CONGRESSIONAL BUDGET OFFICE
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WASHINGTON, DC 20515

Dan L. Crippen
Director

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The Honorable Tom Daschle
Democratic Leader
United States Senate
Washington, DC 20510

Dear Mr. Leader:

I am pleased to respond to your letter of August 6 asking for an analysis of additional options that would improve Russia's access to early-warning information. As you had previously requested, the Congressional Budget Office (CBO) has been examining a number of ways in which the United States and Russia could enhance mutual security. An earlier CBO analysis about early-warning assistance, published last September, looked at measures that would help Russia develop new space-based early-warning systems. That analysis pointed out that Russia's early-warning satellite system is seriously degraded and poses risks to both countries. After producing that analysis, CBO learned that Russia has finished constructing seven additional early-warning satellites, but it is unable or unwilling to devote the resources necessary to launch them. This letter examines the policy implications and cost of having the United States pay to launch six of those satellites—enough to give Russia 24-hour coverage of U.S. missile fields.

The State of Russia's Early-Warning Systems

In the past, Russia, like the United States, decided whether to respond to perceived attacks by launching nuclear missiles on the basis of information from ground- and space-based sensors. However, Russia's early-warning systems have suffered significant losses of capability. As CBO's September 1998 analysis pointed out, if those systems cannot reassure Russian leaders that false alarms are indeed benign events, the danger for both countries could be significant. (A 1995 incident in which a research rocket launched from an island off the coast of Norway triggered a heightened state of nuclear alert in Russia is a good example of the risks posed by a deficient early-warning system.) One of the best ways to provide such reassurance

is through global early-warning coverage, which is only possible with space-based sensors.

Russia's space-based early-warning strategy employs two distinctly different satellite systems. One system uses sensors that are less capable than those in U.S. early-warning satellites but compensates by placing them in orbits that view potential launches against the black background of space. Such background significantly reduces the problems that observers face when trying to distinguish a real missile launch from a false signal. But those orbits mean that satellites can only observe a relatively small area. In this case, they are used solely to keep watch on missile fields in the continental United States. CBO's 1998 analysis showed that, because of attrition, this system has lost the capability for 24-hour coverage of those fields. The seven satellites that Russia has just completed building are intended to restore that capability.

Russia's second space-based system comprises satellites that are supposed to be in geo-stationary orbits to view possible submarine launch areas in the Atlantic and Pacific oceans. However, CBO's 1998 analysis raised significant questions about that system's coverage as well. Russian officials familiar with their country's early-warning systems have acknowledged that between them, the systems do not provide global coverage. But, the officials say, Russia's command-and-control system can function without global coverage because Russian doctrine has required the detection of a massive U.S. nuclear attack—including launches of intercontinental ballistic missiles (ICBMs) from the continental United States—before Russian missiles are launched on warning.

Pros and Cons of U.S. Funding for Satellite Launches

A new option for improving Russia's access to early-warning information would involve having the United States provide the funds necessary to launch additional Russian satellites. At least six launches would be needed to guarantee that Russia had enough satellites for 24-hour coverage of missile fields in the continental United States. The United States could purchase Russian rockets for those launches for about $35 million each (or approximately $200 million in all)—considerably less than it would cost to use rockets made in the United States. (The $35 million represents the mid-point of a range of costs for similar Russian launch vehicles.) Furthermore, since those satellites have already been built, this option could increase Russia's access to early-warning information relatively quickly. Russian officials have told CBO that they would like to launch one of the satellites every six months.

Opponents of this option could raise a number of objections. Some might point out that if Russia was sufficiently worried about false alarms, it could devote the required resources itself. For example, it could use some of the money it is spending to modernize its strategic rocket forces (by developing and deploying a new ICBM, the SS-27) to fund its early-warning system instead. Other critics object to U.S. funding of a system that would still not provide Russia with global coverage. Although they acknowledge the logic behind the doctrine of requiring the detection of ICBM launches before launching on warning, they worry that future arms control agreements could render that doctrine obsolete. Deep cuts—such as the limit of 1,000 deployed warheads that some members of the Russian Duma have talked about for START III—might result in U.S. forces being predominantly deployed at sea, which could make Russia believe that a massive U.S. nuclear strike was possible without the launch of U.S.-based ICBMs.

Some critics of this option also argue that it would not give enough assistance to Russian institutes involved in designing and building early-warning satellites. Scientists and engineers at those institutes—who may be especially needed under future arms control agreements—could be driven out of their field by Russia's current economic crisis. But under the U.S.-funding option, most of the money devoted to launching the six satellites would go to purchasing space-launch vehicles instead of supporting the critical early-warning institutes.

By contrast, proponents of the option might argue that improving Russia's early-warning system is in the best interests of the United States, regardless of how much Russia is willing to invest. In their view, one of the greatest strategic threats the United States faces is inadvertent nuclear war caused by a failure in Russia's command-and-control system. The Clinton Administration tacitly recognizes the problems caused by Russia's dilapidated early-warning system; during their September 1998 summit, Presidents Clinton and Yeltsin took steps that could lead to the creation of a joint early-warning center in Moscow. However, proponents of U.S. funding of Russian satellite launches could argue that the joint center would not significantly increase Russia's confidence that it would learn of a missile attack in advance. Russia, they maintain, would not allow its national security to depend on information from U.S. satellites, especially if that information had first been filtered by the United States. Paying to launch existing Russian early-warning satellites would avoid that problem. Because the satellites were designed and built in Russia, the Russian government would have complete confidence in their integrity and in the secrecy of any information about their capabilities or weaknesses. Similarly, this

option would not run the risk of disclosing information about U.S. early-warning satellites.

Some supporters of this option might agree with critics who said it would not provide enough funds to sustain the Russian institutes that design and build space-based early-warning satellites. But, they would argue, giving Russia improved access to early-warning information in the short term is important to U.S. security. Moreover, it would not preclude other cooperative early-warning measures, such as joint research into future systems. Those proponents might support parallel U.S. funding of the Russian American Observation Satellites (RAMOS) project to help Russia maintain the early-warning capabilities it might need under future arms control agreements.

I hope that this analysis proves useful; please let me know if I can be of any further assistance. If your staff would like more information, they should contact Geoff Forden about the policy issues in this analysis and Raymond Hall about costs.

Sincerely,

Dan L. Crippen
Director

cc: Honorable Trent Lott
Majority Leader

Honorable John W. Warner
Chairman
Committee on Armed Services

Honorable Carl Levin
Ranking Minority Member
Committee on Armed Services

Honorable Jesse Helms
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Honorable Joseph R. Biden, Jr.
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