

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO

Department of the Air Force

ADDRESS

USAF

432 OG/CC, 53 TEG Det 4/CC, Attn: 57 OSS/OSM

4450 Tyndall Ave

Nellis AFB, NV 89191

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 MQ-1/MQ-9 Predator UAS in Class G, E, and A airspace under the jurisdiction of Los Angeles Air Route Traffic Control Center (ZLA) and/or High Desert Terminal Radar Approach Control (E10) (see attachment 1 below). For the purpose of delivery flights from El Mirage (99CL) and Gray Butte (04CA), CA, to Creech Air Force Base (INS), NV; and for transit of training and/or operational flights between INS and restricted areas R-2508, R-2501 and R-2306. See Special Provisions.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

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 (2008-WSA-15) is effective from July 30, 2008, through July 29, 2009, and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative.

BY DIRECTION OF THE ADMINISTRATOR



FAA Headquarters, AJR-36

(Region)

Ardyth Williams

(Signature)

July 30, 2008

(Date)

Air Traffic Manager, Unmanned Aircraft Systems

(Title)

ATTACHMENT to FAA FORM 7711-1

ISSUED TO: Department of the Air Force

ADDRESS: USAF
432 OG/CC
53 TEG Det 4/CC
Attn: 57 OSS/OSM
4450 Tyndall Ave
Nellis AFB, NV 89191

NAME: Federal Aviation Administration (FAA) Certificate of Authorization (COA) for MQ-1/MQ-9 Predator Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) outside of restricted airspace.

ACTIVITY: Operation of the MQ-1/MQ-9 Predator UAS in Class G, E, and A airspace under the jurisdiction of Los Angeles Air Route Traffic Control Center (ZLA) and/or High Desert Terminal Radar Approach Control (E10) (see attachment 1 below).

PURPOSE: To prescribe operating requirements in the NAS outside of restricted airspace for the purpose of delivery flights from El Mirage (99CL) and Gray Butte (04CA), CA, to Creech Air Force Base (INS), NV; and for transit of training and/or operational flights between INS and restricted areas R-2508, R-2501 and R-2306.

DATES OF USE: This COA (2008-WSA-15) is valid from July 30, 2008, through July 29, 2009. Should a renewal become necessary, the proponent shall advise the FAA, in writing, no later than 60 days prior to the requested effective date.

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 second 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 second 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-in-Command (PIC) – Instrument Flight Rules (IFR):**
 - 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 be a certified pilot of manned aircraft (FAA or military equivalent) in category and class of aircraft flown.
 - The PIC must also have an appropriate instrument rating (manned aircraft, FAA or military equivalent) for the category and class of aircraft flown.

Pilot Proficiency – VFR/IFR:

- Pilots will not act as a VFR/ IFR 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 will not act as an IFR PIC unless they have had six instrument qualifying events in the preceding six calendar months (an event that requires the PIC to exercise instrument flight skills unique to the UAS).
- 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:

The FAA recognizes that, by nature, UAS have no on-board pilot to perform see-and-avoid responsibilities. Therefore, when operating outside of Restricted Airspace, special provisions must be made to ensure an equivalent level of safety exists for operations had a pilot been on board. Listed below are the special provisions that must be complied with. All personnel connected with this UAS operation shall comply with the contents of this authorization and its special provisions.

1. An IFR flight plan shall be filed for all operations in Class A airspace. The operator shall request altitudes in Class A airspace between FL190 and FL230. The UA shall be level at the ATC assigned altitude for transit of Class A airspace prior to exiting restricted airspace. The UAS operator shall remain in continuous two-way radio communication with ATC and comply with all ATC instructions. For IFR flights outside of restricted airspace, coordination shall be accomplished a minimum of one day prior with Los Angeles Air Route Traffic Control Center (ZLA). This coordination shall be with the ZLA Military Operations Specialist (MOS) at (661) 265-8287 or DSN 640-1290. The ZLA MOS will file the flight plan if requested.
2. The UA shall operate with an operational mode 3/A transponder, with altitude encoding, set to an ATC assigned squawk.
3. The UA shall operate with position/navigation lights on at all times during flight.
4. In the event of a loss of control link, the UAS operator will immediately notify ATC; the aircraft will squawk 7600 and continue on assigned route and altitude until entering restricted airspace. If the aircraft experiences lost link prior to restricted airspace, the UA squawks 7600 and follows the assigned route of flight/altitude to the restricted airspace and holds at an orbit point within restricted airspace for 30 minutes or until the link is restored. If the link is restored, the UA will resume assigned squawk and continue on with its flight plan route after cleared to do so by ATC. If the link cannot be restored, the aircraft will depart the orbit and commence the programmed lost link profile (IFR Flight Plan Route) back to INS and hold in one of the published lost link orbits (attachment 3) north of INS (in restricted airspace) until line of sight is restored. In **all** lost link conditions, once the aircraft is established in restricted airspace the operator will coordinate alternate/recovery route with ATC **prior** to exiting restricted airspace. The UA lost link mission will not orbit over populated areas.
5. For the purpose of see-and-avoid, visual observers must be utilized at all times except in Class A airspace. The observers may either be ground based or in a chase plane. To the extent consistent with the safety of the chase aircraft, the chase aircraft should be operated within one mile laterally and 3000 feet vertically from the UA. For MQ-1 operations, the UA must remain within a lateral distance of no more than 2 nautical miles and 3,000 feet vertically from the ground observer. For MQ-9 operations, the UA must remain within a lateral

distance of no more than 2.5 nautical miles and 3,000 feet vertically from the ground observer.

6. For delivery flights that originate from 99CL and/or 04CA, the operator shall contact E10 at 661-277-3843 no later than one hour prior to flight and request a discrete beacon code.
7. Operations outside of restricted and/or Class A airspace may only be conducted during daylight hours.
8. Operations including lost link not be conducted over populated areas, heavily trafficked roads, or an open-air assembly of people.

NOTAM: A distance (D) Notice to Airman shall be issued when UA operations are being conducted. Contact the Automated Flight Service Station not more than 72 hours in advance, but not less than 48 hours prior to the operation and provide:

- Name and Address of the Using Facility
- Location, Altitude or the operating Area
- Time and nature of the activity

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 Donald.E.Grampp@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 Donald.E.Grampp@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 Department of the Air Force to resolve the matter. This COA does not authorize flight within Special Use Airspace without approval from the Using Agency. The Department of the Air Force is hereby authorized to operate the

MQ1/MQ9 Predator UAS in the operations area depicted in “Activity” above and attachment 1 below.

Attachment 1

