

Memorandum of Agreement
Concerning the Operation of Department of Defense
Unmanned Aircraft Systems in the
National Airspace System

1. **Introduction:** This Memorandum of Agreement (MOA) between the Department of Defense (DOD) and the Federal Aviation Administration (FAA) sets forth provisions that will allow, in accordance with applicable law, increased access for DOD unmanned aircraft systems (UAS) into the National Airspace System (NAS) outside of Restricted, Warning, or Prohibited Areas through accommodation, implementation of advanced mitigations, and integration, where applicable. This agreement assigns the DOD and the FAA specific tasks and responsibilities and applies to all DOD UAS operations, whether operated by Active, Reserve, National Guard, or other personnel of the United States Air Force, Army, Marine Corps, and Navy (known herein as “Military Departments”). This agreement replaces the MOA dated 24 September, 2007 and incorporates policies and procedures adopted since the previous version was implemented.
 - 1.1. It is DOD’s goal to operate UAS seamlessly with manned aircraft in all classes of airspace without the need for airspace segregation or special authorizations, such as Certificates of Waiver or Authorization (COA) or Temporary Flight Restrictions (TFR).
 - 1.2. It is FAA’s goal to integrate appropriately-equipped UAS consistent with no degradation of the safety and efficiency of the NAS, as well as the safety of persons and property on the ground.
 - 1.3. DOD and the FAA will continue to collaborate in the development of policy, regulatory, technical and safety-related requirements in order to safely increase UAS access to the NAS. This collaboration will include the sharing of safety data as well as joint participation in research and development activities.
 - 1.4. DOD and the FAA jointly agree to the following provisions to safely increase DOD UAS access to the NAS:
2. **Scope:** The policies, procedures and operations prescribed in this MOA apply to the operation of DOD UAS within the NAS outside of Restricted, Warning or Prohibited Areas.
3. **Authority:**
 - 3.1. Title 10 of the United States Code provides the authority for the Military Departments to set military aviation standards, certify military aircraft (including UAS) and direct military aviation operations.
 - 3.2. Sections 106, 40103(b), and 44701(a)(5) of Title 49, United States Code, provides the authority of the Federal Aviation Administrator to set aviation safety standards and regulate aviation operations in the NAS.

4. **UAS Airworthiness Certification:** DOD UAS operated outside of Restricted, Warning or Prohibited Areas shall be certified by one of the Military Departments as airworthy to operate in the intended segments of national and international airspace in accordance with applicable DOD and Military Department standards.
5. **UAS Pilot/Operator Qualification:** Pilots/operators¹ and crew members of DOD UAS shall be qualified and medically certified by the appropriate Military Department to operate in the class of airspace in which operations are to be conducted.
6. **FAA Certificate of Waiver or Authorization (COA) Process:** At present, the primary means of granting access to the NAS for public UAS is through the COA process. COAs will be issued using the guidance contained in the FAA's Order JO 7210.3 and FAA N8900.207, Unmanned Aircraft Systems Operational Approvals (as amended/superseded).
 - 6.1. **New COAs:** A proponent will submit a request for a new COA via the FAA Obstruction Evaluation, Airport Airspace Analysis (OE/AAA) website: <http://ioeaaa.faa.gov>. The FAA will complete processing of requests for new COAs within 60 business days² of receipt of a submitted application. In instances where this metric will not be met, the FAA will notify the requestor of the nature of the anticipated delay, any additional information required and the expected COA completion date.
 - 6.2. **Renewal COAs:** Renewal for a COA with no changes will be processed using a streamlined process and may be renewed one time as prescribed below. The FAA agrees to process COA renewal requests within 30 business days² of receipt of a complete application.
 - 6.2.1. The proponent will submit the request for COA renewal via the FAA OE/AAA website no later than 45 business days before the COA expiration date.
 - 6.2.2. The FAA will approve the COA renewal NLT 15 business days prior to the COA expiration date.
 - 6.2.3. If a renewal requires an extension to complete processing, extension(s) will be granted by the FAA via letter until the COA is approved, not to exceed 24 months from the original expiration date.
 - 6.2.4. Existing COAs that have FAA approved modifications ("pen and ink" changes) may be processed as a renewal COA.
 - 6.2.5. Requests for COA renewals that contain additions or changes by the proponent will not be accepted as a renewal, but will be processed as a new COA.

¹ The term "operator" is a DOD specific term to describe individuals with the appropriate training and Military Department certification for the type of UAS being operated, and as such, is responsible for the UAS operations & safety. It is understood that all DOD UAS will be flown with a designated Pilot in Command (PIC).

² If a COA is released to the proponent with a request for additional information, the FAA processing timeline will stop and resumes once the information is received.

- 6.3. COA via Notification: Streamlined process for DOD proponents to notify FAA of intended UAS operations within Class D or G airspace under provisions delineated in paragraphs 7. and 8. below. FAA will review all COA via Notification submissions for MOA compliance, acknowledge the notification and notify proponent of any issues/concerns regarding the proposed operations prior to the start date or within five business days, whichever occurs first. Notifications are deemed approved absent receipt of notices of issues/concerns within the stated time frame.
- 6.4. FAA issued new and renewal COAs will be valid for 24 months from the date of approval, unless a shorter duration has been requested by the proponent. Requests involving policy or airspace changes may require an applicant to provide additional information to the FAA before a renewal COA can be approved.
- 6.5. COA proponents will ensure airworthiness certification, spectrum approvals, and Letters of Agreement (such as written agreements with air traffic control facilities or for land use, if applicable) remain current for the duration of the COA and will provide the FAA any updates to those documents.
- 6.6. Priority COA Requests: In the case of urgent and compelling need to prioritize a specific COA application/renewal, the DOD Policy Board on Federal Aviation (PBFA) representative will notify the FAA of the COA request for priority action, the reason for priority action and the requested approval date. The FAA will move the requested COA to the top of the DOD queue and process it as quickly as possible. Metrics for DOD COAs currently in the queue when the request for prioritization is received will be adjusted as appropriate.
7. **DOD UAS Access to Class D airspace**: The FAA agrees to authorize DOD access to Class D airspace through either a COA or a Class D COA via Notification. A Class D COA via Notification is a notification to the FAA of DOD intent to operate UAS in a specific Class D airspace at a DOD airfield. This Notification will be valid for up to 24 months and may be used to operate multiple UAS types in multiple locations within the specified Class D airspace. The following applies to DOD airfields with an operational Air Traffic Control Facility where Air Traffic Control (ATC) services are provided by the DOD during published hours:
 - 7.1. At DOD joint-use airfields or airfields whose operations are within airspace covered under Title 14 CFR Section 91.215 (b) (2), a new or renewal COA is required. Submissions must include an ATC management plan that outlines segregation of manned and unmanned aircraft. The proponent will submit requests for a COA via the FAA OE/AAA website.
 - 7.2. At DOD airfields not classified as joint-use airfields, a new/renewal COA or a Class D COA via Notification is required. Submissions must include an ATC management plan that outlines segregation of manned and unmanned aircraft. The proponent will submit requests for Class D COA via Notification through the FAA OE/AAA website a minimum of 45 business days prior to intended operation(s).

- 7.2.1. Approval of Class D COAs via Notification mandate implementation of ATC procedures in compliance with FAA Order JO 7110.65. DOD, as the ATC service provider, does not have the authority to issue any waivers to 14 CFR Part 91 or to FAA Order JO 7110.65.
- 7.2.2. Approval of Class D COAs via Notification include permission for DOD UAS to transition between the specified Class D airspace and adjoining active Restricted and/or Warning Areas if delineated in the application.
- 7.3. Operations will not be conducted over populated areas, unless the level of airworthiness allows. For planning purposes, populated areas are those areas indicated in yellow on Visual Flight Rules (VFR) Sectional Aeronautical Charts.
- 7.4. Night operations are permitted provided:
 - 7.4.1. The UAS meets the night lighting requirements as defined in CFR 91.209, or an agreed equivalent standard.
 - 7.4.2. Flight Crews have been trained on the lighting configuration of the unmanned aircraft and are in place 30 minutes prior to night operations to ensure night vision adaptation has occurred, as applicable.
 - 7.4.3. The tower radar display is operational.
 - 7.4.4. The Air Traffic Control Tower is appropriately staffed for normal operations.
- 7.5. Proponent will publish Notices to Airmen (NOTAM) to alert non-participating aircraft not more than 72 hours in advance, but not less than 48 hours prior to the operation.
- 7.6. Military Departments will implement common ATC procedures, tailored for local use, at each airfield where this provision is utilized. These procedures will be approved by a locally authorized command official and provided to the FAA via COA online. The ATC procedures will comply with FAA Order JO 7110.65 and the January 23, 2009 memorandum titled "ATC Procedures for DOD Non-Joint-Use Airfields with Associated Class D Airspace" (Attachment 1), as amended/superseded.
8. **DOD UAS Access to Class G airspace using COA via Notification procedures:** In addition to use of standard COAs, the FAA agrees to authorize access to Class G airspace for DOD UAS outside Restricted or Warning Areas through the COA via Notification procedure. This notification will be valid for up to 24 months. Operations within Class G airspace underlying Class B or C airspace (Mode C veil) must be conducted via a standard COA. Requirements for the COA via Notification procedures are as follows:
 - 8.1. COA via Notification in Class G airspace applies to UAS weighing 55 pounds or less, except where limited to 20 pounds or less, as depicted in Figure 1.
 - 8.2. The proponent will notify the FAA via OE/AAA COA online and publish a NOTAM to alert non-participating aircraft not less than 24 hours prior to the operation.

- 8.3. Operations will be conducted within visual line of sight of the pilot/operator/visual observer utilizing Class E VFR weather requirements.
- 8.4. Operations will be conducted over military bases, reservations or land protected by purchase, lease, or with express permission of the landowner.
- 8.5. Operations will not be conducted over populated areas, unless the level of airworthiness allows. For planning purposes, populated areas are those areas indicated in yellow on VFR sectional charts.
- 8.6. Operations will not be conducted over charted wildlife preserves, national parks or other similarly protected airspace indicated on VFR Sectional Aeronautical Charts.
- 8.7. The UAS will remain outside of five (5) NM from any civil airport or heliport (Figure 1).
 - 8.7.1. Operations between five (5) and ten (10) NM from a civil airport or heliport will remain below 700 ft AGL/14,500 ft MSL. EXCEPTION: UAS weighing 20 lbs or less may operate up to 1200 ft AGL/14,500 ft MSL when not beneath a depicted transition area (Figure 1).
 - 8.7.2. Operations greater than ten (10) NM from a civil airport or heliport will remain below 1,200 ft AGL/14,500 ft MSL (Figure 1).

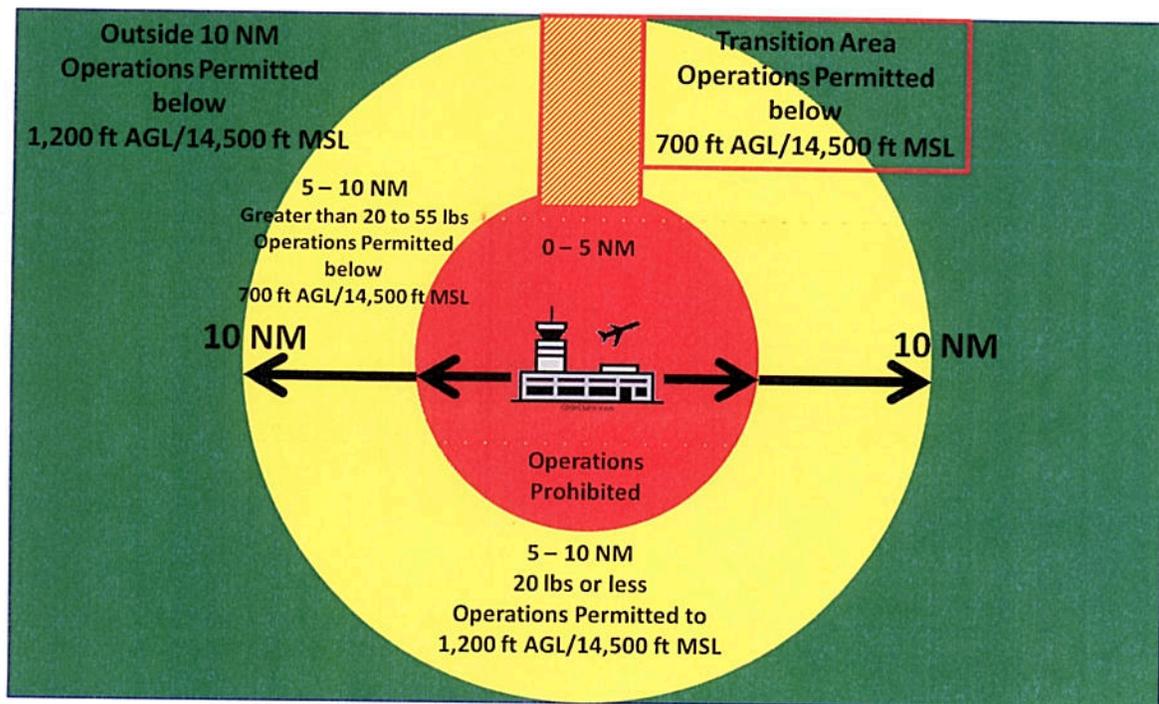


Figure 1

8.8. Night operations are permitted provided:

8.8.1. The UAS meets the night lighting requirements as defined in 14 CFR 91.209.

8.8.2. Flight Crews have been trained on the lighting configuration of the unmanned aircraft and are in place 30 minutes prior to night operations to ensure night vision adaptation has occurred, as applicable.

9. **Inspection/Reporting Programs**³: DOD and FAA agree that regular assessment of UAS operations under COAs is essential to ensuring the continued safety of the NAS.

9.1. DOD and FAA agree that each Military Department will put into place a system of regular inspections and self-assessments for units that operate UAS, as well as at DOD Air Traffic Control facilities and airfields where UAS operations are conducted.

9.2. DOD and FAA agree that the form, manner and frequency of information exchanges related to Military Department inspections and self-assessments will be formally determined in a separate Memorandum of Understanding.

10. **DOD/FAA Partnering Initiatives**: To the maximum extent practicable, DOD and the FAA will partner on efforts to further UAS research, development, standards, testing and certification initiatives as follows:

10.1. **Sharing UAS Safety Data**: DOD and FAA will continue to collect and share safety related data on UAS operations to support DOD/FAA UAS safety studies and analysis. The FAA agrees to share with DOD the same type UAS safety data collected from other non-DOD sources, as permitted by law and the non-DOD sources. The FAA agrees to release to DOD requested data, results and findings of studies and analysis conducted using DOD and non-proprietary non-DOD UAS data. The ultimate goal of safety data reporting will be to arrive at an agreed-upon set of data reporting requirements that can be supported by the individual Military Departments. In the interim, the data reporting methodology delineated below will be utilized.

10.1.1. Data will be provided in accordance with the DOD/FAA MOA, Sharing Safety Mishap Information Related to the Operation of Unmanned Aircraft Systems (UAS) between the DOD Components and the Federal Aviation Administration (FAA), 23 June 2011 as amended/superseded.

10.1.2. COA and COA via Notification data reported via COA On-Line.

10.1.3. Additional data elements as defined by future agreement(s) between the DOD and FAA regarding the sharing of safety or operational data (incorporated by reference).

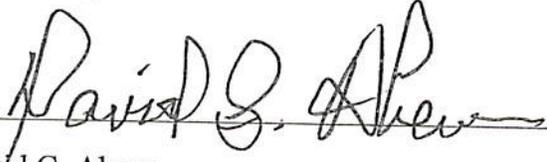
10.2. **UAS Research and Development (R&D)**. It is DOD and the FAA intent to share methodologies, information and results of R&D efforts conducted by their respective organizations, as described more fully in a separate Memorandum of Understanding.

³ Not intended to replace procedures identified in FAA JO 7610.4

The FAA point of contact will be the Manager of the Advanced Concepts & Technology Development Office, ANG-C. The DOD point of contact will be DOD/Acquisition, Training and Logistics (AT&L)/Unmanned Warfare (UW).

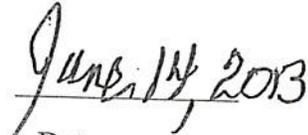
- 11. Safeguarding of Shared Information (Non-Public Information):** The DOD and FAA agree to take all actions reasonably necessary to preserve, protect, and maintain all privileges and claims of confidentiality related to non-public government-generated information provided pursuant to the MOA, in accordance with applicable law. Release of any non-public government-generated information to third parties is prohibited without the written consent of signatories to this agreement or their duly appointed designees. The DOD and FAA intend that sharing of non-public government-generated information with each other pursuant to the terms of the MOA will not constitute public disclosure, nor will it constitute a waiver of confidentiality or any privilege applicable to such information. The DOD and FAA expressly reserve all evidentiary privileges and immunities applicable to the information shared under this MOA.
- 12. Implementation Plan:** The Chairman, DOD Policy Board on Federal Aviation, the FAA's Associate Administrator for Aviation Safety, and the FAA's Chief Operating Officer for the Air Traffic Organization are charged with formulating policy for their respective organizations to ensure compliance with the provisions of this agreement.
- 13. Effective Date, Amendment, and Termination:** This MOA will be effective upon the last signature of the Parties, subject to review every five (5) years, or by request of either party, and may be renewed or amended by agreement of the parties. This MOA may be terminated by either party upon 60 calendar days written notice or upon mutual written consent of the parties. Or either party wishing to terminate this agreement will submit written notification 60 calendar days prior to the effective date of termination.
- 14. Amendments to Attachments of this MOA:**
 - 14.1. Attachments to this MOA may be added or updated by agreement of both agencies' representatives to the UAS Executive Committee Senior Steering Group (SSG).

For the Department of Defense



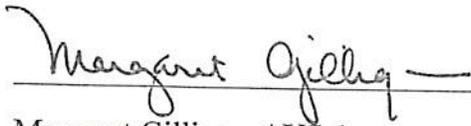
David G. Ahern

Chairman, DOD Policy Board for Federal Aviation



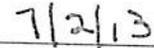
Date

For the Federal Aviation Administration

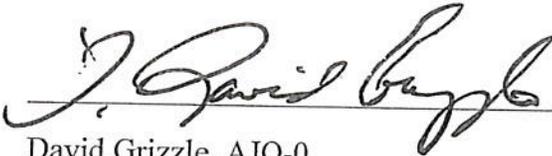


Margaret Gilligan, AVS-1

Associate Administrator for Aviation Safety

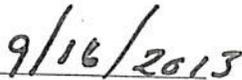


Date



David Grizzle, AJO-0

Chief Operation Officer, Air Traffic Organization



Date

1 Attach

- 1) ATC Procedures for DOD Non-Joint-Use Airfields with Associated Class D Airspace

ATTACHMENT 1



DOD
POLICY BOARD
ON FEDERAL AVIATION

OFFICE OF THE SECRETARY OF DEFENSE
1480 DEFENSE PENTAGON
WASHINGTON DC 20301-1480

JAN 23 2009

MEMORANDUM FOR ASD(NII) (MR GRIMES)
OUSD(P) (MR VERGA)
OUSD(AT&L) (MR KISTLER)
OSD/DGC A&L (MR LARSEN)
JCS/J-5 (BGEN DISALVO)
DCS/G-3/5/7 (LT GEN THURMAN)
N88 (RADM MYERS)
DCS/A3/5 (LT GEN DARNELL)
USMC/AVIATION (LT GEN TRAUTMAN)

SUBJECT: ATC Procedures for Department of Defense (DOD) Non-Joint-Use Airfields with Associated Class D Airspace

I have enclosed revised ATC Procedures for DOD Non-Joint-Use Airfields with Associated Class D Airspace to operate DOD Unmanned Aircraft Systems for Service use effective on 21 January, 2009. The procedures were developed pursuant to DEPSECDEF memorandum, Subject: Memorandum of Agreement for Operation of Unmanned Aircraft Systems in the National Airspace System dated 24 September 2007. They meet the requirements of the "DOD-FAA MOA Concerning the Operation of DOD UAS in the NAS" entered into by the FAA Administrator and the Deputy Secretary of Defense effective 24 September 2007. The procedures when employed properly will simplify and expedite UAS COA approvals at DOD airfields.

These procedures were developed by Service operations and air traffic control subject matter experts and have been coordinated with the FAA. The procedures replace DOD Operations and ATC Procedures for Non-Joint-Use Airfields with Associated Class D Airspace released May 20 2008. They should be considered an integral part of DOD airfield operations and attached to all applicable UAS COA requests.

Please feel free to contact me at (703) 697-8489, or COL Robert Hess, who chaired the DOD UAS ATC procedures working group, at (703) 806-4862, with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Gerald F. Pease, Jr.", written over a white background.

GERALD F. PEASE, Jr., SES
Executive Director

ATC Procedures for DOD Non-Joint-Use Airfields with Associated Class D Airspace

1. Purpose. To meet requirements for uniform air traffic control procedures as specified in the DOD/FAA Memorandum of Agreement (MOA) Concerning the Operation of Department of Defense Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) dated 24 September 2007.

2. Scope.

a. The procedures in this document outline standards for ATC procedures at DOD non-joint-use airfields with associated Class D airspace conducting UAS operations.

b. This document cannot be amended without prior coordination with the Service's representative to the DOD Policy Board on Federal Aviation, who will in turn coordinate proposals within DOD and with the FAA.

NOTE: For list of DOD Military-Civilian Joint-Use Airfields see Appendix 1

3. Provisions. All personnel subject to the requirements of this document shall comply with the following provisions:

a. Applicable Federal, State, and local laws, Service Regulations, applicable Code of Federal Regulations (CFRs), FAA Orders and the DOD/FAA Memorandum of Agreement Concerning the Operation of Unmanned Aircraft Systems in the National Airspace System (DOD/FAA MOA).

b. Operation of UAS in Class D airspace at non-joint-use airfields is limited to DOD UAS operations and contract operations conducted solely under the direction of Department of Defense or one of its entities.

c. Prior to commencing and at the conclusion of operations, DOD ATC shall advise ATC facilities providing approach control service to the applicable airfield that Unmanned Aircraft (UA) operations are being conducted. Local coordination will be effected with impacted ATC facilities to include normal, emergency and contingency operations.

4. Definitions.

a. **NORDO aircraft:** Any aircraft operating within the Class D airspace without two way radio communication with the ATC facility per 14 CFR Part 91.

b. **UA Zones:** Marshalling areas, defined by geographic, visual or GPS reference, used by UA and ATC as departure/arrival points to/from airfield, as depicted in the Certificate of Authorization (COA). UA Zones are also used for lost link and emergency orbit points for UA.

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c. Lost link: UAS pilot/operator has lost the ability to provide real-time control of the UAS. Loss may be permanent or temporary.

5. Procedures. The following procedures will be applied at all non-joint-use DOD-controlled airfields with approved COA.

a. General Procedures.

(1) If equipped, UAs shall be operated at all times with full lighting and transponders.

(2) Procedures for deconfliction of UA and transient aircraft traffic will be specified in the COA. Possible methods of use: altitude restrictions for UA, visual holding points with specific lateral and vertical limits, use of ground observers.

(3) The UA mission commander shall advise ATC of initiation and completion of flight operations.

(4) Radio check between UA pilot/operator and ATC will be conducted prior to operations.

(5) All communications between ATC and UAS pilot/operator will be accomplished on designated primary and/or alternate ATC frequencies. Secondary/backup communications and/or telephone connectivity will be precoordinated.

(6) All UAS operations will be conducted under Visual Flight Rules (VFR) in accordance with applicable Service Regulations and FARs. Increased ceiling and visibility requirements can be applied.

b. ATC Procedures.

(1) Description of aircraft types. Describe UAS to other aircraft by stating "unmanned aircraft."

(2) ATIS Procedures. Make a new recording when UAS operations are in effect or have terminated for the day.

(3) Sequencing and Spacing Application. UAS pilots cannot be instructed to follow another aircraft.

(4) Simultaneous Same Direction, all UAS will be treated as "other" aircraft.

(5) Same Runway Separation, all UAS will be treated as Category III aircraft.

(6) Use of Visual Separation between UAS and manned aircraft or UAS and UAS is not authorized.

(7) SVFR is not authorized with UAS.

(8) Preventive Control. May only be applied in accordance with FAAO JO 7110.65.

(9) Transient Aircraft Procedures. ATC will keep the UA pilot/operator apprised of any known transient aircraft operations that may impact operations. UA pilot/operator will take all necessary actions to maintain lateral and vertical separation. ATC should provide UA pilot/operator recommended altitudes or direct to predetermined points (UA Zones) to ensure deconfliction.

(10) For the purpose of applying wake turbulence rules see FAAO JO 7110.65 PCG A-6 and Appendix 2, (list of DOD UAS). In addition to the requirements of FAAO 7110.65, ATC will apply the following procedures:

(a) Issue cautionary wake turbulence advisories, and the position, altitude and direction of flight to the pilot/operator of UAS landing behind all manned aircraft regardless of weight class.

(b) Wake turbulence rules cannot be waived by the UAS pilot/operator.

c. NORDO Aircraft Procedures.

(1) ATC will notify UA pilot/operators of any known NORDO aircraft.

(2) ATC will broadcast on emergency frequencies when an NORDO aircraft is present to expeditiously establish two-way radio communications with NORDO aircraft.

(3) UAS pilot/operator, assisted by ATC, will determine best method to separate UAS and NORDO aircraft. Examples of separation methods:

(a) UA may proceed to a UA Zone to hold

(b) Cease operations and land if it will not aggravate the situation

(c) Altitude deconfliction

NOTE: All aircraft who do not establish two-way radio communication as per CFR prior to entering Class D airspace will be reported to the FAA.

d. Emergency Procedures.

(1) ATC will apply the procedures listed in Chapter 10, Section 1 of FAAO JO 7110.65. Minimum required information for in-flight emergencies:

(a) Aircraft identification and type

(b) Nature of the emergency (lost link, equipment failure)

(c) Intentions of the UA pilot/operator

(d) Aircraft altitude / position

(e) Fuel remaining in time

(2) The safety of manned aircraft will take precedence over unmanned aircraft in an emergency situation.

(3) If primary radio communications between UA pilot/operator and ATC are lost, UA pilot/operator or ATC will be notified immediately via designated alternate communications method. Failure to establish or maintain radio communication between UA pilot/operator and ATC will require termination of UA operations.

(4) If lost link occurs, UAS pilot/operator will immediately notify ATC with the following information:

(a) Time of lost link

(b) Last known position

(c) Altitude

(d) Direction of flight

(e) Confirm execution of lost link procedures

(f) Confirm pilot/observer have visual contact with UA

NOTE: UA lost link is an emergency, but may not require crash-rescue services

(5) In the event of lost link, lost communication between UAS pilot/operator and ATC or lost communication between UAS pilot/operator and observer, ATC will do the following:

(a) Cease aircraft launches until status of affected UAS is determined

(b) Recover other UA as appropriate

(c) Issue advisories and ATC instructions as appropriate to insure the safe operation of all aircraft

Army
Blackstone AAF, Fort Pickett, VA
Guernsey AAF, Camp Guernsey, WY
Dillingham AAF, Waiialua, HI
Forney AAF, Fort Leonard Wood, MO
Robert Gray AAF, Fort Hood, TX
Grayling AAF, Camp Grayling, MI
Libby AAF, Fort Huachuca, AZ
Sherman AAF, Fort Leavenworth, KS
McCoy AAF, Fort McCoy, WI
Wright AAF, Fort Stewart, GA
Air Force
Air Force Plant 42, Palmdale, CA
Charleston AFB, Charleston, SC
Dover AFB, DE
Eglin AFB, Valparaiso, FL
Grissom ARB, Kokomo, IN
Kelly AFB, San Antonio, TX
March ARB, Riverside, CA
Scott AFB, Belleville, IL
Sheppard AFB, Wichita Falls, TX
Westover ARB, Springfield, MA
Navy
None
Marines
MCAS Yuma AZ

Types	Weight
MQ-1 Predator	2,250 lb
MQ-1C Sky Warrior	3,200 lb
RQ-2 Pioneer	452 lb
RQ-4 Global Hawk	26,750-32,250 lb
RQ-5A/MQ-5B Hunter	1620-1950 lb
RQ -7 Shadow	375 lb
RQ-11 Raven	4 lb
RQ-14 Dragon Eye	6 lb
RQ-16A MAV	15 lb
MQ-8 Fire Scout	3,150 lb
MQ-9 Reaper	10,500 lb

