Krasnoyarsk Casts Long Shadow Over Arms Talks

The Administration has said it will sign no new arms agreements until the radar is dismantled, but it stopped short of charging the Soviet Union with a "material breach" of the ABM Treaty

A WEEK-LONG MEETING whose stated purpose was to strengthen the 1972 Antiballistic Missile (ABM) Treaty ended on 31 August with the United States and the Soviet Union accusing each other of violating the pact. In a statement issued at the end of the meeting, the Reagan Administration warned that the United States will not sign any new arms control agreement, and may eventually withdraw from the ABM Treaty, unless the Soviet Union brings itself into compliance.

At the center of U.S. displeasure is the Krasnoyarsk radar, a massive facility under construction in Siberia that is almost unanimously viewed in the United States as a violation of a key provision of the ABM Treaty. The warning issued last week represents the Reagan Administration's strongest statement on Krasnoyarsk so far, but it fell short of what some officials had urged and others had feared.

The Administration has been divided on what steps to take in part because of different interpretations of the military significance of the radar. On one side are the State Department and the Central Intelligence Agency, which are said to have concluded that the radar is designed to provide early warning of an attack on the Soviet Union by ballistic missiles fired from submarines in the northern Pacific. If so, the radar would violate a clause in the ABM Treaty that requires early-warning radars to be constructed on the periphery of each country and face outward. The Krasnoyarsk radar is more than 800 kilometers from the nearest border and it looks out over 4000 kilometers of Siberia.

The violation of the ABM Treaty, according to the State Department interpretation, is a serious matter. But it does not undermine the central purpose of the treaty, which is to prevent either side from deploying missile defenses designed to protect large areas of their territory.

The view of the radar from the Pentagon is far more serious. Defense Department officials have contended that the radar is an ABM battle-management facility. It was built inland rather than on the coast, they argue, in order to gain more complete data on the tracks and likely impact points of incoming warheads. These data could then be fed to smaller radars that would guide nuclear-tipped rockets to intercept the warheads.

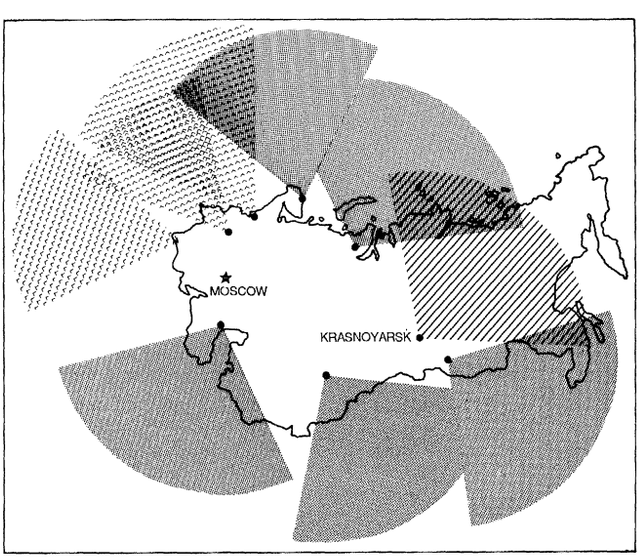
Under the Pentagon's interpretation, the radar violates the very purpose of the ABM Treaty. Accordingly, Defense Secretary Frank Carlucci is said to have urged President Reagan to charge the Soviets with a "material breach" of the treaty. Such a charge would be the most serious the United States could make and it would provide the legal basis for U.S. termination or suspension of the treaty.

The State Department view that the radar is an early-warning station in an illegal location is supported by the findings of a small congressional delegation that visited the site a year ago (*Science*, 18 September 1987, p. 1408). The facility, which is far from completed, is virtually identical to other Soviet early-warning radars. It appears to be designed to operate at a frequency of about 180 megahertz, which would make it highly susceptible to blackout by high-altitude nuclear bursts. In contrast, the battle-management radar built by the United States at the now mothballed ABM site in North Dakota was designed to operate in the gigahertz range. The congressional delegation also found that the structure is not hardened against blasts or electromagnetic pulse, which means that it could be readily destroyed in a nuclear exchange.

A "material breach" charge would provide the legal basis for U.S. termination or suspension of the treaty.

Many independent arms control experts have sharply criticized the Defense Department's stance, claiming that it is simply an attempt to pave the way for U.S. withdrawal from a treaty that could eventually prove legally troublesome for the Strategic Defense Initiative (SDI). Spurgeon Keeny, president of the Arms Control Association, says, for example, that "a charge of 'material breach' would be a gross distortion of the meaning of this legal term and would be a crude pretense for repudiation of a treaty critical to further progress in arms control." The Joint Chiefs of Staff are also reported to have argued against terminating the treaty, on the grounds that the Soviet Union would be better prepared than the United States to deploy an ABM system in the near term.

Skirmishing over whether to charge the Soviets with a material breach of the treaty reached a head in July as the Reagan Administration sorted out the line it would take at last week's meeting. (The meeting, which was held in Geneva, was a scheduled review conference that the treaty itself requires the signatories to hold every 5 years.) In the end, the State Department prevailed. The White House announced on 8 August that



Source: Department of Defense

Illegal plug? *The Krasnoyarsk radar would plug a gap in the Soviet Union's early-warning network, but its inland location violates the ABM Treaty. The radar is similar to others that have been built in legal positions around the periphery of the country, three of which, whose coverage is designated by lighter shading, were spotted by reconnaissance satellites. There has been speculation that the Krasnoyarsk radar was built in an illegal place to avoid costly construction on permafrost, which would be required if it were located on the coast.*

the material breach charge would not be made at the meeting, but it reserved the right to make the charge at a later time. The White House also directed the Defense Department to prepare options for a U.S. response if the radar is not dismantled.

The Soviet Union has insisted all along that the radar is designed to track spacecraft, a function that would not violate the ABM Treaty. This explanation has won few converts, for the radar is facing in the wrong direction to track most militarily important satellites. Last October, the Soviets seemed tacitly to acknowledge that there is a legal problem, however, by announcing that construction at the facility would be halted for a year. Then, in July, Soviet arms control negotiator Viktor Karpov announced that "if an understanding to abide by the ABM treaty, as signed in 1972, is reached, the Soviet Union will be ready to dismantle the equipment of the Krasnoyarsk radar in a verifiable way."

Karpov, in essence, was offering to trade Krasnoyarsk for an agreement by the United States not to adopt the controversial "broad interpretation" of the ABM Treaty, which the Reagan Administration has argued permits development and testing of candidates for SDI. The offer apparently drew a frosty response, to the effect that the Soviets should expect no concessions for living up to their treaty obligations.

The review conference resolved nothing. The U.S. statement at the end of the meeting said that "the continuing existence of the Krasnoyarsk radar makes it impossible to conclude any future arms agreements." It also warned that "the United States will have to consider declaring this continuing violation a material breach of the Treaty."

The Soviets issued their own statement, accusing the United States of violating the treaty by upgrading old early-warning radars at Thule in Greenland and Fylingdales in England with electronic facilities of the type that the treaty restricts to the periphery of the Soviet Union or the United States. The statement also chastised the United States for ignoring the chief purpose of the review conference, which was to seek ways to strengthen the treaty, by refusing even to discuss proposals offered by the Soviet delegation designed to prevent future disputes over large radars.

The next Administration, whatever its political stripe, is unlikely to bring the Soviets any relief on Krasnoyarsk. Last week, Michael Dukakis, the Democratic candidate, said in a statement that "we must be clear that no new strategic arms agreements will be signed until the Soviet Union agrees to dismantle the Krasnoyarsk radar."

■ COLIN NORMAN

Applied R&D Key for U.S. Trade

In a critical report, the 19-month-old Council on Competitiveness is calling for an overhaul of federal policies that affect the conduct of research and technology development. The independent, bipartisan organization says that "fragmented" government programs impede efforts to reverse the decline in the nation's ability to produce high-technology products and to compete in world markets.

Picking Up the Pace: The Commercial Challenge to American Innovation is the first of four reports being prepared by the organization, which is composed of 151 companies, universities, and unions. The study examines the problems and possible solutions to the erosion of the nation's technological competence and loss of overseas markets for a host of manufactured goods ranging from computer chips to ball bearings. "It is clear that we are getting weaker," says council president Alan Magazine about the ability of domestic manufacturers to effectively transform laboratory research findings into commercial products.

Competitiveness in world markets should be at the top of the national agenda for the next president, contends Magazine, whose group is recommending federal action "across a broad policy front." Specifically, the council wants the government to: adopt strategies to encourage greater private savings and investment; to widen national R&D programs to give commercial and industrial needs more consideration; to spur more American students to pursue math and science careers, and to outfit universities with new research facilities; and to coordinate and set priorities for federally funded science programs.

In releasing the report on 7 September, John Young, chairman of the council and president of Hewlett-Packard Company, told reporters that the government's framework for advancing technology in the United States is "somewhat outdated." Young notes that "U.S. technology policy has viewed commercial applications as incidental or secondary in importance."

To better address the needs of U.S. industry, Magazine says some growth in federal spending for R&D will be necessary. This need not enlarge annual federal budget deficits, he says, if Congress has the courage to reallocate funds away from other programs. The council plans to identify in late November a group of federal programs that could be cut in order to support an enlarged R&D effort.

In conjunction with reorienting U.S. R&D policy, the council recommends that the role of the government's 700 laboratories in supporting the commercial application of technology needs to be examined. Says Young, "More resources should be directed toward R&D that is relevant to the needs of the private sector." To accomplish this, the report says the activities of some federal labs will need to be redirected to support more applied research and in other cases laboratories should be closed where their work is of marginal utility.

The political obstacles posed by an effort to restructure and consolidate federal laboratories, the council concedes, will be large. Members of Congress usually regard these facilities as prized possessions and because the labs are often mission-oriented they also have industrial constituencies that will lobby in their behalf.

A key to deploying federal research dollars and research facilities more effectively, says the council, is leadership at the White House level. The Office of Science and Technology Policy (OSTP) previously played a larger role in coordinating agency research programs. The council notes, however, that OSTP "currently has neither the resources nor the inclination to play a strong role in this area."

The council recommends that the next president elevate the current national science adviser position to an "assistant to the president for science and technology." This position would have cabinet-level status and an adequate operating budget and staff.

The chairman of Westmark Systems, Inc., Bobby R. Inman, who helped prepare the report, says it is also essential that order be brought to congressional budgeting for research and technology development. He notes the civilian research budgets carved up between 13 appropriations committees, which do not set priorities.

Inman says it is crucial that the Senate and House budget committees conduct a unified review of the federal R&D budget and set joint priorities at the beginning of the budget process. The council report also recommends that R&D programs be authorized and receive appropriations on a 2-year cycle. This would add stability to R&D planning.

■ MARK CRAWFORD