



Russia's New Nuclear Threat

by Brad Glosserman

VLADIVOSTOK, Russia - Hundreds of nuclear submarines float quietly at their berths throughout the Russian Federation. The end of the Cold War has not ended the threat posed by these sleek gray killing machines. Today, however, concern focuses on the environmental risks created by the decommissioning of these submarines. The disposal of their spent fuel and other forms of radioactive waste is a major environmental challenge for Russia and the entire region. International cooperation has played a critical role in the decommissioning process, but considerably more help is needed. Concerned governments will primarily contribute desperately needed funds; Russia can provide expertise and manpower, but first it must provide the basic infrastructure - most important, the rule of law - that will permit those resources to be put to their intended use.

The Soviet Union built nearly 250 nuclear submarines, never contemplating how they would be taken out of service. The fleet was bequeathed to the Russian Federation, which has struggled, largely unsuccessfully, with obsolescence. Old age, arms control treaties, and budget shortfalls have forced the Russians to pull a growing number of the submarines out of service. Currently, 190 nuclear powered submarines (NPS) are scheduled for decommissioning. Seventy-six submarines have had their reactors unloaded; 21 have been dismantled and another 55 are waiting to be decommissioned. Forty-two reactors are still loaded with fuel, some of which have been removed from the submarines.

The numbers are both confusing and unreliable. At a recent conference* hosted by Russia's Ministry of Atomic Energy (MINATOM), attendees huddled regularly to compare figures and find out what the real numbers were. The above statistics represent the consensus view.

Despite the confusion, one thing is painfully clear: the number of subs to be decommissioned is far greater than Russia's ability to deal with them. Speaking at the MINATOM conference, A.I. Yunak, chief of technological safety of the Armed Forces of the Russian Federation, was explicit: "The recycling capacity of the navy ship repair yards and civil industry are low and do not meet the recycling rate." There is, he underlined, "the impossibility of timely recycling."

The numbers bear him out. By 2010, 131 submarines will still be waiting to be decommissioned. In the meantime, the subs sit at their berths, with their hulls rusting. There are many dangers: In addition to the risk of "a loss of buoyancy" (in plain language, they sink, which has happened to a couple of the subs), they tempt hard-pressed locals who will steal anything that can be resold. Several incidents have already been reported and a few serious mishaps narrowly averted. Although the theft of nuclear materials is possible, it is unlikely.

The greater danger is a radiological accident during the decommissioning process, which is long and complex. It involves moving the subs to a central facility, offshore defueling, storing the spent nuclear fuel and the wastes generated during that process, and the eventual removal and disposal of all wastes associated with decommissioning. No link in the chain is secure. Even the train lines needed to move materials from the Zvezda Far Eastern Shipyard in Bolshoi Kamen, a couple of hours north of Vladivostok, which is the chief recycling facility for Russia's Pacific Fleet, are in disrepair.

In addition to the "ordinary" risks, there are three submarines with damaged reactor cores that need special care in recycling.

Russian experts have highlighted "a number of urgent problems" in the decommissioning process. The train lines are one bottleneck, as is the lack of storage facilities on land and on water for low-level wastes.

A critical concern is the service vessels that are used to prepare the submarines for decommissioning. According to Russian sources, six of these "floating shops" are damaged and "of grave concern." "The equipment used in unloading and transportation operations is worn and needs overhaul, which has become one of the reasons of radioactive substances [have been] released into the environment in spent nuclear fuel unloading." Extensive use has turned these ships into "radiation hazardous objects." They are now part of the problem, and need to be recycled as soon as possible.

Russia estimates that the total cost of decommissioning the Pacific Fleet submarines is about \$3.9 billion; \$60 million is needed for this year alone. The international community has been helping. The U.S. provides some funds, but that assistance has been limited to strategic submarines: attack subs, which don't carry intercontinental ballistic missiles, are not covered. The U.S., Russia, and Norway cooperate in the Arctic Military Environmental Cooperation Program, which addresses spent fuel nuclear and waste management and storage. As the name suggests, it has focused on submarines located in the Arctic, which excludes the Far East region. The International Atomic Energy Agency and NATO have cooperated with Russia in dismantling nuclear powered submarines and storing the spent fuel. Recognizing that dumping radioactive waste was a threat to its own environment, the Japanese government has provided funds too. Unfortunately, only one project has materialized over the last decade: the construction of Landysh, or Suzeran, a floating facility to process low-level liquid wastes.

At the MINATOM conference, Japanese and British officials expressed in unusually blunt language their frustration over the difficulties in helping the Russians. Diplomats explained that they had money, but they needed legal guarantees before they could commit funds, and they were not forthcoming. "We are not satisfied with the slow pace of implementation," complained one Japanese participant. The failure to move forward exacerbates the

problems: not only does it increase the risk of an accident, but Zvezda, and facilities like it, are losing expertise as skilled individuals leave the region to find employment elsewhere. That means that when the money comes through, it may be too late.

In addition to tackling the nuclear waste problem directly, scientists from the Cooperative Monitoring Center (CMC) of Sandia National Laboratories, have proposed that the Zvezda site be monitored for radioactive emissions. CMC, in cooperation with the Council for Security Cooperation in the Asia Pacific (CSCAP), provides similar data at its nuclear energy transparency web site [www.cscap.nuctrans.org]. That project is part of an ongoing attempt to create new norms of transparency regarding nuclear energy in the Asia Pacific region. Russia, along with the U.S., Japan, Korea, and Taiwan contribute real-time data on radiation emissions from various nuclear facilities. John Olsen, a senior scientist at Sandia and the author of the project, believes Japan should have a natural interest in supporting the program, especially since it could be effected by radiation emissions during the decommissioning process.

Russia is rightfully concerned about the submarine decommissioning problem, and has expressed both an understanding of the need and desire for international assistance to deal with this issue. To their credit, Russia's neighbors and other concerned governments have signaled their willingness to help. It is up to Moscow to lay the foundation for long-term collaboration.

*"Ecological Problems in Nuclear-Powered Submarines Decommissioning and the Development of the Nuclear Power in the Region," Sept. 16-20, 2002, Vladivostok, Russia.

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