ALTERNATE BOOST VEHICLE (ABV) VERIFICATION TESTS ENVIRONMENTAL ASSESSMENT

AGENCY: Missile Defense Agency (MDA)

ACTION: Finding of No Significant Impact

BACKGROUND: MDA has conducted an Environmental Assessment (EA) of the potential environmental consequences of the development and test of an uncanisterized Alternate Boost Vehicle (ABV). Up to six ABV test flights over about a 5-year period are proposed at Vandenberg Air Force Base (AFB), CA. This EA has been prepared in accordance with the National Environmental Policy Act of 1969, as amended, and its implementing regulations, 42 U.S. Code 4321 *et seq* and 40 Code of Federal Regulations (CFR) 1500-1508, respectively; 32 CFR Part 651 (Army Regulation 200-2), *Environmental Effects of Army Actions;* 32 CFR 989 (Air Force Instruction 32-7061), *Environmental Impact Analysis Process*; Department of Defense Instruction 4715.9, *Environmental Planning and Analysis;* and Executive Order 12114*, Environmental Effects Abroad of Major Federal Actions*. The purpose of the Proposed Action is to confirm the ABV and silo designs, demonstrate silo egress, test the booster under operationally representative conditions, demonstrate vehicle maneuverability (control limits, vehicle response), demonstrate representative aero-thermal loads and guidance algorithms, and conduct stressing maneuvers through a test flight of the ABV.

DESCRIPTION OF THE PROPOSED ACTION: MDA is developing the Ground-Based Midcourse Defense (GMD) Element of the conceptual Ballistic Missile Defense System (BMDS). The BMDS concept is to defend against threat missiles in each phase or segment of the missile's flight. There are three segments of this conceptual system in various stages of technology development: Boost Phase Defense, Midcourse Defense, and Terminal Defense. Each segment of the BMDS is being developed to destroy an attacking missile in the corresponding boost, midcourse, or terminal phase of its flight. The boost phase is the portion of a missile's flight in which it is producing thrust to gain altitude and acceleration. During the midcourse phase, which occurs outside the earth's atmosphere for medium and long-range missiles, the missile is coasting in a ballistic trajectory. During the Terminal Phase, the missile enters the atmosphere and continues on to its target. The GMD Element is designed to protect the United States in the event of a limited ballistic missile attack by destroying the threat missile in the midcourse phase of its flight.

In 1999, the potential environmental impacts of the activities associated with two canisterized Ground-Based Interceptor (GBI) booster verification test flights from Vandenberg AFB were analyzed in the *Booster Verification Tests Environmental Assessment*. Development of the current GBI boost vehicle has been more challenging than originally anticipated. Congressional direction in the Defense Authorization Act for

fiscal year 2001 included the development of a backup booster option involving proven technologies. A decision was made to develop and test a second boost vehicle, the uncanisterized ABV. These proposed ABV test flights are an important step in the development of the GMD Element.

Building 1555 or 1819 on Vandenberg AFB would be used for integration and checkout of the ABV flight vehicle when it arrives at the base. The ABV test Launch Control Center and the Communication Center would be located approximately 1.5 kilometers (0.9 mile) northeast of LF-23 in Buildings 1978 and 1959, respectively. Building 1959 may serve as a back-up Launch Control Center. The ABV tests would be conducted from a modified Minuteman II silo at LF-23 (Building 1963).

Minor modifications and site preparation would be required at the LF-23 launch site. The proposed launch site would include the launch silo, the silo interface vault equipment located within the existing Minuteman launch equipment room, the existing silo access roadways, site utility distribution, and any auxiliary mechanical support equipment or junction boxes required to support the launch operation. Site preparation would include relocation of an existing re-radiating tower with antennas and modifying the existing silo at LF-23 to receive a prefabricated launch station that would accommodate installation of the ABV. Other modifications would include preparation of the existing launch equipment room for installation of silo interface vault equipment. A headworks (a foundation and silo top block) would provide tie-down points or other interfaces for insertion and removal of the ABV. A non-mechanical launch silo environmental cover, which would protect the silo from the elements, would be installed and removed with a crane or similar equipment.

The ABV would consist of a commercially available, solid propellant booster consisting of three stages and an exoatmospheric kill vehicle emulator that may contain a divert and attitude control system. No intercepts of the boosters are planned as part of these ABV tests. The three-stage missile would contain less hydroxyl-terminated polybutadiene solid rocket fuel propellant (no more than 30,400 kilograms [67,000 pounds]) than contained in the Minuteman III previously flown in this area.

During the proposed flight tests, the ABV would travel westward over the Pacific Ocean, approximately 6,500 kilometers (4,040 miles), to a proposed termination point north of the Ronald Reagan Ballistic Missile Test Site (RTS), U.S. Army Kwajalein Atoll.

ALTERNATIVES TO THE PROPOSED ACTION:

No-action

Under the No-action Alternative, MDA would not proceed with the ABV development and testing. Vandenberg AFB would continue to launch missiles as analyzed in prior environmental documents.

Alternative Action

Two alternative locations were considered for the ABV launches: RTS and Cape Canaveral, Florida. No silos exist at Cape Canaveral and only uncompleted silos exist at RTS. New construction for an entire launch complex would cost up to twice the amount of reconfiguring LF-23 and would take up to three times as long. This alternative would not meet mission schedule requirements and would result in unreasonable delay to the testing program and the ability to provide a contingency defense. While a launch silo capability at RTS could be completed in time to perform the testing, that testing would adversely affect other ongoing testing from Meck Island. Additionally, performing the required trajectories from Meck would require performing significant dog-leg maneuvers which are: (1) not very representative for the booster and (2) more difficult for the booster to perform, so it adds unnecessary risk to the booster flights.

Three additional alternative LFs were initially evaluated as potential launch sites for the ABV tests: LF-25, LF-24, and LF-07. These sites were eliminated from further study because of physical and environmental constraints. In addition, LF-21 was eliminated because the silo configuration is for a canisterized missile and the proposed ABV configuration is for a non-canisterized missile.

ENVIRONMENTAL EFFECTS:

Proposed Action

To provide a context for understanding the potential effects of the Proposed Action and a basis for assessing the significance of potential impacts, several environmental resource areas were evaluated. The resource areas determined to have a potential for impacts were air quality, biological resources, cultural resources, environmental justice, geology and soils, hazardous materials and waste, health and safety, infrastructure, land use, noise, and water resources. Each environmental resource was evaluated according to a list of activities that were determined to be necessary to accomplish the Proposed Action.

Implementation of the Proposed Action would result in negligible impacts to the resource areas listed above on Vandenberg AFB. All activities would be in compliance with applicable federal, state, and local regulations and requirements.

Air Quality. No exceedance of air quality standards or health-based standards of non-criteria pollutants are anticipated from facility modifications and site preparation activities necessary for the ABV tests. Missile launches are short-term, discrete events, thus allowing time between launches for emissions to be dispersed. Blast residue (propellant byproducts, paint burned from the silo, and umbilical cables) released during launch activities would be contained in the silo. Emissions from launch preparation and launch activities would be regulated in accordance with the agreement between Vandenberg AFB and the Santa Barbara County Air Pollution Control District for Vandenberg AFB and are not anticipated to cause exceedances of air quality standards.

Review of the Proposed Action as required by the General Conformity Rule resulted in a finding of presumed conformity with the State Implementation Plan.

Biological Resources. Site preparation, pre-launch, or launch activities would not have significant adverse impacts to vegetation, wildlife, threatened/endangered species, or wetlands. There would be little to no ground disturbance and resultant impact to vegetation from modification activities. All transportation of equipment and materials would be conducted in accordance with applicable spill prevention, containment, and control measure regulations, which would preclude impacts to biological resources.

Nominal launch activities during dry conditions could result in the deposition of very small amounts (pounds) of nontoxic aluminum oxide from missile exhaust. Rain within 2 hours of launch could cause hydrogen chloride to be deposited in small quantities, which when emitted during solid propellant missile launches for very large flight vehicles (such as the space shuttle), is known to injure plant leaves and affect wildlife. However, the potential impact on vegetation and wildlife from the proposed launch of the smaller ABV is expected to be slight. Proposed activities are not expected to impact water bodies that could potentially contain the endangered tidewater goby and unarmored threespine stickleback, or the threatened California red-legged frog.

Although the noise level for the ABV is expected to be within the range, or less, of prior Minuteman launches and relatively short in duration, noise monitoring would be performed during the initial launch of an ABV. Harbor seal monitoring would be conducted during the pupping season (March through June) in accordance with Vandenberg AFB guidelines. The U.S. Air Force, 30th Space Wing has requested that ABV launches be included along with previously approved Peacekeeper and Minuteman launches in the 10 (total) intercontinental ballistic missile launches allowed under their 5-year programmatic permit and Letter of Authorization with the National Marine Fisheries Service. No expansion of the 10 launch (total) limit is desired or requested. The program will not proceed with launches until coordination with the National Marine Fisheries Service is complete. The 30th Space Wing has determined that Endangered Species Act Section 7 consultation is not required.

Disturbance from the launches would be brief and, based on existing analysis of prior and current launches from the same area, is not expected to have a lasting impact or a measurable negative effect on wildlife, including migratory bird populations and threatened or endangered species. Debris impact and booster drops in the broad ocean area off the coast are not expected to adversely affect marine mammal species. Early flight termination could result in widely scattered debris, but the probability of this debris hitting wildlife is remote.

Cultural Resources. Because all construction would take place on existing concrete pads or within previously graded or graveled areas, the proposed construction activities would have no effect on historic properties. The shallow trench required for fiber-optic

cable installation would be excavated on the access roads to LF-23. The trench would not go below the road sub-base. No impacts are anticipated to cultural resources as a result of fiber-optic cable installation. The 30th Space Wing has determined that National Historic Preservation Act Section 106 consultation is not required.

Environmental Justice. The Proposed Action would not result in disproportionately high or adverse effect on minority or low-income populations in the area.

Geology and Soils. The staging areas for any construction materials and equipment associated with the modification of the missile launch silo or Buildings 1959 and 1978 would be on existing paved surfaces. The shallow trench required for fiber-optic cable installation would be excavated on the access roads to LF-23. The trench would not go below the road sub-base, and the road surface would be re-paved. No impacts to geology and soils are anticipated.

The amount of aluminum oxide deposited on the ground from the launch would not seriously change the soil chemistry. The hydrogen chloride exhaust from the ABV would be buffered by the soil and would not dramatically alter the soil pH.

Hazardous Materials and Hazardous Waste. The Proposed Action is not expected to substantially increase the volume of hazardous materials used, or hazardous waste generated, at Vandenberg AFB. Hazardous materials and hazardous waste would be handled and disposed of in accordance with appropriate spill prevention, containment, and control measures and hazardous materials handling regulations.

Health and Safety. Overall there would be a minimal increase in health and safety risk in comparison to current activities at Vandenberg AFB from launch site preparation and operation and transportation of hazardous materials. Adherence to the safety systems on Vandenberg AFB would preclude any impacts to worker or public health as a result of the Proposed Action.

Infrastructure. Impacts to transportation from contractor and program personnel during silo modification and the 20 personnel required for routine missile transfer and launch preparation activities would be minimal. The limited number of launch events would not have any substantial impact on existing transportation patterns or volume on or off base. All infrastructure systems have adequate capacity to support anticipated demands.

Land Use. No adverse impacts to current on-base land use are anticipated. ABV launches would be performed under existing agreements between Vandenberg AFB and park/beach authorities. The California Coastal Commission has concurred with a Negative Determination for coastal zone impacts.

Noise. Noise impacts from prior Vandenberg AFB launches have been determined to be short term and insignificant. The ABV flight test launch noise would likely fall within or

below the noise level measurements of previously approved Minuteman launch vehicles. Any noise impacts would also be short in duration.

Water Resources. Launch preparation activities would follow spill prevention, containment, and control measures and thus minimize any potential impacts to surface water. Blast residue released during launch activities would be contained within the launch silo. Most of the aluminum oxide from the ABV launch would be suspended in the air and dispersed over very large areas. The hydrogen chloride, under the most conservative rain conditions, would be diluted by the water and would not appreciably change the pH of the water. Launches scheduled during periods of precipitation could be canceled or postponed to eliminate the probability of contaminating storm water runoff and nearby water resources.

Alternatives

Under the No-action Alternative, no environmental consequences associated with the ABV development and launch activities are anticipated.

CONCLUSION: The resulting environmental analysis shows that no significant impacts would occur from the proposed ABV development and test activities. Preparation of an Environmental Impact Statement, therefore, is not required. A follow-up action list will be developed and completed by the Executing Agent to ensure compliance with the actions described in the EA.

DEADLINE FOR RECEIPT OF WRITTEN COMMENTS: 29 August 2002

POINT OF CONTACT: Submit written comments or requests for a copy of the ABV Verifications Flights EA to:

U.S. Army Space and Missile Defense Command
Attention: SMDC-EN-V (David Hasley)
Post Office Box 1500
Huntsville, AL 35807-3801

ALTERNATE BOOST VEHICLE (ABV) VERIFICATION TESTS
ENVIRONMENTAL ASSESSMENT

AGENCY: Missile Defense Agency

ACTION: Finding of No Significant Impact

PROPONENT:

DATE: AUG 30 2002

JOHN W. HOLLY
Brigadier General, U.S. Army
Program Director
Ground-Based Midcourse Defense

APPROVED:

DATE: AUG 30 2002

RONALD T. KADISH
Lieutenant General, USAF
Director