RUSSIAN NON-PROLIFERATION EFFORTS[1]

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Good morning everybody. It is my pleasure to be here today. My thanks to the organizers, and especially Major Carlos Nunes for inviting me to give a talk within the frame of Non-Proliferation course at the NATO School. The topic of my talk is the Russian non-proliferation efforts.

Let me start with brief background. Today security is becoming the essential condition and fundamental basis for successful socio-economic development of states as well as the formation of world's stable and sustainable development.

The Russian Federation recognizes that the risk of proliferation of WMDs and their means of delivery is representing a main threat to its national security as well as a global challenge and a major threat to international security. Therefore Russia is trying to use any opportunities to strengthen non-proliferation regime through effective and determined national and international efforts.

The Nuclear Non-Proliferation Treaty remains the cornerstone of the nuclear non-proliferation regime and a key element of international security and stability. Russia's first priority is to ensure its effective strengthening and implementation of the Treaty provisions at the national level, closing the gaps, further promotion its universality, as well as the use of its provisions in order to promptly and effectively respond to existing challenges and threats.

In Russia's view the intensified buildup of non-proliferation efforts is also determined by the threat of WMD falling into the hands of terrorists. In this regard it continues work towards universal application of the International Convention for the Suppression of Acts of Nuclear Terrorism. Russia also calls on all States to join multilateral efforts in the framework of the Global Initiative to Combat Nuclear Terrorism.

Nuclear arms reduction

Nuclear disarmament is one of the core elements needed for strengthening of the Nuclear Non-proliferation treaty (NPT) and maintaining strategic stability. During past two decades we have being witnesses a drastic reduction of nuclear weapons. Starting from 1991, the Russian nuclear arsenal of strategic nuclear weapons reduced sevenfold - from more than 10,000 to about 1,600.

The total arsenal of Russia's non-strategic nuclear weapons (NSNW) reduced even more - from 21,700 in 1991 to about 2,000 in 2011. In accordance with unilateral Presidential Initiatives of 1991 currently all NSNW weapons are withdrawn from military units and entirely consolidated into central storage facilities.

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The entry into force of the New START Treaty between Russia and the United States on reduction and limitation of strategic offensive arms (START) has been a major consolidating and far-reaching event that has taken place one year ago. The New START Treaty limits each side to no more than 800 deployed and nondeployed ICBM and SLBM launchers and deployed and non-deployed heavy bombers equipped to carry nuclear armaments. Within that total, each side can retain no more than 700 deployed ICBMs, deployed SLBMs, and deployed heavy bombers equipped to carry nuclear armaments. The treaty also limits each side to no more than 1,550 deployed warheads. Active information exchange has been launched under this agreement and inspection activity is being conducted.

To resolve any problems related with the Treaty implementation the Bilateral Consultative Commission was established. Russia is assessing its work as being productive.

The full-scale implementation of the Treaty will not only strengthen the security of its Parties, but also international stability, as well as will allow to enhance nuclear nonproliferation regime and expand the process of nuclear disarmament.

Russia believes that a ban on nuclear tests is a measure that is called upon to reinforce the nuclear nonproliferation. A unilateral moratorium on nuclear tests is insufficient to assure the world community that nuclear tests would not be resumed. Therefore Russia calls on all countries, on which depends the entry into force of the Comprehensive Nuclear Test Ban Treaty, to ratify it as soon as possible.

Ban on production of fissile material for nuclear weapon

An important measure to ensure compliance with the non-proliferation regime could be a treaty to prohibit the production of fissile material for nuclear weapons and other nuclear explosive devices. Russia believes that any such treaty could promote nuclear disarmament and would become a multilateral measure of strengthening the NPT regime. Therefore it strongly supports the early beginning of international negotiations on a Treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices (FMCT) including verification provisions. Russia welcomes the fact that the nuclear-weapon States among the G8 members have already decreed such a moratorium.

The production of fissile materials for weapons stopped in Russia more than sixteen years ago. Weapon-grade uranium has not been produced since 1989, and plutonium, separated from the spent fuel of production reactors, has not been used for nuclear weapons since 1994. Thirteen Russia's plutonium production reactors were shut down. The last reactor in Zheleznogorsk, that was operated exclusively to generate heat and electricity for nearby city, has been shut down in April 15 of 2010. From this date, Russia has fully ended production of weapon-grade plutonium.

Russia has confirmed its continuing support for a production moratorium.

Disposition of excess nuclear weapons material

As a contribution to making its nuclear weapon reductions irreversible, Russia has declared 500 tons of weapon-grade HEU and 34 tons of WgPu excess for weapons purposes. Converting excess HEU and plutonium into forms that are unusable or unattractive for use in nuclear weapons is necessary to ensure that these materials are permanently removed from stocks. Efforts to dispose of HEU and plutonium are now underway.

*The U.S.-Russian HEU Purchase Agreement***.** Under the Russian-US HEU Purchase agreement the 500 tons of excess weapons HEU is being blended down to 4-5 % U-235 and shipped to the United States for making power-reactor fuel. Approximately 30 tons of HEU are being blended each year, and the 500-ton agreement is expected to be completed in 2013. By the end of 2011, Russia, had delivered to the United States 12,739 tons of LEU down-blended from about 442.5 tons of HEU, equivalent to 17,698 nuclear warheads eliminated.

This contract is accompanied by a transparency protocol. In September 1993, the United States and Russia agreed on transparency measures to be used by the US side at the Russian HEU down-blending facilities and by the Russian side at the US facilities, to provide assurance that the LEU being delivered in fact comes from HEU metal, and that it is only used for peaceful purposes once in the United States. The US inspectors make several visits each year to the facilities where the HEU metal weapon components are cut into shavings and converted to oxide. At the blending facilities, the United States has continuous monitoring equipment for three pipes: one carrying 90% enriched UF6, one carrying 1.5% enriched UF6 used to down-blend the HEU, and the pipe carrying the final product, LEU at 4.5% enrichment. Russian inspectors make visits to the US fuel fabrication facilities where material is fabricated into reactor fuel.

*Material Consolidation and Conversion Program (MC&CP)***.** Under this programme, the US Department of Energy has been working jointly with Rosatom to transfer the HEU from Russian research institutes where it is no longer needed to the Research Institute of Atomic Reactors in Dmitrovgrad (RIAR) and the Scientific Production Association Luch in Podolsk for conversion to LEU. While the main purpose of this programme is to reduce the number of sites with HEU, it also supports the down-blending of HEU to LEU. In addition to RIAR and Luch, 16 other Russian institutions are participating in this programme, many of which are sending HEU to RIAR and Luch. The MCC is interested primarily in material more than 80% enriched and more than 50% uranium by weight. MCC plans to blend 18 tons of HEU to LEU by the end of 2015. The rate of downblending is about 1.5 tons of HEU per year.

By the end of year 2011 some 12 tonnes of HEU had been blended down in this program. The downblended material is shipped to the Machine Building Plant (Russian acronym MSZ) in Elektrostal for fabrication into reactor fuel.

The Russian nuclear fuel producer Concern “TVEL” has been fabricating fuel for West European nuclear power reactors since 1996, using their reprocessed uranium blended with Russian highly-enriched uranium.

The production of one ton of fuel from reprocessed uranium requires some 35 kilograms of HEU enriched to 90% U-235. The annual rate of fuel production is about 200 FAs per year that results in disposition of 3.5 tons of HEU annually. Taking into account that by the end of 2011 TVEL produced more than 2000 fuel assemblies, some 40 tons of HEU (90% equivalent) had been disposed as a part of fuel manufacturing with reprocessed uranium.

Altogether, in the frame of these three programs some 500 tons of HEU is already disposed in Russia.

Disposition of WGPu

Unlike highly enriched uranium (HEU), weapons-grade plutonium cannot simply be eliminated as a potential weapons material by dilution with a non-fissile isotope. All

plutonium isotopes can support an explosive chain reaction and only plutonium-238, which is available in only small quantities, is considered unusable for weapons.

A meeting of international experts held in Paris in October 1996, and a 1997 study by a joint US-Russian scientific commission concluded that the two approaches for WGPu disposition would be:

- Mixing the plutonium with uranium, fabricating it into mixed oxide (MOX) fuel and irradiating the material in existing reactors, or
- Immobilizing the plutonium with high-level wastes (HLW).

The discussion, started since early of 90s between Russia and US, what to do with their excess weapons plutonium finalized in 2000 by conclusion of Plutonium Management and Disposition Agreement (PMDA), committing each side to eliminate 34 tons of weapon plutonium.

It was originally envisioned that a full-scale MOX plant would be operating in Russia by 2007. But due to several reasons was recognized that this facility would not begin operations until 2017-2018, a delay of at least ten years.

One reason for the delay was a dispute over the liability. This was only resolved in a U.S.-Russian protocol signed on September 15, 2006.

Funding has also been a problem. The newly estimated cost for the Russian disposition program increased from about $1.8 billion in 2000 to $4.1 billion. However, the G-8 Summit Plutonium Disposition Planning Group that was set up to develop an international financing plan to assist the Russian plutonium disposition program accumulated only $800 millions. In 2007, the U.S. government has informed Russia that “it does not plan to provide assistance beyond the $400 million already pledged”.

The 2000 PDMA called for using MOX in light water reactors. But the Russian nuclear establishment come to the conclusion that the use of MOX in the LWRs is not corresponding to the long-term Russian strategy for nuclear power development and therefore decided to use the plutonium excess in fast-neutron reactors.

Taking into account this new reality, Sergey Kiriyenko the director of Russia's Federal Atomic Energy Agency and US Energy Secretary Samuel Bodman, in a 2006 Joint statement directed their groups of experts to review the join program on excess weapon plutonium disposition.

During the U.S.- Russian subsequent consultations it was agreed that Russia instead of light water reactors would use for disposition of its excess plutonium the fast neutron reactors. To reflect new realities both sides has developed a Protocol to the 2000 PMDA agreement that was signed in April of 2010. One year later the modified PMDA agreement was ratified by Russian Duma and it entered into force in July of 2011.

Several sites are involved in the excess plutonium utilization. The construction of the BN-800 reactor is conducted at the Beloyarskaya NPP (Sverdlovsk region). Its physical startup is planned for September 2013 and its full-scale operation – for the first quarter of 2014.

The complex for the industrial MOX fuel production for the BN-800 reactor will be located at the MCC. The construction of this complex is already initiated within the framework of the Federal Target Program, “Nuclear Energy Technologies of the new

Generation for the period 2010-2015 and until 2020". The estimated cost of construction is 7 billion rubles ($240 million)

A capacity of the complex will be 400 pellets MOX fuel assemblies (or 8 tons) per year. Rosatom plans to put it in operation before commissioning of BN-800 reactor, which is scheduled for year 2014.

Removing the Civilian HEU from other Countries

Much of HEU was supplied by either the United States or Soviet Union to other countries as a fuel for research reactors. As early of 1990 there were significant stock of Soviet–origin HEU in 18 countries. Russia's Government understands the importance of reducing the availability of HEU the material that can be most easily converted into nuclear weapons. Russia is now engaged in active program to return Russian-origin highly enriched uranium (HEU) fresh and spent fuel from Russian-designed research reactors worldwide to Russia

As part of the US-Russian nuclear security initiative launched at the Bratislava summit in early 2005, Russia and the United States plane to remove or otherwise dispose of all of the estimated 2.357 tons of Russian-origin HEU outside of Russia.

Rosatom and the US Department of Energy is collaborating on the program to convert Soviet-designed research reactors in third countries from HEU to LEU fuel and repatriate their Russian-origin HEU fuel. 14 countries are involved in this program.

During past several years, about of 1,4 tons of Russian-origin HEU fuel has been returned to Russia. Unused fresh HEU fuel has been removed from Serbia, Bulgaria, Romania, Libya, the Czech Republic, Poland, Uzbekistan, Latvia, Vietnam and Germany. Spent fuel has so far been removed from research reactors in Uzbekistan, the Czech Republic, Latvia, Bulgaria and Hungary, Kazakhstan and Poland. The HEU from the fresh fuel is down blended to LEU and used for civil purposes. The spent fuel is reprocessed at the Mayak RT-1 plant and the recovered uranium is blended down to produce various LEU fuels.

All of the HEU that was outside of reactor has been removed or blended down by the end of 2010. The remainder is to be removed by the end of 2015, after it has been discharged from reactors and cooled enough for transport.

Enhancing security for nuclear weapons materials

Today nuclear terrorism presents the real threat to national and world security. It depends on terrorist capability to acquire the key material necessary for making nuclear weapons – plutonium and highly enriched uranium. From the experience of NWS it is known that in making the nuclear bomb about 80-90 percent of efforts were devoted to producing the nuclear material. If we can prevent terrorist from obtaining nuclear materials we will succeed in preventing nuclear terrorist attack.

Addressing this threat to international peace and security the 2006 Global Initiative to Combat Nuclear Terrorism was put forward by the presidents of Russia and the United States. Today more than sixty states have already subscribed to the Initiative and reaffirmed their obligations under the Convention on physical protection of nuclear materials.

Important to note that Russia has the world's largest stocks of nuclear weapons and weapons-usable nuclear materials. Most of this material is the legacy of the Cold War, when the Soviet Union and the United States each created nuclear industries

capable of supporting arsenals of tens of thousands of nuclear weapons. Estimates by non-governmental analysts, suggest that, as of the end of 2011 Russia had something in the range of 650 tons of highly enriched uranium (HEU) and over 127 tons of weapons-grade plutonium. Russia also has more than 48 tones of separated civilian plutonium.

The situation in the Russian nuclear weapons complex in the early 90-th gave grounds for concern – first of all due to economic deterioration and weakening of governmental control. The threat of nuclear materials theft becomes reality – there were several cases of stealing nuclear materials by insiders. However, Russia has realized its responsibility for the safety and security of its nuclear stockpile and since mid-of 90-th undertaken the drastic measures in securing nuclear materials and making them out of terrorist's hands.

As a result of these measures the number of nuclear warheads storage sites was diminished in two times, currently this number is 60. The security system was essentially upgraded at about 200 buildings, including the most of 87 building in the Russian nuclear weapon-production complex that stored weapon usable materials and the storage facilities at the three nuclear material production sites in Ozersk, Seversk and Zheleznogorsk. The physical protection of all buildings with nuclear materials has been strengthened. A Fissile Materials Storage Facility (FMSF) was constructed at Ozersk in 2003. Rosatom plans to use this facility to store for about 25 tonnes of f plutonium from dismantled nuclear weapons, and it began accepting fissile materials in July 2007. Much of the improvement in Russia's nuclear security system has come as a result of cooperation between Russia and the United States within the frame of the Cooperative Threat Reduction program.

As a result of realization of these program the nuclear security in Russia has improved dramatically. In the April 2010 during Nuclear Security Summit, the Russian government declared that "Russia maintains its nuclear security at an appropriate level. The Russian Federation confirms that all nuclear materials in its territory and respective facilities are safely protected, so there are no vulnerable nuclear materials or facilities in its territory, which would raise concerns due to their security level."

Reducing the proliferation risk associated with the spread of nuclear sensitive technologies

The growing significance and role of nuclear energy in the world naturally increase the risks of proliferation of such sensitive technologies as uranium enrichment and reprocessing of irradiated nuclear fuel. Russia propose to work collectively on such models of nuclear energy development that would provide reliable supply of nuclear fuel services, including uranium enrichment, on the basis of international cooperation as an alternative to proliferation sensitive technologies.

One of such models is establishment of international centers, placed under the IAEA control that would provide nuclear fuel services. In the context of proposed Global Nuclear Infrastructure Initiative Russia, jointly with Kazakhstan, has established the International Uranium Enrichment Center (IUEC) at the Russian Angarsk enrichment plant. In January of 2008 the IUEC was included into the list of Russian facilities that could be subject to the IAEA Safeguards.

The IUEC is open for participation by all NPT member states, which meet nuclear non-proliferation requirements and share the objectives the Center is intended to achieve. The companies of new member countries are joining to IUEC on the base of

separate intergovernmental agreements between the Russian Federation and country. Foreign shareholders will have a right to participate in the center's management, including access to all information about prices and contract provisions. They will also be able to contract for deliveries of enriched uranium or enrichment services, and receive a share of the profits. They will not, however, have access to enrichment technology.

Legally the IUEC was established as a joint stock company in 2007. Up to now only Armenia and Ukraine have joined to the IUEC. Currently Russia's TENEX has 80 percent of shares, Kazakhstan's NAC Kazatomprom, and Ukrainian's "Nuclear Fuel" each has 10 percent of shares. But the plan is that Russia's shares will drop with joining new members and redistribution of shares in the IUEC will be: Russia's TENEX – 51 %, Kazakhstan's NAC Kazatomprom – 10%, new member countries – 39%.

A number of other countries, including Byelorussia, Mongolia, India, South African Republic, South Korea and Japan, have also expressed an interest to join to the IUEC. Russia has invited Tehran to participate in the IUEC, as an alternative to an indigenous Iranian enrichment capability but Iran has rejected this offer. Also, Russia has offered India to participate in the IUEC to help the country to secure guaranteed fuel supplies in the future. Srikumar Banerjee, the chairman of India's Atomic Energy Research Commission said India considers the participation in the project to be an "attractive" possibility, however he added that it "requires a very detailed techno commercial dealings which have not been completed."

To support nonproliferation goals and guarantee supply of low enriched uranium, Russia has established a Nuclear Fuel Bank administrated by the IAEA. The agreement between IAEA and Russia on the establishment of Fuel Bank was signed in March of 2010. In accordance with this agreement 120 tons of low enriched uranium, enough to produce nuclear fuel for two full loads of 1 GWt reactor, were put into storage facility.

Russia's approach to Iranian nuclear program

Complex problems require comprehensive approaches. This fully refers to the situation around the Iranian nuclear program. While Russia believes that the acquisition of nuclear weapons by Iran would further undermine the nuclear non-proliferation regime, destabilize the Middle East, and pose a direct threat to world community, it stands on the position to search and work for a comprehensive peaceful and diplomatic solution of the Iranian nuclear issue. It strongly supports ongoing efforts to resolve Iranian issue through negotiations.

Russia recognized that Iran as a member of NPT has a right to develop civilian nuclear program, but also underscores that Iran has responsibility to restore confidence in the peaceful nature of its nuclear activities and urges Iran to provide the IAEA access and information that it requested to resolve the outstanding issues.

The current Russian approach in dealing with the Iranian nuclear crisis is based on the conclusion that Iran's nuclear program has no a military dimension. In view of Russian experts Iran did not take a political decision to posses nuclear weapon. While the IAEA report indicates Iran's continued interest in maintaining a weapons-design capability, it does not provide compelling evidence of a comprehensive program focused on the near-term production of nuclear weapons. In dealing with Iran all must adhere the last UN Security Council resolution 1929 of June 2100 worked

out collective sanctions. It would be counterproductive for world community to apply unilateral sanctions.

Russia believe that the problems associated with Iran's nuclear program should be resolved only through negotiations and mutually respectful dialogue on the principles of reciprocity and gradual development.

In July 2011 Russian Foreign Minister Sergei Lavrov proposed a plan for phased settlement of the situation surrounding the Iranian nuclear program. This plan would eliminate the international community's doubts about Tehran's activities in the nuclear field.Russian "step by step" approach assumes that the international community will make limited concessions to Iran in response to Iran's every step, which will clarify its intentions in the nuclear field.

Moscow is ready to contribute to this process, including its proposed plan to restore confidence in the Iranian nuclear program.

The Russian-Iranian cooperation on construction of the Bushehr nuclear power plant could serve as an example of a package agreement to promote nuclear power while minimizing proliferation risks.

In January of 1995, the Russian company "Zarubezhatomenergostroy" signed a contract with Iranian organization on nuclear power to complete the construction of a light-water nuclear power reactor VVER-1000 for Iran at Bushehr. Russia also agreed to supply nuclear fuel for it and to train Iranian specialists to serve this reactor. This contract was for the United States a reason for irritation during long time.

After revelations of details about Iran's clandestine nuclear activities in 2002, Russia conducted difficult negotiations with Iran that were completed by an agreement in February of 2005. Under this agreement Russia will supply fresh uranium fuel throughout the first ten years of the Bushehr reactor operation. From its side Iran undertook obligation to return the resulting spent fuel to Russia for its final disposal. It would minimize the Iranian need to enrich its own uranium as well as will eliminate its opportunity to reprocess the spent fuel and use extracted plutonium in nuclear weapons. Additionally, under Russia's insistence Iran agreed that any transfers to the Bushehr reactor would be put on IAEA safeguards. Such Russia's approach helped to eliminate one of the most serious disagreements between Russia and the US.