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SENTINEL-SAFEGUARD

In September 1967, the Army was instructed to proceed with the deployment of a ballistic missile defense system, using the NIKE-X anti-ballistic missile (ABM) program as a platform. Its primary purpose was to provide area protection to U.S. population centers against a possible Chinese missile attack in the 1970's, and additionally to offer an option to defend this country's land-based deterrent forces against a larger Soviet threat, should that occur. The SENTINEL ballistic missile defense system, as it came to be known, consisted of five basic components: two types of radars (perimeter acquisition radar and missile site radar); two missiles (long-range Spartan and shorter range Sprint); and a data processing (computer) system. As a "thin" (limited) deployment, SENTINEL was to be installed originally at 17 geographical locations, among which were the metropolitan areas of Boston, Chicago, Detroit, Seattle, San Francisco, and Los Angeles. The first site, that at Boston, was to be ready by October 1972, the last in October 1974.

During late calendar year 1967 and early 1968, surveys were carried out on several potential sites to determine the best location for planned facilities. At the same time, certain preliminary engineering was also accomplished. Between July and December 1968, the Army notified Congress that it was proceeding to acquire land for sites in the vicinity of Boston, Chicago, and Seattle.

However, as a result of opposition to the program and certain changes in the threat, a newly elected administration began a reassessment of the SENTINEL system as a part of an over-all strategic posture review. Concurrently, the Secretary of Defense in February 1969 issued a stop order on all land acquisition and site construction activities pending the outcome of the review. Meanwhile, studies were initiated to develop alternative sites away from cities, while research and development was to continue without interruption. In the reformulation of the deployment, basic considerations included a shift in emphasis from the defense of cities to the defense of deterrent forces; expansion of area defense to include the entire continental United States; and the desirability of incorporating any improvements to interceptors and radars, attained through further research and development, in proportion to the developing threat.

On March 14, 1969, the President, after careful and detailed examination of the program, announced his decision for a SENTINEL system modified from that evolved by the previous administration. Under a new and measured deployment, it was conceived to fulfill three basic objectives: (1) safeguard U.S. retaliatory forces against advances made by the Soviet Union; (2) safeguard against any attack which Communist China could mount over the next decade; and (3) safeguard against any irrational or accidental attack of a lesser magnitude from any source. The President emphasized the "safeguard" or

defensive character of such deployment, and out of the new concept came a new designation—SAFEGUARD system—which took effect on March 25, 1969. An annual review and assessment of the program would gauge the need for its continuation or expansion, depending upon periodic analysis of the developing threat, technical system advances, and progress in reaching a strategic arms limitation agreement.

The presidential decision attempted in a sense to occupy the middle ground, holding the system's deployment to modest proportions while permitting a cautious flexibility for the future. The reaction in Congress and among members of the scientific community was mixed, forecasting an intensification of opposing views as to the direction the program should follow.

Within the framework of the new objectives, Phase I of the limited deployment is to be at two Minuteman inter-continental ballistic missile (ICBM) sites only, those at Grand Forks Air Force Base in North Dakota, and Malmstrom Air Force Base in Montana. The other geographical areas, subject to future congressional consideration, were broadly identified as upper Northwest, central and southern California, southern New England, Wyoming, Missouri, Florida-Georgia, central Texas, Washington, D.C., and Michigan-Ohio. Appropriate studies were undertaken to validate the tentative system configuration schedules and improve cost estimates wherever possible. In the light of these considerations, a comprehensive system design review was initiated to analyze the effectiveness of the new SAFEGUARD system. The results were forwarded to the Secretary of the Army at the end of May 1969 with a recommendation for approval by the Secretary of Defense.

Throughout fiscal year 1969, considerable progress was made in developing the components of the system. The configuration of the Perimeter Acquisition Radar (PAR) was defined, equipment layout was developed, performance and design specifications were drafted, and a test model was well under way. Construction, started in early 1968 on a prototype Missile Site Radar (MSR), was completed at the Kwajalein Island test area, and the radar installation's data processing and programming activities became partially operational. Static tests were held on the Sprint missile's ground support equipment and launch procedures, and Spartan components were improved for tactical use.

Some $861.4 million of SENTINEL funds were made available to SAFEGUARD and applied mostly to research and development, engineering, and production. Another $891.5 million was estimated for fiscal year 1970 funding, while the total Department of Defense investment for the first phase of the program—procurement of components and construction of the Montana and North Dakota sites—was estimated at $2.1 billion. Parallel to the reappraisal that continued throughout the fiscal year, a host of congressional inquiries came to the fore, those in the last quarter especially probing matters of budget allocation. The manpower baseline established by SAFEGUARD

encompassed requirements considered essential for limited deployment pending further assessment at the end of 1969.

The ABM program moved back into Congress for approval in its modified form at a time when cost overruns and inflationary pressures were in the national consciousness; when weapons requirements were being balanced against social needs; when estimates of the external threat were being questioned; when arms limitation talks were in the offing; and when there was something less than unanimity in the scientific community over the technical feasibility of the ballistic missile defense system. Controversy centered on all of these issues and the debate in Congress continued heatedly throughout the closing quarter of the year. As fiscal year 1969 came to an end, it appeared that the vote in the United States Senate on deployment of the SAFEGUARD would come before the summer recess.

Advanced Ballistic Missile Defense Program

At the time the SENTINEL system was started in 1967, two other important but less well-known decisions were made. Concurrently they had a heavy impact on the NIKE-X advanced development program, now called the Advanced Ballistic Missile Defense (BMD) Program. First, it was decided to keep the advanced research and development effort separate from the BMD deployment effort. Second, it was decided to transfer a substantial portion of the advanced development portion of ARPA's (Advanced Research Projects Agency's) missile defense Project DEFENDER program to the Army. To accommodate these increased responsibilities in advanced research and development the U.S. Army Advanced Ballistic Missile Defense Agency (ABMDA) was established as a Class II activity—which are projects required to comply with an established standard, with a deadline for compliance in the future--under the Chief of Research and Development, Department of the Army.

There are two major operating arms of ABMDA: the headquarters, located in Washington, D.C., and a Huntsville, Alabama, office. ABMDA provides the advanced technical development to support the Army in fulfilling its mission of providing defense against ballistic missile attack.

The ABMDA missions are as follows: (1) perform advanced development necessary to counter the Soviet threat to U.S. strategic offense forces and their control and communications centers; (2) perform advanced BMD developments leading to new system concepts and components which can result in significant improvement in the state of BMD effectiveness; (3) develop system responses and technology to counter a sophisticated urban threat from the Soviets or a future threat from the Chinese Communists; and (4) utilize experimental facilities to assist the evaluation of the U.S. strategic offense forces through acquisition of field data from their re-entry and penetration systems tests. To insure that adequate attention is given to each area, the

ABMDA technology developments are divided according to the technical requirements of each component—radar systems, missile development, optical systems, data processing, advanced systems, discrimination technology, re-entry physics, and nuclear effects.

The SAFEGUARD System Office (SAFSO) and ABMDA have distinct but interrelated research and development programs. The Army SAFEGUARD organization maintains a substantial research and development effort required to complete development of the components selected for deployment in the presently defined phased SAFEGUARD program. The ABMDA program is structured to perform the advanced development required to achieve a variety of defense system responses to a spectrum of possible ballistic missile threats. The component techniques and system concepts being developed by ABMDA are necessary to assure that options are available for the decision-makers in the event that they are required to upgrade the SAFEGUARD system in the face of an increased threat.

In summary, the Advanced Ballistic Missile Defense Program provides decision-makers with options for ballistic missile defense. It develops advanced technology so that lead time to deployment can be minimized, schedules can be developed with confidence, and costs predicted with accuracy. It insures that technology and components are available to counter threats.