Edited extract from: *Department of Defense Annual Report for Fiscal Year 1967*, (Washington D.C.: U.S. Government Printing Office, 1969).

Annual Report of the Secretary of Defense, Operational Forces, p. 18-20:

Antimissile Defenses

The supersonic speeds and operating environment of inter-continental ballistic missiles (ICBM's) have posed difficult technological problems in the development of effective warning and tracking, command and control, and interception and destruction anti-ballistic missile (ABM) defense subsystems. The greatest progress has been made in constructing a warning network, in part because strategic considerations dictated early concentration on this project to increase the survivability of manned bomber forces. For some years operational warning stations have been interconnected with the control system for the strategic offensive forces, and improved detection equipment was being perfected during fiscal year 1967.

The Department of Defense has also committed substantial sums for a number of years to the development of an active anti-ballistic missile (ABM) defense. These efforts have resulted in significant technological advances, but strategic questions remained concerning the desirability of proceeding with production and deployment. The available technology would not insure an impenetrable screen against a massive attack and the Soviet Union might counteract the defenses by increasing the size and weight of the attacking forces. In these circumstances, the better strategy for the United States during fiscal year 1967 appeared to be the continued enhancement of its own assured destruction capabilities. The developing ICBM threat from China, however, is adding a new complicating factor that was receiving careful study at the close of the year.

During fiscal year 1967 the three stations of the Ballistic Missile Early Warning System (BMEWS) in Alaska, Greenland, and the United Kingdom remained the principal means of alerting U.S. forces to a land-based missile attack. System capabilities were upgraded at the beginning of the year when a new tracking radar at the Alaskan station became fully operational. Current programs provide for complementing BMEWS by over-the-horizon (OTH) radars that were being converted from experimental to operational configuration by the Air Force. These stations bounce their signals between the earth's surface and the ionosphere and thus achieve substantially longer range coverage than radars whose signals proceed in an unbroken path from the earth into outer space. While the initial OTH system involved separately located transmitters and receivers, a back-scatter OTH that would return an echo signal to the point of origin is also under development. To provide an interim alert system against submarine-launched missiles, the Air Force began modifying seven radars along the Atlantic, Gulf, and Pacific coasts and expected to have them operating in 1968.

The development of concepts and the design and testing of elements for an active ABM system progressed significantly during the fiscal year. As part of Project DEFENDER, the Advanced Research Projects Agency (ARPA) of the Department of

Defense continued the investigation of missile reentry phenomenology, radars of advanced design, and defenses against highly sophisticated forms of attack. Through the NIKE-X program, the Department of the Army was developing a set of components for an area defense system that would be capable of intercepting and destroying incoming ICBM's several hundred miles from their intended target. The Army's concept included: (1) A Perimeter Acquisition Radar (PAR) for very long-range search; (2) a Multifunction Array Radar (MAR) for central control, search, target-acquisition, discrimination between warheads and decoys, and direction of interceptor missiles; (3) a Missile Site Radar (MSR) for local control of missiles; (4) control and data processing and display subsystems; (5) the SPARTAN three-stage missile with a nuclear warhead for intercepting ICBM's at long range outside the earth's atmosphere; and (6) the SPRINT high acceleration missile for shorter range interception. Among the major actions in the NIKE-X program during fiscal year 1967 were the award of a contract in December 1966 for design and development of the PAR; fabrication, assembly, and testing of subsystems for the MAR and of a scaled down tactical model, the TACMAR; the initiation of construction of a test model of the MSR at Kwajalein Atoll; testing of the SPARTAN motor; and continued flight testing of SPRINT at the White Sands Missile Range, New Mexico. Progress during the year inspired confidence in the design specifications for these individual subsystems. Further development and testing of components at Kwajalein is scheduled for the coming year, to be followed by thorough testing of the entire complicated weapon system to insure proper integration of all components.

Annual Report of the Secretary of the Army, Research and Development, p. 233:

Fiscal year 1967 was a period of continued development and testing of the components of NIKE-X. Currently, three phased-array radars--the Multifunction Array Radar (MAR), the Missile Site Radar (MSR), and the Perimeter Acquisition Radar (PAR)-and two missiles--the SPARTAN and the SPRINT--are being developed as part of the NIKE-X system. The Army is also developing the Tactical Multifunction Array Radar (TACMAR), a scaled-down and slightly less complex and less powerful as well as less expensive version of the MAR. Certain TACMAR subsystems were assembled and tested during the year. Construction began on the MSR installation on Meek Island in the Kwajalein Atoll. Progress on the SPARTAN missile motor is on schedule and its performance exceeds specification requirements. Eight developmental SPRINT missiles have been fired at the White Sands Missile Range, New Mexico.

Annual Report of the Secretary of the Air Force, Defense Forces, p. 375:

Warning and Control

The Air Force accelerated the conversion of its experimental complex of over-the-horizon (OTH) radars, installed in December 1965, into an operational system. These radars complement the Ballistic Missile Early Warning System (BMEWS) by providing

additional warning of inter-continental ballistic missile (ICBM) launchings. By bouncing a radar beam off the ionosphere, the system is able to detect missile firings thousands of miles away. At BMEWS Site II, Clear, Alaska, a substantial gain in warning was achieved when a new tracking radar became fully operational in July 1966.