EXECUTIVE SUMMARY

Introduction

The U.S. Army Space and Strategic Defense Command, as the executing agent for the Ballistic Missile Defense Organization, is the management office for the U.S. Army Kwajalein Atoll (USAKA) temporary extended test range program. The proposed program is to launch up to eight liquid and/or solid propellant target tactical ballistic missiles from Bigen Island, Aur Atoll toward the USAKA. The purpose of these Theater Missile Defense (TMD) flight test experiments is to obtain sensor data on target tactical ballistic missiles with a range of 350 to 500 kilometers (220 to 310 miles) toward the USAKA over the next 5 years. TMD interceptors will be launched to intercept the target tactical ballistic missiles to demonstrate the feasibility of TMD intercepts. A variety of ground, ship, air, and satellite sensors would gather data on the flight test experiments. The flight tests would involve target missile launches from Bigen Island, Aur Atoll, Republic of the Marshall Islands (RMI), with interceptor launches from the USAKA. An agreement to use Bigen Island as an additional defense site (including use as a temporary launch site) was negotiated with landowners and the RMI. This agreement will remain in effect for the life of the Compact of Free Association Act of 1985.

Test Program Activities

The proposed program activities would include transport of the target missiles from storage in the continental United States to Meck Island in the USAKA and then to Bigen Island within Aur Atoll for launch. No facility construction or modification on Meck Island is anticipated to support assembly and pre-flight checkout of a solid-propellant missile system. A temporary launch site would be established at Bigen Island which would include a marker buoy with passive navigation measures, minor ground leveling and placement of metal matting at the launch site, and the positioning of a mobile launch control van. If other temporary facilities are required, additional analysis and documentation would be completed prior to any construction.

A PATRIOT Fire Unit (Engagement Control Station, radar, tactical truck, Launching Station, and support trailers) and the Theater High Altitude Area Defense (THAAD) radar would be transported from the continental United States and placed within the USAKA. Existing sensors on Kwajalein Atoll would also collect data as part of program activities. The PATRIOT Launching Station would be located on either Illeginni or Meck Island. PATRIOT missile launches from Illeginni Island would intercept the target missile over the Mid-atoll Corridor within the Kwajalein Lagoon. PATRIOT launches from Meck Island would intercept the target missile over the Broad Ocean Area. The PATRIOT radar would be placed on either Gellinam, Illeginni, Legan, Meck, or Omelek Island. No facility construction or modification would be required to support the PATRIOT Fire Unit deployment. The THAAD radar, used to collect sensor data, would be located at one of two sites on Roi-Namur Island. Minimal construction for electrical power cables and a transformer pad would be required at either site.

Methodology

The purpose of this environmental assessment is to analyze the potential environmental consequences of the proposed USAKA temporary extended test range program activities in compliance with the National Environmental Policy Act; Department of Defense Directive 6050.1, *Environmental Effects in the United States of Department of Defense Actions;* and Army Regulation 200-2, *Environmental Effects of Army Actions*.

Twelve broad areas of environmental consideration were evaluated to provide a context for understanding the potential effects of the proposed action and a basis for assessing the significance of potential impacts. These areas are air quality, airspace, biological resources, cultural resources, geology and soils, hazardous material and hazardous waste, health and safety, infrastructure and transportation, land use, noise, socioeconomic resources, and water resources.

Air Quality – Program activities would result in exhaust products from portable generators and combustion products from rocket motors. Generator exhaust products would not be expected to exceed ambient air quality standards. Missile launches are brief, discrete events, and typical wind conditions in the region would rapidly disperse and dilute combustion and exhaust products.

Airspace – Airspace over the USAKA is routinely used in support of missile launch programs. Usage of airspace over Bigen Island is minimal due to its remote location. No changes to existing airspace coordination procedures, which include the issuance of Notices to Airmen and the selection of missile firing areas and trajectories, would be required.

Biological Resources – Studies indicate that birds may flush during sharp, loud noises but return to normal behavior within a short time. Vegetation is generally sparse at the proposed launch sites, although some vegetation clearing may be required. Any ground fire would be quickly extinguished. It is unlikely that birds would remain in a radar beam long enough to receive significant exposure to electromagnetic radiation. The likelihood of missile debris impacting marine mammals is considered remote. Threatened or endangered species have not been identified at any of the proposed construction sites or other activity locations.

Cultural Resources – Program activities have the potential to affect cultural resources as the result of ground disturbing activities on Roi-Namur Island. Ground-disturbing activities below 1 meter (3 feet) would be monitored by a qualified archaeologist (U.S. Army Space and Strategic Defense Command, 1994f). THAAD radar trench and pad placement on Roi-Namur Island would be coordinated with a qualified archaeologist and/or historian to avoid affecting subsurface features, and pre-ground-disturbing photographs will be taken. Personnel will be briefed regarding the significance of cultural resources and the penalties associated with their disturbance or collection, and legally required procedures would be followed in the event of the unexpected discovery of cultural remains.

Geology and Soils – The limited program-related construction is not expected to increase soil erosion because of the coarse-grained nature of soils at the construction sites and the lack of significant topographic relief to provide energy for soil movement. The amount of rocket motor emissions expected to fall on land would be very small due to the proximity of the launch locations to the shoreline and the relatively high prevailing wind speed. No measurable change in soil chemistry is expected to result from the proposed missile launches.

Hazardous Material and Hazardous Waste – Proposed USAKA temporary extended test range activities would create small amounts of hazardous materials and waste. Proper handling, use, and disposal of such materials is routine at the USAKA and addressed in existing standard operating procedures. Liquid propellants that reach the ocean would rapidly evaporate and/or be diluted in sea water. Missile hardware and debris are expected to dissolve very slowly and are not expected to produce metal ions in concentrations that would be harmful to marine life.

Health and Safety – Existing safety operation manuals and procedures for missile testing would be followed to minimize any risk to personnel health and safety. All missile transportation, storage, fueling, flight plans, trajectories, and debris impact areas would be approved by the USAKA Range Safety Office. Electromagnetic radiation hazard personnel exclusion zones would be established to minimize the potential for exposure of workers. Launch hazard areas and launch control locations approved by the USAKA Safety Office, from which all non-mission-essential personnel would be excluded, ensure the safety of all personnel.

Infrastructure and Transportation – The additional demand on electrical, wastewater, solid waste, and water systems to support the small number of project-related transient personnel is expected to be within the current capacity of the USAKA. The temporary infrastructure requirements at Bigen Island would be provided by ships and barges from the USAKA.

Land Use – USAKA temporary extended test range activities would be consistent with current operations and island uses within the USAKA. Temporary flight test activities at Bigen Island would not require permanent land use modification and could be scheduled to reduce or avoid any potential conflict with the existing land use, copra harvesting.

Noise – Noise effects from proposed program activities could result from portable generators and missile launches. Personnel working near generators would wear protective hearing devices as required. During missile launches, only personnel sheltered in protective structures would be inside the launch hazard area. Noise levels outside the launch hazard area would be below regulatory requirements for hearing protection. The nearest populated islands are located about 11 kilometers (7 miles), 16 kilometers (10 miles), and 31 kilometers (19 miles) from the proposed launch sites on Bigen, Meck, and Illeginni islands, respectively.

Socioeconomic Resources – The addition of a small number of transient personnel at Kwajalein Island in support of program activities is not expected to create substantive socioeconomic effects. The small increase in transient personnel is well within the normal

month-to-month fluctuation in the island's population and employment level. There would be only a minimal increase in boat, barge, and air traffic.

Water Resources – The small increase in the number of transient personnel at the USAKA and Aur Atoll is expected to require little or no increase in groundwater withdrawal, depending on the amount of fresh water in storage and rainfall catchment during the period of program activity. Groundwater quality degradation that could result from a catastrophic missile failure would be expected to be offset by dilution in a relatively short period due to the high rainfall rate in the region and the high water infiltration rate of the soil. Missile hardware, debris, and propellants that would fall into the ocean are expected to have only a localized, short-term effect on water quality.