

RUSSIAN-AMERICAN PROJECT «SECOND LINE OF DEFENSE»¹

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Background

The United States of America established in 1998 a program of international cooperation “Second Line of Defense“ having the goal of equipping foreign border crossing points with radiation monitoring instruments to prevent illicit trafficking of nuclear and other radioactive materials.

In accordance with the American conception the notion of the “First Line of Defense“ is attributed to physical protection of facilities related to storage and treatment of nuclear materials in the context of enhancing the global nuclear non-proliferation regime.

It is worth mentioning that spectacular results have been obtained on this track of US-Russian cooperation directed towards up-grading the effectiveness of national Nuclear Materials Protection, Control and Accounting systems (NMPC&A) in the framework of Nunn-Lugar program launched in 1992. Significant to this effect are the following figures: in 2000-2010 up-grading of NMPC&A systems in accordance with modern requirements were carried out at Russian Navy facilities (11 submarine nuclear fuel storages and 39 nuclear warheads depositories), Strategic Missile Forces (25 nuclear warheads storages) and at the MD 12th Main Department, responsible for maintenance of Russian nuclear arsenal (9 sites).⁴

Estimated cost of efforts undertaken so far – several hundreds of millions of dollars, which were invested by American side into enhancement of the Russian nuclear security infrastructure not for the reasons of charity but purely with pragmatic preventive purposes: mitigation of consequences of sensitive nuclear materials (not to speak of nuclear explosive devices) eventual leakages could cost incomparably more to American budget.

For the sake of objectivity one has to recognize that such a bilateral cooperation was beneficial to Russia as well since it allowed to scale up the pace of national NMPC&A systems modernization.

Preparation of a Bilateral Agreement

The Russian-American project “Second Line of Defense“ got its official status in June 1998 after the signature of an appropriate Protocol by the State Customs Committee of Russia and the US Department of Energy. In the course of the follow-up consulta-

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tions an agreement has been reached that the US side would render financial assistance in equipping Russian border crossing points with radiation monitoring hardware which would be produced in the Russian Federation in accordance with the Russian and the US standards.

It is important to note that by this time successful joint tests of a Russian nuclear materials detection stationary system “Amber“ (designed and produced by the scientific production association “Aspect“ in Dubna, Moscow region) were carried out at Los Alamos National Laboratory. As it was stated in the certificate issued by the Laboratory, the “Amber“ system meets the US standards related to portal monitors of this class and in some parameters even exceeds them.

Summing Up

Due to the common US-Russian effort with an equal sharing of financial burden within the “Second Line of Defense“ project it became possible to equip 200 Russian border crossing points with radiation monitoring hardware. The total number of installed “Amber“ systems of different modifications exceeds 6 thousand units.⁵ Since an average price of the System is of the order of 20 thousand dollars the overall investments in the project amount to \$120 mil.

Really important is the fact that the number of the yearly recorded cases of illicit trafficking of nuclear and radioactive materials over the Russian borders has increased hundredfold since the beginning of the implementation of the Project. The contribution of the technical means to the enhancement of the radiation monitoring process is qualified by the following statistics: 95% cases of illicit trafficking of sensitive materials were detected by force of special equipment and only 5% – through use of human intelligence (humint) or analysis of the accompanying documentation.

One of the last positive examples – detection after Fukushima nuclear accident by the Vladivostok customs service more than one thousand cars of Japanese production with the increased level of radiation.

The type of radioactive monitoring equipment used at Russian borders is actively introduced in other countries.

“Amber“ systems have been installed at the post-Soviet area (in Armenia, Kazakhstan, Uzbekistan, Ukraine) as well as in Austria, Qatar, Lebanon, and South Africa.

After successful testing of the “Amber“ system at the IAEA in 1997-2000 they are actively used in different countries within the framework of the International program for the assessment of nuclear materials illicit trafficking threat.

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⁵ Nikolai Kravchenko, “On The History Of The Russian Customs Radioactive Materials Monitoring System“ (*in Russian*), *Yaderny Club* (Nuclear Club) N1(8), January-February, 2011.