

## Joint Nuclear Tests Raise Questions About Administration Policy

IN JOINT EXPERIMENTS at the Nevada and Semipalatinsk nuclear test sites late this summer, U.S. and Soviet officials conducted on-site measurements of the yields of two underground nuclear explosions. The elaborate tests, though designed to demonstrate on-site monitoring techniques favored by the Reagan administration to verify the Threshold Test Ban Treaty (TTBT), generated data that raised questions among testing experts about the necessity of the administration's intrusive verification method.

The tests, known as the Joint Verification Experiment (JVE), were developed by U.S. and Soviet specialists who have been meeting since 1986 to discuss methods for verifying the 150-kiloton yield limit of the TTBT and the complex provisions of the Peaceful Nuclear Explosions Treaty (PNET). Although the treaties remain unratified since their signing in the mid-1970s, both nations have expressed their intent to abide by the yield limit.

The Reagan administration has insisted that seismic sensors, the traditional means of yield verification, are inadequate to determine Soviet compliance with the TTBT. The administration's preferred method, called CORRTEX, requires that a long electronic cable be lowered to within a few meters from the buried warhead. The yield is measured by the rate at which the cable is crushed during the explosion. Administration officials hoped the JVE would convince the Soviet Union to accept CORRTEX as a routine means of test monitoring.

The United States, host of the first experiment, exploded a nuclear warhead at the Nevada Test Site on August 17. The test followed weeks of preparation during which a team of Soviet technicians, under close U.S. observation, installed two CORRTEX-like cable monitors at the test site. The U.S. also placed two CORRTEX monitors to measure its own test. In the second experiment, the Soviet Union detonated a warhead at its Semipalatinsk test site on September 14. Each side again used two cable monitors. More than 140 U.S. scientists and engineers lived and worked at the Soviet test range for three months to prepare for the blast. No official results have been released on either test.

Although the JVE did not provide for special "close-in" placement of seismic

monitors, it required each side to share results from five of their usual seismic monitoring stations. Close-in seismic measurements for both tests were taken in an unofficial capacity, however, by a joint team of scientists from the Natural Resources Defense Council, a private U.S. group, and the Soviet Academy of Sciences.

### Ambiguous Results

According to the administration, the U.S. warhead in the Nevada test was designed to produce an explosive yield in the "140-kiloton range." Although government data are being withheld, *The Washington Post* on September 8 cited U.S. and congressional officials as saying the two U.S. CORRTEX monitors measured the explosion at 163 and 155 kilotons.

These test results may reflect statistical uncertainties and do not necessarily indicate a U.S. violation of the treaty threshold. Administration sources have claimed the CORRTEX method has up to a 30-percent margin of error. The State Department said the blast was "in conformity" with the 150-kiloton limit.

Another potential embarrassment for the administration was that official U.S. seismic sensors reportedly gave readings of "roughly 145 kilotons" for the Nevada test, according to the *Post*. If the U.S. claim that the yield did not exceed the 150-kiloton limit is correct, then the seismic measurement showed more accurate results than CORRTEX.

To obtain a better determination of the probable yield, the administration is conducting a radio-chemical analysis of a core sample from the explosion. This technique gives a more precise, though still inexact, measurement of yield.

The data from the first JVE test emphasize the statistical uncertainties inherent in yield monitoring. Even with the administration's CORRTEX system, occasional inaccurate measurements will indicate a threshold violation where none has occurred. In this respect, the ambiguous results from the JVE raise questions about administration claims that a number of past Soviet nuclear tests "constitute a likely violation" of the TTBT. A recent report from the Office of Technology Assessment, which found no basis for the admin-

istration's charges, highlighted the uncertainty problem by noting that the Soviet tests in question "could actually be at or below the 150 [kiloton] limit, but have higher yield estimates due to random fluctuations in the seismic signals."

While geological experts say it is difficult to draw conclusions from a single test, advocates of seismic verification argue that the JVE will probably show that seismic sensors are as accurate as CORRTEX. "I don't know how you can argue against seismology any more," said Jack F. Evernden, a research geophysicist at the U.S. Geological Survey. Evernden also pointed out that CORRTEX does not provide as accurate a measurement of low-yield nuclear tests as close-in seismic methods, and therefore would not be as useful for verification of a low-yield threshold limit, a suggested goal of the U.S.-Soviet talks. CORRTEX would be irrelevant for a comprehensive test ban, which would require means of verification to detect clandestine tests at unannounced locations.

Evernden said the administration's insistence on the use of CORRTEX is a stalling tactic to prevent progress in the U.S.-Soviet testing negotiations and to discredit seismic monitoring. Frank Gaffney, Jr., a former senior official of the Reagan Defense Department, acknowledged this motivation among U.S. officials. In a September 5 *Defense News* column, he wrote, "The more time wasted on discussions and experimentation of monitoring techniques irrelevant to the verification of an environment in which there are no legal tests, the easier it will be to stave off demands for the more constraining comprehensive test ban."

Whether the JVE program will continue to conduct further tests is uncertain. Some observers have suggested that additional CORRTEX tests at Semipalatinsk could help scientists calibrate the test site for regional bias in U.S. seismic test results. Critics on Capitol Hill, however, are voicing reservations about the future role of CORRTEX in treaty verification. Jeff Duncan, an aide to Representative Ed Markey (D-MA) who has been closely following the JVE, said the CORRTEX system is "not necessary, too expensive, and too intrusive." Duncan said the Department of Energy cost for the JVE is \$28 million, and each new test will cost \$10 million.

On August 29 in Geneva, the superpowers resumed "step-by-step" testing negotiations, in which the United States proposes to "continue to press for agreement on effective verification measures" for the TTBT and PNET. —Robert T. Scott

## U.S. Begins INF Missile Destructions With Pershing Firings

ON SEPTEMBER 8, the United States destroyed the rocket motors of two Pershing missiles at the Longhorn Army Ammunition Plant in Karnack, Texas. The missiles were the first American weapons to be eliminated under the U.S.-Soviet Intermediate-range Nuclear Forces (INF) Treaty signed by the two nations in December 1987.

Top officials from both the United States and the Soviet Union, including Vice President Bush and a team of 12 Soviet on-site inspectors, watched as the rocket motors were destroyed by static firing. The motors of one Pershing Ia and one Pershing II were secured in steel harnesses and then ignited. After the solid propellant in each of them burned, the motor shells were crushed and buried on-site.

According to an Army spokesman, the static firings went smoothly, and both American and Soviet onlookers were pleased with the day's events. An Army official presented three pieces of the crushed motor casing to Vice President Bush, who kept one for himself, one for President Reagan, and presented the third to a member of the Soviet inspection team as a gesture of goodwill.

The rocket motors were the first of a total of 76 Pershings to be destroyed at Longhorn over the next three years. Before each missile is destroyed, the warhead and guidance system is removed.

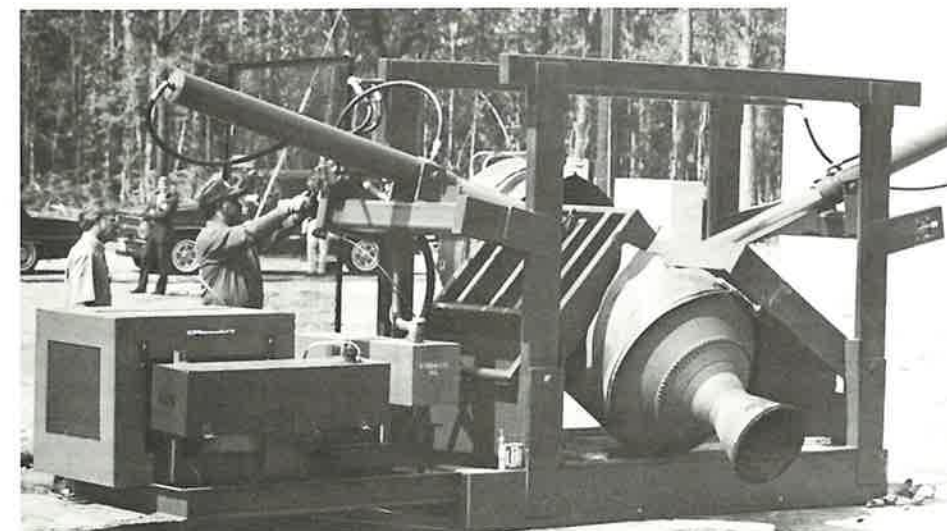
The Soviet Union, which began destroying weapons under the INF Treaty on August 1 with the elimination of shorter-range SS-12s, continued its program by exploding three intermediate-range SS-20s at Kapustin Yar on August 28. Representatives from the United Nations as well as U.S. inspectors and foreign journalists were present during the demolitions.

According to the Novosti Press Agency in Moscow, SS-20s will be exploded twice a month at Kapustin Yar for the next three years. Over 600 SS-20s are scheduled for elimination at the test site.

Baseline inspections, the first phase of the INF Treaty verification provisions, ended without incident as both the United States and the Soviet Union completed inspections of each other's missile storage, basing, and training facilities by the required date of August 29.

Brigadier General Roland Lajoie, director of the U.S. On-Site Inspection Agency, expressed great satisfaction with the verification process, stating that "the Soviets were uncommonly relaxed and in some cases even more so than we were." Lajoie's Soviet counterpart, Colonel Nikolai Shabalin, did complain briefly about the severity of U.S. inspections of Soviet personnel entering the United States, but said that, on the whole, he found the U.S. military "very forthcoming."

—Felicia J. Wong



The first Pershing rocket destroyed under the INF Treaty. After the solid rocket fuel is burned out of a Pershing motor stage by static firing, the casing is crushed.

## U.S. Charges Iraqi Gas Warfare Against Kurds

THE UNITED STATES has charged Iraq with using chemical warfare against its Kurdish minority, an action the U.S. condemned as "abhorrent and unjustifiable." A new Iraqi offensive against Kurdish separatist guerrillas has led thousands of Kurds to flee across the border into Turkey, carrying gruesome stories of chemical bombardment.

Secretary of State George Shultz told Iraqi Foreign Minister Saddam Hammadi on September 8 that the use of chemical weapons was "unacceptable to the civilized world." Shultz told Hammadi that the United States "did not intend to pursue" improved relations with Iraq if the chemical warfare "and other human rights abuses" continued. Shultz later told a Senate committee that the United States had "conclusive evidence" of chemical attacks.

Hammadi, speaking to reporters after meeting with Shultz, called the charges "absolutely baseless." Despite the large number of refugee accounts, Turkish doctors treating the refugees have been unable to confirm the use of chemical weapons, and the U.N. High Commission on Refugees and the International Red Cross have not found chemically inflicted injuries among other Kurds who fled to Iran.

On September 12, the United States and nine other nations requested a U.N. investigation. Iraq rejected the possibility of a U.N. inspection, but announced it would allow "all journalists to go anywhere" in the region.

Meanwhile in Congress, the Senate unanimously passed a bill charging Iraq with "genocide" against the Kurds, and imposing sweeping sanctions. An identical bill is being considered by the House, but is opposed by the administration, which argues that the stiff sanctions are "premature."

The latest action comes after repeated Iraqi use of gas warfare in its war with Iran, in violation of the 1925 Geneva Protocol banning the use of chemical weapons in warfare. Iran has also been charged with using chemical weapons in the war. In March, Iraqi forces used gas in fighting around the Kurdish frontier town of Halabja, reportedly killing thousands of civilians, and leading to widespread international condemnation. —Matthew Bunn



# What Next For Arms Control?

**Building on the Achievement.** With the ratification of the INF Treaty, the Reagan administration has taken a positive step for arms control. The strong bipartisan support for arms control rekindled during the ratification process has improved the prospects for an historic agreement on strategic arms reductions. A broad agenda of other important issues faces the next administration, including conventional forces in Europe, chemical weapons, a nuclear test ban, and nonproliferation.

**Protecting the Antiballistic Missile Treaty.** Amid these hopeful developments, the Reagan administration is still pursuing its campaign to revise the ABM Treaty to facilitate early deployment of a strategic defense system. The "broad" interpretation would lead to the immediate erosion and eventual collapse of the ABM Treaty, the cornerstone of arms control, and would prevent further progress on strategic arms reductions.

**Keeping the Arms Control Vigil.** During the crucial coming months, it will be important for arms control supporters to keep a careful watch over developments. The Arms Control Association analyzes unfolding events in all areas of arms control, and disseminates this information through its press and public education programs.

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