United States Department of the Interior
National Business Center
Aviation Management
300 E. Mallard Dr., Ste 200
Boise, Idaho 83706-3991

DOI OPERATIONAL PROCEDURES (OPM) MEMORANDUM NO. 11-11

Subject: DOI Use of Unmanned Aircraft Systems (UAS)

Effective Date: December 19, 2011

Supersedes: OPM 09-11 issued on August 24, 2010

Expiration: December 31, 2012

1. **PURPOSE.** The purpose of this OPM is to provide guidance on the operations and management of Unmanned Aircraft Systems (UAS).

2. **AUTHORITY.** This policy is established by the Associate Director, Department of the Interior, Aviation Management (AM) in accordance with the provisions of Departmental Manual 112 DM 10: 350 DM 1; Secretarial Order 3250 dated September 30, 2003, and NBC Director's memorandum dated October 5, 2011.

3. **BACKGROUND.** Current FAA policy is provided in Interim Operational Approval Guidance 08-01, Unmanned Aircraft Systems Operations in the U.S. National Airspace System (NAS).

   A. FAA retains the authority to approve UAS operations within the NAS in Class A, B, C, D, E and G airspace.

   B. When operating in Class A, B, C, D, E and G airspace, DOI UAS's must be operated with a FAA Certificate of Waiver or Authorization (COA).

   C. COAs are not required in Restricted, Prohibited, or Warning airspace. However, UAS operations in these specific airspaces will be regulated and approved by the Controlling Authority (a.k.a. "Range Control").

4. **POLICY.** UAS by definition are considered aircraft. While their size, method of control, and airspace utilization procedures are different than manned aircraft, the overall responsibility for management within the Department of Interior (DOI) rests with the Aviation Management Directorate (AMD). Ownership of all aircraft, including UAS, is a function and responsibility of AMD. Additionally, AMD will coordinate with other federal agencies on use and cooperate with the FAA on existing and proposed rule making. Department of Interior bureaus shall employ the following procedures when using any UAS, either DOI-owned or DOI contract vendor-owned and operated.

5. **PROCEDURES AND GUIDELINES.**

   A. UAS Project and COA Application:

   1. The AMD Alaska Regional Director, Harry Kieling is the DOI UAS Coordinator for FAA COA applications, harry_kieling@nbc.gov, 907-271-5626, 907-271-6569 (Fax).

   2. The alternate UAS Coordinator is Alaska Region Aviation Safety Compliance Specialist, Rod Russell, rod_russell@nbc.gov. 907-271- 5004, 907-271-4788 (Fax).

   3. Only a U.S. (Federal/State/Local) government agency or university may apply for a COA.

4. The COA includes, but is not limited to the operational plan, risk management, airworthiness, airspace, pilot qualifications, frequencies and communication plan, and should be developed and submitted using the COA online system (https://ioeaaa.faa.gov/oeaaaA/Welcome.isp). This web site is password protected.

5. Initial feasibility discussions will be conducted between bureau unit, local bureau and National Aviation Manager and, if necessary, DOI UAS Coordinator.

6. The local unit will prepare and submit a formal request to initiate a UAS COA. This proposal shall include the general purpose, objectives and justification for utilizing UAS.

7. The request shall be routed through the bureau state/regional office to the bureau National Aviation Manager for review and approval/disapproval.

8. If approved, the proposal will be forwarded to AMD and a request will be made for an on line COA account for the project.

9. Following the establishment of the on line COA account, the bureau proponent will complete the detailed COA application. When the proponent feels the application is ready for review and submittal, it should be forwarded through bureau channels to the Bureau National Aviation Manager for approval and then to the AMD COA coordinator for **committal** to the FAA.

10. Collaboration and agreement will occur prior to official commitment of the application. Status of the COA can be followed on the On Line web site. The COA, once issued, shall serve as the UAS Operations Plan.

B. Restricted/ /Prohibited and Warning Area Utilization:

1. Operations conducted entirely within Restricted/Prohibited and Warning areas do not require a COA; however, an MOU for UAS use will be established between the using bureau/AMD and the controlling agency and the request process outlined above is still necessary, requiring Bureau National Office approval.

C. Minimum Operational Requirements: The following requirements must be met prior to any operational use of UAS:

1. Obtain approval from bureau National Aviation Office

2. Obtain (1) a valid and current COA issued by the FAA or (2) MOU with the controlling agency for operations wholly within Restricted/Prohibited and Warning areas.

3. Exercise operating limitations in accordance with the COA/MOU Range provisions/COA and this OPM.

4. Meet DOI UAS Pilot/Mission Operator/Observer Training and Certification Requirements. DOI operators of UAS vehicles must first receive bureau authorization and concurrence and then must receive training in the specific vehicle to be operated. The using bureau and AMD will identify appropriate training. Personnel must possess training certificates from AMD or AMD-approved sources prior to receiving AMD certification.

5. Possess a DOI UAS Operator Letter of Authorization. The LOA must specify the UAS vehicle(s) that are authorized to operate.

6. VFR cloud clearances and visibilities for Class E airspace will be used regardless of airspace the UAS is operating in, except when operating in Class Airspace where 14 CFR Part 91.155 will apply.

7. Operations outside of restricted areas, warning areas, prohibited areas, and /or Class A airspace may only be conducted during daylight hours, unless authorized in the Special Provisions Section of the COA.

6. UAS Pilot Qualifications and Certification

A. General UAS Pilot Responsibilities: The pilot in command, (PIC) of a UAS is directly responsible for, and is the final authority as to the operation of that aircraft.

1. One PIC must be designated for all flights.

2. Pilots are responsible to perform a thorough preflight inspection of the UAS.

3. Pilots, Mission Operators and observers will not have concurrent responsibilities during the mission. They may not perform more than one crew duty at a time (i.e. Pilot/Mission Operator/Observer).

4. Per 350 DM 1.8, Reporting Requirements, an AMD 2 or AMD 23 will be required for each flight.

B. UAS Pilot Certification Factors: Rating requirements for the UAS PIC depend on the type of operation conducted and fall into two categories. The requirement for the PIC to hold a pilot certificate is based on various factors including:

1. Location of the planned operations.

2. Mission profile.

3. Size of the UA.

4. Whether or not the operation is conducted within or beyond visual line of sight. Each application will be carefully reviewed to assess the feasibility of allowing that type of operation.

C. Operations that require a FAA pilot certificate and Letter of Authorization:

1. All operations approved for use in Class A, B, C, D, and E airspace.

2. All operations conducted under IFR (FAA instrument rating required).

3. All operations approved for nighttime operations. Night operations are authorized in Restricted/Warning/Prohibited areas without a FAA pilot certificate unless prohibited by the Controlling Authority. Also the night operations without a FAA pilot certificate are permitted if specifically allowed in the Special Provisions Section of the COA.

4. All operations conducted at joint use or public airfields.

5. All operations conducted beyond line of sight.

6. Operations above 400 feet AGL or with visual line of sight conducted greater than one NM from the UAS observer. A FAA pilot certificate may not be required for altitudes to 1000 ft in Restricted/Warning/Prohibited areas if not prohibited by the Controlling Authority. Also, the higher altitude is authorized without a FAA pilot certificate if specifically allowed in the Special Provisions Section of the COA.

7. At any time the FAA (as specified in the COA) has determined the need based on the UAS' characteristics, mission profile, or other operational parameters.

8. For those operations that require a certificated pilot, the PIC, in order to exercise the privileges of his certificate, shall have flight reviews and maintain currency in manned aircraft per 14 CFR 61.56, *Flight Review* and 61.57, *Recent Flight Experience: Pilot in Command.*

9. For operations approved for night or IFR, the PIC shall maintain currency per 14 CFR 61.57, *Recent Flight Experience: Pilot in Command*, as applicable.

D. Operations requiring only a Letter of Authorization: The PIC *may not* be required to hold an FAA pilot certificate for the following operations:

1. Approved and conducted solely within visual line of sight.

2. In Class G or Restricted/Prohibited or Warning airspace.

3. Conducted in a sparsely populated location.

4. With visual line of sight conducted no further than 1 NM laterally from the UAS observer and at an altitude of no more than 400 feet above ground level (AGL) at all times. Altitudes to 1000 ft are authorized in Restricted/Warning/Prohibited areas unless prohibited by the Controlling Authority. Also, the higher altitude is authorized if specifically allowed in the Special Provisions Section of the COA.

5. Conducted during daylight hours only. Night operations are authorized in Restricted/Warning/Prohibited areas unless prohibited by the Controlling Authority. Also the night operations are authorized if specifically allowed in the Special Provisions Section of the COA.

6. Conducted no closer than 5 NM from any airport or heliport.

7. If the pilot in command (PIC) is not required to hold a FAA pilot certificate for such operations and stated in the approved COA he/she must have in lieu of a pilot certificate one of the following:

   a. Successfully completed an FAA private pilot ground instruction, and have passed the written examination, or

   b. Completed a tailored aviation course approved by DOI-AM covering applicable sections of the FAR/AIM or other aviation publications that will enable the pilot to safely operate a specific UAS in the class of airspace desired. This training will include but not be limited to weather (as applicable to a UAS pilot), emergency procedures, aircraft mishap reporting, SAFECOM Program, lost link, Air Traffic Control (ATC communications) and NOTAM procedures, classes of airspace, system operating limitation all other applicable DMs and OPMs pertaining to aviation.

E. UAS Specific Training and Certification for all UAS Pilots and Operators:

1. All UAS pilots/mission operators will complete the manufacturer's UAS specific training or equivalent, be tested on their knowledge, and be certified to operate the UAS upon graduation. These courses will be monitored by AMD Tech Services/Alaska Regional Director.

2. DOI-AM or approved Bureau inspectors will provide a Letter of Authorization (LOA) under the direction of the DOI-AM Chief of Tech Services/Alaska Regional Director. The LOA will specify the UAS vehicle(s) that are authorized to operate.

F. Flight Currency:

1. PIC must demonstrate three takeoffs (launch) and landings (recovery) in the specific UAS in the previous 90 days. If currency is lost prior to a mission, operator must regain currency by flying three emergency scenarios in the UAS simulator or fly under the observation of a current UAS pilot.

G. Medical Qualification: The PIC shall maintain, and have in their possession, at a minimum, a valid FAA Class 2 medical certificate issued under 14 CFR Part 67. For operations that are covered in paragraph 5G above, alternate medical certification that is as rigorous as the Class II, may be considered and approved on a case by case basis by the bureau National Aviation Manager and AMD. After approval this alternate certification must be listed on the COA.

H. General UAS Observer Responsibilities:

1. Observer duties include but are not limited to the following:

   a. Have a clear view of the area of operation.

   b. Be in communications with the PIC either within speaking distance or with a portable radio/cell phone.

   c. Keep the pilot advised of any possible hazards such as power lines, birds, other aircraft, rocks, and hazardous weather conditions.

   d. The observer can also act as the launch person for a hand launched aircraft.

2. Observer Training: Observers must have completed sufficient training to communicate to the pilot any instructions required to remain clear of conflicting traffic. This training, at a minimum, shall include knowledge of the rules and responsibilities described in 14 CFR 91.111, *Operating Near Other Aircraft;* 14 CFR 91.113, *Right-of-Way Rules: Except Water Operations;* and 14 CFR 91.155, *Basic VFR Weather Minimums;* knowledge of air traffic and radio communications, including the use of approved ATC/pilot phraseology; and knowledge of appropriate sections of the *Aeronautical Information Manual.* This training will be reviewed and approved by the Chief of Tech Services/Alaska Regional Director.

3. Observer Medical Qualification: The provisions of Paragraph 5J above will apply to observers.

I. Maintenance:

1. Maintenance inspectors will require the same qualifications (DOI/AMD 6700.202) as current AMD inspectors plus knowledge of UAS procedures. Until AMD can develop specific UAS maintenance inspection procedures, Mil Handbook 516, or similar document will be used. Initially Rod Russell, Alaska Regional Office, AMD, should be contacted to evaluate any specific UAS airworthiness questions.

2. A conditional Inspection must be performed during preflight and must be logged in the aircraft flight log for the first flight of each day as part of a continuing airworthiness compliance program. This entry should read "I have inspected this aircraft in accordance with (site the publication and reference) and have found it to be in condition for safe operation, and be signed and dated.

3. Log and maintain progressive flight hours of the aircraft in the aircraft logbook to validate inspection intervals, component times, and time life items i.e.; batteries.

4. Record malfunctions (loss of link), damage (parts that require repair to be airworthy again), and serial numbered parts that require replacement (wings, tail booms, etc). Record serial number of the part coming off and serial number of the part going on.

5. Every twenty four months, a biennial airworthiness inspection and carding by qualified maintenance personnel will be performed. At this time a new AMD 36 Aircraft Data Card will be attached to each aircraft within the system kit.

6. A maintenance inspector training and evaluation program will be developed for each system specific and in compliance with the POH.

7. AMD inspectors will coordinate with the FAA to ensure airworthiness criterion has been approved if required. AMD inspectors will then issue an AMD 36A/36B for UAS aircraft.

J. **Radio Frequencies:** Radio frequencies to be used will be coordinated with the Bureau's Radio Office and the FAA and be included in the COA application.

K. **Cooperator Aircraft:** This could include work with universities, other governmental agencies such as the Department of Defense, or multiple agency collaborative projects. Bureau involvement in these projects does not necessarily mean that the bureau has operational control; therefore it is important for field units to communicate with the bureau National Aviation Manager on all UAS projects to determine the extent of bureau responsibilities. UAS projects must have a COA (except those covered in paragraph 3c) and shall be obtained by the agency having operational control. Even if the COA is not requested by DOI (i.e. another government agency), it must be coordinated with Bureau aviation personnel and AMD COA administrator.

1. Involvement in a UAS project but no operational control: DOI personnel collect data but do not own, operate, or participate directly in the UAS process. This will be handled similar to an end product contract, field units need only to advise the bureau aviation manager and DOI COA Administrator. However, because of the nature of the responsibilities associated with the COA application and approval process, the individual/organization with Operational Control must file the COA.

2. DOI has operational control but does not own or operate the UAS: Bureaus would follow the procedures to include the formulation of a Project Aviation Safety Plan (PASP) identifying all agencies involved in the project, outlining their responsibilities and level of involvement. Each project will be evaluated on its own merits of involvement, complexity, and standards of safety. Therefore, responsibilities will be determined on a case by case basis as determined by the bureau National Aviation Manager and DOI-AM.

7. **EXCEPTIONS, LIMITATIONS.** Per 350 DM 1.9., Deviations from this OPM must be approved by the Associate Director, Aviation Management.

Mark L. Bathrick
Associate Director