

Thank you very much Mr. Chairman and members of the committee for the opportunity to present testimony on the subject "International Organized Crime and Nuclear Security." My remarks focus specifically on the possible diversion of fissile material in the former Soviet Union and its export abroad.

In my testimony before this committee last September, I was able to report that most of the sensationalist accounts of black market activities involving nuclear materials of NIS origin had not been substantiated. There was no hard evidence, for example, that nuclear weapons, nuclear weapon components, or significant quantities of weapons-grade fissile material had been smuggled out of the successor states. Although I believe that those earlier evaluations remain essentially correct, I doubt if that will remain the case much longer. My growing pessimism is due to: (1) credible reports--for the first time--that weapons-grade plutonium may have been smuggled out of Russia; (2) evidence of serious deficiencies in the national safeguards system in Russia and the other successor states which possess nuclear assets; and (3) growing pressures in Russia to subordinate the objective of stringent export controls to those of hard currency exports and personal profit.

NUCLEAR DIVERSION AND EXPORTS

It is important to distinguish between confirmed cases of diversion of weapons-grade material from nuclear facilities in the former Soviet Union and the transport of such material to other states. To the best of my knowledge, there remain surprisingly few cases of confirmed—as opposed to reported--diversions involving weapons-grade material. The most serious involve the disappear-

ance of an undisclosed quantity of highly-enriched uranium (HEU) from the "Luch" nuclear research facility

at Podolsk near Moscow, the theft of three fuel rods containing HEU from a naval base in Murmansk, and the case mentioned by FBI Director Louis Freeh involving the investigation in St. Petersburg of the possible theft of two or more kilograms of HEU. Most other alleged thefts of weapons-grade fissile

material, including the 60 kilograms of HEU cited by Seymour Hersh in his widely publicized Atlantic Monthly exposé, in fact involved low-enriched uranium of no direct use in a nuclear weapons program.

There are even fewer cases in which FSU-origin weapons-grade material--as opposed to dual-use nuclear commodities (e.g., zirconium, beryllium, and hafnium) and proliferation sensitive radioactive elements--have been seized abroad. There is, however, one alarming recent development involving the seizure of a small quantity of weapons-grade plutonium in Germany.

Although details of the case remain sketchy, laboratory analysis by scientists at Karlsruhe indicates that approximately six grams of weapons-grade plutonium (99.75 Pu-239) were recovered from a small canister seized during the search of an apartment in Tengen near Konstanz on May 10, 1994. The plutonium was mixed with 50 grams of a metallic alloy. Isotopic analysis of the material suggests that it probably originated in the

VIEWPOINT:

**NUCLEAR INSECURITY
IN THE POST-SOVIET
STATES**

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(CONGRESSIONAL TESTIMONY)

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waste streams of metallic plutonium production at a re-processing facility in Russia.

A detailed report on the case has not yet been released and German authorities have not ruled out the possibility that the six grams of weapons-grade plutonium may inadvertently have been collected as part of the larger quantity of high-level waste that was in the small container seized in Tengen. If, however, the preliminary findings are confirmed, the threat of illicit international trade in weapons-grade material will no longer be theoretical.

DEFICIENT SAFEGUARDS

U.S. denuclearization efforts under the Cooperative Threat Reduction Program correctly have emphasized the rapid transfer of nuclear weapons to Russian territory and their dismantlement. More attention, however, must be given to improving the national safeguards system in Russia, as well as in Belarus, Kazakhstan, and Ukraine. A failure to remedy severe shortcomings in national safeguards will invite efforts by individuals and organized crime to divert weapons-grade material from civilian nuclear facilities. National safeguards refer to measures undertaken by national governments to detect, deter, prevent, or respond to the unauthorized possession or use of nuclear materials. They tend to emphasize the provision of physical security and material control and accounting and are directed at non-state actors. All of the post-Soviet states with nuclear assets suffer from major deficiencies in national safeguards. Particularly worrisome are suspect security and accounting procedures at nuclear fuel storage facilities for propulsion reactors, plutonium storage facilities for dismantled weapons, and sites for research reactors, critical assemblies, and fast breeder reactors.

The most dangerous and immediate problem involving inadequate physical security concerns the large stockpile of HEU in the form of fuel for Russia's nuclear propulsion reactors. This fresh fuel, much of it enriched to between 70 and 90 percent, is concentrated at shipbuilding plants that in 1993 supported over 200 nuclear-powered ships in the Russian Navy's Northern and Pacific Fleets, as well as seven civilian nuclear icebreakers. These ships contained nearly 400 nuclear reactors. An associated, but subordinate physical security problem relates to the storage of spent fuel from the reactors of 113 nuclear-powered submarines that recently have been decommissioned.

Very little information is available in the public domain regarding physical security at fuel storage sites for naval reactors or at the sites for decommissioned submarines. Interviews with knowledgeable Russian nuclear engineers, naval experts, export control officials, and environmentalists, however, suggest that significant problems exist. They pertain to lax security at storage sites, confused lines of authority regarding material control at these facilities, and suspect reliability on the part of those charged with responsibility for securing access to the nuclear material.

Security is especially suspect at some of the makeshift interim storage sites for fuel rods from decommissioned submarines. Photographs of such sites in the Kola Peninsula indicate huge open-air piles of fuel rods protected only by barbed wire. Russian Foreign Ministry officials involved in nuclear export controls also recently have expressed alarm regarding minimal security at these sites.

According to experts at Moscow's Kurchatov Institute, fresh nuclear fuel stockpiles for naval reactors are under the control of two different bodies, although the stocks are co-located. New fuel for naval reactors is under the custody of the Ministry of Shipbuilding, while strategic stocks of fuel (much of it HEU) are under the control of the Committee for the Defense Industry. This duality of control, the existence of dual material accounting systems, and the reluctance of either body to date to cooperate with the Russian nuclear regulatory body, Gosatomnadzor, create conditions that could be exploited by individuals or organized groups seeking access to the HEU. Although separate material accounting systems exist on paper at the nuclear fuel stockpiles, no physical inspections or checks of the nuclear material inventories have been conducted in the past decade--if ever. Material accounting, to the extent that it was employed, tended not to be facility specific and was used mainly for central planning and financial purposes. Material control relied on a system of personal responsibility in which a designated person was entrusted with the nuclear material until it was passed on to another designated individual.

A team of safeguards experts at the Kurchatov Institute is now attempting to persuade Russian authorities to introduce a modern system of material control and accounting at the propulsion reactor fuel storage facilities. At the present time, however, Gosatomnadzor, which technically has authority for assuring physical protection and material accounting, at best can provide

an item count of sealed fuel containers. It currently is prevented by those with custody over the nuclear material from inspecting the contents of the containers. Access reportedly is limited because of bureaucratic resistance to what is perceived as undue intrusion by another organization and because of concern by the Ministry of Shipbuilding and the State Committee for the Defense Industry that Gosatomnadzor will discover that something is amiss, if not missing.

The problems of inadequate physical protection and underdeveloped material control and accounting are not confined to large fuel stockpiles for propulsion reactors. Indeed, lax physical security and shoddy material control and accounting apply to most, if not all, civilian nuclear facilities in the former Soviet Union. Senior authorities at the Institute of Power Engineering Problems at Sosny in Belarus, for example, acknowledge privately that due to sloppy past accounting practices they cannot now determine the quantity of HEU even at their own facility. Given the small amount of material in question at Sosny (between 33 and 35 kilograms of HEU enriched to 90 percent), one can imagine the uncertainty at nuclear facilities in Russia that possess HEU and plutonium stocks thousands of times larger. Under such conditions, it is probably impossible at the present time to distinguish between "material unaccounted for" and material that has been stolen.

Until recently, it generally was assumed in the West, that notwithstanding possible shortcomings in the civilian nuclear sector, physical security was high in the military domain. Although security at military facilities probably remains much higher than at civilian nuclear sites, Ministry of Atomic Energy (Minatom) officials recently have stated that interim storage facilities for plutonium from dismantled weapons are "not very safe" and are not adequately guarded. This expression of concern may be designed to increase pressure on the United States to expedite Nunn-Lugar funding for a plutonium storage facility long sought by Minatom. Nevertheless, the explicit acknowledgement that plutonium storage facilities are vulnerable to theft must be taken seriously, especially in light of a number of complicating factors: the enormous quantities of weapons-grade material in question, the growing disaffection of large segments of the Russian population, plummeting morale in the Russian military and the nuclear industry, the widespread disregard in Russia for law, pervasive corruption throughout the government, the increasing reach of organized crime, and an

economic malaise that encourages the plunder and sale of government property. Perhaps the most significant indicator that Minatom's warning was not primarily designed for external consumption is the fact that in 1993 it strongly endorsed internal measures to strengthen safeguards, especially security of HEU and plutonium, although financial difficulties and inter-agency bureaucratic battles have delayed their implementation. Among the specific safeguards deficiencies noted by Minatom, according to a recent study by Russian physicist Oleg Bukharin, are the shortage of trained personnel and modern equipment, inadequate material transport control procedures, and the lack of storage and processing facilities.

EXPORT CONTROLS

Little has changed in the export control sphere since my testimony before this committee last fall. Regrettably, it remains the case that should individuals or organized crime groups succeed in obtaining nuclear material, there are few barriers to transferring the material across national borders. Porous frontiers between Russia and the other Soviet successor states make it a simple matter to ship illicit goods from Russia to the other former republics. Transshipment of nuclear material to third parties is also facilitated by the shortage in the non-Russian successor states of trained export control and customs personnel and the lack of equipment for monitoring illicit nuclear trade. In recent years, the Baltic states, in particular, have emerged as major transshipment points for dual-use nuclear goods produced in Russia and Ukraine.

Action taken to try to remedy these shortcomings, such as the June 26, 1992 agreement on export control coordination among eight of the successor states, has yet to produce the intended results. Although Belarus and Ukraine have made some progress during the past year in establishing new export control procedures, effective controls in all of the post-Soviet states, including Russia, are undermined by severe budget constraints, a shortage of trained personnel (aggravated by the migration of many government professionals to the more lucrative private sector), the absence of legislation governing nuclear energy and nuclear exports, and the low priority most policy-makers attach to nuclear nonproliferation and export controls. It is revealing, for example, that the bilateral and multilateral agreements that have been concluded since 1991 among the security

services of the post-Soviet states do not include specific cooperation to combat nuclear smuggling.

I believe that in most cases the lack of attention to export controls in the former Soviet Union does not connote governmental sanction for export control abuse. In fact, Russia, like the Soviet Union, generally has adopted a prudent approach to nonproliferation and has a long history of cooperation with the United States in the sphere of preventing the spread of nuclear weapons. This positive orientation, however, is threatened today by two parallel developments. One is well known and involves the growing economic pressure to generate hard currency. It is manifest in decisions taken by the Russian Export Control Commission to sanction the sale of nuclear power reactors to Iran, to provide China with nuclear assistance (including a uranium enrichment plant), and to market a variety of sensitive non-nuclear defense wares to would-be nuclear proliferants. Although these sales do not violate Russia's Non-Proliferation Treaty (NPT) obligations, they are imprudent and can only encourage other states to subordinate nonproliferation objectives to those of economic gain. Unfortunately, past advocates of proliferation restraint in the Ministry of Foreign Affairs appear to have lost ground in their bureaucratic battles on nuclear exports with the Ministry of Foreign Economic Relations, Minatom, and possibly also the Ministry of Economics. A new and vocal champion of exports without regard to nonproliferation implications has emerged in the form of Russian parliamentarians. Export control restraint also is not assisted by the fact that the Chair of the Export Control Commission, Oleg Soskovets, simultaneously heads the Commission for Military and Technology Cooperation, whose mandate is to promote the export of Russian defense goods.

This tendency to emphasize profits over proliferation may be reinforced by the new trend in Russian foreign policy that seeks to assert a more influential and independent role for Russia in world affairs. Although this development may not interfere with Russia's long-standing cooperation with the United States on nonproliferation and export control issues, the potential for strained relations already is apparent in recent U.S.-Russian skirmishes over Moscow's missile-related sales to India, means to curb North Korea's nuclear ambitions, and continuation of U.N. sanctions toward Iraq. The proliferation danger represented by Russia's new foreign policy assertiveness is that traditional proponents of export control restraint in the Foreign Min-

istry will find it more difficult politically to contest the export of proliferation-sensitive goods. Russia also may be more reluctant to endorse nonproliferation initiatives that bear a clear U.S. imprimatur.

POLICY IMPLICATIONS

Most of the nuclear security and export problems I have identified are deeply rooted in the difficult economic, political, and social conditions of contemporary Russia. As such, they are unlikely to be resolved until progress is made in stabilizing the economy and in restoring public trust in governmental institutions, law, and social justice. These changes will not occur soon, and the United States, at best, only can make a difference at the margins. We can and should, however, try to make that difference.

There is no shortage of good recommendations, some of which actually have been adopted as U.S. policy. They include efforts to encourage post-Soviet state accession to the NPT, to put in place international nuclear safeguards, to foster more routine and extensive sharing of U.S.-Russian intelligence regarding nuclear exports in general and organized crime activities in particular, and to expedite the delivery of financial and technical assistance in the areas of export controls, physical security, and material control and accounting.

What too often has been lacking in U.S. policy is prompt implementation. The bureaucratic reasons for delay in the U.S. government and on the recipient side are well known. Also inhibiting the pace and impact of U.S. denuclearization assistance efforts, however, have been a poor understanding of the nuclear infrastructure and domestic sources of nuclear policymaking in the former Soviet Union (especially in the non-Russian states) and the hesitancy of U.S. governmental agencies to work more closely with non-governmental organizations in pursuit of mutual nonproliferation objectives.

Illustrative of these difficulties is the problem the United States has had in providing timely assistance to key organizations in Belarus, Kazakhstan, Russia, and Ukraine with expertise in and responsibilities for export controls, physical protection, and material control and accounting. If the U.S. government is unable to reach interagency agreement on who those parties are and/or is incapable of persuading the lead actors on the recipient country side (e.g., Minatom in Russia) to utilize the funds as intended, it should engage U.S. foundations or non-governmental organizations with good

ties in the former Soviet Union to dispense at least a portion of the funds while they may still do some good. A non-governmental Center for Nonproliferation and Export Controls in Belarus is available today to begin training export control officials but has no funds; a modern system for material control and accounting has been developed by a team at the Kurchatov Institute in Moscow, but cannot get money to test the system; the Export-Technical Committee in Kiev would like to train personnel on dual-use export controls but lacks resources; the nuclear regulatory agencies in all of the successor states desperately seek access to nuclear trade publications, but have no hard currency for subscriptions. Delivery of funds for these small but important activities should not have to wait until another sensationalist report about nuclear smuggling turns out to be true.