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### ***Advanced Ballistic Missile Defense Program***

The U.S. Army Advanced Ballistic Missile Defense Agency (ABMDA) of the Office, Chief of Research and Development, manages a program to continue the work begun under the NIKE-X Advanced Development Program and the Advanced Research Project Agency's (ARPA's) missile defense Project DEFENDER program, transferred to the Army after the decision to deploy the SENTINEL anti-ballistic missile (ABM) system. The ABMDA is responsible for advanced system and component development necessary to counter the Soviet threat to U.S. strategic offensive forces and their command and control centers; development of new system concepts and components which result in increased ballistic missile defense effectiveness; development of technology to counter a sophisticated threat to American cities from the Soviet Union or from Communist China; and the use of experimental facilities to assist in evaluating the effectiveness of American strategic offensive forces by the acquisition of data from re-entry and penetration tests employing U.S. missiles. To meet these requirements, the ABMDA pursues technology developments in radar systems, interceptor missiles, optics, data processing, target discrimination, re-entry physics, and nuclear effects.

The Army is now working on new systems concepts and components to defend the Minuteman inter-continental ballistic missile (ICMB) system and to counter a postulated larger and more sophisticated Soviet force than the current U.S. SAFEGUARD ABM system can accommodate. This HARDSITE defense system would supplement SAFEGUARD with a larger number of defense modules, each defending a small portion of the Minuteman force. The radars of this system would be smaller, simpler, and cheaper than the SAFEGUARD radars, and the system would be less costly than the proliferation of SAFEGUARD components.

The Army has contributed to the research and development of high speed computers needed to assure that their data-handling capacity is adequate for the more severe threats.

Radar research has concentrated on the high-powered phased array radar with multibeam capability and a low susceptibility to countermeasures. Increased reliability and efficiency are being sought through the development of solid state radar components.

Advances have also been made in terminal interceptor technology areas offering accurate control under the stress of high speed and acceleration, in order to deal with highly maneuverable re-entry vehicles. Advanced studies continue on the feasibility of a long-range homing interceptor that destroys, through nuclear or non-nuclear means, re-entry vehicles in mid-course before they can endanger the United States.

Concurrently, effective schemes are being developed to discern a warhead from various penetration aids an attacker might use. This feat is accomplished by measurement and analysis of radar and optical data obtained during missile tests.

The SAFEGUARD System Office and the ABMDA retain interrelated but separate research and development programs, the latter organization being charged with the development of components and technology to counter threats that will be beyond the capability of SAFEGUARD. The work on more advanced systems is intended to provide options in the event that defense officials find themselves pressed to improve upon SAFEGUARD in the face of new and increased threats from abroad.