Nike-Zeus Soon Will Get Big Test As Space Weapon Killer

By DARRELL GARWOOD

WASHINGTON (UPI) — The U.S. Air Force one day this spring will fire a two million dollar missile from the West Coast of California in the hope it will be destroyed within the next 20 minutes.

Destruction of the Atlas intercontinental ballistic missile out over the Pacific would mean the Army's Nike-Zeus anti-missile missile has passed its first test as a space weapon killer.

The test—the first of a series of 47 shots—will consist of a mock push-button war waged over a 4,500 mile firing range between Vandenberg Air Force Base north of Los Angeles and the remote little coral island of Kwajalein in the Pacific.

The simulated fight will pit the Atlas, streaking at a speed of close to 16,000 miles an hour, against the 46-foot Zeus designed to hunt down and destroy its rival with probably less than three minutes' notice.

Because of the supersonic speeds involved, the feat expected of the Nike-Zeus has been compared to shooting down a bullet with a bullet.

The outcome will have tremendous significance. If successful, the Nike-Zeus would give the free world a weapon in the immediate future to combat Russia's multi-megaton nuclear missiles of which Soviet Premier Nikita Khrushchev has boasted.

Even without the combat-condition test series, experimental Zeus launchings against electronic ghost targets have provided the Army good evidence that its anti-missile missile can shoot down Soviet missiles before they would reach their targets.

But several big questions still remain to be answered when the Army begins the long series of test firings.

The actual tests, slated to continue for more than a year, will use up 47 of the Atlas boosters. With much of the cost being written off as an Air Force training expense. The "ghost targets," however, are available in unlimited quantities on magnetic tape.

This is because the electronic brain of the Nike Zeus has no way of knowing whether the anti-missile is being fired at a ghost target or at an actual ICBM warhead.

The ghost targets were "canned" on magnetic tape months ago by powerful Army radar which, from Ascension Island in the South Atlantic, tracked Atlas and Titan ICBM's as they soared down-range from Cape Canaveral, Fla.

When the tape is fed into a Zeus computer at White Sands, N.M., Point Mugu, Calif., or on tiny Kwajalein, the result, from the missile's standpoint, is the same as if the photographed warhead were at that moment approaching the point from which the Zeus is being test fired.

During the warmups for the big tests, the technicians have regarded the ability of the Zeus to intercept these ghost targets as more important and informative than its successful interception of a slower Nike Hercules missile at White Sands, N.M. Dec. 21.

Some Zeus partisans now comment that anti-missile science once considered an impossibility, has advanced to a point where an ICBM warhead hurtling through space at nearly 266 miles a minute could under some circumstances be considered a "sitting duck."

Critics contend that the initial Kwajalein tests will be conducted under carefully controlled conditions rather than those to be encountered in war. In its first attempts to intercept the Atlas, the Army will know when the ICBM is launched and its approximate trajectory.

Even in these tests, however, an important part of the Zeus system known as the acquisition radar may be getting its first real long-range test.

An anti-missile crew is a little like the staff of an astronomical observatory which, in addition to a large telescope pinpointed on a spot in the sky, must have a smaller, wide-angle telescope to tell the big telescope where to look. The acquisition radar is comparable to the wide-angle scope to scan quickly large portions of the sky.

The Army has announced that its tracking radar had successfully followed intercontinental missiles over "several" hundred miles and had picked up the Echo satellite at a distance of 1,500 miles. Whether such ranges will be possible when first information has to come from the acquisition radar is one of the big remaining questions.

Another big question is how foolproof are Zeus' radar and ground-command guidance systems in distinguishing between real ICBM warheads and the decoys which missiles may throw out much as bomber pilots tossed out tinfoil to confuse enemy radar in World War II.

Space-type sleight of hand to test the defense radar and the introduction of surprise are scheduled to start fairly early in the Kwajalein tests.

Under the Army's arrangement with the Air Force, 29 of the Atlas ICBMs fired as targets toward Kwajalein will be considered Air Force training missiles and 18 will be paid for by the Army. But all will carry special target nose cones.

The special nose cones will be designed like those which the Russians might use if a missile war broke out. Many will be equipped to throw out decoys.

The Army's belief is that no decoy can act like a warhead unless it is similar in weight and other respects and that its system can spot and ignore the decoys either in dense atmosphere or in the extremely thin atmosphere above 50 miles in altitude.

More than $75 million has been spent to convert Kwajalein into a missile base for the test. The island now has facilities for launching the three-stage Zeus either from the surface or from an underground "cell."

At one time the first test against an Atlas was scheduled in March but this timetable now has been apparently delayed until later in the spring.

The Army hopes that before the tests are far advanced, the Zeus will be ordered into production. Both President Kennedy and former President Dwight D. Eisenhower have hesitated to do this. If Kennedy gives the go signal for production, the Nike-Zeus could be deployed round many American cities by the mid-1960s, when the number of Russian intercontinental missiles will be in the hundreds.

Possibly for psychological as well as technical reasons, proponents of the Zeus hope some of the tests can be conducted with nuclear defensive warheads but this would hinge on Kennedy lifting the voluntary U.S. ban on atmospheric testing.

While the electronic instruments may tell the scientists whether the Zeus would have destroyed a missile if it had been armed, the proponents point out that the actual destruction of an ICBM with a nuclear warhead would be more spectacular and would yield additional technical information.

Ringing U.S. target cities with the anti-missile missile would cost $8 to $10 billion over a five-year period plus an additional $1.2 billion spent on development. But military leaders believe it is the only active defense against the ICBM that could be made effective in the next 10 years.

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N.C. Is Holding Big Stake In Missile Killer's Future

GREENSBORO (UPI) — North Carolina has a considerable economic stake in the future of the Nike-Zeus missile killer system which experts believe can be improved to the point where it could knock out spy-in-the-sky satellites hundreds of miles out in space.

The Zeus is a slender, 48-foot weapon designed to intercept enemy warheads high above their intended targets, and the other part consists of the electronic guidance equipment on the ground. The Nike-Zeus system has been in the research and development stage for six years.

One congressman has said delay in the project would leave the nation wide open for another Pearl Harbor disaster.

Western Electric Co. is the prime contractor for the anti-missile missile system under supervision of the Army Rocket and Guided Missile Agency (ARGMA) which has a field office in Burlington. The Western Electric plant there turns out ground guidance components; the Greensboro plant is responsible for assembly and airborne guidance units, and the plant at Winston-Salem produces parts for both.

The units are shipped by rail at irregular and secret intervals from a spur track at the Greensboro plant to the Douglas Aircraft Co. factory in Charlotte, which provides the flying apparatus and assembles missiles.

"Practically none of our operation is tied up with it now," said a Western Electric executive last week when questioned about the status of the Nike-Zeus system, which would have to go through a pre-production tooling up period before actual production. Western Electric, which subcontracts the majority of the work on the overall system, has been ready to go into the next phase for months.

Opposition has come from those who believe production should not be undertaken until tests on the Zeus have been completed. Funds for research and development already have passed the billion-dollar mark.

A number of congressmen, high ranking Army officers, and several companies have pressed long and hard on behalf of Zeus. "If production is delayed," said Rep. George P. Miller in the House last February, "this country stands to lose months and maybe years in the race with Russia to create and bring to operational status the world's first anti-missile missile defense."

The California Democrat spoke as a member of the House Committee on Science and Astronautics.

A month later Brig. Gen. David C. Lewis, director of special weapons in the Army's Research and Development Department, said that with minor modifications the present Zeus system could be developed as a defense weapon against satellites orbiting at altitudes up to 200 miles. With major modifications, said the general in addressing a National Rocket Club missile space conference, its reach into space could be extended to 1,200 miles.

President Eisenhower's final budget called for $250 million for continued research and development, but he refused to authorize production of the weapon and left that decision to his successor.

The Kennedy administration turned down a mulit-million dolar Army request for production funds late last year, but authorized $270 million for further research and development.

Defense Secretary Robert McNamara had said earlier that he was satisfied the Zeus was being developed at the maximum rate possible and that additional funds would not accelerate it.

A consistent advocate of going into the pre-production phase immediately has been Tarheel Rep. Horace R. Kornegay whose congressional district encompasses two of the three Western Electric plants involved.

"The first nation to produce an effective anti-missile missile system will have a tremendous advantage over the others," said Kornegay Saturday. "I regret the fact that the recent budget did not provide funds for going into pre-production and I feel that it ought to get top priority."

The Nike-Zeus is the only weapons system under development designed to knock out intercontinental ballistic missiles before they could reach a target in the United States. The Nike-Hercules and Nike-Ajax, deployed around many U.S. cities, were designed to shoot down jets.

Western Electric's North Carolina plants were among the developers of the earlier Nike weapons.

Last December at Point Mugu, Calif., a Nike-Zeus passed a test of strength with flying colors with the sleek anti-missile missile streaking over the Pacific on its longest flight to date.

The object was to see if the missile would hold together while performing radio command maneuvers within heavy atmosphere close to the earth where friction caused the missile to glow red hot.

The Army said the Zeus and the electronic guidance equipment on the ground worked perfectly over the extended range test, but it released no data. The month before that, the Army said the system locked on an Atlas missile and tracked it for several hundred miles as it plunged from space into the sea.

That test proved Nike-Zeus can do its job of tracking intercontinental ballistic missile nose cones in flight, said the Army.

The third stage of the three-stage Zeus is designed to carry the nuclear warhead designed to destroy atomic weapons without detonating them. It is untried.

The Nike-Zeus anti-missile missile will receive its first test as a space weapon killer over the Pacific this spring.

Debate Contests Set For Friday

CHAPEL HILL—The triangular and dual debates of the North Carolina High School Debating Union will be held throughout the state on Friday, Secretary E. R. Rankin said Saturday.

The query is to be discussed in this, the 50th annual statewide high school debating contest: "Resolved, That the federal government should equalize educational opportunity by means of grants to the states for public elementary and secondary schools." This is the national high school debate query for the current year.

A list of the triangles which have been formed for the March 9 debates includes:

Boyden of Salisbury, Mooresville, and Myers Park of Charlotte; Hamlet, Lumberton, and Rockingham; John Nichols of Oxford, Oxford, and Roxboro.

Walter Hines Page of Greensboro, Thomasville, and Walter M. Williams of Burlington; North Davidson of Lexington, Northwest of Winston-Salem and Ragsdale of Jamestown; Allen Jay of High Point, Randleman, and Trinity.

Durham, Henderson, and Roanoke Rapids; East Surry of Pilot Mountain, King and Ledford of Thomasville; William R. Davie of Roanoke Rapids, Weldon, and Whitakers.

N.C. State Awarded Air Force Contract

RALEIGH (UPI)—The U.S. Air Force has awarded the North Carolina State College School of Engineering a $17,782 research contract to study plasma heat transfer.

Announcement of the one-year contract was made last week by Dr. J. H. Lampe, dean of engineering, and N. W. Conner, director of the engineering research.

The contract is with the Aeronautical Systems Division of the Air Force Systems Command.

Dr. J. T. Yen, associate professor of aeronautical engineering will supervise the investigation of plasma heat transfer.