

Ukraine: Nuclear Research Facilities

CHORNOBYL CENTER ON PROBLEMS OF NUCLEAR SAFETY, RADIOACTIVE WASTE, AND RADIOECOLOGY

LOCATION: Slavutych (Research Laboratory), Kiev (Administration)

DIRECTOR: Valeriy Mykolaevych Glygalo

DEPUTY DIRECTOR: Anatoly N. Nosovsky

BACKGROUND:

The [Chornobyl Center](#) was established by Presidential Decree on 26 April 1996. It supports international scientific research on the consequences of nuclear and radiation accidents, the environmental rehabilitation of polluted territories, and the closure of nuclear facilities.[1] In addition, the Center addresses issues related to waste management, spent fuel, and operational safety in nuclear power plants. The Center also provides assistance in the development and maintenance of "in-country" expertise in the nuclear sciences.[2] The Ministry of Environmental Protection and Nuclear Safety, the Ministry of Chornobyl Affairs, Derzhkomatom, the State Committee on Scientific Questions, and other organizations will be involved in the Center's work. US government agencies became involved in establishing the Center since May 1995, when Ukrainian Minister of Environmental Protection and Nuclear Safety Yuriy Kostenko and US Ambassador to Ukraine William Miller signed an agreement to create the facility. In addition, a US-Ukraine Memorandum of Understanding (MOU) concerning the United States' active participation in the center's creation was signed on 26 April 1996. However, Ukraine was originally reluctant to take formal steps in order to establish the facility due to financial difficulties and political considerations. Therefore, the decision to do so required a certain amount of US diplomatic pressure coupled with financial aid.[1] At a meeting of the Gore-Kuchma Commission in July 1998, the United States and Ukraine formally signed an [agreement on the Chornobyl Center](#), which provides for cooperation in field research and analysis on dosimetry, radionuclide concentrations, and biological effects of radioactive contamination to be conducted at the International Radioecology Laboratory (IRL).[3] (A [full-text copy](#) of the Chornobyl Center brochure is available in our full-text section.)

Sources:

[1] CISNP Communications with Ukrainian official, May 1996. {Entered 9/3/96 GN}

[2] "[Chornobyl Center for Nuclear Safety, Radioactive Waste and Radioecology](#)," Center Brochure, undated, circa 1998. {Updated 9/16/98 SP}

[3] "Text: U.S.-Ukraine Agreement on Chornobyl Center Radioecology Lab," USIA Washington File, online edition <http://www.usia.gov/products/washfile/eu.shtml>, 24 July 1998. {Updated 12/28/98 SP}

CHORNOBYL CENTER DEVELOPMENTS:

12/11/2000: FRANCE, GERMANY SIGN MEMORANDUM WITH UKRAINE TO PROVIDE SUPPORT TO CHORNOBYL CENTER

Ukraine, Germany, and France signed a memorandum of support for and participation in Chornobyl Center activities concerning problems of nuclear safety, radioactive waste, and the environment. Each nation is committed under the memorandum to provide support to the center in the form of financing, resources, and personnel. The memorandum defines activities of the Center, including increasing security at nuclear facilities, measures for nuclear waste and spent fuel handling, and reducing the effects of the Chornobyl disaster.[1] Chornobyl Center Director Valeriy Glygalo said that a fundamental goal of the center is to establish a computer database to provide information on these issues.[2]

Sources:

[1] "Pravitelstva Ukrainy, FRG i Frantsii podpisali memorandum o podderzhke tsentra po problemam yadernoy bezopasnosti," UNIAN, No. 50, 11-17 December 2000.

[2] "Nauchnyy potentsial Mezhdunarodnogo chornobyl'skogo tsentra pozvolyayet reshit voprosy bezopasnosti ukrainskikh atomnykh stantsiy," UNIAN, No. 50, 11-17 December 2000. {Entered 2/19/01 RG}

9/98:UNITED STATES FUNDS CHORNOBYL CENTER PROJECTS

By the end of 1997, the United States had provided a total of \$5.4 million to the [Chornobyl Center](#). [1] Several projects were funded with this money, including the installation of a satellite-based communications system at the Slavutych facility. [1, 2] In addition, three joint technical projects were completed by US and Ukrainian specialists. The first project involved a risk analysis of hazards posed by the Unit Four sarcophagus to the still-operational reactor in Unit 3. The second project provided an assessment of robotics technology needs. The third project assessed computer modeling needs for the sarcophagus. These projects were coordinated by the Pacific Northwest National Laboratory, which acted on behalf of the US Department of Energy. [1, 2, 3]

Sources:

[1] "U.S.-Ukrainian Accomplishments at Ukraine's Nuclear Power Plants," Office of Nuclear Energy, Science and Technology, US Department of Energy, May 1998.

[2] "[Chornobyl Center for Nuclear Safety, Radioactive Waste and Radioecology](#)," Center Brochure, undated, circa 1998.

[3] "[Chornobyl. Improving Safety](#)," Office of Nuclear Energy, Science and Technology, US Department of Energy, January 1998. {Entered 9/16/98 SP}

5/17/96: UNITED STATES AND WESTERN EUROPE PROVIDE FINANCIAL AID TO SUPPORT CHORNOBYL CENTER

The US Department of Energy (DOE) Office of Nuclear Energy has provided \$3 million for the Chernobyl Center and involved the US Pacific Northwest Laboratory in the creation of the Center. The Laboratory is providing technical support, but is particularly interested in evaluating the safety threat to Chernobyl's Unit 3 from possible collapse of the sarcophagus. DOE officials, however, emphasized that funds for the Center will be awarded on a project-only basis and will be fully accountable. The United States also called for broad international support for the Center. Germany and Italy expressed interest in the project, and France agreed to provide roughly \$200,000.

["Ukrainian Nuclear Safety Center Finally Created After US 'Prodding'," *Post-Soviet Nuclear & Defense Monitor*, 17 May 1996, pp. 6-7.] {Entered 9/96 GN}

1/15/95: TOKAREVSKIY DISCUSSES "UKRITIYE" SCIENCE AND TECHNICAL CENTER AT CHORNOBYL

According to Volodymyr Tokarevskiy, head of the "Ukritiye" Science and Technical Center at Chernobyl, there are four departments within this center. The first department is responsible for the nuclear, radiological, and ecological safety of the sarcophagus. The second department is responsible for the design and development of plans to ensure the stability of the sarcophagus. The third section deals with radiation technology; the basis for this department is the Institute of Nuclear Radiation, which examines the materials at the site, including metals, concrete, and graphite. The fourth department is responsible for dealing with the ecological problems within a 30 km radius of Chernobyl. This center employs 650 people; 500 of them work at Chernobyl and the rest work at offices in Kiev, Kharkiv, and Moscow.

["On Research and Development at Chernobyl... Volodymyr Tokarevsky," *Post-Soviet Nuclear & Defense Monitor*, 15 January 1995.]

KHARKIV INSTITUTE OF PHYSICS AND TECHNOLOGY (KIPT)

LOCATION: Kharkiv (Kharkhov in Russian), with a second site located in the Kharkiv suburb of Pyatikhatki.

ADMINISTRATION:

Director: Volodymyr I. Lapshyn

["NSC Kharkov Institute of Physics and Technology," NSC Kharkov Institute of Physics and Technology web site, http://linda.kipt.kharkov.ua/main_page.html.] {Updated 3/4/99 SK}

Deputy Director: Valeriy Mikhailov

BACKGROUND:

The Institute was founded in 1928 to conduct research in nuclear physics and solid-state physics. In 1993, a presidential decree changed the status of the Institute to that of a National Scientific Center. As set forth in another presidential decree dated 15 January 1996, KIPT's primary lines of research include: 1) solid-state physics; 2) plasma physics and thermonuclear fusion; 3) nuclear physics, including the physics of electromagnetic interaction and the physics of electronic accelerators; 4) plasma electronics and high-current beam physics; 5) the physics and technology of heavy-particle accelerators; 6) new accelerator methods; and 7) theoretical physics. The KIPT has made much progress in developing technology in these fields since 1991. However, research has been slowed by the Institute's economic difficulties. It has yet to pay large amounts of taxes and in the winter of 1999 was in danger of being declared bankrupt.[3]

Sources:

[1] *Natsionalnyy Nauchnyy Tsentri Kharkovskiy Fiziko-Tekhnicheskyy Institut*, Brochure, 1996.

[2] Statement of Andriy Glukhov, Project Manager, Battelle. Delivered before the U.S. Senate Subcommittee on Investigations, Committee on Governmental Affairs, 13 March 1996. {Updated 10/22/96 GN}

[3] NISNP discussions with Ukrainian Government official, June 1999, UKR990600. {Entered 3/3/2000 GD, CC}

FISSILE MATERIAL:

The Institute possesses up to 75kg of HEU in bulk form with enrichment levels of up to 90 percent. This material is stored at the Institute's facility in the suburb of Pyatikhatki. Depleted uranium and thorium are stored in the Institute's central Kharkiv location.

[NISNP discussions with Ukrainian Government official, June 1999, UKR990600.] {Updated 3/3/2000 GD, CC} MPC&A:

The US Department of Energy (DOE) has been largely responsible for upgrades to the MPC&A facilities at the Institute's Pyatikhatki site. The program began in June 1995 and officially ended in January 1999. MPC&A duties have since been transferred to DOE's Office of International Safeguards.[1] The physical structure of the facility was upgraded with new fences, intrusion detection sensors, closed-circuit television (CCTV) cameras, and improved lighting. Improvements within the perimeter were also made. Walls, windows, and doors were strengthened and public utility locations have been reorganized to provide more security. New systems to assist personnel in alarm monitoring, CCTV camera switching, and radio communication have been installed in the central alarm station. A modular vault was installed to provide protection for nuclear materials.[3] An electricity generator was installed to ensure the continued operation of physical security measures in cases of external power loss.[2] MPC&A improvements include new computers, a database for tracking nuclear materials movements, a supply of reusable containers, and equipment and supplies to be used during materials repackaging.[3] Radioactive materials in bulk form have all been repackaged into IAEA-conforming containers, constructed by the Institute under contract with DOE. In the summer of 1999, DOE concluded another contract

with the Institute to construct new containers for other types of radioactive materials. Other MPC&A improvements, however, were made with equipment imported from the United States. Institute personnel are pessimistic about whether they will be able to obtain spare parts if the equipment requires repair. Contracts with DOE only provided for upkeep of equipment through 1999. In addition, Kharkiv personnel noted that cell phones provided through the MPC&A program did not work properly due to outdated equipment at the switching station.[2] The commissioning ceremony for the MPC&A system took place in January 1999.[4] No MPC&A upgrades have been made at the Institute's central Kharkiv site. The removal of depleted uranium and thorium to the Pyatikhatki site is under consideration.[2]

Sources:

[1] US Department of Energy (DOE) Web Site, <http://www.nn.doe.gov/mpca.htm>.

[2] NISNP discussions with Ukrainian government official, June 1999, UKR990600.

[3] "MPC&A Upgrades at the Kharkov Institute of Physics and Technology [Ukraine]," US Department of Energy, September 1998; originally available on the DOE Web Site, <http://www.dp.doe.gov/>.

[4] "V Natsionalnom Nauchnom Tsentre 'Kharkovskiy Fizikotekhnicheskii Institut' ustanovlena novaya sistema ucheta, kontrolya i fizicheskoy zashchity yadernykh materialov," UNIAN, 24 - 30 January 1999, No. 4.

{Entered 8/19/99 SK}{Updated 2/29/2000 GD, CC}

KHARKIV INSTITUTE OF PHYSICS AND TECHNOLOGY DEVELOPMENTS:

12/26/2002: IRAQI INTEREST IN KIPT HEU REPORTED

The Globe and Mail reported on 26 December 2002 that Iraq has shown interest in KIPT, raising concerns that it is seeking to acquire the institute's 75kg of highly enriched uranium (HEU). The government of Iraq established a diplomatic office in Kharkiv, and appointed Yuriy Orshanskiy, a Ukrainian businessman who had made up to 40 trips to Iraq, as its honorary consul to Kharkiv. Between 2000 and 2002 Orshanskiy was also accredited by Ukraine as Iraq's representative to Kharkiv. However, the accreditation was revoked after a scandal surrounding possible Ukrainian arms shipments to Iraq broke out. Iraq also sent three delegations to the city since 1998. One delegation received an official tour of KIPT. The poor financial situation at the institute causes worries that some KIPT specialists will enter into cooperation with the Iraqi government.

[Mark MacKinnon, "Iraq showing unusual interest in Ukraine's nuclear laboratory," *The Globe and Mail* online edition, <http://www.globeandmail.com/>, 26 December 2002.] {Entered 1/28/2003 MJ}

10/11/2002: KIPT WANTS TO RETAIN HEU

Global Security Newswire reported on 11 October 2002 that KIPT had declined to give up its HEU stockpile, rejecting a US offer to purchase its 75kg of 90% HEU to remove the risk of it falling into the hands of rogue states. KIPT director Volodymyr Lapshyn said that the institute needed the HEU for research and could not sell the uranium since it is state-owned, and is under IAEA oversight, and therefore cannot be removed without appropriate clearances. Lapshyn also said that there had been no direct contacts between Iraq and KIPT concerning the HEU.

["Ukraine: Research Institute Clings to Uranium Stocks," Global Security Newswire, 11 October 2002; in Nuclear Threat Initiative Web Site, http://www.nti.org/d_newsire/issues/2002/10/11/6p.html.] {Entered 10/22/2002 MJ}

6/5/2000: CENTER FOR REACTOR CORE DESIGN TO RECEIVE US TECHNOLOGIES

Kharkiv Institute of Physics and Technology's Center for Reactor Core Design is to receive nuclear fuel and reactor core design technologies from the US Department of Energy. The Center for Reactor Core Design is being established as part of the Ukraine Nuclear Fuel Qualification Project, whose implementation agreement was signed during President Bill Clinton's visit to Ukraine on 5 July 2000. For additional information, please see the [6/5/2000 entry](#) in the Fuel Cycle Developments.

{Entered 7/6/2000 MJ}

10/29/99: US FUEL TO BE TESTED AT SOUTH UKRAINE NPP IN 2001

UNIAN reported on 29 October that the Kharkiv Institute of Physics and Technology won a tender from the Ukrainian Energy Ministry to begin the introduction of US nuclear fuel at Ukrainian NPPs. The institute will create a design group to re-equip the Soviet-designed VVER-1000 reactors to handle the test samples of US fuel. The US company Westinghouse has been contracted by the US Department of Energy to design and produce the fuel. The [South Ukraine NPP](#) is expected to receive the fuel in 2001. For more information on Westinghouse's involvement see the entry under [Fuel Cycle Developments](#).

[UNIAN, 29 October 1999; in "Ukraine To Try US Pilot Fuel At Nuclear Power Plants In 2001," FBIS Document FTS19991029001500.] {Entered 11/8/99 GD}

1/28/99: KHARKIV INSTITUTE OF PHYSICS AND TECHNOLOGY INTRODUCES NEW MPC&A SYSTEM

As of January 1999, the Kharkiv Institute of Physics and Technology had established a new MPC&A system. The system was established with assistance from the [US Department of Energy's MPC&A program](#). According to Oleksandr Volobuyev, the institute's academic secretary, the new system meets international standards. Most of the equipment for the system realization is being provided by the US company [Advantour Corporation](#). The commissioning ceremony for the new system was attended by US and IAEA officials.

["V natsionalnom nauchnom tsentre 'Kharkovskiy fizikotekhnicheskii institut' ustanovlena novaya sistema ucheta, kontrolya i fizicheskoy zashchity yadernykh materialov," UNIAN, 24 - 30 January 1999, No. 4.]

{Entered 8/19/99 SK}

KIEV INSTITUTE FOR NUCLEAR RESEARCH (KINR)

LOCATION: Kiev

HOME PAGE: <http://www.kinr.kiev.ua>

SUBORDINATION: Ukrainian Academy of Sciences

[KINR Web Site, <http://www.kinr.kiev.ua/admin.html>,]

ADMINISTRATION:

Director: Ivan Mikolayovich Vishnevskiy

Deputy Directors: Eduard Ulyanovich Grinik, Viktor Ivanovich Gavriluk, Vladimir Vasilyevich Trishin, and Vasily Aleksandrovich Lavrinenko.

[KINR Web Site, <http://www.kinr.kiev.ua/admin.html>,] {Updated 3/2/2000 GD}

ACTIVITIES:

KINR's main areas of research are: low-and medium-energy nuclear physics, nuclear power, solid state radiation physics, material science, plasma physics, radiobiology, radioecology, and applied research.

[KINR Web Site, <http://www.kinr.kiev.ua/admin.html>,] {Updated 3/2/2000 GD}

FISSILE MATERIAL:

According to one source, 90% enriched fuel has been used at the reactor.[1] Other sources list a range of enrichments from 36% to 90%.[2,3] In addition, small quantities of separated plutonium are said to be present. There is a special storage vault for fresh fuel.[3] Both spent and fresh fuel are present at KINR.[1]

Sources:

[1] Correspondence with Ukrainian official, January 1995.

[2] V. Shmelev, "Estimation Of The Quantities Of Nuclear Materials At The Facilities In The New Independent States," Unpublished Manuscript, Monterey Institute of International Studies, December 1992.

[3] I.M. Vishnevsky and V. I. Gavriluk, "Cooperative Efforts To Improve Accounting, Control, and Physical Protection of Nuclear Material at the Institute for Nuclear Research Scientific Center of the National Academy of Sciences of Ukraine and the State Atomic Energy Commission of Ukraine," *United States/Former Soviet Union: Program of Cooperation on Nuclear Material Protection, Control and Accounting*, December 1996, p. NIS 47. {Modified 11/3/97 ab}

MPC&A:

Under the US Nunn-Lugar CTR assistance program, the US Department of Energy performed site surveys in September and October 1994 and produced assessment reports in December 1994 regarding the implementation of an MPC&A system at this site.[1] The US Department of Energy (DOE) finished upgrades to the facility in January 1999. DOE's work focused on automating the inventory system, providing tamper-indicating devices for material containers, developing and updating MC&A procedures, and training staff to use the equipment and implement the new procedures. In October 1998, the [George Kuzmycz Training Center](#) for Material Protection Control and Accounting of Nuclear Materials was opened at the institute. Staff at the institute worked alongside DOE personnel to design a computerized accounting system for nuclear materials. DOE also provided equipment to support isotopic analysis of nuclear materials. This equipment included high and low resolution spectroscopy systems as well as a radioactive source set for calibrating radiation measurement equipment.[2] Security measures were concluded at the fresh fuel storage facility, including physical upgrades, the limiting of access to a small number of people, and the adoption of a two-person rule (employees must be accompanied by a 'buddy' to access certain areas). The security perimeter, which formerly included the entire KINR grounds, was shrunk to the immediate vicinity of the reactor. Strengthened security around the reactor includes video monitoring, radiation sensors, and improved guard procedures. Officials at KINR expressed satisfaction with the upgrades and believe the institute is secure against both insider and outsider threats.[3]

Sources:

[1] DOE Public Information, Office of Nonproliferation and National Security, 27 January 1995.

[2] "[The US Department of Energy MC&A Assistance Program to Ukraine](#)," US Department of Energy, September 1998; originally available on US Department of Energy MPC&A Web Site, <http://www.dp.doe.gov/>.

[3] NISNP discussions with Ukrainian government official, June 1999, UKR990600. {Entered 3/2/2000 GD, CC}

REACTORS: One

NAME: WWR-M Kiev

TYPE: Tank WWR

POWER: 10 MWt

FUEL:

The fuel enrichment may range from 36 to 90 percent.[1,2] The typical loading of the reactor core is 13.2 kg of HEU[2].

Sources:

[1] V. Shmelev, "Estimation Of The Quantities Of Nuclear Materials At The Facilities In The New Independent States," Unpublished Manuscript, Monterey Institute of International Studies, December 1992.

[2] I.M. Vishnevsky and V. I. Gavriluk, "Cooperative Efforts To Improve Accounting, Control, and Physical Protection of Nuclear Material at the Institute for Nuclear Research Scientific Center of the National Academy of Sciences of Ukraine and the State Atomic Energy Commission of Ukraine," *United States/Former Soviet Union: Program of Cooperation on Nuclear Material Protection, Control and Accounting*, December 1996, p. NIS 47. {modified 11/3/97 ab}

CHIEF ENGINEER: Vladimir Makarovskiy

["V Kiyevskom institute yadernykh issledovaniy gotovitsya pusk opytnogo yadernogo reaktora," UNIAN, No. 48, 27 November-3 December 2000.] {Entered 3/7/01 RG}

STATUS: The reactor is operational.

[INR neutron physics department home page, <http://www.kinr.kiev.ua/neutrph.html>, 11 June 1997.]

SPENT FUEL AND RADIOACTIVE WASTE: HEU spent fuel is stored on site.

[V. Shmelev, "Estimation Of The Quantities Of Nuclear Materials At The Facilities In The New Independent States," Unpublished Manuscript, Monterey Institute of International Studies, December 1992.]

CRITICAL ASSEMBLIES: One

STATUS: Non-operational since the moratorium

COMMENTS:

Reached first criticality in 1960.[1] The license to operate the reactor expired on 1 January 2000. The reactor must be modernized in order to renew the operating license. According to the Institute, the US Department of Energy intends to provide experts and financial assistance for research into the reactor's safety. This study will inform efforts to prolong reactor life at all of Ukraine's research and power reactors.[2]

Sources:

[1] *Nuclear Research Reactors in the World*, May 1991, p. 43.

[2] "Ispolnilos 40 let s dnya puska reaktora Kievskogo instituta yadernykh issledovaniy," UNIAN, 11 February 2000.{Updated 3/8/2000 CC}

KIEV INSTITUTE FOR NUCLEAR RESEARCH DEVELOPMENTS:**7/11/2002: KINR RECEIVES REACTOR OPERATION LICENSE**

Interfax reported on 11 July 2002 that KINR received a license to operate its experimental reactor from the Ukrainian [State Nuclear Regulatory Committee](#). The license will be valid until 2005. The reactor has had only a provisional license since 1998, and its operation was suspended between 1993 and 1998. In order to receive the new license, KINR had to undertake several measures required by SNRC, including the installation of a physical protection system, a computerized nuclear material accounting system, an automatic fire alarm, and an emergency power supply system.

["Kievskiy uchenyye poluchili litsenziyu na ekspluatatsiyu reaktora," Interfax, 11 July 2002.] {Entered 10/22/2002 MJ}

11/27/2000: RESEARCH REACTOR EXPECTED TO RESUME OPERATION IN NEAR FUTURE

The research reactor at KINR is soon expected to resume operation, after two years of inactivity. Chief Engineer Vladimir Makarovskiy stated that work to increase the safety of the reactor is being carried out, and KINR is awaiting permission from the Ministry of Environmental Protection and Nuclear Safety to activate the reactor. The [Nuclear Regulatory Administration](#) of the [Ministry of Environmental Protection and Nuclear Safety](#) has already granted KINR a license to operate the reactor until the end of the year. KINR has also received permission from agencies of the sanitary and fire inspectorate. The reactor is expected to be in operation for approximately a month to conduct research.

["V Kiyevskom institute yadernykh issledovaniy gotovitsya pusk opytnogo yadernogo reaktora," UNIAN, No. 48, 27 November-3 December 2000.] {Entered 2/19/01 RG}

5/28/99: US ENERGY OFFICIALS VISIT TRAINING CENTER AT THE INSTITUTE OF NUCLEAR RESEARCH IN KIEV

During their visit to Kiev, US Deputy Secretary of Energy T.J. Glauthier and Assistant Secretary of Energy Rose Gottemoeller toured the upgraded MPC&A system at the VVR-M research reactor and the George Kuzmycz Training Center for Physical Protection and Control of Nuclear Materials at the Institute of Nuclear Research. Glauthier was satisfied with the functioning of the Training Center and recognized its contribution to prevention of smuggling of nuclear materials. According to the Training Center's Director, Viktor Havrylyuk, since its creation in October 1998, the facility has trained over 500 specialists from the Ukrainian Ministry of Internal Affairs, the Security Service, the State Export Control Service of Ukraine, scientific research facilities, and the energy sector. The US DOE allocated \$4 million for the MPC&A upgrades and the training center.

["Sredstva, predostavlenyye Ukraine po programe Nanna-Lugara, ispolzuyutsya po naznacheniyu, schitayut amerikanskiye chinovniki," UNIAN, 24 - 30 May 1999, No. 21.] {Entered 8/19/99 SK}

10/9/98: TRAINING CENTER OPENED AT THE INSTITUTE OF NUCLEAR RESEARCH

As part of an agreement between the US Defense Department and Ukraine's Ministry of the Environment and Nuclear Safety, a center for training specialists in the area of nuclear material control and accounting was established at the Institute of Nuclear Research in Kiev.[1] The center, funded by the US government, the Ministry of Environmental Protection and Nuclear Safety of Ukraine, and the National Academy of Sciences of Ukraine,[2] is part of an effort to build a state system to prevent proliferation.[1] It offers training in safeguarding weapons-usable nuclear material, assessment of vulnerabilities at nuclear material storage sites, and tracking and accounting stored nuclear materials using a computerized accounting system.[2] The trainees will consist of experts from various Ukrainian ministries, Enerhoatom, the Security Service, nuclear power stations, and research centers.[1]

Sources:

[1] UNIAN, 9 October 1998; in "Training Center For Monitoring Of Nuclear Materials Opens," Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com/universe>.

[2] "The George Kuzmycz Training Center," undated brochure, US Department of Energy. {Entered 10/12/98 SK}

SEVASTOPOL INSTITUTE OF NUCLEAR ENERGY AND INDUSTRY (SINEI, FORMERLY THE SEVASTOPOL NAVAL RESEARCH INSTITUTE)

LOCATION: Sevastopol

REACTORS: One

TYPE: Tank, VVR

POWER: 200 kWt

FUEL:

There is some uncertainty regarding the amount and level of enrichment of fuel used in this reactor. A GAO report, based on information obtained from the Kurchatov Institute of Russia, lists the reactor as using 3.1 to 6.1kg of uranium fuel enriched to 10 percent.[1] Former Ukrainian Nuclear Regulatory Committee Spokesman Andriy Glukhov has said that the reactor uses 36 percent enriched uranium fuel and may also use uranium enriched up to 90 percent.[2] A report by V. Shmelev asserts that the reactor contains up to 3kg of U-235 in fuel enriched to a level of more than 20 percent.[3]

Sources:

[1] "Nuclear Safety: Concerns with Nuclear Facilities and Other Sources of Radiation in the Former Soviet Union," GAO/RCED 96-4, November 1995, p. 24.

[2] Statement of Andriy Glukhov, Project Manager, Batelle, Before the Senate Subcommittee on Investigations, Committee on Governmental Affairs, 3/13/96.

[3] V. Shmelev, "Estimation Of The Quantities Of Nuclear Materials At The Facilities In The New Independent States," Unpublished Manuscript, Monterey Institute of International Studies, December 1992. {modified 11/3/97 ab}

STATUS:

This facility was formerly known as the Sevastopol Naval Research Institute, and was part of the Sevastopol Naval Academy, under the jurisdiction of the Ukrainian Ministry of Defense. It was used to train sailors to operate nuclear submarines. SINEI is now affiliated with the Ukrainian State Nuclear Company [Enerhoatom](#). Its new mission is to train nuclear power reactor operators.[3]

Sources:

[1] CISNP Interview with Ukrainian official, 19 June 1995.

[2] V. Shmelev, "Estimation Of The Quantities Of Nuclear Materials At The Facilities In The New Independent States," Unpublished Manuscript, Monterey Institute of International Studies, December 1992.

[3] "The US Department of Energy MC&A Assistance Program to Ukraine," US Department of Energy MPC&A Web Site, <http://www.dp.doe.gov/>. {Updated 3/2/2000, GD}

MPC&A:

Upgrades to SINEI's facilities began in 1995, after a review by the US Department of Energy (DOE). The program was formally completed in January 1999. Improvements include badging and access control systems, computers and software, and tamper-indicating devices. DOE also provided new equipment in the form of high- and low-resolution gamma spectroscopy systems and a radioactive source set for calibrating radiation measurement equipment.[1] External security measures include the strengthening of the exterior wall, construction of a second fence, and the institution of a controlled zone between the two complete with intrusion detection sensors. Internal security upgrades include the installation of a modular vault to protect nuclear material.[2] Due to poor infrastructure, inadequate lines of communication, lack of communication between Ukrainian and US personnel, and misunderstandings with local customs officials, MPC&A improvements were slow: some equipment was not delivered on time and some programs did not begin according to schedule.[3]

Sources:

[1] "[The US Department of Energy MC&A Assistance Program to Ukraine](#)," US Department of Energy, September 1998; originally available on US Department of Energy MPC&A Web Site, <http://www.dp.doe.gov/>.

[2] NISNP discussions with Ukrainian government official, June 1999, UKR990600.

[3] Discussions with NISNP staff, February 2000. {Updated 3/2/2000, GD}

SUBCRITICAL ASSEMBLIES: Two

FUEL: Enriched to 36 percent.

[Emily Ewell, "Trip Report: Uzbekistan, Kazakhstan and Ukraine," June 1995.]

STATUS: Currently not operational

COMMENTS:

The assemblies have not been licensed by the [Ministry of Environmental Protection and Nuclear Safety](#). One uses natural uranium and is located in the Institute building. The second is located in the reactor building [NISNP discussions with Ukrainian government official, June 1999, UKR990600.] {Updated 3/3/2000 GD, CC}