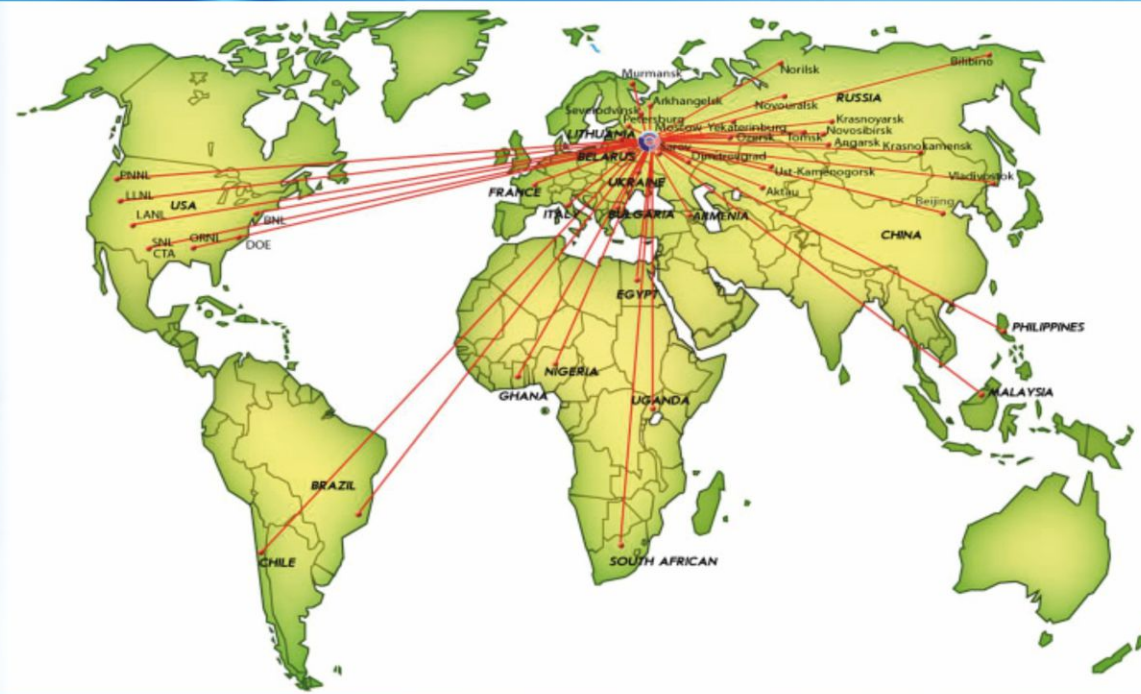


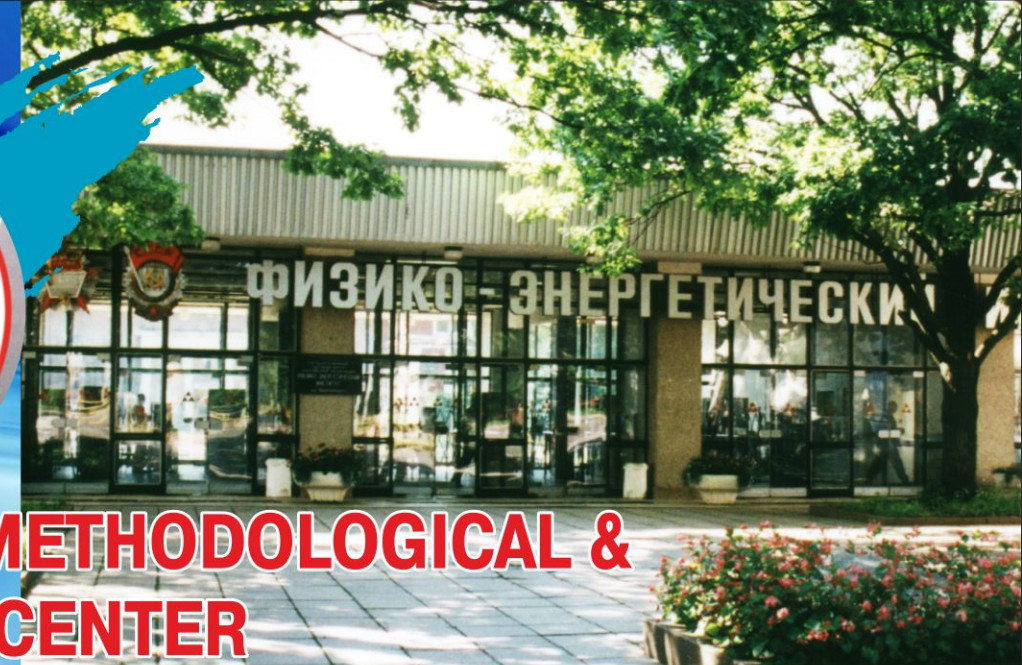
The RMTC training program includes courses which cover all the MC&A aspects. The curriculum meets the needs of both nuclear site specialists and regulatory authority inspectors.



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RUSSIAN METHODOLOGICAL & TRAINING CENTER

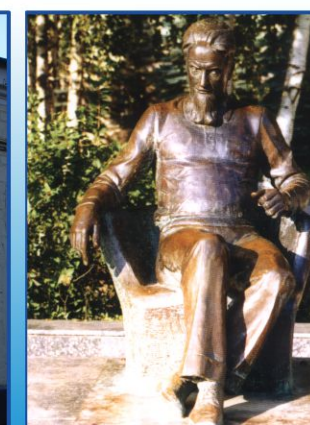


ON NUCLEAR MATERIALS CONTROL AND ACCOUNTING

The experience of testing and using nuclear weapons made the mankind encounter the threat of losing its immortality; a great challenge was faced to prevent nuclear wars, to avoid nuclear weapons proliferation, to provide nuclear safety in the general sense. The Moscow G-8 summit of 1996 showed that the nuclear safety was integral and the nuclear sphere which, for a long time, had been a symbol of confrontation between West and East, was being transferred into the area of new cooperation.

The decision to establish a Methodological and Training Center (RMTC) on Nuclear Materials Control and Accounting in Russia was made in 1994, first by Minatom of Russia, then at the governmental level. The RMTC was established at the State Scientific Centre of the Russian Federation – Institute for Physics and Power Engineering named after A.I. Leypunsky (SCC RF - IPPE) in Obninsk, Kaluga region, in 1996, by the Minatom and Gosatomnadzor joint decision approved by the Russian Federation Government. The US DOE and European Commission (EC) supported the idea of establishing the Center and included appropriate projects into their plans of cooperation with Russia. Under these projects, the trainers (instructors) were trained (Train the Trainers), the RMTC was equipped with state-of-the-art instruments and systems for training and the specialists from the USA, Europe, and Russia shared their experience.

The RMTC establishment and development was a vivid demonstration of joining the good will and efforts of Russia, the USA and Europe with the aim to solve the problem of nuclear material nonproliferation. Training courses and workshops help specialists, managers and experts improve and enhance the MC&A culture level, learn the experience gained in the USA and Europe.



Consequences of the September 11, 2001 tragic events require a new approach and additional efforts to prevent proliferation of weapons of mass destruction, especially nuclear weapons. Russia sees its goal in supporting the efforts of the international community in this direction and will do everything possible to prevent any terrorists' access to nuclear weapons.

President of Russia Vladimir Putin's address to the participants of the NPT Conference of April 24, 2003.

In Obninsk near Moscow a special modern methodological and training center for nuclear materials control and protection is created based on the institute for Physics and Power Engineering.

President of Russia Boris Yeltsin presentation at the Moscow Summit, April 19-20, 1996.

RMTC Memorable Dates

April 29, 1994 – The decision was made to establish a methodological and training center on the basis of the IPPE, ISTC and CICE&T with the aim to train MC&A personnel from Minatom of Russia (approved by the Deputy Minister of the Russian Federation for Atomic Energy).

January 13, 1995 – The Government of the Russian Federation approved “The List of the First-Priority Activities on the State NMC&A System Development and Implementation for 1995”. The list envisaged development of the statute and structure of the methodological and training center for NMC&A personnel training.

February 8, 1996 - The joint decision of the Russian Federation Atomic Energy Ministry and Federal Nuclear and Radiation Safety Authority “On Establishing the Methodological and Training Center for NMC&A Personnel Training” on the basis of the SSC RF - IPPE. Approved by the Minister of the Russian Federation for Atomic Energy and the Chairman of the Federal Nuclear and Radiation Safety Authority.

March 26, 1996 – The beginning of the trilateral cooperation with the European Commission and the US Department of Energy on establishing the RMTC.

May 24, 1996 – The Order of the Minister of the Russian Federation for Atomic Energy to establish the Methodological and Training Center on NM Control and Accounting in the SSC RF - IPPE, with participation of the CICE&T, and to develop the RMTC statute.

November 6, 1996 - The Statute of the Methodological and Training Center on NM Control and Accounting in the SSC RF - IPPE was approved by the Minister of the Russian Federation for Atomic Energy.

September 3, 1997 - B.G. Ryazanov was nominated as RMTC Director by the Order of the SSC RF - IPPE Director and the laboratory of NM NDA techniques and instruments was set up.

April 21-26, 1997 - The tripartite (RF/USA/EU) seminar on nuclear material control and accounting at fuel fabrication facilities. Tripartite seminars on different topics were held in the years of 1998, 2000, 2002, 2006, 2008 and 2013.

November 4, 1998 – Grand Opening of the RMTC with participation of the Minister of the Russian Federation for Atomic Energy, the US DOE representative, the EC JRC Director, the Kaluga Region Governor, the Mayor of Obninsk, representatives of the US National Laboratories, European scientific centers, nuclear facilities, inspectorates, Russian and international mass media.

July 15, 2003 – The International Institute of Nuclear Material Management (INMM) gave a special award to the RMTC for its meritorious achievements in training and methodological support of the nuclear programs in the NMC&A area.

March 31, 2004 – the SSC RF – IPPE got the educational activities license that implied a short-term (72 hours) advanced training of the NMC&A specialists in 18 programs in the NMC&A field.

November 12, 2004 – The EC Joint Research Center made special mention of the RMTC great service in implementation of TACIS projects.



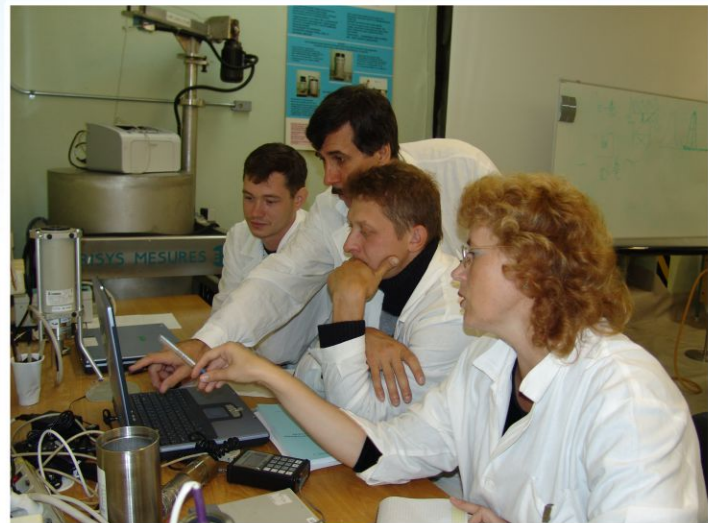
- The Center curriculum comprises 44 courses combined into 7 series that cover all major NMC&A subjects:.
- NMC&A methodology and computerization
 - Methods and tools to measure products mass and volume in process tanks
 - Nondestructive assay techniques and instruments for NM mass and content measurements
 - Seals (TID) application for NMC&A purposes
 - Bar-coding technologies
 - Physical inventory taking procedure planning and implementation
 - Statistical methods and special computer codes for balance closing and verification of physical NM inventories
 - NMC&A system status inspections
 - Performance testing of NMC&A systems and components



The main goal of the Russian Methodological and Training Center is to train nuclear site personnel and inspectors in theoretical aspects and practical skills pertaining to control and accounting of nuclear materials. Due to collaboration with US, EC and the support of the Russian state authorities, the primary training of the main part of specialists is practically completed.



The developed training courses are the result of generalization of the experience and joint work of Russian, US and European specialists in the NMC&A field.



The total number of Russian and foreign specialists involved in the RMTC training activities more than 250 people (179 of them from Russia and 71 from the US and EC). Although, at the initial stage, the majority of trainers were foreign specialists, by the year of 2003 more than 93% of instructors had been Russian. One quarter of the Russian trainers have an academic degree; over 50% of them have done special training courses offered by the EC Joint Research Center (Ispra, Italy) and the US National Laboratories.

Three training laboratories were set up and equipped with modern instruments and systems. They provide methodological and technical support for the training process. In these laboratories the trainees get practical skills and experience in the use and operation of NC&A instruments and equipment, as well as different MPC&A techniques and procedures.



The Laboratory of Non-Destructive Assay (NDA) Techniques and Instruments is equipped with reference materials, radioactive sources, gamma-spectrometers, neutron coincidence counters to measure U-235 and Pu mass in containers, a waste drum monitor system to measure Pu mass in containers with waste, a hybrid K-edge densitometer, calorimeter and gamma-scanner to measure U-235 mass in containers with waste. The NDA laboratory has a wide spectrum of state reference materials of UO₂ and PuO₂ mass and isotopic composition; the SRMs of BN-600, VVER-440 and RBMK fuel elements and fuel assemblies (FA) and working reference NM samples to conduct courses on measurements of U-235 hold-up mass in the process equipment.

The laboratory is equipped with domestic gamma-ray spectrometers, equipment models and special samples to conduct courses dedicated to measurements of uranium and plutonium hold-up mass in the process equipment.



The Bar-Coding Techniques Laboratory is equipped with modern devices manufactured by Intermec company and with the software required for bar code application, reading and code information processing. A local computer network has been developed and is available to train attendees in the skills of using bar code equipment and electric scales in computer networks.

The Tank Calibration Laboratory has all the engineering systems, equipment and tank models in place. They are required to conduct training as well as to test tank calibration procedures, to perform mass/volume measurements of solutions in process tanks of various shapes and applications.

The RMTC has developed a substantial infrastructure including comfortable lecture rooms in the SSC RF – IPPE off-site Conference Center and on-site IPPE laboratories in the Engineering Building, Nuclear Criticality Experimental Bldg.

