

CHAPTER 4

CONTROLLING SOVIET/RUSSIAN NUCLEAR WEAPONS IN TIMES OF INSTABILITY

Nikolai Sokov

Had someone suggested during the Cold War that the Soviet leadership might lose control of its nuclear arsenal, such an outlandish notion would have been brushed aside in an instant. Even as the Soviet Union was sinking ever deeper into economic crisis and political turmoil in the late-1980s, one undisputable island of stability remained – the Soviet nuclear forces.

This island could not remain immune. As the country was undergoing a complex socio-economic transition and eventually fell apart, at least three situations occurred during a relatively short period from early-1990 to mid-1992, when control over nuclear weapons could slip from the hands of authorities. At the same time, one must admit that the system of control over nuclear weapons and materials was the last to succumb to general chaos, that chaos affected it less than other areas, and that control was restored earlier than in other areas. (By the middle of 1992, the Russian leadership, by and large, had acquired control of all Soviet nuclear assets or was firmly on track toward that goal.) Nonetheless, it was a close call in each of the three instances.

All three occurred under distinctly different circumstances and represented distinctly different types of loss of control. Each case also took a different amount of time: It was barely a few days each in 1990 and 1991, but in 1992 events gradually unfolded over several months. Each case offers important lessons for

averting similar situations in the future and might be fungible across different countries.

The chapter will also discuss challenges of controlling weapons-grade nuclear materials and sensitive weapons-related technologies. This problem became a challenge by the mid-1990s, but the first signs had already emerged in 1992. While the demand for materials and technologies, both from state entities and increasingly from nonstate actors, had existed for a long time, supply began to appear only in the early-1990s.

TYPES OF LOSS OF CONTROL AND THE SOVIET/RUSSIAN EXPERIENCE

The possession of nuclear weapons is usually associated with power, security, and influence – although many question exactly how much power, security, and influence nuclear weapons confer onto their possessor and whether the burden is worth the benefits – as well as responsibility. Among the responsibilities is maintaining control of everything associated with nuclear weapons – the weapons themselves, delivery vehicles, fissile and other related materials, technologies, etc. Of all the varieties of potential crisis situations, this chapter will primarily address those that pertain to the “end products” – nuclear weapons and their delivery vehicles. In a separate section, the chapter will also address control of weapons-grade nuclear materials.

The loss of control over nuclear weapons and delivery vehicles can be grouped into two categories.

1. The loss of physical control: risk that nuclear weapons might fall into the wrong hands:
 - The most obvious concern is the capture of nuclear weapons by nongovernmental enti-

ties, such as terrorist groups or political movements; and,

- The breakup of a nuclear state, which happened to the Soviet Union in 1991 and might happen to other nuclear-weapons states (NWS) in the future. In that case, it becomes unclear who has the right to own and control nuclear weapons. Perhaps the most dangerous consequence of a breakup of an NWS is freedom for elements of the military and civilian personnel in physical control of nuclear weapons to choose allegiances.

2. The loss of control over use: risk that elements of the state mechanism with the ultimate right and responsibility to use nuclear weapons (for example, the head of state) might lose these prerogatives:

- The breakdown of the command and control system: officials authorized to make decisions cannot convey the order down the chain. This scenario is dangerous to the extent that it indicates a broader problem; moreover, the authority to give a launch order might pass into the wrong hands;
- The breakdown of the command and control system: officers in direct control of weapons acquire the capability to use them without proper authorization; and,
- The penetration of the command and control system by unauthorized persons.

From January 1990 to May 1992, the Soviet Union/Russia encountered at least four out of five types of loss of control. These happened in three separate crises:

1. January 1990: reported attempts by the “Popular Front” (a type of nongovernmental oppositional and often nationalistic movement that was springing up all around the Soviet Union in the late-1980s) of Azerbaijan to seize tactical nuclear weapons during violent events in Baku. This case belongs to type 1 above.

2. August 1991: the failed *coup d'état* in Moscow. For 3 days it remained unclear who had the three portable launch control consoles with codes; later, it became known that they were in the hands of leaders of the coup (including persons who did not have the right to control them). This case belongs to type 3 above.

3. Fall 1991-Spring 1992: breakup of the Soviet Union. Four out of 15 newly independent states had nuclear weapons in their territories, and it took several months to finalize the decision that Russia would remain the sole inheritor of the Soviet Union’s nuclear status. (Ukraine in particular apparently played with the idea of “going nuclear” until May 1992.) This is a type 2 situation above.

During that period of uncertainty, immediate control of nuclear weapons (except for the power to use them) was delegated to the Strategic Forces of the Commonwealth – a rather artificial construct made of part of the Soviet military, which acquired a degree of autonomy (a situation close to type 4 above). Meanwhile, Ukraine sought to inject itself into the command and control chain to prevent the Russian leadership from launching nuclear weapons from its territory (a type 3 situation above).

Moreover, officers in control of some strategic delivery vehicles in Ukraine took an oath of allegiance

to Ukraine, which gave the government of that country the capability to use these assets, although reportedly not the capability to arm weapons. That situation could, with some stretching, classify as type 5 above.

In the end, Russia successfully navigated through the Scyllas and the Charybdises of this turbulent time. Control of nuclear weapons was not lost in any of the three cases, and there is no evidence (although there were plenty of rumors) that any nuclear weapons were lost. Yet, most of these cases were close calls, especially the first and the third. Things could have easily turned the other way, and this should remain a lesson to remember. No state that possesses nuclear weapons or has embarked on the path to nuclear status is guaranteed to avoid political and socio-economic turmoil. Hence, appropriate security measures should be put in place to prevent a repetition of similar situations precisely because control of nuclear weapons in each case hung on a very thin thread, and next time we might not be as lucky.

The loss of control over weapons-grade materials can be grouped into two big categories:

1. Material is stolen by outsiders, whether from facilities in the nuclear weapons complex or during transportation. This threat is ever-present, but the probability of such an event dramatically increased during the last years of the Soviet Union and especially after its collapse because security systems (both physical and human) were weakened, and accounting, which was based exclusively on paper trails, became less reliable.

2. Material is stolen by an insider(s). This threat also sharply increased during the last years of the Soviet Union and immediately after its collapse because extreme and worsening deprivation (resulting

from the near-collapse of budget funding and record-high inflation rates, which reached an estimated 2,200 percent in 1992) combined with new opportunities to spend money that had not existed before. Since the system had not been designed for the specific political and socio-economic circumstances that emerged in Russia in the early-1990s, the risk associated with insider threats radically increased.

The two categories differ by the type of threat and type of defensive measures that should be taken to prevent loss of control over materials. There can also be a combination of the two scenarios—outsiders working in concert with insiders. The case that developed in 1992 belonged to the second category—an insider stealing material without a specific buyer in mind. That case is particularly important, because the loss of material was found by accident. It served as an early warning about threats that might appear in the future.

BAKU, 1990: RISK OF A NUCLEAR NONGOVERNMENT ORGANIZATION

The Caucasus became a hotbed of tension and violence early into the Perestroika period; that included Azerbaijan, which saw a major outbreak of violence as early as 1988 (pogroms in Sumgait). The next flare-up in Azerbaijan came in January 1990 in Baku, the capital of the republic.¹ The opposition was led by the Popular Front of Azerbaijan; organizations with the same or a similar name were springing up throughout the entire Soviet Union in areas dominated by non-Russian populations. (These included not only the Soviet periphery—the constituent republics—but also autonomous regions of the Russian Federation itself.)

During the 1990s events, the Popular Front of Azerbaijan reportedly attempted to seize control of nuclear weapons stored in the territory of that republic. According to unofficial data, Azerbaijan was home to four “mobile service and technical units” for nuclear weapons, which were assigned to air defense.² Reportedly, Azerbaijan was also host to nuclear-armed torpedoes for the Caspian Sea flotilla.³

The attempts to seize nuclear weapons were perpetrated by Azeri nationalists commonly referred to as the Popular Front—a broad and rather amorphous organization, many of whose members sought to gain independence for Azerbaijan from the Soviet Union. Many were Islamists. It should be noted that formal leaders of the Popular Front did not have full control of rank-and-file members and subgroups. At the same time, there also was, by all accounts, a well-organized core that performed preparatory work, but largely remained in the shadow.⁴ Leslie and Andrew Cockburn specifically point at outspoken nationalist radical Nimet Panakhov, who was close to the Turkish Islamic organization “Grey Wolves”; it became famous for organizing an assassination attempt on Pope John Paul II. According to the Cockburns, speaking at a rally in the second half of January 1990, Panakhov promised the crowd he would take control of Soviet nuclear weapons.⁵

Information about events in Azerbaijan is very sketchy, but apparently there were three incidents, probably at two locations. According to well-known Russian journalist Mikhail Khodarenok, nationalists attacked a “mobile technical unit” in the vicinity of Baku that belonged to Air Defense Forces. According to Khodarenok, the commander of the unit was captured and fire was exchanged, but in the end the

attackers failed to capture the facility or the weapons.⁶ According to the journalist's account, the unit was able to defend itself only because it had been ordered in advance to dig trenches and take other defensive measures. There is no independent confirmation for that story, and details remain unknown.

Another incident took place at a military airfield in the vicinity of Baku involving an apparent attempt to seize nuclear weapons that were being taken out of Azerbaijan. It is possible that these were the weapons from the facility described above. The account below is based on an interview with an immediate participant; the interview was given on condition of anonymity in the summer of 1991. The general outline of events was additionally confirmed by an independent source that belonged to a different agency in the fall of 1991.

According to the story told in these interviews, several (at least three) *Tupolev Tu-22M3* medium bombers were sent to take weapons on board and relocate them to the territory of Russia (the sources did not disclose the destination). As the aircraft were preparing to leave with the weapons on board, a crowd of civilians (mostly women, children, and old men) penetrated the perimeter of the airfield and positioned themselves on the runway to prevent the takeoff. Shortly after the beginning of the standoff, the military received information that several trucks and/or buses with armed men were driving toward the airfield.⁷ According to the source, personnel at the base were certain that an attempt to seize the nuclear weapons was afoot.

Under the circumstances, the captain of the first Tu-22M3, who also commanded the entire group, decided to use an automatic cannon mounted on the bomber to scare the crowd away. According to the witness, the cannon "dug up a trench in solid concrete

that was half a meter deep.” The operator started to shoot close to the aircraft and gradually lifted the cannon so that the “trench” moved toward the crowd. Civilians assembled at the runway were scared and dispersed. After that, the aircraft immediately took off, one after another.

Finally, the Cockburns report that an attack on a naval base at Zuh, where nuclear-armed torpedoes were stored, took place as well. Fighting ensued and continued for 24 hours, but the attempt failed.

There are several uncertainties about these accounts. First of all, it is not clear whether there were nuclear-armed torpedoes at the Caspian Sea or, at least, at Baku—nuclear weapons were intended to be used by the Soviet Navy against the U.S. Navy, and the Soviets did not face major enemy naval forces in the Caspian Sea that would require reliance on nuclear weapons. The vast majority of sources mention only nuclear weapons assigned to Air Defense Forces or the Air Force.

Assuming that there were nuclear weapons assigned to the Navy, it is unclear whether all the events took place at the same facility (in which case, Khodarenok and the Cockburns described the same incident). Nuclear weapons were in the custody of the personnel of the 12th General Directorate of the Ministry of Defense (Glavnoye Upravleniye Ministerstvo Oborony, GUMO) and were kept at specially designed and constructed storage facilities. Some of these were located at or adjacent to military bases, but some were located at some distance from them. It is possible that weapons for both the Air Defense and the Navy were kept at the same location that came under an attack, but, alternatively, there could have been two separate storage facilities and, in that case, these were two separate incidents.

It is also unclear whether the Tu-22M3s taking nuclear weapons away from Azerbaijan carried all of the nuclear weapons or just those from the air defense base (assuming, again, that there were weapons assigned to the Navy). If the latter is the case, then the way other weapons were taken away and whether there were any incidents is unclear as well.

Given these uncertainties, conclusions from that case appear limited: During the time of broad popular unrest and chaos, when political authority loses control of the situation and when security and military structures get caught in a whirlwind of events, a well-organized group can attempt to seize a nuclear weapon with relative impunity. Such action will be difficult to predict with any acceptable degree of certainty, and normal security protocols are likely to fail. In that case, only personnel on the ground in immediate control of weapons would stand between the group that attempts the seizure and its target. The only sure course of action is to remove weapons in advance when events have not yet gotten out of hand.

The decision to remove nuclear weapons from Azerbaijan was apparently made in haste and under considerable stress, but it also triggered a wholesale withdrawal of nuclear weapons from almost all constituent republics of the Soviet Union. The process continued during the entire year of 1990 and probably into early-1991. It is difficult to ascertain when the task was completed, but there are reasons to believe that by the spring of 1991, tactical nuclear weapons remained only in Russia, Belarus, Kazakhstan, and Ukraine, the republics where strategic weapons were also deployed.

In any event, by the fall of 1991, when the United States proposed a reduction of tactical nuclear weapons⁸ to facilitate the consolidation of nuclear weapons

in the territory of Russia, the withdrawal had been completed. This was a massive undertaking that was conducted, furthermore, in almost complete secrecy.

The withdrawal led to the consolidation of nuclear weapons at a smaller number of storage sites. The weapons withdrawn from constituent republics were put into existing storage sites and, moreover, sent primarily, if not exclusively, to the so-called Facilities-S—the central storage sites, which were better protected, manned, and fortified than storage sites associated with military units. This certainly helped to ensure the security of nuclear weapons as the Soviet Union entered the last months of its existence and during the turbulent time of the first post-breakup years.

The negative aspect of the hasty withdrawal conducted in 1990, and the additional ones in 1992-96 from Belarus, Kazakhstan, and Ukraine, was a breakdown in the accounting protocols. According to interviews with active-duty and retired military in the first half of the 1990s, bookkeeping was often substandard. This deficiency led to a range of problems in the late-1990s, as will be discussed later in this chapter. Moreover, the choice of destination facilities was often almost random—it was often the ones that were closer to the original site or had spare space. Time and transportation assets were at a premium; thus, planning was sacrificed to the speed of withdrawal. This created safety problems at some facilities, as the number of warheads exceeded the maximum allowed and personnel had trouble maintaining the controlled environment inside. This problem was resolved only about 15 years later when the number of tactical nuclear weapons was reduced by three-fourths, according to public data released by the 12th GUMO.⁹

THE 1991 COUP: ADVENTURES OF A NUCLEAR SUITCASE

The control of nuclear weapons was a decidedly marginal aspect of the attempted *coup d'état* in August 1991 – or, rather, it was marginal for the Soviet leaders and population, although it was of primary importance for foreign leaders. The main story, of course, is how an attempt to save the Soviet Union undertaken by a group of key officials – which included the vice-president, the prime minister, the minister of defense, and the chairman of the Soviet Secret Service (KGB) – either doomed it (by preventing the signing of a new Union Treaty), accelerated a disintegration process that could no longer be stopped, or perhaps had no impact at all, and the Soviet Union would have fallen apart by the end of the year anyway. We can never know, and arguments could be found to support any of these interpretations. Some – the leaders of the coup themselves – even claim that there was no coup at all, and that Mikhail Gorbachev gave them, whether implicitly or explicitly, his blessing.

Where control of nuclear weapons is concerned, the story is quite straightforward: The president of the Soviet Union (also the commander in chief of the Soviet Armed Forces) lost control of the country's nuclear weapons for 3 days. That action involved two discreet steps: First, Gorbachev's dacha, where he was spending his vacation, was cut off from all communication with the outside world. Second, the portable console of the Kazbek launch control system was removed. The president regained control only after the defeat of the coup attempt.

The decision to cut off communications was apparently made at a meeting of the State Committee on the State of Emergency (GKChP) leaders on August 17,

although preliminary plans had clearly been drawn earlier. Communications systems were switched off when the group sent by the coup leaders arrived at Gorbachev's dacha at Foros. According to KGB Chairman Vladimir Kruchkov, this was done to prevent Gorbachev from contacting Boris Yeltsin—the president of Russia and the main proponent of the devolution of the Soviet Union—or the President of the United States, George H. W. Bush. Communications were cut off, Kruchkov wrote later, minutes before the team sent by the GKChP to Gorbachev reached its destination.¹⁰

Gorbachev lost access to the Cheget portable console immediately after the GKChP group arrived in Foros, and communications were cut off.¹¹ Although officers of the “communications group” are supposed to obey only the president's orders, their access to the president is controlled by his security detail,¹² and in this case, the security detail had an order to completely isolate Gorbachev. According to their testimony, communications were cut off at 4:32 pm, and only a few minutes later, the senior member of the team was summoned to Army General Valentin Varennikov, one of the members of the GKChP and Commander of Ground Forces, who told them not to worry about the absence of communications.

The situation continued into the next day. In the morning of August 19, Minister of Defense Dmitri Yazov learned that Gorbachev's Cheget was still in Foros and ordered it to be brought to Moscow. Colonel Viktor Boldyrev, the commander of the unit in charge of the command and control system for nuclear weapons, flew to Foros himself (having first obtained permission from the KGB) and brought both the suitcase and “communications officers” back to Moscow. They

arrived in Moscow after 7 p.m. on August 19, and after that the “nuclear suitcase” remained at the Ministry of Defense. Reportedly, all information was deleted from it, and the console became inoperable. According to Gorbachev, he regained control of his “nuclear suitcase” only on August 21, after he returned to Moscow, approximately 73 hours after losing control.

It is difficult to assess fully the implications of the seizure of the “nuclear suitcase” on August 18 because many vital details pertaining to the functioning of the Kazbek launch control system remain classified. Portable consoles known as Chegets (they were introduced into service in 1983) allowed their owners to give an order to launch nuclear weapons. There were three Chegets: During the Soviet time, one belonged to the General Secretary of the Communist Party (later to the president of the Soviet Union), the other to the minister of defense, and the third to the chief of the general staff. According to available information,¹³ Cheget No. 1 had priority status: Its owner could enact a heightened level of alert and, after the early warning system registered the launch of U.S. nuclear weapons, give the launch order (transmit codes unblocking the launch command). The other two Chegets had somewhat limited functionality: They allowed their owners to maintain contact with the commander in chief to confer and give advice, but not to give launch orders. The latter became possible only under two conditions: First, a preliminary order had already been given (the system moved to heightened alert status) and second, Cheget No. 1 had remained incommunicado for an extended period. In that case, the power to authorize the launch transferred to the next level in the command and control system.

The removal of the Cheget from Gorbachev (or preventing him from accessing the console) certainly had major symbolic meaning. The Cheget is the most visible, perhaps the ultimate, symbol of political authority; thus, losing it amounted to a de facto forced resignation. Additionally, it could have theoretically prevented Gorbachev from using his authority to introduce a heightened alert level as a bargaining lever vis-à-vis the GKChP. A scenario of Gorbachev resorting to such a step is purely hypothetical, however, and thus was probably not the main motive for the coup leaders.

Finally, and perhaps most importantly, the coup leaders gained full access to the command and control system, enabling them to increase the level of alert and to give the order to launch nuclear weapons under certain circumstances (if the early warning system registers an attack). It is unclear whether they were able to give an order to launch without an attack.

Even though the coup leaders did not physically possess Gorbachev's Cheget and, by implication, the command and control system, until the evening of August 19, the unit had remained incommunicado since 4:30 p.m. of August 18. Since the system registered the chief executive as incommunicado, the other two Cheget consoles, those controlled by the minister of defense and the chief of general staff, acquired full functionality. One of these two officials clearly used their Cheget, as it will be demonstrated below, but it remains unknown who exactly did that, Minister of Defense Dmitri Yazov or Chief of General Staff Mikhail Moiseev.¹⁴

David Hoffman states that the key military leaders in control of nuclear forces, the Strategic Rocket Forces (SRF), the Air Force (which controlled all air-launched nuclear weapons, both long-range and tac-

tical), and the Navy (strategic and nonstrategic sea-launched nuclear weapons) did not support the coup. He singles out Commander of the Air Force Yevgeni Shaposhnikov, who openly refused to follow the orders of the GKChP.¹⁵

That, however, left out some other elements of the nuclear capability—for example, short-range, land-based nuclear weapons that belonged to Ground Forces, whose Commander, Valentin Varennikov, was one of the leaders of the coup. Nothing is known about the position of the 12th GUMO, the element of the military structure in direct physical control of nuclear weapons and responsible for releasing them to troops. Bits and pieces of information to be discussed below suggest that at the very least the 12th GUMO did not contest orders from the minister of defense or the chief of general staff.

More importantly, control of the Chegets allowed two top military leaders to bypass commanders of forces (including the SRF, Air Force, and the Navy). In any event, they were able to give the order to enhance the level of alert (not fearing that Gorbachev, the commander in chief, would countermand it) and, in case the early warning system registered a nuclear attack, they could have ordered a retaliatory launch.

The ability to execute these two actions was clearly sufficient for the purposes of these military leaders. Specifically, by enhancing the level of alert, they could send a warning to the United States and the North Atlantic Treaty Organization (NATO) not to interfere with what was going on in the Soviet Union and also perhaps communicate that the new leadership was “tougher” and less prone to make concessions than Gorbachev. In the improbable case the West would have decided to threaten to use force, the system gave the military leaders the power to deter.

The GKChP ordered a higher alert level for nuclear forces in the morning of August 19, when it publicly announced that power had transitioned into the hands of the “Emergency Committee.” The state of high alert continued only for several hours and was reduced in the middle of the day on August 19, although not yet returned to the normal, peacetime level. The increase of the alert level was apparently executed through a direct order that bypassed the chain of command. Only bits and pieces of what was happening “on the ground” are available.

For example, Igor Kudrin, a commander of one of the strategic nuclear submarines,¹⁶ disclosed recently that all strategic submarines of the Northern Fleet were put on alert on August 19.¹⁷ In this particular case (the submarines were at their bases), this meant that the submarines, even those moored at the pier, were ready to launch missiles from the surface. Soviet strategic submarines were given the capability to launch missiles on warning about an ongoing attack in order to compensate for the relatively small number of submarines on patrol.¹⁸

Another source told a story about the first day of the coup at an Air Force base near Khabarovsk. At that time, the source served as a navigator in a Su-24M dual-capable aircraft. At 7 a.m. Moscow time on August 19—the time when the announcement about the coup was aired on Soviet television—their regiment was put on high alert: Namely, the 12th GUMO personnel loaded nuclear weapons on board the aircraft (for the first time in the memory of the source), and crews were ordered to be ready to take off 1 hour after the order. Crews were also given two envelopes. One envelope had codes necessary to arm nuclear weapons—the first step in the arming process, accord-

ing to the source, was to be performed prior to take-off by a team from the weapons storage facility, and the final arming procedure would be executed while in the air on the approach to the target. The second envelope contained information about the target. The high alert status continued for 1 hour and then was reduced to 4-hour readiness for takeoff.¹⁹

The story from Khabarovsk appears particularly significant. First, it proves that leaders of the coup, indeed, did not need cooperation from commanders of the various forces in control of nuclear weapons. Specifically, Shaposhnikov, the most open and vocal opponent of the coup, was unable to prevent it: The order was sent by higher authorities, and he could not contest it. Obviously, the same could be expected from the other forces, including the tactical nuclear weapons assigned to Ground Forces.

That story also makes clear that not only were the strategic forces put on high alert, but the entire Soviet nuclear arsenal. Most likely, this reflected the extreme paranoia of GKChP leaders, but it clearly represented a very dangerous situation. One could easily anticipate a contingency under which a move by an adversary could be misinterpreted as a provocation and lead to most grave consequences.

What truly draws attention in the story of the “adventures of the nuclear suitcase” is the ease with which the commander in chief was relieved of one of the most important vestiges of his power, and the control of nuclear weapons transitioned to his subordinates, who decided to stage a *coup d'état*. It required the collusion of just three people: the Chairman of the KGB (who was responsible for the security detail and communications of the chief executive), and the minister of defense and the chief of general staff—

who were responsible for the command and control system of nuclear weapons. The KGB could isolate the chief executive and cut him off from all forms of communication; the military, while the commander in chief was incommunicado, could assume control of nuclear forces.

The first and the most obvious remedy was taken almost instantly. In September 1991, the responsibility of providing security for the top leaders was taken away from the KGB and given to a separate service, the FSO,²⁰ which was directly subordinate to the president (first of the Soviet Union, then of Russia). From the fall of 1991 until the final breakup of the Soviet Union, the president of Russia had his own security service, independent of the one entrusted with the security of Mikhail Gorbachev. The next step was taken on December 24, 1991, only days after the Soviet Union was formally disbanded: Boris Yeltsin created the Federal Agency of Government Communications and Information (FAPSI),²¹ a special service in charge of all government communications that also reported directly to the president.

By removing security and communications from the KGB and transforming them into independent governmental agencies, the top leadership could sleep a bit more easily, because their own bodyguards and their communications were no longer controlled by a single person. The command and control system for nuclear weapons, however, remained intact, as far as is known. Yeltsin used his Cheget in 1995 to monitor the launch of a Norwegian research rocket that triggered an alarm of the Russian early warning system.²²

Moreover, it appears that events in the Soviet Union in 1991 illustrate a much more fundamental problem that is inherent, to a greater or lesser degree,

in all nuclear-weapons states—the vulnerability of the nuclear weapons command and control system to an attempted coup. Essentially, the requirements for such a system, dictated by the logic of nuclear deterrence, also make it vulnerable to sabotage. To ensure political control and the ability to strike on warning, the system must be centralized (a single person, the chief executive, must be able to sanction the launch of weapons), but also account for the risk of losing the chief executive by giving the same power to other levels in the command and control system. As a result, the subversion of the system becomes possible, too.

The Soviet system, in which the single civilian leader, the president, was followed in the chain of command by the military, was clearly excessively top-heavy, as events in August 1991 demonstrated. The Russian system inherited the same drawback: Once the president is “taken out,” the military assumes full control of nuclear weapons. The fact that the prime minister is supposed to be second-in-command means relatively little to the extent that he does not have the means to execute his rights. One of the leading Russian experts on nuclear policy, Alexei Arbatov, proposed a few years ago to transfer one of the Cheget consoles from the Chief of General Staff to the prime minister,²³ but that proposal went unheeded.

BREAKUP OF THE SOVIET UNION: FINDING A NEW HOME FOR THE NUCLEAR WEAPONS

The breakup of an NWS presents a unique challenge with respect to the control of nuclear weapons. In previous cases we dealt with attempts by unauthorized persons or entities to seize control of weapons or the chain of command; the prevention of such

situations is a “normal” threat, which all security services and all protocols are configured to address. The breakup of a country, however, involves the transition of authority: For a period of time it becomes unclear who is a legitimate authority, to whom personnel in direct control of nuclear weapons must report, and whose orders they must follow. The same is true for the chain of command: It becomes unclear whose launch order is legitimate. As a result, we end up in a particularly dangerous situation, when military and civilian personnel are free to choose allegiances. Even worse, competing political authorities seek to gain the trust and loyalty of personnel in the direct control of nuclear weapons and the chains of command, and the latter can dictate their conditions.

The period of relative autonomy can last a significant amount of time. In the case of the Soviet Union, it lasted at least 6 months (from December 1991, when the Soviet Union was formally disbanded, to the signing of the Lisbon Protocol) and perhaps even longer. (One can claim that the period began earlier, in the fall of 1991, and ended in 1994, when all nuclear weapons were transferred to Russia.) It can be hypothesized that the longer the period of uncertainty, the greater the chance that *all* competing political authorities will lose control of nuclear weapons or retain it only formally.

The best and perhaps the only remedy is to consolidate nuclear weapons and, if possible, weapons-grade fissile materials, in one part of the territory of the disintegrating country under control of one of the competing political groups—the future government. At least, in this case, it might become possible to ensure the loyalty of personnel in direct control of nuclear weapons and materials, since there will be a

direct transition of authority from one government to another, and the period of uncertainty will be minimal.

This is what happened in Russia: When Gorbachev formally retired as president of the Soviet Union, he ceded his console for control of nuclear weapons to Yeltsin, the president of Russia. Subsequently, Yeltsin's authority to control nuclear weapons was not questioned in Russia except for certain limitations to be noted below (and even then, the situation never reached dangerous proportions). The key challenge was the fate of nuclear weapons and delivery vehicles that remained outside Russia.

The following features of the situation surrounding the breakup of the Soviet Union deserve close attention.

The Soviet Government Began to Lose Control of Nuclear Weapons Months before the Actual Breakup of the Country.

Although the chain of command was restored after the failure of the August 1991 coup, the Soviet government no longer felt sufficiently sure of itself to make some important decisions, in particular with regard to nuclear posture. This limitation was revealed when the Soviet leadership was contemplating a response to the September 1991 initiative of George H. W. Bush.

The primary reason for the U.S. announcement of a unilateral reduction of tactical nuclear weapons and a list of proposals regarding strategic weapons was to help the Soviet leadership consolidate nuclear weapons in the territory of Russia. In particular, the proposal to eliminate multiple independent reentry vehicled (MIRVed) intercontinental ballistic missiles

(ICBMs) with more than one warhead would have resulted in the complete removal of nuclear weapons from Kazakhstan and a very significant reduction of nuclear weapons in Ukraine.²⁴ The Soviet Union, while responding favorably to the American initiative on tactical nuclear weapons, rejected the proposal to ban MIRVed ICBMs, but for different reasons: The bulk of Soviet strategic forces were on MIRVed ICBMs, and accepting that proposal would have meant a massive (and extremely expensive) restructuring of the force.

Still, the U.S. concern about the increasingly shaky control of Soviet authorities over nuclear weapons was shared by some in the Soviet Union. In early October 1991, two leading Soviet scientists who had been proactive in matters of disarmament, academicians Yevgeni Velikhov and Yuri Ryzhov, sent a letter to Mikhail Gorbachev imploring him to use the opportunity and withdraw nuclear weapons to Russia: "Developments in Ukraine or in Kazakhstan are unpredictable," they wrote. "One cannot rule out that the very fact of presence of [nuclear] weapons in their territories might be used as an instrument of political influence."²⁵

Governmental agencies took a second look at the American proposal and still rejected the de-MIRVing proposal, but this time for a different reason: Foreign Ministry experts doubted that even with the "cover" provided by the Americans, the withdrawal of nuclear weapons from other republics would be politically feasible. "The [American] proposal," they wrote, "contradicts the well-known position of Kazakhstan, which insists on proportional reductions of strategic offensive weapons in Russia and Kazakhstan, and even more so the position of Ukraine, which rejects any actions with regard to nuclear weapons in its territory without its agreement."²⁶

In contrast to 1990, when the Soviet government was able to withdraw nuclear weapons from problem regions, it now believed it had lost this power. While all other forms of control over nuclear weapons appeared to function properly, one important element of the central government's authority—the power to choose the locations where nuclear weapons are deployed and stored—was probably lost. We will never know this, because withdrawal was never tried. But it is sufficient for our purposes that key agencies of the Soviet government believed that problems would have ensued.

Nuclear Weapons Quickly Became Hostage to a Political Struggle between the Governments of Emerging Independent States and Soviet Leadership.

In October 1991, several months before the breakup of the Soviet Union, a group of experts prepared a lengthy paper outlining the future policy of the Russian Federation with regard to nuclear weapons.²⁷ That document was approved by Yeltsin and was supposed to become the guidelines for a Russian government still *within* the Soviet Union. It proposed to concentrate all Soviet nuclear weapons in the territory of Russia; withdrawal from Belarus and Ukraine was scheduled for 1993 and from Kazakhstan for 1996. The document also insisted on fully consolidating the production of delivery vehicles in Russia, eliminating dependence on the defense industry in other Soviet republics and even on the parts of Russia with significant levels of separatism:

Beginning in the middle of 1992, all R&D performed by chief designers outside Russia should be terminated.

First of all this measure should affect NPO [Nauchno-Proizvodstvennoe Ob'edinenie, or Scientific and Production Association] *Yuzhnoe*, plants in Dnepropetrovsk and Pavlograd, and, in the case disintegration trends in Russia should increase, the Kazan' aircraft complex in Tataria.²⁸

Given the realities of the political tug-of-war (influence of the Russian leadership was on the rise and that of the Soviet leadership in rapid decline), these proposals effectively amounted to shifting control of nuclear weapons from the Soviet government into the hands of what was then a regional government.

In contrast to Russia, Ukraine paid scant attention to nuclear weapons during that period. On October 24, Verkhovna Rada, the Ukrainian parliament, adopted a declaration that reaffirmed the 1991 declaration of the future non-nuclear status of the country and said that the presence of nuclear weapons in its territory was "temporary." The declaration proclaimed, however, that Ukraine sought control over nonuse of nuclear weapons from its territory and that all nuclear weapons located in its territory would be eliminated. The latter phrase suggested that the disposition of nuclear weapons required negotiations and would not be left to the discretion of a central authority (at the time, still the Soviet Union).

The Attraction of Nuclear Weapons is Difficult to Resist. Given an Opportunity, Newly Independent States Would Seek to Control as Many Nuclear Weapons as They Can Lay Their Hands on, Even If Originally They Intended to Do Otherwise.

In spite of public rejection of its nuclear status, developments in Ukraine were increasingly complicated. The closer the republic moved toward full

independence, the more attractive nuclear weapons seemed. In the fall of 1991, the Center for Operational and Strategic Studies (COSS²⁹) of the newly created Main Staff of the Ukrainian Armed Forces³⁰ conducted an in-depth study looking into two questions: Could nuclear weapons deployed in Ukraine be used to deter Russia, and could Ukraine take control of these weapons? Expert support was provided primarily by the Dniepropetrovsk chapter of the National Institute of Strategic Studies.³¹

The results of the study were not encouraging for proponents of a nuclear status of Ukraine.³² It was concluded that strategic weapons were too long-range and could not reach closer than the Urals; thus, Moscow and other key political and military targets in the European part of Russia were out of reach. Moreover, even that task would have required retargeting missiles, which was impossible without completely overtaking all command and control systems, as well as obtaining data for new targeting. As things stood in late-1991 and early-1992, all nuclear weapons were targeted at the United States. The use of tactical nuclear weapons was apparently not even seriously considered—and, in fact, at the dissolution of the Soviet Union, Ukraine quickly agreed to transfer them to Russia in a matter of months. The withdrawal was completed in May 1992.³³

With regard to Ukraine's ability to take over control of nuclear weapons, the study was more optimistic. It reportedly concluded that, in principle, this was possible. The Russian military concurred with that finding: According to Strategic Rocket Forces experts, Ukraine could assume operational control over nuclear weapons in just 9 months.³⁴ Work was reportedly performed at *Khartron*, a research institute in Kharkiv that specialized in the development of con-

trol and guidance systems for space and military programs, and continued probably until the end of 1992.

In spite of these (relatively) optimistic findings,³⁵ the study recommended that Ukraine should refrain from attempting to acquire a nuclear status. This recommendation was based, according to Grechaninov, on a comprehensive assessment of programs that had to be implemented in support of a nuclear status, including the ability to produce nuclear weapons, maintain weapons and delivery vehicles, etc. All in all, it is clear that even before obtaining formal independence, political leaders in Ukraine seriously contemplated pursuing a nuclear status and were dissuaded by military and technical experts who demonstrated that such a move was impossible for technical and financial reasons.

Companion evidence was supplied by former U.S. Ambassador to Ukraine Steven Pifer, who reported that shortly after Ukraine acquired independence, a group of foreign and defense ministry officials had a meeting with senior officers of the 43d SRF Army deployed in Ukraine. The former wanted to explore whether the country could maintain a nuclear capability if it chose to do so, but the military explained that Ukraine would have needed to build an extensive infrastructure, which was both financially and technologically challenging.³⁶

There is also unconfirmed information³⁷ that in December 1991, the Kharkiv Institute of Physics and Technology, which had been involved in nuclear weapons research from the early days of the Soviet nuclear program, requested and received from Arzamas-16 (currently known as Sarov), one of two primary Soviet nuclear weapons laboratories, the manuals necessary for the maintenance and refurbishment of nuclear weapons. Since Ukraine was not yet for-

mally classified or perceived as another country during the transitional period, the request from Kharkiv was apparently treated in Sarov as routine.

In spite of the recommendations of the study group and the political declarations, the issue of the status of Ukraine was not resolved. It is difficult to tell with sufficient certainty whether the Ukrainian government tried to use nuclear weapons in its territory as leverage or if political leaders continued to entertain the thought of acquiring a nuclear status.

On February 23, 1992, the president of Ukraine, Leonid Kravchuk, ordered the discontinuance of the withdrawal of tactical nuclear weapons from the country, a move that was made public only 2 weeks later, on March 12. The official justification was that, in violation of the Minsk and Almaty Agreements, Ukraine had not been allowed to monitor their elimination. The interpretation in Moscow was different: Ukraine was probing for the reactions of Russia and the United States to the possibility of Ukraine's retaining nuclear weapons; otherwise, consultations could have been held first.

On April 5, Kravchuk issued Decree No. 209, authorizing the minister of defense to take all strategic forces in the territory of Ukraine under his administrative command. This decree contradicted the December 1991 agreements between the heads of newly independent states putting all strategic forces of the Soviet Union under command of the Joint Armed Forces of the Commonwealth (JAFC). In all fairness, this decree could have been a response to the actions of the JAFC High Command: While all JAFC personnel were supposed to take an oath of allegiance to the Commonwealth as a whole, commander in chief of the JAFC Yevgeni Shaposhnikov ordered all troops in the terri-

tory of Russia to take an oath of allegiance to Russia, and the cable with that order was sent (supposedly by mistake) to Ukraine.³⁸ Moreover, General Mikhail Bashkirov, who in 1991-92 commanded a division of heavy bombers in Uzin, said that in February he was ordered to relocate all heavy bombers to Russia; Bashkirov refused.³⁹

In the middle of February, about half of the officers of the Uzin division took an oath of allegiance to Ukraine.⁴⁰ On April 5, Kravchuk issued Decree No. 209, authorizing the minister of defense to take all the strategic forces in the territory of Ukraine under his administrative command. By the end of April, the officers of all the Strategic Forces units in Ukraine did the same.

The transition of SRF and Strategic Air Force units from Soviet/JAFC structure to the Ukrainian national army gave Kiev direct administrative and operational control over nuclear-capable delivery vehicles, but not over nuclear weapons. The latter remained under control of units subordinated to the 12th GUMO in Moscow, but not for long.

In May 1992, the personnel of two nuclear weapons storage units located at Air Force bases took oaths of allegiance to Ukraine, which gave the latter physical control of some nuclear weapons. In contrast to delivery vehicle personnel, however, the personnel at weapons storage facilities took much longer to switch allegiance to Ukraine, and that process was completed only in 1993. Physical control of nuclear weapons made Ukraine a de facto NWS. The only element of full-scope control it lacked were the codes needed to arm the weapons, but there were persistent rumors that the Ukrainians were working on that, too. Also, air-launched cruise missile (ALCM) warheads report-

edly did not have targeting information (“zero flight path,” according to Russian military lingo), which had been removed on orders of the 12th GUMO prior to the switchover of personnel to Ukraine.⁴¹

It is difficult to say definitively whether events in Ukraine could be classified as the loss of control over nuclear weapons, because the weapons ended up in the hands of a recognized state. On the other hand, Ukraine was widely regarded by everyone—and was officially proclaimed by its leadership—as a non-nuclear state where nuclear weapons were located only temporarily. The immediate reason for the awkward situation that emerged by the middle of 1992 was the hasty and poorly conceived process of disbanding the Soviet Union: Leaders concluded only very general and imprecisely worded agreements, and many key issues were not discussed at all.

Other post-Soviet states with nuclear weapons in their territories experienced the same attraction to nuclear weapons, although to a much smaller extent than in Ukraine. For example, Belarus, which at first displayed a determination to get rid of nuclear weapons in its territory as quickly as possible, began showing signs that it might want to reconsider its earlier decision. In April 1992 the new defense minister of Belarus, Pavel Kozlovski, demanded compensation and security guarantees from the West in exchange for the renunciation of nuclear weapons. Simultaneously, at a meeting with commanders of troops deployed in Belarus, President Stanislav Shushkevich made an unprecedented statement about feeling particularly confident about the country’s security because of the knowledge that he had nuclear weapons behind him.⁴² The change of attitude in Belarus, however, was limited to a handful of political statements and was most likely caused by the example of Ukraine.

Kazakhstan presents yet another story. Even as Russia and Ukraine were increasingly engaged in a bitter fight over the fate of Soviet nuclear weapons, Almaty remained almost completely silent, but it appears that Nursultan Nazarbaev, the first president of Kazakhstan, was simply watching unfolding events. Had Ukraine become nuclear, Kazakhstan could have followed suit; had it failed, Kazakhstan would have ceded nuclear weapons without much argument.

In the end, Kazakhstan could not wait forever. In early-May 1992, apparently influenced by a recent visit of Kravchuk to Washington,⁴³ Nazarbaev pointed out:

Our neighbor China has nuclear weapons, our neighbor Russia has nuclear weapons. Some Russian politicians have territorial claims on Kazakhstan. There are Chinese textbooks that claim that parts of Siberia and Kazakhstan belong to China. Under these circumstances, how do you expect Kazakhstan to react?⁴⁴

Shortly afterward, Nazarbaev attempted to retain Soviet strategic missiles in Kazakhstan, but with a status of a Russian military base rather than his own.⁴⁵ He even had Yeltsin sign a joint statement to that effect, but Moscow had to rescind the document because of strong U.S. opposition and the fear that such a step would undermine delicate maneuvering around the fate of nuclear weapons in Ukraine.⁴⁶ The choice in favor of becoming a basing country instead of a nuclear country was clearly dictated by the absence of any infrastructure whatsoever for the maintenance and production of both weapons and delivery vehicles.

On April 11, 1992, Ukraine, Kazakhstan, and Belarus issued a joint statement declaring that they, along with Russia, were legal heirs to the assets of

the Soviet Union, including the ownership of nuclear weapons.⁴⁷ This clearly indicated that the three countries were looking for common ground vis-à-vis Russia (and, to some extent, the United States) to at least leverage nuclear weapons that remained in their territories after the breakup of the Soviet Union. The statement certainly did not amount to a claim for control of these weapons, but strengthened the hand of the states (Ukraine, in particular) that toyed with such a prospect.

Even allowing for imperfect and unavoidably incomplete data, *the overall trend* appears quite clear. Nuclear weapons were regarded by at least some of the emerging governments as a valuable asset, and they were prepared to explore the options for laying their hands on them. There were several reasons the “game” did not turn violent and was resolved with a reasonable degree of success and in a reasonable amount of time. The first reason was the firm position of the United States. Very early in the game, the United States made it abundantly clear that the membership of each newly independent state, except Russia, in the Nuclear Non-Proliferation Treaty (NPT) as a non-nuclear state was a critical criterion by which Washington would assess its behavior.

Second, in the run-up to and during the formal dissolution of the Soviet Union, the newly independent states with nuclear weapons in their territories felt they had to maintain a disarmament and nonproliferation decorum. Hence, they quickly concluded a series of agreements on the future of nuclear weapons and, in spite of the many shortcomings of these agreements and attempts to revise them afterward, the agreements helped provide a framework for subsequent negotiations and political games. Moreover,

some states (Kazakhstan and Ukraine, in particular) used anti-nuclear sentiment in their countries to consolidate public support for independence and could not revise them easily.

Third, the game was influenced by the availability of the technological and industrial infrastructure. Hence, for Kazakhstan, a nuclear status was simply out of the question. Ukraine had some elements of the infrastructure required for a nuclear state, but completing it would have been so expensive and time-consuming, and Ukraine faced such strong opposition from other countries (the United States, in particular) that the project was not even attempted.

The experience of the Soviet breakup offers several important lessons:

1. Regardless of what leaders of future new states say about nuclear weapons, they are very likely to change their attitudes once independence is achieved and will seek to lay their hands on all the nuclear weapons they can reach. The attraction is very difficult to resist. This is not only about the aura of influence and power nuclear weapons are often believed to carry, but is often simply a habit of an elite and a public that is used to living in a nuclear state. Losing that nuclear status is difficult to accept.

2. Any agreements newly independent states conclude to ensure orderly transition from one state to several will likely be of poor quality and remain short-lived. Any final resolution of the nuclear inheritance will require new negotiations that will be time-consuming and difficult. Chances are, before such negotiations even begin, there will be a high risk of open conflict.

3. New states are likely to seek legitimacy in the eyes of the international community and comply, at

least outwardly, with disarmament and nuclear non-proliferation regimes. While these regimes cannot, in and of themselves, prevent conflicts or the division of nuclear weapons among newly independent states, they can considerably reduce freedom of action and serve as criteria for legitimacy. These regimes also can justify and facilitate outside interference in the process of settlement on the issue of nuclear inheritance.

4. The United States, which clearly and completely dominated the international scene in the early-1990s, played a pivotal role in the successful outcome of events in the former Soviet Union. It is unclear whether it can play the same role in the future, in case a nuclear state breaks up, or will need to cooperate more closely with other great powers.

The Breakup of the Soviet Union Resulted in the Weakening of Political Authority, (Almost) Decapitated the Nuclear Command and Control Chain, and Gave the Military an Opportunity to Choose Its Allegiance.

The disintegration of central authority in the Soviet Union—the emergence of several independent states in the place of a single country and the inevitable competition of these states for legitimacy, allegiance of the population, and the attributes of statehood—created a legal and psychological vacuum for the Soviet military. In an attempt to smooth the transition, new states created an artificial structure called the Joint Armed Forces of the Commonwealth (JAFC). The JAFC included all the parts of the Soviet Armed Forces that were not immediately “privatized” as in Ukraine, and the Strategic Forces of the Commonwealth—a part of the JAFC, which was responsible for nuclear weap-

ons. Some states (Ukraine, in particular), however, sought to control all the military structures in their territory rather than yield to a nonstate authority that was widely (and justifiably) suspected to be primarily loyal to Moscow.

An immediate consequence of that transition was the uncertainty of the chain of command and control of nuclear weapons. The ultimate power to use nuclear weapons was entrusted to President of Russia Yeltsin, who controlled Gorbachev's portable control unit and was supposed to coordinate the use of nuclear weapons with heads of three other post-Soviet states that had nuclear weapons in their territories through a special conference phone.⁴⁸ These three leaders, however, could not prevent Yeltsin from launching a nuclear strike, whether using nuclear weapons deployed in Russia itself or those deployed in their territories. Consequently, Ukraine, which sought full statehood, talked about cutting into the chain of command and installing systems that would deny Yeltsin the ability to send launch orders to nuclear assets in the Ukrainian territory.

Beyond the ultimate decision authority, the system that emerged from the breakup of the Soviet Union was unique, unworkable, and ultimately dangerous, as there was no political authority above the military leaders. The J AFC became a semi-autonomous organization that reported to all heads of state (governments) of the Commonwealth of Independent States (CIS) simultaneously—and where nuclear weapons were concerned, to four heads of state—which, in practice, meant they reported to no one. It is worth bearing in mind that Yevgeni Shaposhnikov, the commander in chief of the J AFC, and his chief of staff inherited the two portable control units that previously had

belonged to Soviet military leaders. Under certain circumstances (the incapacitation of Yeltsin's unit), they could acquire full control of nuclear weapons.

The close association between the Russian government and the JAF High Command was strongly resented by other newly independent states, Ukraine in particular, but the Russian leadership was uncomfortable with it as well. Even though Shaposhnikov demonstrated his loyalty to Yeltsin at every turn and acted, especially in the first months following the breakup of the Soviet Union, as a *de facto* minister of defense of Russia, the JAF actively interfered in CIS politics and decisionmaking. For example, it effectively monopolized the process of drafting agreements on all military matters within the CIS; governments would only receive drafts of new agreements days prior to their meetings and did not have time to properly examine these drafts. Political leaders rarely went into the finer details, so the High Command had broad discretion over military policy.

Increasingly often, the drafts included Shaposhnikov as a co-signer along with the heads of state. For example, a High Command draft of an agreement between Russia and Ukraine on Strategic Forces was titled "Agreement between the Russian Federation, Ukraine, and the High Command of the Joint Armed Forces of the Commonwealth on the Division of Functions of Operational and Administrative Control over Strategic Forces Located in the Territory of Ukraine." The agreement was supposed to be signed by Yeltsin, Kravchuk, and Shaposhnikov.

In the summer of 1992, Shaposhnikov tried to become a voting member of the Collective Security Council (a body that consisted only of heads of state or government). That could have completed the process of transforming the military into a nearly

sovereign entity not subject to any political authority whatsoever.

Another area in which civilian authorities were losing control over the military was the power of the purse. Even Russia, which shouldered the bulk of defense spending in the CIS—the other state that spent money on the military was Ukraine—virtually lost that power. A member of the Supreme Soviet (the Russian parliament prior to the adoption of the new Constitution in 1993) Committee on Defense, Valeri Shimko, complained that the JAFC High Command denied the parliament control over spending and expected blind approval of all requests. As a result, in the first quarter of 1992, the actual spending on armed forces was 60 to 65 percent higher than the budget allocation⁴⁹—the only category of the budget in which this happened.⁵⁰

In early-1992, one could see even more ominous signs: The military was quickly asserting a political role of its own. The last months of the Soviet Union saw the emergence of officer assemblies in individual units and an umbrella organization, the “All-Army Conference”—an independent organization that positioned itself initially as a military trade union, but which quickly assumed a political role. The organization was dominated by the top level of the military elite (generals and senior officers). Even more troubling was the Conference’s close association with the JAFC: Officers’ assemblies and the All-Army Conference were supervised by a JAFC official, Major General N. Stoliarov, a former KGB officer. His deputy, Alexander Zyuskevich, said that politicians should be aware that they “cannot make decisions that affect the lives of [servicemen] without regard to their opinion.”⁵¹ The executive arm of the assembly, the Coordination Committee, was funded from the JAFC budget.⁵²

A stark reminder of the risks was the All-Army Conference in January 1992, which demanded that all newly independent state leaders appear before the delegates (a meeting of 11 heads of state of the CIS was under way in Moscow at that time). Only Yeltsin and Nazarbaev showed up, though, and the conference almost went out of control. Shaposhnikov managed to calm it down, but only at the expense of vowing to fight for the preservation of unified Soviet Armed Forces.⁵³ Just prior to the Minsk summit in February 1992, a spokesman for the Coordination Committee declared that the military would take matters into their own hands if CIS leaders did not adhere to their demands.⁵⁴ In February 1992, Shaposhnikov agreed to make the commanding officers of units chairmen of officers' assemblies. This finalized the transformation of an erstwhile military trade union into an independent political force, with assemblies providing an alternative command and control structure.

The situation was clearly untenable even for Russian leaders. Yeltsin was prepared to tolerate it only as long as he hoped to retain control over all Soviet Armed Forces or at least over all nuclear weapons. When it became clear that the J AFC could not perform that role, he followed the example of Ukraine and established Russia's own Armed Forces in March 1992⁵⁵ and the Ministry of Defense (MOD) in May.⁵⁶ More importantly, in March 1992, all nuclear weapons mobile control units were already secured in the hands of Russian officials reporting solely to the president of Russia. But it was only by the end of 1992 that the Russian MOD succeeded in curtailing the political activism of the military.

The experience of the breakup of the Soviet Union suggests that governments, whether those of

new states or established powers, do not make the final decisions. The conditions of uncertain political authority give the military the de facto power to choose loyalty and could, in an extreme case, make it an independent political player. Nuclear weapons can play the role of the ultimate prize the military could hand to one or the other government in exchange for various favors. This power could be wielded not only by the top levels of military command, but even at the unit level; the only limitation the latter had was lack of access to permissive action links.

Large-scale Relocation of Nuclear Weapons under Conditions of Political Uncertainty, Relative Independence of the Military, and Competition among New Governments Can Result in the Loss of Nuclear Weapons.

The above-referenced massive relocation of tactical nuclear weapons in 1990-91 proceeded in an orderly fashion, even if in considerable haste. The system of control and accounting still functioned reasonably well: Even as the country as a whole was sinking into disorder and sometimes utter chaos, the military machine, particularly elements associated with nuclear weapons, continued to operate in reasonable order. The situation was different in 1992. The withdrawal was hasty, sometimes poorly organized, and badly managed; the physical control of nuclear weapons was, at times, in different hands, and accounting was poor as well. As a result, there was considerable risk that some nuclear weapons would be lost in the withdrawal.

The “suitcase nukes saga” began in the fall of 1997, when General (Retired) Alexander Lebed alleged that,

during his short tenure as the Secretary of the Security Council in 1996, he received information that the separatist government in Chechnya possessed small nuclear devices.⁵⁷ In an attempt to clarify the situation, he created a special commission led by his assistant, Vladimir Denisov. According to Lebed, the commission was able to locate only 48 such munitions out of a total of 132. (Subsequently, Lebed changed the total number of suitcase nukes several times, stating in the end that the number was between 100 and 500, but probably closer to 100.)⁵⁸ Lebed specifically referred to weapons that had been withdrawn to Russia after the breakup of the Soviet Union. According to Vladimir Denisov, his commission was able to find portable nuclear devices that had been in the Russian territory in 1991 or earlier, but not the ones that were supposed to be transported in 1992.⁵⁹

When exploring the hypothesis about the loss of some portable nuclear devices in 1992, authors of a Center for Nonproliferation Studies (CNS) study, performed in 2002 and 2004,⁶⁰ noted that Soviet nuclear weapons in Belarus and Kazakhstan were under full control of the 12th GUMO in Moscow. Ukraine could have been a different case, but after the interruption of the withdrawal in the end of February 1992, the removal followed a special procedure codified in a Russian-Ukrainian agreement signed in March 1992. This procedure included the thorough authentication of each warhead by representatives of both sides, including the verification of serial numbers against the logs kept at the 12th GUMO in Moscow. Paradoxically, the tense relations between Russia and Ukraine in the spring of 1992 resulted in a more reliable and verifiable accounting procedure than was the case with other newly independent states.

In any event, the person who was supposed to be the best-informed, the chief of the 12th GUMO, Igor Valynkin, disclosed in 2001 that all portable nuclear devices had been eliminated.⁶¹ This sounds credible, if only because these weapons have a short shelf life and should have been either refurbished or dismantled. In 2004, Vladimir Denisov, the head of the commission established by Lebed, announced that they had completed the inventory and succeeding in matching records to actual weapons.⁶² Denisov did not mention how the commission dealt with the dismantled warheads. Most likely, it matched 12th GUMO records with the records at dismantlement facilities, which belong to a different agency – during that time it was the Russian Federation Ministry of Atomic Energy (MinAtom); now it is the Rosatom Nuclear Energy State Corporation (RosAtom). The apparent discrepancy between the actual inventory and records, which was the reason for Lebed’s (premature) statement, probably meant that weapons withdrawn from Belarus and Kazakhstan, as well as from Ukraine, prior to the Russian-Ukrainian agreement were moved to the first available facility without taking proper care of the “bean-counting.”

There is no reason to question Denisov’s statement. In spite of numerous reports, no credible evidence has emerged that any warheads have been lost. Yet, two important points should be made. First, apparently, there was no attempt to match records to actual weapons until Lebed ordered the establishment of a special commission in 1996. Lebed deserves credit at least for doing that. Second, the chance of losing weapons during a hasty and poorly organized (for obvious reasons) withdrawal to Russia was uncomfortably high. If the situation repeats in a different case, nuclear weapons could well be lost.

FROM THE FRYING PAN INTO THE FIRE: CONTROL OF NUCLEAR MATERIALS AFTER THE BREAKUP OF THE SOVIET UNION

The control of nuclear weapons was, by and large, restored by the end of 1992. Physical control was solidified in the hands of Russian political leaders and the Russian military; the transfer of remaining warheads from Ukraine was no longer in serious doubt. Command and control systems were firmly in the hands of the Russian leadership as well. The time of trouble was not over yet, however; 1992 saw the emergence of a different problem that came to haunt Russia, the former Soviet Union, and the world for years — control of weapons-grade fissile materials.

The reasons for the breakdown of the fissile material control and accounting system were different from those that caused perturbations with control of nuclear weapons. The Soviet system for nuclear weapons-grade materials was intended primarily to defend against activities of hostile states, such as espionage, including the recruitment of personnel, infiltration by special forces in times of conflict, etc. The Soviet political and economic system provided sufficient protection from other kinds of threats. In the final analysis, criminals would not have any use for weapons-grade material even if they managed to steal it. There were no potential customers inside the Soviet Union, and material could not be taken outside the country, because travel was restricted and foreign trade controlled by the government. Consequently, fissile materials had military value but almost no financial value.

The introduction of a rudimentary market system in 1992, an almost unlimited right to travel abroad, and the weak ability of the government to monitor income

radically changed the structure of incentives. For the first time in Soviet history, fissile materials became attractive for their potential monetary value, and the control and accounting system was not designed to address new threats, including those from insiders. The risks were further exacerbated by extreme deprivation caused by the socio-economic transition, which literally wiped out the salaries and savings of the previously privileged employees of defense enterprises.

These challenges developed against the backdrop of a general weakening of the government and the law-enforcement machine. Simply speaking, governmental agencies—including those in charge of the nuclear industry, the military, security services of all kinds, oversight bodies, and everyone else—functioned only with great difficulty because their rank-and-file personnel were even less committed to their work, interagency coordination was almost nonexistent, etc. Thus, the system had difficulty coping with even standard tasks, to say nothing about new, unconventional challenges.

The first known case of the loss of weapons-grade material took place in 1992.⁶³ The perpetrator was arrested in October, but had begun to steal material 5 months earlier, in the spring of 1992—only a few months after a radical economic reform was launched by the Russian government following the collapse of the Soviet Union. Leonid Smirnov, an employee of a Luch NPO (Nauchno-Proizvodstvennoe Ob'edinenie, or Scientific and Production Association) in Podolsk, a town southwest of Moscow, was detained with 1.5 kg of weapons-grade highly enriched uranium (HEU). Smirnov's last position at that fuel-production facility provided him with direct access to HEU. He had read in the mass media that weapons-grade materials

could be sold for significant amounts of money, and when inflation turned his salary into almost nothing, he decided to use his access to such material to get rich quickly.

Smirnov used his knowledge of the fine details of the production process and the nuances of the accounting system as well as inadequate security protocols. He skimmed small amounts of material (50-70 grams at a time). Thefts went unnoticed because each time the amount of stolen material was within the margin of "natural" loss in the process of production allowed by the accounting system. He was often left alone with material while his co-workers had a smoking break. Guards never detected him taking material out because the gates did not have radiation-monitoring equipment, and there was no procedure for searching employees. The stolen material was kept in a jar on the balcony of Smirnov's apartment.

After 5 months, Smirnov decided that he had enough material to attempt a sale and began looking for a customer, though he had only a very vague idea gleaned from newspapers who such a customer might be. As he was traveling to Moscow to begin the search, he accidentally met with three friends at the rail station in Podolsk. At that moment, his friends were arrested by police on unrelated charges. The uranium was discovered when Smirnov was searched along with the others.

The Podolsk case represents what appears to be a typical pattern for the 1990s.⁶⁴ The theft of nuclear materials was carried out by an opportunistic insider with access to material and sufficient knowledge of security and accounting protocols to avoid detection. Perpetrators had only a vague idea of the monetary value of the material, however, and did not procure it

for specific customers. Instead, they used the window of opportunity to steal and then began to look for a customer. The latter aspect is not a reason for complacency, however: There is reason to believe the material that surfaced in at least one interception in Georgia in 2006 was a sample from a much larger batch that was likely stolen years earlier and stashed to wait for a customer.⁶⁵

CONCLUSION

The elaborate systems NWS create to control their nuclear weapons have one major vulnerability – internal upheaval that undermines the systems’ key building blocks. In the span of just 2 1/2 years, the former Soviet Union encountered almost all the possible situations that could have led to a loss of physical control of nuclear weapons, control of their use, or both. It appears that no NWS is immune to similar challenges in times of political distress. The Soviet case suggests several reasons why this happens:

- Political instability grows quickly, and state machinery and the political system are usually too slow to react. The short period when political opposition has already institutionalized to the point of having paramilitary forces, while the government is still on peacetime footing, is particularly dangerous.
- Separatist forces organize very quickly and are usually more proactive and violence prone than the central government. While nuclear weapons might not be the highest priority of separatists at an early stage, the loss of political control over some regions of the country could result, among other things, in a partial loss of control over nuclear weapons as well.

- When the country finally breaks apart, new states inevitably begin competing for control over pieces of the nuclear legacy. Whether new governments make special arrangements for the orderly transition of the nuclear legacy or enter this competition overtly has little relevance. Almost inevitably, they will seek nuclear status or at least seriously contemplate it. Preventing the division of the nuclear arsenal is difficult and can succeed only under certain types of international systems, which allow control from the outside (for example, unipolar, bipolar, or any type of a hegemonic system); under a multipolar international system, the chances that several nuclear states will emerge in the place of one appear very high.
- The strongest defense against the loss of control of nuclear weapons in times of political upheaval is the motivation of military personnel. They are usually less susceptible to shifting political winds and will safeguard nuclear weapons until the situation stabilizes. The greatest danger here is the disappearance of the state to which they had pledged allegiance. Then the military effectively becomes free to grant control of nuclear weapons to whomever it chooses; in principle, it can even grant it to nonstate actors or take it into its own hands, creating a foundation for a military dictatorship.

Paradoxically, the control of weapons-grade fissile materials is significantly less prone to collapse or, rather, it is likely to collapse only in a small number of states. In Russia, this collapse resulted not from political turmoil, but from economic transition. It created

conditions toward which the old system was not sufficiently well adapted. The new control systems were eventually built—with significant financial and technical assistance from other states—but the task took many years to complete, and during that period weapons-grade materials remained vulnerable to theft. One state that immediately comes to mind as far as similar future threats are concerned is North Korea. In case of a collapse of the political system and a transition to a market economy, it will likely experience the full range of pressures and risks that we saw in the Soviet Union; all other NWS will be vulnerable to the loss of control of weapons as a result of political upheaval, but not necessarily to a vulnerability of materials.

As we look into the future, political upheaval in one or more nuclear states does not appear impossible. It is also worth bearing in mind that no one could have predicted the depth and the speed of the crisis in the Soviet Union, much less its breakup. The conclusion one could draw from the Soviet case is rather pessimistic: The collapse of an NWS can happen unexpectedly, and the international system, at least in the short term, is not sufficiently equipped to manage the consequences.

The Soviet Union was breaking apart under a system that could, for all intents and purposes, be defined as unipolar: The United States and its allies exercised significant (if not almost complete) control over the outcomes. Both the outgoing Soviet government and the incoming governments of new states felt pressure to conform to U.S. preferences. This significantly limited their freedom of action. Competition for a piece of the nuclear legacy was reduced to cautious maneuvers and testing grounds for the possible acquiescence of Washington to the emergence of more than one

nuclear state in place of the Soviet Union; at a later stage, newly independent states bargained for more advantageous conditions for surrendering nuclear weapons. The United States also possessed almost unlimited financial resources (at least, compared with the needs of new states) and could freely offer economic and other forms of assistance. This assistance proved critical in the case of Ukraine, and also helped facilitate safer, faster, and more orderly withdrawals of nuclear weapons to the territory of Russia.

These conditions are not present today and might not re-emerge in the near future. If a situation even remotely similar to what we saw in the Soviet Union emerges, there will likely be more than one player in the game. Consequently, opposition and/or separatist forces within the NWS undergoing political upheaval could draw external support from sources other than the United States, and it is far from obvious that the interests and decisions of these alternative international players would be identical to those of Washington. At the very least, the situation might require coordination that would be time-consuming and could involve bargaining and concessions on the part of the United States.

Similarly, in the foreseeable future, the United States and its allies might find it difficult to provide financial and economic assistance at the level needed to support their preferred outcome. International assistance would require the pooling of resources of multiple players and, the same as with political decisions, of time and concessions.

Finally, not all players will be state actors and, moreover, some of these nonstate players can have sufficient ideological, financial, and human resources to become attractive patrons for one or more opposi-

tional groups in the troubled NWS. Nonstate actors are particularly difficult to control and to negotiate with, and there is a high probability they will have goals opposite to those of the United States. This is bound to make the situation even more dangerous and unpredictable.

As we draw lessons from the Soviet case and engage in contingency planning to ensure a smooth and safe transition of control over nuclear weapons if (or, rather, when) a nuclear state undergoes a period of political upheaval, we must also be aware of the limitations of these lessons. Hence, we might need another line of contingency planning to address the scenario when the nuclear transition is not orderly and when nuclear weapons fall into the wrong hands.

ENDNOTES - CHAPTER 4

1. For a description and analysis of these events and their context, see Thomas de Waal, *Black Garden: Armenia and Azerbaijan Through Peace and War*, New York: New York Press, 2004; and Michael Croissant, *The Armenia-Azerbaijan Conflict: Causes and Implications*, Santa Barbara, CA: Praeger, 1998, especially Chap. 2.

2. "12th Main Directorate of the Ministry of Defense of Russia," *Wikipedia*, available from [ru/wikipedia.org/wiki/12_ГΥМО](http://ru.wikipedia.org/wiki/12_ГΥМО).

3. Leslie Cockburn and Andrew Cockburn, *One Point Safe*, New York: Doubleday, 1997, p. 11.

4. See Dmitri Furman and Ali Abasov, "Azerbaijanskaya Revolyutsiya" ("An Azeri Revolution"), in *Azerbaijan i Rossiya: Obshchestva i Gosudarstva (Azerbaijan and Russia: Societies and States)*, Moscow, Russia: Sakharov Fund, 2001, available from www.sakharov-center.ru/publications/azrus/default.htm.

5. *Ibid.*, p. 10-11.

6. Mikhail Khodarenok, "Yadernoe Oruzhie za Sem'uy Zamkami" ("Nuclear Weapons—Seven Locks"), *Voенно-Promyshlennyi Kurier (Military-Industrial Courier)*, August 11, 2004.

7. The source did not disclose the origin of that information. It could have been, in theory, military counterintelligence, the KGB, or the local police. The KGB seems the most likely source.

8. Together with the Soviet response, that initiative came to be known as Presidential Nuclear Initiatives (PNIs).

9. See "Rossiya Perevypolnila Plany po Sokrashcheniyu Yadernogo Oruzhiya" ("Russia Has Exceeded the Plan for Reduction of Nuclear Weapons"), *RIA-Novosti*, June 22, 2005, available from rian.ru/politics/20050622/40566772.html; and Nikolai Poroskov, "Takticheskii Yadernyi Kozyr" ("A Tactical Nuclear Ace"), *Vremya Novostei (News Time)*, September 7, 2007.

10. Vladimir Kruchkov, *Lichnoe Delo* ("Personal File"), Vol. 2, Moscow, Russia: ACT, 1996, pp. 158-159.

11. The account is based on Valentin Stepankov, *GKChP: 73 Chasa, Kotorye Izmenili Mir (GKChP: 73 Hours That Changed the World)*, Moscow, Russia: Vremya, 2011. Valentin Stepankov was Chief Prosecutor of Russia and oversaw investigations into GKChP activities. His account can be considered the most complete and credible of all available ones. Other accounts have small variations. See, for example: Mikhail Gorbachev's interview on *Ekho Moskvy (Echo of Moscow)* radio station on August 18, 2011; Andrey Grachev, *Gorbachev*, Moscow, Russia: Vagrius, 2011; Anatoli Chernyaev, *Shest Let s Gorbachevym (Six Years with Gorbachev)*, Moscow, Russia: Progress, 1993; David Hoffman, *The Dead Hand*, Garden City, NY: Doubleday, 2009, p. 373. Hoffman's story is the closest to what Stepankov wrote, but contains fewer details.

12. The three-person communications team was located in a guest house about 100 meters from Gorbachev's residence; alternate members lived outside the compound.

13. Pavel Podvig, ed., *Strategicheskoe Yadernoe Vooruzhenie Rossii (Russian Strategic Nuclear Forces)*, Moscow, Russia: IzdAT, 1998, pp. 48-54.

14. Moiseev claimed in an interview to *Corriere della Sera* in August 1991 that he was the only one with access to the Kazbek system (Yazov was cut off, he claimed), but that he never used it and, instead, put the “nuclear suitcase” into a “safe place.” This is hardly true for two reasons. First, one can believe that the Cheget brought from Foros was put into a “safe place,” but there were also two others about which Moiseev remained silent. Second, Soviet nuclear forces were put on heightened alert, which probably involved the use of the Kazbek system.

15. The author can vouch for the accuracy of that information: throughout the entire period of the coup he was in direct contact with one of Air Force staff officers.

16. Available text does not specify whether this was *Delta III* or *Delta IV*, only that the submarine carried 16 strategic missiles.

17. “Veteran-Podvodnik: Vo Vremya Putcha GKChP Severnyi Flot Byl Gotov k Zapusku Yadernykh Raket” (“Veteran Submariner: During the GKChP Coup the Northern Fleet Was Ready to Launch Nuclear Missiles”), *Novaya Politika (New Policy)*, August 19, 2011, available from www.novopol.ru/veteran-podvodnik-vo-vremya-putcha-gkchp-severnyiy-fl-text107335.html.

18. The Soviet Union was never able to maintain the same share of submarines on patrol as the United States; this deficiency was one of the reasons the Soviet Union built so many submarines, and its submarines were given the capability to launch missiles from the surface. In case of a nuclear attack on a Soviet submarine base, which would have resulted in the loss of all the submarines in port, the Soviets were able to launch the missiles before losing them.

19. “Yadernoe Oruzhie v Den GKChP” (“Nuclear Weapons in the Days of the GKChP”), a blog entry uploaded on September 1, 2011, available from so-l.ru/news/show/1630176.

20. FSO—Federal’naya Sluzhba Okhrany (Federal Security Service).

21. FAPSI—Federal’noe Agentstvo Pravitelstvennow Svyazi i Informatsii (Federal Agency for Government Communications

and Information). An employee of FAPSI confided to the author a few years later that splitting off FAPSI from the KGB adversely affected the intelligence and counterintelligence capabilities of Russia. Although the majority of FAPSI personnel were former KGB employees, interaction between the two services was not completely smooth, he disclosed, and often the FSB (Federal'naya Sluzhba Bezopasnosti, or Federal Security Service, the remnant of the KGB minus several services, including Foreign Intelligence) would not receive some data, or received it after a significant delay. In 2003, Vladimir Putin returned FAPSI into the FSB.

22. See Nikolai Sokov, "Could Norway Trigger a Nuclear War?" Policy memo No. 24, *Program on New Approaches to Russian Security (PONARS)*, October 1997.

23. "V Rossiiskoi Sisteme Yadernykh Chemodanchikov Obnaruzhen Iz'yan: Krasnoi Knopki Net u Putina" ("In the Russian System of Nuclear Suitcases a Flaw is Discovered: Putin Has No Red Button"), *News.Ru*, May 28, 2010, available from www.newsru.com/russia/28may2010/putin.html.

24. The American proposal would not have affected heavy bombers and weapons for heavy bombers (including long-range cruise missiles); even so, reductions would have been significant. The proposal would not have affected Belarus at all: It only had single-warhead Topol (SS-25) ICBMs in its territory.

25. Velikhov and Ryzhov to Gorbachev, undated. (The contents indicate that the letter was written in early-October soon after Gorbachev's response to the initiatives of George Bush).

26. Karpov to Shevardnadze, November 25, 1991, p. 1.

27. Yuri Petrov, Yuri Skokov, and Yuri Ryzhov, *O predlozheniyakh Presidentov SSSR i SShA i Vozmozhnosti Bolee Radikalnykh Sokraschenii Strategicheskikh Nastupatelnykh Vooruzhenii (On the Proposals of the Presidents of the USSR and the USA and the Possibilities of a More Radical Reduction of Strategic Offensive Arms)*, October 27, 1991.

28. *Ibid.*

29. *Tsentr Operativno-Strategicheskikh Issledovaniy* (TsOSI).

30. The Main Staff was created in the fall of 1991, but did not actually control armed forces in the territory of Ukraine; all troops were still under the control of the USSR Ministry of Defense and its General Staff. At first military commanders pretended they did not even notice the newly appointed minister of defense of Ukraine. The gradual and often painful process of transformation of the Soviet Armed Forces into the Ukrainian Armed Forces began in December 1991.

31. Dnipropetrovsk was home to the largest missile producing company in the Soviet Union and perhaps the entire world. It was known in the Soviet Union as *Yuzhmash* ("Southern Machine-Building Factory"); afterward, that name was translated into Ukrainian (*Pivdenmash*). *Yuzhmash* included a major design bureau (R&D institute) that designed more than half of Soviet ICBMs (including, for example, the "heavy" SS-18, the solid-fuel railroad-mobile SS-24 and others). The National Institute of Strategic Studies was created at the initiative of the *Yuzhmash* design bureau and, although its headquarters were in Kiev, the majority of experts and the bulk of work were concentrated in Dnipropetrovsk.

32. Interview with high-level employees of *Pivdenmash* (*Yuzhmash*) missile production plant, March 1992; see also Vadim Grechaninov, "Ukraina i eyo Yadernye Vozmozhnosti" ("Ukraine and its Nuclear Potential"), April 20, 2010, available from www.ua-nato.org.ua/2010-10-09-11-32-11/expert/43-2010-03-29-13-38-19/122--q-q?tmpl=component&print=1&page=. Vadim Grechaninov is the president of the Atlantic Council of Ukraine; in 1991-92 he was the head of Center for Operational and Strategic Analysis referenced above.

33. One wonders whether the fact that key authors worked at *Pivdenmash* played a role; at least until the end of spring 1992 that factory remained a staunch supporter of preserving Soviet-time production cooperation, which was vital to retaining contracts and thus ensuring the company's survival. Strategic Rocket Forces were also ardent supporters of that scheme, which failed only because of the quickly worsening political relations between the two newly independent states.

34. Mitchell Reiss, *Bridled Ambitions: Why Countries Constrain Their Nuclear Capabilities*, Washington DC: Woodrow Wilson Center Press, 1995, p. 105.

35. Some suggest that Ukrainian experts could have encountered problems trying to override the system that gave Moscow direct control not only to launch strategic missiles, but also to disable them to prevent their unauthorized launches. See Sergey Goncharov, "Yadernyi (Psevdo)Schit" ("Nuclear [Pseudo] Shield"), April 6, 2012, available from www.nuclearno.ru/text.asp?16170.

36. Steven Pifer, *The Trilateral Process: The United States, Ukraine, Russia, and Nuclear Weapons*, New York: Brookings Institution, 2011, p. 7, available from www.brookings.edu/~media/Files/rc/papers/2011/05_trilateral_process_pifer/05_trilateral_process_pifer.pdf.

37. Same interview with employees of Pivdenmash, March 1992. This information was also used by the author in Nikolai Sokov, "Ukraine: A Postnuclear Country," William C. Potter and Gaukhar Mukhatzhanova, eds., *Forecasting Nuclear Proliferation in the 21st Century*, Vol. II, Stanford CA: Stanford University Press, 2010.

38. See *Foreign Broadcast Information Service (FBIS)-SOV-92-010*, January 15, 1992, p. 58.

39. "Gonka Razoruzheniya" ("Disarmament Race"), *Argumenty i Fakty (Arguments and Facts)* in Ukraine, December 9, 2009, available from www.ukr.aif.ru/society/article/18131.

40. *Izvestiya*, February 17, 1992, p. 3.

41. For a published account, see Yevgeni Maslin, "Yadernoe Oruzhie i Kontrol za Eto Nerasprostraneniem" ("The Nuclear Weapon and Control over Its Nonproliferation"), *Obozrevatel-Observer*, No. 3-4, 1994, available from www.rau.su/observer/N03-4_94/3-4_06.HTM.

42. See *Nezavisimaya Gazeta*, April 24, 1992, cited in *FBIS-SOV-92-082*, April 28, 1992, p. 3.

43. During that visit, the United States, while adhering firmly to its earlier position that among all newly independent states only Russia was to retain the status of an NWS, also displayed sympathy toward some Ukrainian demands. For details, see Nikolai Sokov, *Russian Strategic Modernization: The Past and Future*, Lanham, MD: Rowman & Littlefield, 2000, pp. 106-107.

44. "Kazakh Sets Conditions on Nuclear Arms; Nazarbaev Seeks Powers' Guarantees," *The Washington Post*, May 6, 1992, p. A1.

45. James Baker quoted in his memoirs a statement of Nazarbaev: "The question of giving Kazakh territory for our common defense and for deployment of nuclear missiles will be decided on mutually advantageous ground" with Russia. James Baker, *The Politics of Diplomacy: Revolution, War, and Peace, 1989-1992*, New York: G. P. Putnam and Sons, 1995, p. 664.

46. The story was extremely complicated. Nazarbaev discussed that joint statement during a face-to-face meeting, and Yeltsin signed it without informing anyone else, including his own staff. As a result, the Russian government remained in the dark and was very surprised to hear protests from Washington about a document that it did not know existed. For details, see Sokov, *Russian Strategic Modernization*, pp. 108-109.

47. See Reiss, *Bridled Ambitions*, p. 157, fn.

48. Stanislav Shushkevich, the chairman of the Supreme Soviet of Belarus, disclosed later that the four heads of state took this special phone very seriously and used it only once to check if it was working; even this was done secretly, without informing relevant services. The four agreed not to use it for any other conversations. See Stanislav Shushkevich, "Monolog o pushche" ("A Monologue about the Forest"), *Ogonyok*, Vol. 49, December 2, 1996.

49. Cited in FBIS-SOV-92-063, April 1, 1992, p. 42.

50. *Izvestiya*, April 11, 1992.

51. *Krasnaia Zvezda*, January 15, 1992, cited in FBIS-SOV-92-011, January 16, 1992, p. 17.

52. *Rossiiskaia Gazeta*, March 4, 1992, cited in FBIS-SOV-92-044, March 5, 1992, p. 17.

53. *Izvestiya*, January 17 and 18, 1992.

54. *Ostankino TV*, February 14, 1992, cited in FBIS-SOV-92-032, February 18, 1992, p. 11.

55. *Vedomosti Verkhovnogo Soveta Rossiiskoi Federatsii (The Digest of the Supreme Soviet of the Russian Federation)*, No. 13, 1992, pp. 925-926 document 678. As the story was told by an official of the Defense and Security Committee of the Supreme Soviet, the initial draft of the decree was prepared jointly by that committee and the State-Legal Department of the Administration of the president. The text was to be signed on March 16 upon Yeltsin's return from a brief vacation in Pitsunda. However, the chief of the State-Legal Department of the Administration, Sergei Shakhrai, went to Pitsunda and persuaded Yeltsin to sign the draft right away, only hours before his departure. Immediately upon his return to Moscow, Shakhrai made the decree public. The whole story reflected competition between the executive and the legislature, but the intrigues did not prevent collaboration.

56. *On the Establishment of the Armed Forces of the Russian Federation*, Decree of the President of the Russian Federation No. 466, *Vedomosti Verkhovnogo Soveta (Digest of the Supreme Soviet)*, No. 19, 1992, pp. 1401-2, document 1077.

57. Konstantin Eggert, "General Lebed Nameren Naiti 'Yadernye Chemodanchiki'" ("General Lebed is Determined to Find 'Nuclear Briefcases'"), *Izvestiya*, October 7, 1997.

58. Press conference of Alexander Lebed, *Interfax News Agency*, November 29, 1997; Jeffrey Smith and David Hoffman, "No Support Found for Report of Lost Russian Suitcase-Sized Nuclear Weapons," *The Washington Post*, September 5, 1997, p. 19; and "Is Lebed Russia's Loosest Cannon? An Exclusive NBC interview with Alexander Lebed," October 2, 1997, available from www.msnbc.com.

59. David Hoffman, "Suitcase Nuclear Weapons Safely Kept, Russia Says," *The Washington Post*, September 14, 1997, p. A23.

60. "'Suitcase Nukes': A Reassessment," *CNS Research Story*, September 23, 2002, available from cns.miis.edu/stories/020923.htm.

61. Dmitri Safonov, "Individualnaya Planirovka" (*Individual Scheme*), *Izvestiya*, October 27, 2001.

62. Yuri Gavrilov, "A Nu-Ka Uberi Svoi Chemodanchik" ("Put Your Suitcase Away"), *Moskovskii Komsomolets*, February 10, 2004.

63. Description of the case taken from an interview with Elena Sokova, available from the Frontline database at www.pbs.org/wgbh/pages/frontline/shows/nukes/timeline/tl01.html; Alexander Mytsykov, "Atomic Theft and Atomic Security: What the General Prosecutor's Documents Say," *Yadernyi Kontrol*, September 1995, (the author was an aide to the Prosecutor General of Russia); and Potter, "Before The Deluge? Assessing the Threat of Nuclear Leakage from the Post-Soviet States," *Arms Control Today*, October 1995.

64. For analysis of the patterns in illicit trafficking in nuclear materials, see Potter and Elena Sokova, "Illicit Nuclear Trafficking in the NIS: What's New? What's True?" *The Nonproliferation Review*, Vol. 9, No. 2, Summer 2002.

65. See Potter and Sokova, "The 2003 and 2006 High Enriched Uranium Seizures in Georgia," in *Illicit Nuclear Trafficking: Collective Experience and the Way Forward, Proceedings of an International Conference Vienna, Austria*: International Atomic Energy Agency, 2008, p. 414.