the South Ukraine nuclear power plant, the chairman of Ukraine's State Nuclear Energy Committee, directors of the Yuzhnoukrainsk, Zaporizhzhya, Chornobyl, Rivne, and Khmelnytskuy nuclear power plants, representatives of Russian nuclear fuel manufacturers, and TVEL, Atompromkomplekt, and Atomresource agreed on nuclear supplies to Ukraine. Pros-

pects for cooperation between the Ukrainian State Nuclear Energy Committee (Goskomatom) and the Russian Ministry of Atomic Energy were specified, and conditions for shipments during the next 10 years were defined.

Vecherniy Donetsk (Donetsk), 7/9/96, p. 1; in FBIS-SOV-96-165-S, 7/9/96 (15614). Interfax (Moscow), 7/4/96; in FBIS-SOV-96-131, 7/4/96 (15618).

RUSSIA WITH UKRAINE AND UNITED STATES

8/15/96*

The U.S. firm GSE Systems of Columbia, Maryland, will provide analytical simulators for RMBK, VVER-440, and VVER-1000 reactors in Russia and Ukraine. The three simulator contracts total \$6.5 million and were awarded by Pacific Northwest National Laboratory (PNNL) and the U.S. Nuclear Regulatory Commission. Two of the contracts were awarded by PNNL and will supply Ukraine with two simulators for use at Chornobyl-1 and -3 under a U.S. Department of Energy program. Under the third contract, GSE will supply three analytical simulators for use in Kiev, Moscow, and the Don region of Russia. These will be used under the terms of the Lisbon safety initiative and will be supplied to the Ukrainian Nuclear Regulatory Administration and Russia's Gosatomnadzor.

Wilson Dizard III, *Nucleonics Week*, 8/15/96, pp. 5, 6 (15684).

RUSSIA WITH UNITED STATES

Late 8/96

Russia transported about 400 MT of low-enriched uranium (LEU), blended down from 13 MT of highly enriched uranium (HEU) to the U.S. Enrichment Corporation (USEC). The HEU was enough nuclear material for about 600 nuclear weapons.

Uranium Institute News Briefing, [Online] <http://www.uilondon.org>, 9/25/96-10/1/96 (15828).

9/17/96

At the 40th General Conference of the IAEA in Vienna, U.S. Department of Energy head Hazel O'Leary and Russian Minister of Atomic Energy Viktor Mikhailov, signed an agreement to establish the Russian-American Fuel Cell Consortium (RAFCO) and to cooperate on the development of fuel cell

technologies. About 150 companies are expected to join the consortium. A joint DOE/Minatom committee will evaluate projects based on the advice of consortium members. The program will span five years, with a possibility for extension. U.S. labs that will participate include Argonne, Los Alamos, and Sandia National Laboratories. Initial projects include development of "high-temperature sealants for solid oxide fuel cells," "pore-free separator plates for phosphoric acid fuel cells," and "advanced catalysts for polymer electrolyte membrane fuel cells." RAFCO projects also include the improvement of "bi-polar plate materials for molten carbonate fuel cells" and the "processing and characterization of nanostructured zirconia for solid oxide fuel cells."

Post-Soviet Nuclear & Defense Monitor, 9/30/96, pp. 5, 6 (15837). *Segodnya*, 9/27/96, p. 1 (15695). *Uranium Institute News Briefing*, [Online] <http://www.uilondon.org>, 9/18/96-9/24/96 (15792).

10/12/96*

The U.S. DOE authorized the USEC to buy 18 MT of Russian LEU in 1997. Although the USEC will receive 18 MT of HEU in 1997, the amount for 1998 has not been settled. A dispute over deliveries of Russian LEU arose when the Russian Ministry of Atomic Energy (Minatom) requested that the USEC buy 18 MT of LEU instead of 12 MT, as had been agreed. Minatom officials justified their request by stating that Russia needs additional funds to complete the dismantlement of nuclear weapons withdrawn from Ukraine.

Melor Sturua, *Izvestiya*, 10/12/96, p. 3 (15819). Wilson Dizard III and Michael Knapik, *NuclearFuel*, 10/7/96, pp. 16, 17 (15826).

10/18/96*

The United States is considering selling a powerful class of supercomputers to Russia. Although Russian officials say the computers will be used to conduct work within the framework of the Comprehensive Test Ban Treaty (CTBT), the United States questions "how far [it] should go in supporting Russia's ability to honor its end of the treaty," and "to what extent Russian scientists can be trusted to use the high-performance computers for treaty-related work only." The U.S. Department of Commerce's Bureau of Export Affairs is considering a request from Russia's

Minatom to export a Convex SPP-2000 supercomputer, which far exceeds Russia's current computing capabilities. The SPP-2000 (which is at least 10 times faster than any computer now in Russian laboratories) can be used not only to create nuclear weapons but also to simulate all stages of a nuclear explosion. When asked how it planned to use the supercomputer, Minatom indicated that the SPP-2000 would help maintain Russia's nuclear stockpile, and that the other computers requested (an IBM and a slower version of the Convex SPP-2000 manufactured by Hewlett Packard) would be used for environmental regulation at Russian nuclear weapons laboratories. U.S. specialists, however, doubt the sincerity of this statement. According to the Washington-based Wisconsin Project: "Considering that Russia is experiencing an acute shortage of currency, how can we believe it will spend on ecology the millions earmarked for military nuclear programs? So far, the Russians have displayed no special interest in their environment." According to Duncan Hunter, a subcommittee chairman of the U.S. House of Representatives National Security Committee, Minatom head Viktor Mikhailov requested that U.S. Secretary of Energy Hazel O'Leary authorize the delivery of three Convex SPP-2000 supercomputers to help "verify the reliability and safety" of Russian nuclear arsenals. According to an anonymous U.S. administration representative, Mikhailov had promised in letters to O'Leary that Russia "has no intentions" of using the computers for "the upgrading or development of nuclear weapons." An investigation authorized by Hunter revealed that Hewlett-Packard, which produces the supercomputers, has requested that appropriate agencies issue an export license for a "slower model" of the Convex to Russia. According to Marlin Somsak, a Hewlett-Packard representative, the company has never received a request for the SPP-2000 from Russia. Nevertheless, the prospect of the sale has alarmed the General Accounting Office (GAO) and angered some Republicans in Congress. Harold Johnson, associate director of International Relations and Trade Issues in the GAO's security and national affairs division, said that discussion of the sale was pursuant to U.S. policy on coop-

eration with Russia. Though specific project plans have yet to be developed and approved, DOE officials said that restrictions for potential collaboration demand that the plans remain unclassified and not improve performance of Russian nuclear weapons nor contribute to their design. The export option was first raised during CTBT negotiations. Russian and U.S. representatives discussed the possibility of a restricted collaboration on scientific and technical issues with respect to the safety and security of each country's nuclear stockpile. The United States agreed to make the transfer of computers consistent with U.S. export laws. According to Johnson, DOE officials said that access to computers provided to Russian scientists will be consistent with current U.S. export laws. This safeguard is based on a new U.S. administration high-performance computer export policy announced in 10/95, which places controls on computers that have a major impact on U.S. and allied security interests and eliminates controls that had become needless or ineffective due to rapid advances in computer technology.

Kevin M. Baerson, *Defense Week*, 10/21/96, pp.1, 2 (16013). Melor Sturua, *Izvestiya*, 10/18/96, p. 3 (16013).

TAIWAN

INTERNAL DEVELOPMENTS

10/18/96

Taiwan's legislature voted 83-0 in favor of restoring the budget for Taiwan's fourth nuclear power plant at Lungmen.

Nuclear News, 11/96, p. 17 (15955).

TAIWAN WITH AUSTRALIA

8/16/96

Taiwan's state power company, Taipower, confirmed that Australian firms offered to sell uranium to Taiwan. The statement was in response to an article published in the Australian newspaper, *The Age*, which claimed that the Australian government was preparing a secret deal with Taiwan. The article also alleged that the uranium was to be sold to Taiwan via the United States, because

Taiwan does not meet the strict safeguard requirements of Australia. However, an official from Taiwan's Ministry of Foreign Affairs denied any knowledge of the plan to sell uranium through a third country.

Sofia Wu, Taiwan Central News Agency WWW, 8/16/96; in FBIS-CHI-96-160, 8/16/96 (15842).

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UKRAINE WITH MIDDLE EAST

8/27/96

A Kiev regional court convicted three employees of the Chernobyl nuclear power plant and a businessman of stealing 5.3 kg of uranium from the fourth power unit of the plant. Viktor Tsvetkov, Igor Kabachenko, Mikhail Bobyrev, and a man identified only as Shumakov stole 1.3 kg of uranium on 4/25/96 and 4 kg of uranium on 5/4/96. They then sold the material for \$2,100 in Slavutich, a suburb of Kiev, to middleman Nikolay Kolesnikov, director of the Kiev trading firm Asket. Moscow's NTV reported the quantity of the uranium delivered at 5.5 kg. Another source says the men delivered 10 kg of uranium. Kolesnikov had previously promised to pay the men \$6,000 for 10 kg of uranium. An investigation revealed that Kolesnikov was acting on behalf of Konstantin Gladkov, a "representative of an Arab firm." Ukrainian law enforcement agents failed to detain Gladkov, who had offered to purchase 10-100 kg of uranium for \$6 million. According to court documents, Gladkov was a member of the Ukrainian police organized crime unit. According to Vitaliy Tolstonogov, chief engineer of the Chernobyl nuclear power plant, the uranium

stolen from the fourth power unit cannot be used for military purposes

Zakhar Butyrskiy, *Segodnya*, 8/31/96, p. 5 (15661). Yanina Sokolovskaya, *Izvestiya*, 8/17/96, p. 6 (15661). Yanina Sokolovskaya, *Izvestiya*, 9/17/96, p. 4 (15917). NTV (Moscow), 10/26/96; in FBIS-SOV-96-209, 10/26/96 (15917).

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VIETNAM

VIETNAM WITH FRANCE

9/13/96

Yannick d'Escatha, head of the French Commissariat a l'Energie Atomique (CEA), and Vietnamese Atomic Energy Commission (VAEC) Director Nguyen Tien Nguyen signed a framework agreement on peaceful nuclear cooperation. The two countries will cooperate in operating nuclear reactors and will study nuclear reactor fuel. According to a CEA statement, the VAEC plans to acquire the technological capability to produce nuclear energy by approximately 2010.

AFP, 9/13/96; in FBIS-WEU-96-180, 9/13/96 (15817). VNA (Hanoi), 9/27/96; in FBIS-EAS-96-189, 9/27/96 (15682).