DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO

National Oceanic and Atmospheric Administration

P.O. Box 273, Mail Stop 4830A
NASA Dryden Flight Research Center
Edwards, California 93523

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED

Operation of the Resolution UAS in Class G airspace at or below 3,000 Above Ground Level (AGL) in the vicinity of Pearl and Hermes Atoll, Northwestern Hawaiian Islands (NWHI) Marine National Monument. See special provisions.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

N/A

STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

Note-This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

SPECIAL PROVISIONS

Special Provisions are set forth and attached.

This certificate (2007-AHQ-26) is effective from October 15, 2007 to October 14, 2008, and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative. This certificate supersedes the previous version dated October 12, 2007.

BY DIRECTION OF THE ADMINISTRATOR

Ardyth M Williams

FAA Headquarters, AJR-36
(Region)

Ardyth Williams
(Signature)

November 6 , 2007
(Date)

Air Traffic Manager, Unmanned Aircraft Systems
(Title)

FAA Form 7711-1 (7-74)

ATTACHMENT to FAA FORM 7711-1

ISSUED TO: National Oceanic and Atmospheric Administration

ADDRESS: P.O. Box 273, Mail Stop 4830A
NASA Dryden Flight Research Center
Edwards, California 93523

NAME: Federal Aviation Administration (FAA) Certificate of Authorization (COA) for the Resolution Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) outside of restricted/warning area airspace.

ACTIVITY: Operation of the Resolution UAS in Class G airspace at or below 3,000 Above Ground Level (AGL) in the vicinity of Pearl and Hermes Atoll, Northwestern Hawaiian Islands (NWHI) Marine National Monument (See attachment 1 and 2 below).

PURPOSE: To prescribe operating requirements in the NAS (outside of restricted and/or warning area airspace) for the purpose of training and/or operational flights.

DATES OF USE: This COA (2007-AHQ-26) is valid from October 15, 2007, through October 14, 2008. Should a renewal become necessary, the proponent shall advise the FAA, in writing, no later than 60 days prior to the requested effective date. This certificate supersedes the previous version dated October 12, 2007.

GENERAL PROVISIONS:

- The review of this activity is based on our current understanding of the UAS operations, and the impact of such operations in the NAS, and therefore should not be considered a precedent for future operations. As changes occur in the UAS industry, or in our understanding of it, there may be changes to the limitations and conditions for similar operations.
- All personnel connected with the UAS operation must comply with the contents of this authorization and its special provisions.
- This COA will be reviewed and amended as necessary to conform to changing UAS policy and guidance.

SAFETY PROVISIONS:

Unmanned Aircraft (UA) have no on-board pilot to perform see-and-avoid responsibilities, and therefore, when operating outside of restricted/warning/Class A airspace areas, special provisions must be made to ensure an equivalent level of safety exists for operations had a pilot been on board. In accordance with 14 CFR Part 91, General Operating and Flight Rules, Subpart J-Waivers, 91.903, Policy and Procedures, the following provisions provide acceptable mitigation of 14 CFR Part 91.113 and must be complied with:

- Visual Observers, either ground-based or airborne, must be used.
- The applicant and/or its representatives are responsible for collision avoidance with all aircraft, other aviation operations, and the safety of persons or property on the surface.

AIRWORTHINESS CERTIFICATION PROVISIONS:

- UA must be shown to be airworthy to conduct flight operations in the NAS.
- Public Use Aircraft applications must contain one of the following:
    - A civil airworthiness certification from the FAA, or
    - A statement specifying that the Department of Defense Handbook "Airworthiness Certification Criteria" (MIL-HDBK-516), as amended, was used to certify the aircraft or equivalent method of certification.

PILOT / OBSERVER PROVISIONS:

- **Pilot Qualifications:** UA pilots interacting with Air Traffic Control (ATC) shall have sufficient expertise to perform that task readily. Pilots must have an understanding of and comply with Federal Aviation Regulations and Military Regulations applicable to the airspace where the UAS will operate. Pilots must have in their possession a current third class (or higher) airman medical certificate that has been issued under 14 CFR 67, Medical Standards and Certification, or a military equivalent. 14 CFR 91.17, Alcohol or Drugs, applies to UA pilots.

- **Observer Qualifications:** Observers must have been provided with sufficient training to communicate clearly to the pilot any turning instructions required to stay clear of conflicting traffic. Observers will receive training on rules and responsibilities described in 14 CFR 91.111, *Operating Near Other Aircraft*, and 14 CFR 91.113, *Right-of-Way Rules*. Observers must have in their possession a current third class (or higher) airman medical certificate that has been issued under 14 CFR 67, Medical Standards and Certification, or a military equivalent. 14 CFR 91.17, Alcohol or Drugs, applies to UA observers.

- **Pilot-in-Command (PIC) – Visual Flight Rules (VFR):**
    - The PIC is the person directly responsible for the operation of the UA. The responsibility and authority of the pilot in command as described by 14 CFR 91.3 (or military equivalent), applies to the UAS PIC.
    - The PIC must pass the required knowledge test for a private pilot certificate, or military equivalent, as stated in 14 CFR 61.105, and must keep their aeronautical knowledge up to date.
    - There is no intent to suggest that there is any requirement for the UAS PIC to be qualified as a crewmember of a manned aircraft.

Pilot Proficiency – VFR:

- Pilots will not act as a PIC unless they have had three qualified proficiency events within the preceding 90 days.
    - The term "qualified proficiency event" is a UAS-specific term necessary due to the diversity of UAS types and control systems.
    - A qualified proficiency event is an event requiring the pilot to exercise the training and skills unique to the UAS in which proficiency is maintained.

- Pilots flying UA on other than instrument flight plans must pass the required knowledge test for a private pilot certificate, or military equivalent, as stated in 14 CFR 61.105.

PIC Responsibilities:

- Pilots are responsible for a thorough preflight inspection of the UAS. Flight operations will not be undertaken unless the UAS is airworthy. The airworthiness provisions of 14 CFR 91.7, Civil Aircraft Airworthiness, or the military equivalent, apply.
- One PIC must be designated at all times and is responsible for the safety of the UA and persons and property along the UA flight path.
- The UAS pilot will be held accountable for controlling their aircraft to the same standards as the pilot of a manned aircraft. The provisions of 14 CFR 91.13, *Careless and Reckless Operation*, apply to UAS pilots.

Pilot/ATC Instructions: The PIC will maintain direct two-way communications with ATC and have the ability to maneuver the UA per their instructions as applicable.

SPECIAL PROVISIONS:

1. All UAS operations shall be conducted under Visual Flight Rules (VFR) in Visual Meteorological Conditions (VMC) in accordance with CFR 14 Part 91. The UAS shall not enter cloud formations.

2. Observers must be within one mile/1000 feet vertically of the Resolution to exercise see and avoid responsibilities. While the one mile is the FAA standard, small UAS like the Resolution may not always be visible at that distance. Pilot/observers must not operate Resolution at a distance beyond that at which see and avoid responsibilities can be exercised.

3. The UAS transponder and position/navigation/anti-collision strobe lights shall be activated at all times during flight, if equipped.

4. The observer/s shall have direct communication with the UAS operator

Dedicated press to talk or "hot mike" communication with the UAS pilot and ground observer/s is required.

5. UA operations will only occur between the times of sunrise to sunset.

6. The UAS shall not be operated over congested areas, heavily trafficked roads, or an open-air assembly.

7. Lost Link Procedures/Flight Termination Procedures: If lost link occurs:
   a. In the event of lost link with the UA pilot control system, the aircraft will proceed with its flight path at the time of lost link. The system will attempt to re-establish link until the UA power source is exhausted and/or the UA ditches in the water.
   b. In the event that uplink command and control is lost, the aircraft will continue to fly its survey pattern and land at a predetermined lost link waypoint. This waypoint will be in a location on the ocean that will not cause harm to persons or property. If command and control is re-established, flight data telemetry will resume and new or revised waypoints can be uploaded to the aircraft autopilot.

8. NOTAM: A Notice to Airman shall be requested from the servicing Automated Flight Service Station (AFSS) when UA operations are being conducted. At a minimum, provide the AFSS the following information:
   a. Name and Address of the Using Facility.
   b. Location, Altitude of the operating area.
   c. Time and nature of the activity.

9. NOAA and/or its representatives are responsible at all times for collision avoidance with non-participating aircraft and the safety of persons or property on the surface with respect to the UAS.

INCIDENT / ACCIDENT REPORTING: The following information is required to document unusual occurrences associated with UAS activities in the NAS.

- The proponent for the COA shall provide the following information to kenneth.d.davis@faa.gov on a monthly/annual basis:

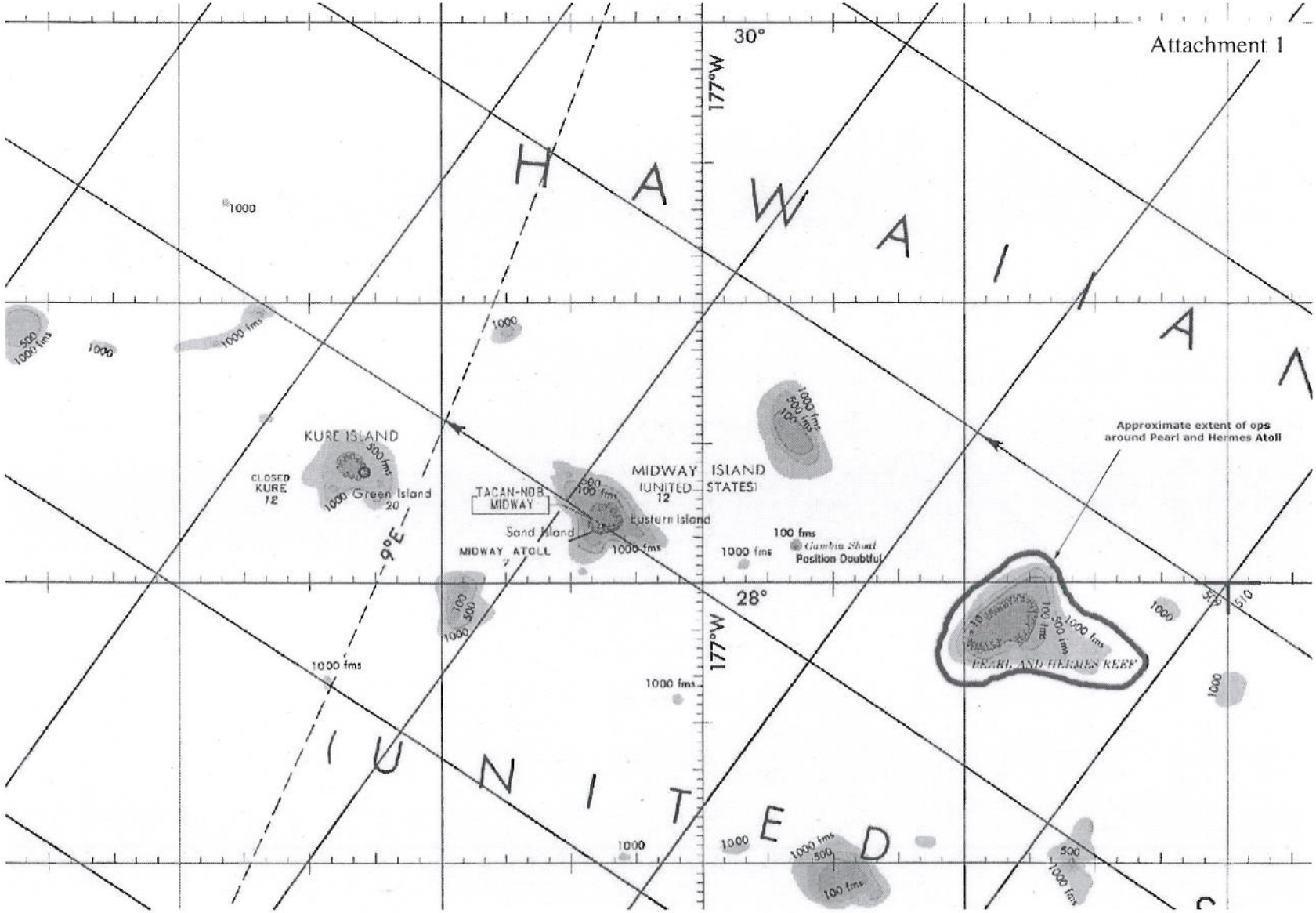
  - Number of flights conducted under this COA.
  - Pilot duty time per flight.
  - Unusual equipment malfunctions (hardware/software).
  - Deviations from ATC instructions.
  - Operational/coordination issues.
  - All periods of Loss of Communications.

- The following shall be submitted to kenneth.d.davis@faa.gov within 24 hours:

  - Deviations from the "Special Provisions" contained in the COA.
  - All periods of Loss Link, including duration.
  - All incidents involving the UAS as defined in 49 CFR 830.
  - All accidents involving the UAS as defined in 49 CFR 830.

This COA does not, in itself, waive any Federal Aviation Regulation (FAR) nor any state law or local ordinance. Should the proposed operation conflict with any state law or local ordinance, or require permission of local authorities or property owners, it is the responsibility of the National Oceanic and Atmospheric Administration to resolve the matter. This COA does not authorize flight within Special Use Airspace without approval from the Using Agency. The National Oceanic and Atmospheric Administration is hereby authorized to operate the Resolution UAS in the operations area depicted in "Activity" above and depicted in attachment 1 and 2 below.

Attachment 1



Attachment 2