

**FINDING OF NO SIGNIFICANT IMPACT**  
**AIR-LAUNCHED RAPID RESPONSE WEAPON (ARRW)**  
**ENVIRONMENTAL ASSESSMENT / OVERSEAS ENVIRONMENTAL ASSESSMENT**

**AGENCY:** United States Air Force Life Cycle Management Agency

**ACTION:** Finding of No Significant Impact

**BACKGROUND:** The Proposed Air-launched Rapid Response Weapon (ARRW) system test is sponsored by the Office of the Under Secretary of Defense for Research and Engineering [USD (R&E)], which has designated the United States Air Force (USAF) Life Cycle Management Center (LCMC) as the lead agency and action proponent for the Proposed Action. The Proposed Action entails test series 1 and test series 2 of the ARRW. ARRW test series 1 and test series 2 are expected to be completed within a reasonable time from the completion of this Environmental Assessment (EA)/Overseas Environmental Assessment (OEA) and signing of the Finding of No Significant Impact (FONSI). The USAF, along with the U.S. Army Space and Missile Defense Command (USASMDC) as a participating agency, has prepared this EA/OEA in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] § 4321, as amended), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500–1508, July 1, 1986), the Department of the Army Procedures for Implementing NEPA (32 CFR Part 651), and USAF Environmental Impact Analysis Process (EIAP), 32 CFR Part 989 and Environmental Impacts: Policies and Procedures; and Executive Order 12114 – Environmental Effects Abroad of Major Federal Actions.

**DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:** The Preferred Alternative (Alternative 1) consists of ARRW test series 1 and test series 2; designed to prove various aspects of the system's capabilities. ARRW test series 1 and 2 components would be carried externally on B-52 aircraft and released in-flight. Aerial-drop and flight is anticipated to occur at 12.2 kilometers (km; 40,000 feet [ft]) or greater.

Point Mugu Sea Range (PMSR), part of the Naval Air Warfare Center Weapons Division (NAWCWD) Point Mugu, is located off the Pacific Coast of Southern California and supports test and evaluation of sea, land, and air weapons systems. PMSR provides a safe volume of air and sea space in which to conduct controlled tests. PMSR comprises 93,200 square kilometers (km<sup>2</sup>; 36,000 square miles [mi<sup>2</sup>]) of ocean area. PMSR extends from less than 5.6 km (3 nautical miles [nm]) to more than 370 km (200 nm) off the California coastline. The splashdown area for the ARRW test series 1 is the broad ocean area (BOA) of the Pacific Ocean and includes waters outside of exclusive economic zones (EEZs). The EEZs extend 370 km (200 nm) seaward from identified territorial sea baselines. For the purposes of the ARRW test series 1, the boundaries of the BOA are defined as beginning at the point of aerial drop and initial solid rocket motor ignition, terminating within the BOA. Additionally, for the purposes of the ARRW test series 2, the boundaries of the BOA are defined as beginning at the point of aerial drop and initial solid rocket

motor ignition, terminating with impact at Illeginni Islet. Aerial drop and vehicle ignition could occur within the boundaries of PMSR or the BOA. After air-drop of the ARRW test series 1 vehicle over PMSR, the vehicle's solid rocket motor would ignite and the vehicle would travel westward. Once the motor is spent, the vehicle components, shroud and inert payload would splash down in the broad ocean area (BOA) of the Pacific.

After air-drop of the ARRW test series 2 vehicle over the BOA, the vehicle's solid rocket motor would ignite and the ARRW, with attached payload, would travel over the BOA towards the Reagan Test Site (RTS) at United States Army Garrison–Kwajalein Atoll (USAG-KA) in the Republic of the Marshall Islands (RMI). Once the motor is spent, the payload would separate, the vehicle components would fall into the BOA, and the payload would continue flight towards USAG-KA where it would impact at Illeginni Islet in Kwajalein Atoll. The ARRW test series 2 vehicle would incur a land impact at USAG-KA (Illeginni Islet) within an impact zone 290 meters (m) by 137 m (950 ft by 450 ft) on the northwestern end of the islet. The mission planning process will aid in avoidance, to the maximum extent possible, of all potential risks to environmentally significant areas. The actual impact zone size and location (asphalt pad, field, etc.) on Illeginni Islet will be based on range safety requirements and chosen as part of the mission analysis process. The targeted area is selected to minimize impacts to identified wildlife habitats and reefs or shallow water.

This test is designed to collect data to provide a basis for ground testing, modeling, and simulation of payload performance. The Proposed Action entails pre-test preparation, aerial drop and ignition, flight tests, impact of the payload, and post-test activities coordinated with USAF, PMSR, USAG-KA and designated range safety authorities. The No Action Alternative was also evaluated. All alternatives are described below.

All test activities and flight paths have been developed in compliance with Range Commanders Council (RCC) – 321 range safety guidelines. If the ARRW were to deviate from its course or should other problems occur during flight that might jeopardize public safety, the onboard flight termination system (FTS) would be activated.

**ENVIRONMENTAL EFFECTS:** In assessing environmental impacts of the Proposed Action, USAF LCMC identified potential effects to the following resource areas, which are analyzed in the attached EA/OEA: water resources, geological resources, cultural resources, land use, airspace, noise, transportation and infrastructure, public health and safety, hazardous materials and wastes, socioeconomics, environmental justice, visual resources, air quality, greenhouse gases, climate change, and biological resources. A review of the analysis for the Proposed Action (Alternative 1) is provided below.

#### **Preferred Action (Alternative 1) PMSR:**

- **Water Resources** – There are no groundwater or surface water resources within PMSR that would be affected by the ARRW test.

- **Geological Resources** – Due to the nature of the aerial drop of the ARRW components from a high altitude in PMSR’s airspace, no impacts to geological resources or marine sediments from the ARRW flight tests are expected.
- **Cultural Resources** – Although there are known cultural resources within PMSR, no impacts to cultural resources from the ARRW test are expected to occur.
- **Land Use** – No changes to land use would occur from the ARRW test. The ARRW flight path would avoid populated land masses. There would be no impacts from the ARRW test to land use within PMSR.
- **Airspace** – No new special use airspace would be required, expanded, or altered for the ARRW tests. Local airport operations would not be affected. Commercial and private aircraft would be notified through Federal Aviation Administration (FAA) Notice to Airmen (NOTAMs) in advance of the test flight as part of their routine operations. Flight operations would be conducted in accordance with Western Range procedures. There would be no impacts to airspace from the ARRW tests in PMSR.
- **Noise** – The ARRW tests will occur offshore within PMSR. A sonic boom would occur in PMSR when the ARRW test series 1 vehicles reach the speed of sound. No impacts would occur from noise as a result of the ARRW test.
- **Transportation and Infrastructure** – Transportation services and infrastructure would be unaffected by the ARRW test. The ARRW test would occur at high altitude where it would be generally undetected by vessels or aircraft. Public NOTAMs and Notices to Mariners (NTM) would be issued along the flight path, to protect the safety of aircraft and vessels.
- **Public Health and Safety** – The ARRW flight would occur at high altitudes where it would be generally undetected by vessels or aircraft. NOTAMs and NTMs would be issued along the flight path to ensure the safety of personnel on aircraft and vessels. If the ARRW were to deviate from its course or should other problems occur during aerial drop and ignition that might jeopardize public safety, the onboard FTS would be activated. This action would initiate a destruct charge causing the ARRW to terminate flight and fall into PMSR. The FTS would be designed to prevent debris from falling into any protected area. No inhabited land areas would be subject to unacceptable risks of falling debris. The probability of impacts to public health and safety would be extremely low.
- **Hazardous Materials and Waste** – The solid rocket motor would ignite and the ARRW vehicle would fly out of PMSR in a westward trajectory. Because the Proposed Activity is for ARRW test series 1 to launch within PMSR within a reasonable timeframe following signature of the FONSI, the amount of emissions is considered negligible. If the ARRW test series 1 onboard FTS is activated within PMSR, it is possible for debris to fall towards the ocean within PMSR. *De minimis* residual quantities of materials may remain on the vehicle and would be carried to the ocean floor by the sinking components. The relatively

small quantities of hazardous waste and dilution from ocean water indicate that there would be no impacts of hazardous materials and wastes from the ARRW test.

- **Socioeconomics** – There is no resident population at PMSR. Therefore, there would be no impacts to socioeconomics from the ARRW test.
- **Environmental Justice** – PMSR does not include any population centers; there is no resident population located at PMSR. Therefore, there would be no disproportionate impacts from the ARRW tests to minority populations and low-income populations as defined under Executive Order (EO) 12898.
- **Visual Resources** – There would be no changes to and, therefore, no impacts to the visual aesthetics at PMSR from the ARRW tests series 1.
- **Air Quality, Greenhouse Gases, and Climate Change** – The aerial drop of the ARRW test series 1 over PMSR is expected to take place at an altitude of 12.2 km (40,000 ft). The action would introduce atomic chlorine, aluminum oxide particles, and nitrogen oxides produced from emissions of hydrogen chloride during high-temperature afterburning reactions in the exhaust plume of the solid rocket motor propellant. The Proposed Action is for ARRW test series 1 (within PMSR) to be conducted within a reasonable time after completion of this EA/OEA and signed FONSI. The effect of the ARRW tests on local PMSR air quality would be negligible because the aerial drop would take place over 914 m (3,000 ft) and therefore above the atmospheric inversion layer. The short duration of the flight tests, the length of time between the flight tests, the low emissions of the rocket exhaust, and the ignition location offshore in PMSR collectively indicate that the Proposed Action would not cause any lasting effects to PMSR air quality.
- **Biological Resources** – The following stressors have the potential to impact biological resources at PMSR: exposure to elevated sound pressure levels, direct contact from falling components, and exposure to hazardous chemicals. Overall, biological resources are not expected to be impacted by any ARRW test stressors at PMSR. Any realized elevated noise level effects would be limited to short-term startle reactions, and animals would be expected to return to normal behaviors within minutes. Under normal ARRW operations, biological resources are not expected to be subject to direct contact or exposure to hazardous chemicals.

#### **Preferred Action (Alternative 1) BOA:**

- **Water Resources** – There are no groundwater or surface water resources within the BOA that would be affected by the ARRW test series 1 or ARRW test series 2. There would be no disturbance to ocean waters beyond the spent motor and shroud splashing into the ocean along the flight path, sinking thousands of meters (feet). There is a low probability that the spent motor could float on the ocean surface post-splashdown. Buoyancy analysis shows that if there is no case breach during splashdown, then the spent motor (during the ARRW test series 2) can float. Floating debris is considered unlikely; however, there is a

low probability that the spent motor could float on the ocean surface post-splashdown. No impacts to water resources are anticipated within the over-ocean flight corridor (BOA) from the ARRW test series 1 or 2.

- **Geological Resources** – There would be no drilling, mining, or construction in the open ocean associated with the ARRW test series 1 or 2. No marine sediment disturbance beyond the settling of the spent motor, inert payload, and shroud as they come to rest on the sea floor would occur. No impacts to geological resources or marine sediments from the ARRW test series 1 or 2 are expected.
- **Cultural Resources** – There are no identified cultural resources within the BOA; therefore, there would be no impacts to cultural resources from the ARRW test series 1 or 2.
- **Land Use** – The ARRW test series 1 or 2 flight paths would avoid populated land masses. There would be no changes to land use. No impacts to land use are expected within the BOA.
- **Airspace** – The ARRW flight corridor is located over international airspace within the BOA and, therefore, has no formal airspace restrictions governing it. Over-ocean flight tests must comply with Department of Defense (DOD) Instruction 4540.01, Use of International Airspace by U.S. Military Aircraft and for Missile/Projectile Firings. Commercial and private aircraft would be notified through NOTAMs issued through the FAA in advance of the ARRW test series 1 and 2 tests at the request of RTS as part of their routine operations. ARRW test operations would be conducted in accordance with Western Range procedures and would not expand or alter currently controlled airspace. Therefore, there would be no impacts to airspace within the BOA from the ARRW test series 1 or 2.
- **Noise** – The ARRW test series 1 and 2 would occur at an altitude where it would be generally undetected by vessels or aircraft at the ocean's surface. Only the sonic boom created by the solid rocket motor ignition of the ARRW test series 2 would occur over the BOA. Therefore, there would be no impacts from noise within the BOA.
- **Transportation and Infrastructure** – Transportation services and infrastructure, as applicable, would be unaffected by the ARRW test. The ARRW test would occur at high altitude where it would be generally undetected by vessels or aircraft. Public NOTAMs and NTMs would be issued along the flight path, to protect the safety of aircraft and vessels. The inert payload of the ARRW vehicle, and components of the ARRW test series 2 vehicles would drop to the ocean surface within the predetermined BOA to ensure, along with the public notices, that there would be no vessels or aircraft in the vicinity. There would be no impacts from the ARRW test series 1 or 2 to transportation or infrastructure along the flight path over the open ocean.
- **Public Health and Safety** – The ARRW test series 1 and 2 tests would occur at high altitudes where they would be generally undetected by vessels or aircraft. NOTAMs and

NTMs would be issued along the flight path to ensure the safety of personnel on aircraft and vessels. Components would drop over predetermined open ocean areas to ensure, along with the public notices, that there would be no vessels or aircraft in the vicinities. If the ARRW test series 1 or 2 were to deviate from course or should other problems occur during flight that might jeopardize public safety, the onboard FTS would be activated. No inhabited land areas would be subject to unacceptable risks of falling debris. There would be no anticipated impacts to public health and safety associated with the ARRW test series 1 or 2, and flight trajectory over the BOA.

- **Hazardous Materials and Waste** – During ARRW test series 2 tests, the ARRW system would be aerielly dropped within the BOA, and the vehicle would fly over the BOA in a westward trajectory towards Illeginni Islet. During ARRW test series 1 and 2, the solid rocket motor would exhaust on-board propellant prior to separation and before the spent stage drops into the ocean. *De minimus* residual quantities of materials may remain on the spent stage and shroud and would be carried to the ocean floor by the sinking components. There are no anticipated impacts from hazardous materials and wastes to the over-ocean flight corridor (BOA) from the ARRW test series 1 or 2 tests.
- **Environmental Justice** – Range safety regulations and procedures protective of health and safety would be applied during flight test operations. There would be no disproportionate impacts within the BOA to minority populations or low-income populations under EO 12898. There are no anticipated impacts to environmental justice from the ARRW test series 1 or 2.
- **Visual Resources** – The ARRW test series 1 and 2 would occur at high altitude where it would be generally undetected by vessels or aircraft. There would be no changes to and, therefore, no impacts to the visual aesthetics within the BOA from the ARRW flight tests.
- **Air Quality, Greenhouse Gases, and Climate Change** – Vehicle emissions, from the ARRW test series 1 and 2, would occur as propellant is burned from point of vehicle ignition, within the BOA to splashdown within the BOA (ARRW test series 1) or impact at Illeginni Islet (ARRW test series 2). Approximately 1,633 kilograms (kg) (3,600 pounds [lb]) of Hydroxyl Terminated Polybutadiene (HTPB) are released over a period of minutes, for the ARRW test series 1 and 2. At temperatures below 770 Kelvin (K), the main gaseous product of HTPB is butadiene, whereas the range of products arises as the temperature increases. At 1,170 K, butadiene accounts for only 1–2 percent (%) of the products, and the primary product is ethylene, with light hydrocarbons.

On a global scale, the quantity of ethylene and light hydrocarbon emissions from a single ARRW test series 1 or 2 would represent a very small fraction of ethylene and hydrocarbons generated. Diffusion of the gases in the atmosphere and winds would disperse the ethylene and hydrocarbons. No significant effect on ozone levels from ethylene and hydrocarbons is expected. Therefore, impacts from a single ARRW test series 1 or 2 would not be expected to have a significant impact on the upper atmosphere. Rocket motor emissions from the ARRW test series 1 and 2 would not have a significant

impact on stratospheric ozone depletion. Ozone-depleting gas emissions from the single flight test would represent such a minute increase that any incremental effects on the global atmosphere would be discountable and insignificant.

- **Biological Resources** – The following stressors have the potential to impact biological resources in the BOA: exposure to elevated sound pressure levels, direct contact from ARRW component splashdown, exposure to hazardous chemicals, and exposure to increased vessel traffic. Any realized elevated sound pressure effects would likely be limited to short-term startle reactions, and animals would be expected to return to normal behaviors within minutes. Due to the low density and patchy distribution of important or sensitive biological resources in the BOA, the chances of an ARRW component directly contacting an animal are extremely low. Given that the density of sensitive biological resources in this area is low and seasonal, the likelihood of an important or sensitive biological resource being impacted by human disturbance, encountering hazardous materials, or being struck by a vessel is also likely very low and no effects are expected. Overall, the Proposed Action would have no significant impacts on biological resources in the BOA.

#### **Preferred Action (Alternative 1) Illeginni Islet:**

- **Water Resources** – Subsequent to impact, fresh water would be used to minimize fugitive dust; waters would not be allowed to flow to the lagoon or ocean and would evaporate in place. In the unlikely event of an accidental release of a hazardous material or petroleum product at the impact site (associated with vehicles used during cleanup and site restoration), emergency response personnel would comply with the United States Army Kwajalein Atoll Environmental Standards, Kwajalein Environmental Emergency Plan (UES KEEP). Due to the presence of no surface waters bodies or fresh groundwater, no impacts to water resources would be expected from ARRW test series 2 activities.
- **Geological Resources** – There would be slight, if any, surface disturbance during the placement of equipment prior to the flight tests. While a temporary crater would be created at impact on Illeginni Islet, the crater would be refilled with ejecta and clean fill materials (from either off island or on island quarry), and the site topography restored. For a deep-water impact, there would be no marine sediment disturbance beyond the settling of the spent stage and shroud as they come to rest on the sea floor. No impacts to geological resources or marine sediments from the ARRW test series 2 are expected.
- **Cultural Resources** – The ARRW test series 2 impacts are proposed to occur on the west end of Illeginni Islet. Archaeological surveys have not found indigenous cultural materials or evidence of subsurface deposits on the islet. The Cold War-era properties potentially eligible for listing on the RMI National Register of Historic Places (NRHP) are located in the central and eastern portions of the islet. Because a land impact would not occur in proximity to known or potential cultural resources on Illeginni Islet, implementation of the Proposed Action is not anticipated to result in impacts to cultural resources.

- **Land Use** – No changes to land use at Illeginni Islet would occur from the ARRW test series 2. The ARRW test series 2 activities are consistent with the RTS mission and are well within the limits of current operations of RTS and United States Army Garrison Kwajalein Atoll (USAG-KA). No impacts to land use from the ARRW test series 2 are anticipated.
- **Airspace** – Illeginni Islet is located under international airspace and, therefore, has no formal airspace restrictions. No new special use airspace would be required, expanded, or altered for the ARRW test series 2. Commercial and private aircraft would be notified through FAA NOTAMs in advance of the test flight at the request of RTS as part of their routine operations. Flight operations would be conducted in accordance with Western Range and RTS procedures. There would be no impacts to airspace from the ARRW test series 2.
- **Noise** – Terminal flight of the ARRW test series 2 over the RMI would create a sonic boom carpet along its flight path. Because of the vehicle's high-altitude during flight, maximum elevated SPLs from sonic booms beneath the flight path would be 145 decibels (dB) until descent. During vehicle descent, a focused boom would occur over the intended site and the nearby areas of the Atoll. At the terminal end of the flight path, the sonic boom generated by the approaching ARRW is estimated to peak at less than 180 dB. At the point of impact, the sonic boom footprint would narrow. For payload impact at Illeginni Islet, elevated sound pressure levels (SPLs) due to the sonic boom would be present in the air over land and would also be present in the surrounding waters. The duration for sonic boom overpressures produced by the payload are expected to average 75 milliseconds (ms) where SPLs are greater than 140 dB and 270 ms where SPLs are less than 140 dB. Approximately 1 km<sup>2</sup> (0.4 mi<sup>2</sup>) would be exposed to SPLs up to 170 dB. Because the sonic boom footprints at impact normally do not overlap any RMI communities, there are no residents within 29 km (18 miles [mi]) of Illeginni Islet, the sonic boom would be audible only once at any nearby locations and last no more than a fraction of a second. Noise levels during pre-test and post-flight activities at the predetermined target site would occur in an unpopulated area without resident receptors. Range evacuation procedures are implemented during all flight tests, and no residents or personnel are expected to be subjected to significant noise-related impacts. Therefore, no short-term, or long-term, impacts would occur from noise as a result of the ARRW test series 2.
- **Transportation and Infrastructure** – There would be no changes to infrastructure at Illeginni Islet. The Proposed Action represents activities that are consistent with the mission and well within the limits of current operations of RTS and USAG-KA. Transportation services would be unaffected by the ARRW test series 2. Public NOTAMs and NTMs would be issued along the flight path, to include Kwajalein Atoll, to protect the safety of aircraft and vessels. Transport of ARRW test series 2 materials, equipment, and personnel to and from USAG-KA and the impact site would occur using existing transportation methods. ARRW test series 2 activities are consistent with the mission and

well within the limits of current operations of RTS and USAG-KA. Therefore, there would be no impacts to transportation within RMI, at Kwajalein Atoll or Illeginni Islet.

- **Public Health and Safety** – There are no resident populations at or in proximity to Illeginni Islet. A NOTAM and an NTM are transmitted to appropriate authorities to clear commercial, private, and non-mission military vessel and aircraft traffic from caution areas and to inform the public of impending missions. Radar and visual sweeps of hazard areas would be regularly scheduled and conducted prior to launch to clear any non-mission ships and aircraft. No impacts to public health and safety are anticipated with the ARRW test series 2.
- **Hazardous Materials and Waste** – The ARRW would descend onto Illeginni Islet and break up on impact. Hazardous materials in the payload would be limited to batteries, small electro-explosive devices, and a tungsten alloy. No solid or liquid propellants would be carried on the payload. Considering the quantities of hazardous materials contained in the batteries and land impact, the battery materials released during payload impact should be of little consequence. All explosive devices would be handled in accordance with DOD 6055.09-STD. Sampling and analyses of soils and groundwater are planned to be conducted after each ARRW flight test. If analyses of ARRW post-flight test soil samples indicated tungsten levels above Residential levels, remedial techniques would be considered and suggested for consideration to the United States Environmental Protection Agency (USEPA). In the event of an accidental discharge (fuels, oils, etc.) during test flight operations or post-test cleanup activities, ground personnel would comply with the UES KEEP controlling the spill site and cleanup. No short-term or long-term impacts from materials associated with either the ARRW flight tests or accidental spills are anticipated.
- **Socioeconomics** – Personnel conducting the ARRW flight tests (series 2) would reside only temporarily at USAG-KA, and the ARRW flight tests would not employ any Marshallese citizens or contribute to the local Marshallese economy. There is no resident population at Illeginni Islet. Therefore, there would be no impacts to socioeconomics from the ARRW flight tests.
- **Environmental Justice** – There is no resident population located at Illeginni Islet. Therefore, there would be no disproportionate impacts from the ARRW test series 2 to minority populations and low-income populations as defined under EO 12898. No impacts to Environmental Justice are anticipated.
- **Visual Resources** – There would be no changes to and, therefore, no impacts to the visual aesthetics at USAG-KA Illeginni Islet from the ARRW test series 2.
- **Air Quality, Greenhouse Gases, and Climate Change** – The ARRW test series 2 would not emit hazardous air pollutants during impact at Illeginni Islet and no major stationary emission sources would be used during the ARRW test series 2. Fugitive dust from a land impact would be temporary and quickly dispersed by trade winds. Prior to debris recovery at Illeginni Islet, the area would be wetted with freshwater to minimize fugitive dust. The

ARRW test series 2 would not affect climate change. No impacts to air quality or greenhouse gases (GHGs) would be expected from the ARRW test series 2.

- **Biological Resources** – The following stressors have the potential to impact biological resources at Illeginni Islet: exposure to elevated sound pressure levels, direct contact from ARRW test series 2 terminal impact, exposure to hazardous chemicals, and exposure to increased human activity and equipment operation. The payload impact zone at Illeginni Islet is previously disturbed habitat and covered predominantly in impervious surface or managed vegetation. Therefore, no adverse impacts to vegetation are expected. Birds would be exposed to SPLs high enough to cause behavioral disturbance; however, any behavioral or physiological response is likely to be very brief and no adverse impacts to birds on or near Illeginni Islet are expected. Any effects of elevated noise levels on marine wildlife would likely be limited to brief startle responses and behaviors would quickly return to normal. Therefore, no adverse impacts are expected from elevated SPLs. Direct contact from payload debris and ejecta is not likely to affect birds or sea turtles in terrestrial habitats. Very few birds are expected to be within this area and no sea turtle nesting activity has been reported on Illeginni Islet in over 20 years. Direct contact from payload impact is not expected to adversely affect cetaceans or sea turtles in the water. Cetaceans, sea turtles in the water, and most fish are unlikely to be adversely impacted by increased human activity or equipment operation or hazardous chemical at Illeginni Islet. Based on evaluation of a worst-case scenario of a shoreline impact, direct contact from payload debris or human activity and equipment operation may affect several UES-protected coral colonies, individual mollusks, and humphead wrasses. Due to the potential for the Proposed Action to adversely affect these species, the USAF consulted with the National Marine Fisheries Service (NMFS). The NMFS found that up to 10,417 UES consultation coral colonies, four top shell snails, 90 clams, and 108 humphead wrasses might be injured or killed by the Proposed Action. The NMFS also concluded that the potential loss of these individual fish, snails, and clams, and coral colonies would not be likely to jeopardize the continued existence of any of these UES consultation species at USAG-KA.

**No Action Alternative:** Under the No Action Alternative, the Proposed Action would not occur, and the USAF would not pursue the ARRW program flight tests.

**CONCLUSION:** The environmental analysis in this EA/OEA for the ARRW test series 1 and 2 determined that implementation of the Proposed Alternative, or the No Action Alternative, would not have a significant environmental impact on the human and natural environment, either by itself or cumulatively with other actions. After thoroughly considering the facts herein, the undersigned finds that implementation of the Proposed Action is consistent with existing environmental policies and objectives set forth in NEPA and its implementing regulations. Preparation of an Environmental Impact Statement, therefore, is not required.

**PUBLIC REVIEW AND COMMENT:** In the Republic of the Marshall Islands the USASMDC published an availability notice in local newspapers from 6 to 7 June 2020 announcing a 30-day

public review and comment period for the June 2020 version of the Final ARRW EA/OEA and Draft FONSI.

During the 30-day review period that ended on 7 July 2020, the U.S. Army Space and Missile Defense Command had received no comments from the general public.

**POINT OF CONTACT:** The EA addressing this action may be obtained from: U.S. Army Space and Missile Defense Command, Post Office Box 1500, Huntsville, AL 35807-3801, Attn: David Fuller, (256) 955-5585.

**APPROVED:**

Signature: \_\_\_\_\_

Date: 10 Aug 2020

Ms. Marya Bard