

EXECUTIVE SUMMARY

The Alternate Air Launched Ballistic Target (AltAir) Short Range Flight Test Demonstration program proposes to demonstrate an air launch target delivery system using standard cargo aircraft. If proven technically feasible, AltAir may provide for a highly flexible short range (≤ 500 kilometers (km)) target system facilitating multi-shot engagements with high azimuth variability and mobile extended test areas, such as broad ocean areas.

The Demonstration program consists of four individual tests. The first three are demonstration drops (no rocket motor ignition) over land at the Naval Air Warfare Center, Weapons Division (NAWCWPNS), China Lake site to verify parachute extraction and aircraft, missile and parachute dynamics. One of the three is a backup. The fourth test will be a live launch over water on the NAWCWPNS Point Mugu/Sea Test Range and will demonstrate all mission critical elements. The analysis of the potential environmental impact of each test is being conducted on a range-specific basis. **This Environmental Assessment (EA) will be limited to addressing only the live launch at Point Mugu.** This EA presents the environmental analysis in support of a Finding Of No Significant Impact (FONSI) or further environmental document as appropriate. The analysis appears herein even though the project activities on the Range far offshore are exempt from the National Environmental Policy Act, because they are outside the 12 mile limit of United States of America (U.S.) territory. The activities are exempt (upon the issuance of a FONSI) from Executive Order 11214, which addresses environmental requirements and documentation of U.S. international actions. Executive Order 11214 applies when impacts are determined to be significant. A separate programmatic analysis of AltAir's potential application within the Theater Missile Defense test program is also planned.

The demonstration will require the deployment of three aircraft to support the AltAir test and the firing of an SR-19-AJ-1 (modified) rocket motor and payload over the Point Mugu Sea Test Range with its resultant atmospheric re-entry and subsequent entry into the ocean. There is also some risk that launch and/or missile destruction malfunctions could lead to the drop of an intact, or nearly intact rocket motor and payload into the ocean. The drop of the loaded rocket into the ocean, the firing of the rocket motor, and its subsequent entry into the ocean may have potential impact on the environment. This Environmental Assessment (EA) analyzes the potential impacts and indicates their magnitude and importance.

NEED FOR ACTION

The air launch of the AltAir will demonstrate the feasibility of providing target delivery and deployment below the horizon during testing of missile defense elements while providing a ballistic trajectory equivalent to a hostile ground launch, and at the same time reducing infrastructure costs using a standard cargo aircraft.

PROPOSED ACTION

The proposed action will demonstrate the feasibility of launching a short range ballistic missile target from the air rather than from the usual ground launch site. The launch vehicle will be carried to an altitude of about 15,000 feet by a C-130 aircraft and extracted from the aircraft by a parachute deployment system. The launch vehicle will descend to about 5,000 feet where the AltAir will separate from the parachutes, and the SR-19-AJ-1 (modified) rocket motor will be ignited. The target will reach an altitude of about 120 nautical miles (nm) and splash down in the ocean at a distance of about 170 nm after reaching a re-entry velocity of about 3,800 miles per hour (mph).

PROGRAM ALTERNATIVES AND SITE SELECTION

Selection of the AltAir configuration and support equipment for the target system demonstration program was based upon tradeoff studies. A major focus in the equipment selection process was to optimize the use of existing surplus rocket motors and other equipment which would best fit several criteria

including technical feasibility, cost, equipment availability, and environmental compatibility. This approach reduced the need to develop and manufacture new equipment which would have a greater potential for environmental consequences during the production and testing phases. The M56A-1 Solid-propellant Rocket Motor (SRM) was under consideration as an AltAir rocket motor. However, due to recent test failures of the M56A-1, the SR-19-AJ-1 (modified) SRM was selected for the AltAir program.

Program Alternatives

To accomplish the Ballistic Missile Defense Organization (BMDO) objectives it is necessary to test various interceptors against targets presenting realistic threat scenarios. Intercept testing (if and when a full scale target test program is initiated) at the larger over ocean ranges has the added benefits of allowing the use of longer ranged targets and multiple azimuth approaches, and adds assurance that debris from very high altitude (+60 km) intercepts will not pose safety hazards off range. The AltAir program demonstrates the accurate simulation of a target launch under the needed conditions. Test firing of interceptors is a separate and future part of the overall BMDO testing program. Alternatives to the AltAir air launched target testing are:

1. Choosing land launch sites that can launch over the ocean. Since the land launch points are fixed, only a very limited number of realistic threat scenarios can be presented.
2. Launching from several different land launch sites to increase the number of realistic engagement scenarios that can be presented. This alternative would require spending an inordinate amount of time and resources on the development of new launch sites for still relatively narrow and limited applications, and would create new environmental disturbances.
3. Launching target missiles from ocean going vessels. This is technically feasible; however, in contrast to the projected cost of air launch the anticipated cost of building or modifying, operating, and maintaining vessels to sea launch ballistic missile targets is prohibitively expensive. Furthermore: there is a possibility AltAir technology can eventually be adapted in a treaty-compliant manner for long ranged (+500 km) target launches, but funds expended developing short/mid-ranged sea launched target capability would offer no such follow-on utility. Launching targets from sea-going vessels at ranges exceeding 600 km is unequivocally prohibited by U.S. treaty obligations.
4. "No Action." A no-launch/continued-testing-using-ground-launched-targets-only alternative would severely inhibit the progress of theater ballistic missile defense interceptor programs which rely heavily upon the use of realistic targets for testing and development. The Sea Test Range would continue to be used for other previously authorized test programs.

Site Selection

Other ranges considered for the AltAir demonstration test included Yuma Proving Ground, Edwards Air Force Base (AFB), Kauai Pacific Missile Range Facility, Wallops Island, Kwajalein Island, White Sands Missile Range, and Vandenberg AFB. NAWCWPNS Point Mugu ranked first as the test site after environmental considerations, test site requirements, and other factors such as cost, availability, and capability were assessed by the National Air Intelligence Center (NAIC).

Test Site Requirements

The site for the AltAir Air Launch Demonstration must satisfy requirements falling within three broad categories: physical, Range capabilities, and logistics.

Physical Requirements

The launch location must be over the ocean and over the horizon from the intercept test area in a restricted air space about 200 nm long by 140 nm high with airspace control at the launch location at 15,000 feet and below.

Range Requirements

Real-time voice communication is available between the C-130 drop aircraft, Range control center, C-130 launch vehicle communication console, Range telemetry site and support aircraft.

A Range C-130 and two NP-3D aircraft and hangar, target and payload assembly building complete with a 15 ton crane, office space, and ordnance storage facilities are available at Point Mugu to support the AltAir test. Access to machine and electronic shops and services, 20 ton and 2 ton flat bed trucks, and a 7 1/2 ton forklift will also be furnished by NAWCWPNS.

C-Band beacon tracking is available for the C-130 and the launch vehicle payload until its impact with the water. International Range Instrumentation Group timing will be used to tag the collected data. Position data plots of the C-130 and launch vehicle payload are required for a quick look analysis of the test. Redundant telemetry receiving and recording is required.

Photographic services to be provided include various still photos during the pre-drop operations, video or high-speed motion picture films of the interior of the C-130 prior to and during the launch vehicle extraction process; video or high-speed motion picture films of the launch vehicle extraction process exterior to the C-130 via chase aircraft; video or high-speed motion picture film of the launch vehicle's descent from the C-130 as long as possible, and booster ignition and initial motor burn; and the ability to convert all motion picture film to video and produce duplicate copies of the videos.

Availability of standard emergency medical services and facilities is required.

Meteorological data will be required to provide for forecasted and actual weather in the drop zone prior to and during the test.

Logistics Requirements

Range schedule availability to support the entire drop test, as required to meet program schedules and cost allocations, is a necessity. Range air and sea support and other support personnel will be required for the entire test period. Also required are gate passes, visitors badges, eating facilities, space in the C-130, space in the control center, a conference room and personal hygiene facilities the day of the test and also one day prior and two days following the test.

Environmental Considerations

Biological Resources

The portion of the ocean over which the launch will occur will be in the open ocean in the north end of the Range about 75 nm southwest of the nearest land on the California Coast, and about 85 nm west of Vandenberg AFB.

After reentry and impact, The launch vehicle will drop into water more than 1000 feet deep and not be recovered. At such depths any missile components will not pose a hazard to fishermen or divers. The SR-19-AJ-1 (modified) rocket motor will contain about 13,562 pounds of solid rocket propellant. If a failed launch deposits the unburned motor with propellant into the ocean, it is expected that because of the plastic binder used, the propellant will dissolve at a slow rate. Because of the discrete nature of a failed launch event, the large amount of water for solution and the depth at the launch area, no substantial harm, if any effect occurs at all, will occur to marine life from the propellant or rocket motor parts.

The missile impact into the ocean will be at supersonic velocity – about three times the speed of sound. At this velocity the missile, which weighs about three tons, could potentially produce a shock wave

underwater and affect marine mammals if they were in the area. However, it is unlikely a mammal would be in the area or be close enough to be affected.

The propellant may explode upon impact into the ocean after a failed launch. Potentially, the resultant shock wave should an explosion occur, could harm marine mammals. However, it is unlikely that a mammal would be present, and quite unlikely the launch will both fail and produce an explosion. The splashdown of the fired launch vehicle will occur in the open ocean about 90 nm from the mainland off the California coast, about 35 nm southwest of San Nicolas Island which is the nearest land, and about 65 nm south of Santa Rosa Island. Marine mammal densities this far from land are low.

Three parachutes with shroud lines will be deposited in the water near the launch site. One parachute will be carried to the ocean floor with the steel sled, and two parachutes will be carried to the ocean floor by the weight of their bridle and attachment hardware. Because the launch site is 35 nm from pinniped haul out sites, the likelihood of a cetacean encountering the descending parachutes remote, and the eventual depth of the parachutes greater than 10,000 feet, it is highly unlikely a negative impact to marine mammals will occur due to use of parachutes in this test.

The propellant will be exhausted from the spent rocket. Relatively small quantities of hazardous materials, similar to those on other test vehicle ocean entries, will be on the test rocket. They are not expected to dissolve rapidly and will not cause any considerable impact. The splashdown site is about 90 nm from the National Marine Sanctuary at Santa Barbara and Santa Rosa Islands, 35 miles from the marine mammal breeding areas at San Nicolas Island, and offshore from whale migration routes. Federally listed threatened or endangered species in the area include: four birds (three on land) and seven whale species that are endangered; and one seal, one sea lion, and sea otter species that are threatened. The chances of directly striking marine mammals or any animal by the missile, sled, or parachutes is extremely small.

Air Resources

The proposed ocean test area is offshore beyond the area of jurisdiction of the Federal Environmental Protection Agency. The prime air emission source in the test will be engine exhausts of the aircraft involved - the C-130, the two NP-3D support aircraft, and the exhaust of the single AltAir rocket motor. Air emissions from the rocket motor firing are summarized in the EA. Air emissions from the aircraft used in this one time test operation are relatively minor and are part of the normal operations of the Range. Also, the majority of the aircraft operating time will be far offshore. The air emissions from the AltAir test operations will have minimal impact

Cultural Resources

Since the test will not occur over or near any archeological, historic, or socioeconomically important resources, there will be no adverse environmental impact.

Land Resources

This ballistic target test will not occur over land resources; there will be a minimal increase in the level of flight activity at Naval Air Weapons Station (NAWS) Point Mugu due to aircraft used for the test.

Human Resources

All ocean going vessels and aircraft will be routinely notified to clear and avoid transiting the test area during the test, and during reasonable times before and after the test. Two NP-3D aircraft will visually ascertain the test area of the Range is clear prior to deployment of the AltAir ballistic target. All standard Range safety precautions will be followed for the test. Safety clear zones based on malfunction scenarios are well beyond any land. Since the test will not be over or near an inhabited area, there will be no increase in danger to human populations as a result of this demonstration test.

CONCLUSIONS

This EA has determined that at most only very small adverse impacts are expected to be imposed upon air, water, land, archaeological, cultural or, historic resources as a result of the proposed action. Marine mammals may be affected by an explosion of propellant in a failed rocket or from a shock wave produced due to the missile striking the ocean at supersonic velocity.