

RUSSIAN NUCLEAR SUBMARINE DISMANTLEMENT

I. The Issue

The Soviet Union, and later Russia, built over 250 nuclear-powered vessels before production was ended in 1994. Of these vessels, 81 were classified as “strategic” (i.e. capable of launching intercontinental ballistic missiles at the United States). The remaining nuclear vessels included “non-strategic” submarines (with the mission of hunting and destroying other submarines), four guided-missile cruisers, a small fleet for scientific research, support and space-tracking ships, and seven civilian icebreakers.

When the Soviet Union dissolved, the submarines that remained in active service faced two dangerous challenges. First, as states of the former Soviet Union began declaring independence from Moscow, many of these vessels lost their home ports and other facilities in the Black and the Baltic Seas. The remaining naval bases within Russia could not handle such a large number of operational vessels, particularly when combined with additional Soviet-era diesel submarines and surface ships. Second, and more ominously, the Russian defense budget could no longer afford to keep many of the nuclear-powered submarines adequately and safely maintained—much less in active service. As a result, by the early 1990s, approximately 170 submarines were retired, leaving only about 75 Russian nuclear-powered submarines in service. The Strategic Offense Arms Elimination Implementing Agreement, signed in August 1993 by the U.S. and Russia, provided a framework for the U.S. to aid in the dismantlement of several strategic submarines.¹ The original target for submarine dismantlement under that agreement was reached in 2003, but the U.S. has since increased the target to 39 submarines by 2012.² The environmental and proliferation challenges associated with this situation are daunting.

Some points bear noting:

- Prior to 1993, Russia was disposing of liquid radioactive waste from shut-down reactors at sea, creating devastating environmental problems.
- The existing Russian dismantlement facilities—of which there are three—can only dismantle a few boats a year, leaving the remaining vessels afloat in piers awaiting destruction.
- By December 1998, more than 170 submarines had been decommissioned. Today, there are nearly 60 in Russia’s Northern Fleet alone awaiting dismantlement, and more should be decommissioned within the next decade.³

- The spent fuel in the reactors of these submarines contains materials (highly enriched uranium and plutonium) that could be used to build nuclear weapons.
- Submarines decommissioned before the end of their service lives could, theoretically, be reactivated for Russian use or sold to interested third parties. Many maintain that they could even be vulnerable to terrorist attack or seizure.⁴
- Dismantling nuclear submarines is an expensive task. The Canadian government has allocated C\$120 million to dismantle only 12 submarines.⁵
- Due to the weakened Russian economy, it is incumbent upon the United States—for our own security—and other nations to help the Russians to safely dispose of their nuclear-powered submarines.

II. Recent Legislation

- The Department of Defense Appropriations Act of 2006 (Public Law 109-148) appropriated \$15 million for the dismantling and disposal of Russia nuclear submarines and submarine reactor components as part of the \$415.5 million appropriation for the Nunn-Lugar Cooperative Threat Reduction Program. A similar earmark had been included in several previous defense appropriations bills.

III. Obstacles

- According to the non-partisan Center for Non-Proliferation Studies, three major technical obstacles currently prevent greater progress in Russian nuclear-powered submarine dismantlement efforts:
 - Inadequate storage facilities for spent fuel removed from submarine reactors;
 - Slow work pace of existing dismantlement lines; and
 - Lack of facilities for long-term storage of highly radioactive reactor compartments.⁶
- No international treaty or agreement requires Russia to dismantle and safely secure the reactors aboard its decaying fleet of nuclear-powered submarines.
- Due to Russia's financial situation—its total military budget has dropped to approximately 15 percent of the U.S. defense budget—it has relied upon foreign assistance to support its dismantlement efforts. Until now, the United States has provided the most assistance, while Japan, Canada, Norway, the European Union, and a few other countries have also contributed funds. The Russian government has requested further assistance from G-8 under the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

- In the United States, financial assistance is provided by the Cooperative Threat Reduction (CTR) program, with the submarine dismantlement work administered jointly by the Department of Defense (DoD) and the Department of Energy (DOE). The CTR program has a mandate to assist in the dismantlement of 39 submarines capable of launching ballistic missiles.⁷ Russian experts note that older vessels are in the greatest danger of sinking. Newer submarines awaiting dismantlement could conceivably be put back into service by Moscow or even sold to other countries, posing a threat to the United States and other nations. Although assistance programs have done a lot of good in the past fifteen years, much remains to be done to reduce the environmental and proliferation risks of Russia's nuclear navy.
- The Nunn- Lugar program is limited to assisting in the dismantlement of "strategic" nuclear submarines. There are, however, many important non-proliferation, security, and environmental benefits to the timely dismantlement of non-strategic submarines. Many carry cruise missiles that could prove valuable to the missile programs of "rogue" states. Other submarines are powered by nuclear fuel enriched to very high levels, which could pose serious proliferation risks if unsecured. The statutory obstacles preventing the United States from eliminating this proliferation threat must be removed before threat reduction assistance can be provided.

IV. Q & A

Q: Why should we be concerned with helping Russia to dismantle these submarines?

A: The collapse of the Soviet Union created intense concern around the world about the safety of Soviet nuclear weapons. Particularly after the attacks of September 11, 2001, it is feared that terrorists bent on harming the United States will obtain nuclear material or a weapon. Fear of another Chernobyl-type accident hastened by economic chaos and technological breakdown in Russia is also a worry. Comparatively little attention has been paid to a third nuclear danger: the accident-prone Soviet nuclear-powered submarine force. To reduce the likelihood that fissile materials for nuclear bombs will proliferate and also avoid an environmental calamity at sea, helping the Russians to dispose of this dangerous Soviet legacy should be a major goal of Western assistance.⁸

Q: How many nuclear-powered submarines is the United States helping to dismantle?

A: The Cooperative Threat Reduction Program has helped to eliminate 32 strategic nuclear-powered vessels, and by 2012, aims to have helped to destroy another 7. The scope of the problem is much larger, however, with more nearly 60 nuclear-powered submarines awaiting dismantlement. Many more should be retired within the next decade.

V. Talking Points

- The fate of Russian nuclear submarines should be of utmost concern to the United States and its allies.
- For a few hundred million dollars, a small figure compared to the overall U.S. defense budget, the threat posed by decaying Russian nuclear-powered submarines could be greatly reduced.
- Addressing the fate of nuclear-powered submarines is a very fertile area for the U.S. to work with allies and friends to educate them to the dangers posed by the decaying Russian war machine and to spur them to devote more funding and energy to addressing the serious threat posed.

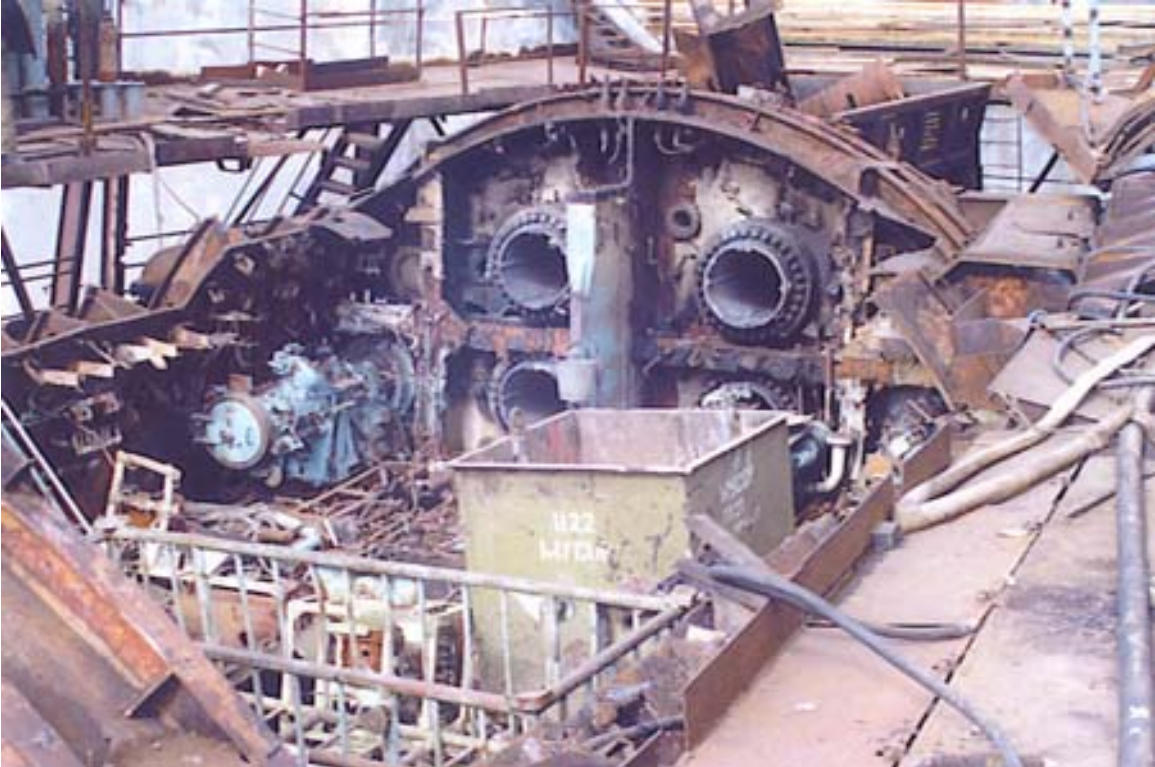
VI. Factoids

- Soviet and Russian mishaps involving their submarine fleet, many with proliferation implications, have been numerous:
 - Over the course of their history, four Soviet and Russian nuclear submarines have sunk, one each in 1970, 1986, 1989, and 2000. These accidents carried seven nuclear reactors and some 38 nuclear warheads to the ocean floor.
 - In 1968, reactor coolant on a Soviet submarine froze, causing significant damage to the nuclear reactor. A senior naval officer said that many crewmen were severely irradiated. It is believed that all or parts of the reactor were dumped directly into the Arctic Ocean in the early 1970s. The extent of the environmental damage is unknown.
 - In 1985, during refueling, the reactor on a Soviet submarine exploded and burned in Chazma Bay, some 35 miles from Vladivostok in the Pacific Ocean. Ten men in the reactor room were killed. Soviet news accounts claim that radiation meters in the area went off the scale at fatally high levels. The Soviet Navy estimates that it will take 50 years for the area to return to normal.
 - The sinking of the nuclear-powered submarine off Norway in April 1989 provoked widespread concern about radiation poisoning the seas in the area.
 - In 1995, concern over a meltdown of a portion of Russia's nuclear submarine fleet came ominously close to reality after the local electric company turned off power to a naval base, due to delinquent bills. Oleg Yerofiev, commander in chief of the Northern Fleet, said cutting power to a reactor makes it uncontrollable, which leads to accidents. "Fortunately, this time, that didn't happen, but it could in the future," Yerofiev said.⁹
 - The Russian submarine *Kursk* sunk about 100 miles from Murmansk in August 2000, killing the 118 man crew and potentially damaging the environment with its two nuclear reactors.¹⁰

- Theft of nuclear material or the sale of decommissioned submarines to third parties would present potentially disastrous proliferation challenges.
- Almost half of the 60 officially decommissioned nuclear submarines from Russia's Northern Fleet still carry nuclear fuel. Since most Russian submarines have two reactors, this means that nearly 60 nuclear reactors must be kept maintained and secured.¹¹

The pictures below portray the various Cooperative Threat Reduction projects involved in the U.S.-supported effort to assist Russia with elimination of nuclear powered submarines. These projects are enabling Russia to meet its Strategic Arms Reduction Treaty (START) obligations.¹²







VII. Applicable Treaties, Legislation, and Other International Agreements

- In 1993, Russia pledged to adhere to the new protocols of the London Dumping Convention, and may no longer dispose of radioactive waste from shut-down reactors at sea. This does not address the dangerous dilemma of the decaying vessels in Russian ports that await dismantlement.¹³
- The Nuclear Non-Proliferation Treaty (NPT) prohibits states from transmitting nuclear technologies and materials necessary to build a nuclear device to non-nuclear weapons states. However, the NPT does not apply to naval fuel sales and thus does not preclude Russia from selling proliferation-sensitive HEU fuel aboard a submarine to another country. Such sales may occur without International Atomic Energy Agency safeguards.¹⁴

¹ Nuclear Engineering International, "Decontamination & Decommissioning; Subdividing Submarines," February 20, 2006, accessed at: <<http://www.sgpproject.org/Personal%20Use%20Only/subs2.20.06.htm>>.

² Defense Threat Reduction Agency, "Cooperative Threat Reduction: Scorecard," February 6, 2006, accessed at: <<http://www.dtra.mil/toolbox/directorates/ctr/docs/scorecard.pdf>>.

³ Foreign Affairs Canada, "Global Partnership Program: Securing the Future," 2005, p. 28, accessed at: <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership/pdf/GPX_AnnualReport-EN.pdf>.

⁴ James Clay Moltz, Tamara Robinson, Hilary Anderson, and Jill Tatko, "Russia: Naval Nuclear Reactors," *Nuclear Threat Initiative Research Library*, accessed at:

<<http://www.nti.org/db/nisprofs/russia/naval/overview.htm>>.

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- ⁵ Foreign Affairs Canada, "Global Partnership Program...", *op. cit.*, note 3.
- ⁶ Moltz, Robinson, Anderson, and Tatko, "Russia: Naval Nuclear Reactors," *op. cit.*, note 4.
- ⁷ Defense Threat Reduction Agency, "Cooperative Threat Reduction: Scorecard," *op. cit.*, note 2.
- ⁸ Foreign Affairs Canada, "Global Partnership Program...", *op. cit.*, note 3.
- ⁹ CNN, "Russia's Floating Chernobyls," October 1, 1995, accessed at: <http://www.cnn.com/WORLD/9510/floating_chernobyl>.
- ¹⁰ Federation of American Scientists, "Project 949 Granit/Oscar I; Project 949A Antey/Oscar II," September 8, 2000, accessed at: <<http://www.fas.org/nuke/guide/russia/theater/949.htm>>.
- ¹¹ Foreign Affairs Canada, "Global Partnership Program...", *op. cit.*, note 3.
- ¹² Pictures taken from Foreign Affairs Canada, "Russian Nuclear Powered Submarines - Dismantlement Steps," accessed at: <http://www.dfait-maeci.gc.ca/foreign_policy/global_partnership/nuclearsubs_steps-en.asp>.
- ¹³ International Maritime Organization, *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972*, accessed at: <http://www.imo.org/Conventions/contents.asp?topic_id=258&doc_id=681#6>.
- ¹⁴ United Nations, *The Treaty of the Non-Proliferation of Nuclear Weapons (NPT)*, accessed at: <<http://www.un.org/events/npt2005/npttreaty.html>>.