U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Small Unmanned Aircraft Systems (sUAS)

Date: 6/21/16 **AC No:** 107-2

Initiated by: AFS-800 **Change:**

The Federal Aviation Administration (FAA) is amending its regulations to adopt specific rules for the operation of small Unmanned Aircraft Systems (sUAS) in the National Airspace System (NAS) through a final rule. These changes address the classification of sUAS, certification of sUAS remote pilots, and sUAS operational limitations. This advisory circular (AC) provides guidance for conducting sUAS operations in the NAS in accordance with Title 14 of the Code of Federal Regulations (14 CFR) part 107.

John S. Duncan
Director, Flight Standards Service

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CHAPTER 1. GENERAL

1.1 Purpose. This advisory circular (AC) provides guidance in the areas of airman (remote pilot) certification, aircraft registration and marking, aircraft airworthiness, and the operation of small Unmanned Aircraft Systems (sUAS) in the National Airspace System (NAS) to promote compliance with the requirements of Title 14 of the Code of Federal Regulations (14 CFR) Part 107, Small Unmanned Aircraft Systems. It does not provide, nor is it intended to provide, a legal interpretation of the regulations. Remote pilots are encouraged to use this information as best practice methods for developing operational programs scaled to specific small unmanned aircraft (UA), associated system equipment, and operations. Use of this AC is intended to assist the remote pilot in meeting the requirements of applicable 14 CFR regulations.

1.1.1 Acceptable Means of Compliance (AMC). This AC uses mandatory terms, such as "must," only in the sense of ensuring applicability of these particular methods of compliance when using the AMC described herein. This AC is not mandatory and does not constitute a regulation. This AC does not change, add to, or delete regulatory requirements or authorize deviations from regulatory requirements.

1.1.2 Part 107 Provisions. This AC is not intended to cover every provision of part 107. Rather, this AC is intended to provide guidance on those provisions of part 107 where additional information may be helpful. The Federal Aviation Administration (FAA) emphasizes, however, that persons subject to part 107 are responsible for complying with every applicable provision of part 107, regardless of whether the provision is discussed in this AC.

1.1.3 Privacy-Related Laws. Part 107 operators should be aware that state and local authorities may enact privacy-related laws specific to Unmanned Aircraft System (UAS) operations. The FAA encourages sUAS operators to review those laws prior to operating their UAS. The National Telecommunications and Information Administration (NTIA) has also published the Voluntary Best Practices for UAS Privacy, Transparency, and Accountability (https://www.ntia.doc.gov/files/ntia/publications/voluntary_best_practices_for_uas_privacy_transparency_and_accountability_0.pdf). This document outlines and describes voluntary best practices that UAS operators could take to advance UAS privacy, transparency, and accountability for the private and commercial use of UAS.

1.2 Request for Information. Direct comments and suggestions for improving this publication to:

Federal Aviation Administration
General Aviation and Commercial Division (AFS-800)
55 M Street SE, 8th Floor, Zone 1
Washington, DC 20003

CHAPTER 2. REFERENCES

2.1 Related Code of Federal Regulations (CFR) Parts. The following regulations and parts can be found at http://www.faa.gov/regulations_policies/faa_regulations/.

- Title 14 CFR Part 1, Definitions and Abbreviations.
- Title 14 CFR Part 48, Registration and Marking Requirements for Small Unmanned Aircraft.
- Title 14 CFR Part 71, Designation of Class A, B, C, D, and E Airspace Areas; Air Traffic Service Routes; and Reporting Points.
- Title 14 CFR Part 73, Special Use Airspace.
- Title 14 CFR Part 91, General Operating and Flight Rules.
- Title 14 CFR Part 93, Special Air Traffic Rules.
- Title 14 CFR Part 101, Moored Balloons, Kites, Amateur Rockets and Unmanned Free Balloons.
- Title 14 CFR Part 107, Small Unmanned Aircraft Systems.
- Title 47 CFR Part 87, Aviation Services.

2.2 Notices to Airmen (NOTAM). Information on how to obtain NOTAMs can be found at https://pilotweb.nas.faa.gov/PilotWeb/.

2.3 Related Reference Material. The following listed reference materials contain additional information necessary to ensure safe operations in the NAS. An sUAS operator may want to consider seeking out additional publications to supplement the lists below.

2.3.1 FAA ACs, Notices, and Orders (current editions). You can find the current editions of the following publications on the FAA Web sites: http://www.faa.gov/regulations_policies/advisory_circulars/ and http://www.faa.gov/regulations_policies/orders_notices/.

- AC 00-6, Aviation Weather.
- AC 00-45, Aviation Weather Services.
- AC 60-28, FAA English Language Skill Standards Required by 14 CFR Parts 61, 63, and 65.
- AC 120-92, Safety Management Systems for Aviation Service Providers.
- FAA Order JO 7110.10, Flight Services.
- FAA Order JO 7110.65, Air Traffic Control.
- FAA Order JO 7210.3, Facility Operation and Administration.
- FAA Order JO 7400.9, Airspace Designations and Reporting Points.

- FAA Order 8130.34, Airworthiness Certification of Unmanned Aircraft Systems and Optionally Piloted Aircraft.
- FAA Order 8900.1, Flight Standards Information Management System (FSIMS).

2.3.2 Additional FAA Online/Mobile Sources.

- UAS Web site: https://www.faa.gov/uas/.
- UAS Registration Web site: https://registermyuas.faa.gov/.
- B4UFLY mobile app.

2.3.3 FAA Handbooks, Manuals, and Other Publications. You can find the following handbooks, manuals, and other publications on the FAA Web site at http://www.faa.gov/regulations_policies/handbooks_manuals/.

- Aeronautical Information Manual (AIM): http://www.faa.gov/air_traffic/publications/.
- Aeronautical Charts (Hardcopy): http://faacharts.faa.gov/.
- Aeronautical Charts (Digital): http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/.
- Pilot/Controller Glossary: http://www.faa.gov/air_traffic/publications/.
- Pilot's Handbook of Aeronautical Knowledge: http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/pilot_handbook/.
- General Aviation Pilot's Guide to Preflight Weather Planning, Weather Self-Briefings, and Weather Decision Making: www.faa.gov/nextgen/update/media/ga_weather_decision_making.pdf.
- Risk Management Handbook: http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/faa-h-8083-2.pdf.
- FAA Small Unmanned Aircraft Systems Airman Certification Standards: (TBD).

2.3.4 RTCA, Inc. Documents (current editions). Copies of the current editions of the following RTCA, Inc. documents are available for purchase online at http://www.rtca.org.

- DO-178, Software Considerations in Airborne Systems and Equipment Certification.
- DO-304, Guidance Material and Considerations for Unmanned Aircraft Systems.

2.3.5 Public Law (PL). PL 112-95, Title III, Subtitle B—Unmanned Aircraft Systems.

CHAPTER 3. BACKGROUND

3.1 PL 112-95, Title III, Subtitle B. In 2012, Congress passed the FAA Modernization and Reform Act of 2012 (PL 112-95). PL 112-95, Section 333 directed the Secretary of Transportation to determine whether UAS operations posing the least amount of public risk and no threat to national security could safely be operated in the NAS and, if so, to establish requirements for the safe operation of these systems in the NAS, prior to completion of the UAS comprehensive plan and rulemakings required by PL 112-95, Section 332. On February 23, 2015, as part of its ongoing efforts to integrate UAS operations in the NAS and in accordance with PL 112-95, Section 333, the FAA issued a Notice of Proposed Rulemaking (NPRM) proposing to amend its regulations to adopt specific rules for the operation of sUAS in the NAS. Over 4,600 public comments were submitted in response to the NPRM. In consideration of the public comments, the FAA issued a final rule adding part 107, integrating civil sUAS into the NAS. Part 107 allows sUAS operations for many different non-hobby and nonrecreational purposes without requiring airworthiness certification, exemption, or a Certificate of Waiver or Authorization (COA). In addition, part 107 also applies to sUAS used for hobby or recreation that are not flown in accordance with part 101 subpart E (see paragraph 4.1).

3.2 Part 107—A Regulatory First Step. The FAA addresses aviation safety in three key areas: personnel, equipment, and operations. The FAA assesses each of these areas both independently to meet current regulations and standards, as well as collectively to ensure no conflicts exist overall that would create an unsafe condition. This approach allows the FAA to be flexible in responding to the needs of the aviation community while still being able to establish standards for future growth and development. To that end, part 107 contains subparts that focus on each of these key aviation safety areas specific to sUAS, and the chapters in this AC are organized in the same manner.

CHAPTER 4. PART 107 SUBPART A, GENERAL

4.1 Applicability. This chapter provides guidance regarding the applicability of part 107 to civil small UA operations conducted within the NAS. However, part 107 does not apply to the following:

1. Model aircraft that are operated in accordance with Part 101 Subpart E, Model Aircraft), which applies to model aircraft meeting all of the following criteria:
   - The aircraft is flown strictly for hobby or recreational use;
   - The aircraft is operated in accordance with a community-based set of safety guidelines and within the programming of a nationwide community-based organization;
   - The aircraft is limited to not more than 55 pounds unless otherwise certified through a design, construction, inspection, flight test, and operational safety program administered by a community-based organization;
   - The aircraft is operated in a manner that does not interfere with and gives way to any manned aircraft;
   - When flown within 5 miles of an airport, the operator of the aircraft provides the airport operator and the airport air traffic control (ATC) tower (when an air traffic facility is located at the airport) with prior notice of the operation;
   - The aircraft is capable of sustained flight in the atmosphere; and
   - The aircraft is flown within Visual Line of Sight (VLOS) of the person operating the aircraft.
2. Operations conducted outside the United States;
3. Amateur rockets;
4. Moored balloons;
5. Unmanned free balloons;
6. Kites;
7. Public aircraft operations; and
8. Air carrier operations.

4.2 Definitions. The following defined terms are used throughout this AC:

4.2.1 Control Station (CS). An interface used by the remote pilot or the person manipulating the controls to control the flight path of the small UA.

4.2.2 Corrective Lenses. Spectacles or contact lenses.

4.2.3 Model Aircraft. A UA that is:

- Capable of sustained flight in the atmosphere;
- Flown within VLOS of the person operating the aircraft; and
- Flown for hobby or recreational purposes.

4.2.4 Person Manipulating the Controls. A person other than the remote pilot in command (PIC) who is controlling the flight of an sUAS under the supervision of the remote PIC.

4.2.5 Remote Pilot in Command (Remote PIC or Remote Pilot). A person who holds a remote pilot certificate with an sUAS rating and has the final authority and responsibility for the operation and safety of an sUAS operation conducted under part 107.

4.2.6 Small Unmanned Aircraft (UA). A UA weighing less than 55 pounds, including everything that is onboard or otherwise attached to the aircraft, and can be flown without the possibility of direct human intervention from within or on the aircraft.

4.2.7 Small Unmanned Aircraft System (sUAS). A small UA and its associated elements (including communication links and the components that control the small UA) that are required for the safe and efficient operation of the small UA in the NAS.

4.2.8 Unmanned Aircraft (UA). An aircraft operated without the possibility of direct human intervention from within or on the aircraft.

4.2.9 Visual Observer (VO). A person acting as a flightcrew member who assists the small UA remote PIC and the person manipulating the controls to see and avoid other air traffic or objects aloft or on the ground.

4.3 Abbreviations/Acronyms Used in the Advisory Circular.

1. AC: Advisory Circular.
2. ACR: Airman Certification Representative.
3. AGL: Above Ground Level.
4. ATC: Air Traffic Control.
5. CFI: Certificated Flight Instructor.
6. CFR: Code of Federal Regulations.
7. DPE: Designated Pilot Examiner.
8. FAA: Federal Aviation Administration.
9. FSDO: Flight Standards District Office.
10. GPS: Global Positioning System.
11. IACRA: Integrated Airmen Certification and/or Rating Application.
12. KTC: Knowledge Testing Center.

13. MSL: Mean Sea Level.

14. NOTAM: Notice to Airmen.

15. NAS: National Airspace System.

16. PIC: Pilot in Command.

17. UA: Unmanned Aircraft.

18. UAS: Unmanned Aircraft System.

19. U.S.C.: United States Code.

20. VO: Visual Observer.

4.4 Falsification, Reproduction, or Alteration. The FAA relies on information provided by owners and remote pilots of sUAS when it authorizes operations or when it has to make a compliance determination. Accordingly, the FAA may take appropriate action against an sUAS owner, operator, remote PIC, or anyone else who fraudulently or knowingly provides false records or reports, or otherwise reproduces or alters any records, reports, or other information for fraudulent purposes. Such action could include civil sanctions and the suspension or revocation of a certificate or waiver.

4.5 Accident Reporting. The remote PIC of the sUAS is required to report an accident to the FAA within 10 days if it meets any of the following thresholds:

1. At least serious injury to any person or any loss of consciousness. A serious injury is an injury that qualifies as Level 3 or higher on the Abbreviated Injury Scale (AIS) of the Association for the Advancement of Automotive Medicine (AAAM). The AIS is an anatomical scoring system that provides a means of ranking the severity of an injury and is widely used by emergency medical personnel. Within the AIS system, injuries are ranked on a scale of 1 to 6, with Level 1 being a minor injury, Level 2 is moderate, Level 3 is serious, Level 4 is severe, Level 5 is critical, and Level 6 is a nonsurvivable injury. The FAA currently uses serious injury (AIS Level 3) as an injury threshold in other FAA regulations.

   Note: It would be considered a "serious injury" if a person requires hospitalization, but the injury is fully reversible (including, but not limited to, head trauma, broken bone(s), or laceration(s) to the skin that requires suturing).

2. Damage to any property, other than the small UA, if the cost is greater than $500 to repair or replace the property (whichever is lower).

   Note: For example, a small UA damages a property whose fair market value is $200, and it would cost $600 to repair the damage. Because the fair market value is below $500, this accident is not required to be reported. Similarly, if the aircraft causes $200 worth of damage to property whose fair market value is $600, that accident is also not required to be reported because the repair cost is below $500.

4.5.1 Submitting the Report. The accident report must be made within 10 calendar-days of the operation that created the injury or damage. The report may be submitted to the appropriate FAA Regional Operations Center (ROC) electronically or by telephone. Electronic reporting can be completed at www.faa.gov/uas/. To make a report by phone, see Figure 4-1, FAA Regional Operations Centers Telephone List. Reports may also be made to the nearest jurisdictional FSDO (http://www.faa.gov/about/office_org/field_offices/fsdo/). The report should include the following information:

1. sUAS remote PIC's name and contact information;
2. sUAS remote PIC's FAA airman certificate number;
3. sUAS registration number issued to the aircraft, if required (FAA registration number);
4. Location of the accident;
5. Date of the accident;
6. Time of the accident;
7. Person(s) injured and extent of injury, if any or known;
8. Property damaged and extent of damage, if any or known; and
9. Description of what happened.

Figure 4-1. FAA Regional Operations Centers Telephone List

FAA REGIONAL OPERATIONS CENTERS	
LOCATION WHERE ACCIDENT OCCURRED:	**TELEPHONE:**
DC, DE, MD, NJ, NY, PA, WV, and VA	**404-305-5150**
AL, CT, FL, GA, KY, MA, ME, MS, NC, NH, PR, RI, SC, TN, VI, and VT	**404-305-5156**
AK, AS, AZ, CA, CO, GU, HI, ID, MP, MT, NV, OR, UT, WA, and WY	**425-227-1999**
AR, IA, IL, IN, KS, LA, MI, MN, MO, ND, NE, NM, OH, OK, SD, TX, and WI	**817-222-5006**

4.5.2 National Transportation Safety Board (NTSB) Reporting. In addition to the report submitted to the ROC, and in accordance with the criteria established by the NTSB, certain sUAS accidents must also be reported to the NTSB. For more information, visit www.ntsb.gov.

CHAPTER 5. PART 107 SUBPART B, OPERATING LIMITATIONS FOR SMALL UNMANNED AIRCRAFT SYSTEMS (sUAS)

5.1 Applicability. This chapter provides guidance regarding sUAS operating limitations and the responsibilities of the remote pilot in command (PIC), person manipulating the controls, visual observer (VO), and anyone else that may be directly participating in the sUAS operation. A person is also a direct participant in the sUAS operation if his or her involvement is necessary for the safe operation of the sUAS.

5.2 Aircraft Operation. Just like a manned-aircraft PIC, the remote PIC of an sUAS is directly responsible for, and is the final authority as to, the operation of that UAS. The remote PIC will have final authority over the flight. Additionally, a person manipulating the controls can participate in flight operations under certain conditions. It is important to note that a person may not operate or act as a remote PIC or VO in the operation of more than one UA at the same time. The following items describe the requirements for both a remote PIC and a person manipulating the controls:

5.2.1 Remote PIC. A person acting as a remote PIC of an sUAS in the National Airspace System (NAS) under part 107 must obtain a remote pilot certificate with an sUAS rating issued by the FAA prior to sUAS operation. The remote PIC must have this certificate easily accessible during flight operations. Guidance regarding remote pilot certification is found in Chapter 6, Part 107 Subpart C, Remote Pilot Certification. Again, the remote PIC will have the final authority and responsibility for the operation and safety of an sUAS operation conducted under part 107.

5.2.1.1 Additionally, part 107 permits transfer of control of an sUAS between certificated remote pilots. Two or more certificated remote pilots transferring operational control (i.e., the remote PIC designation) to each other may do so only if they are both capable of maintaining Visual Line of Sight (VLOS) of the UA and without loss of control (LOC). For example, one remote pilot may be designated the remote PIC at the beginning of the operation, and then at some point in the operation another remote pilot may take over as remote PIC by positively communicating that he or she is doing so. As the person responsible for the safe operation of the UAS, any remote pilot who will assume remote PIC duties should meet all of the requirements of part 107, including awareness of factors that could affect the flight.

5.2.2 Person Manipulating the Flight Controls. A person who does not hold a remote pilot certificate or a remote pilot that that has not met the recurrent testing/training requirements of part 107 may operate the sUAS under part 107, as long as he or she is directly supervised by a remote PIC and the remote PIC has the ability to immediately take direct control of the sUAS. This ability is necessary to ensure that the remote PIC can quickly address any hazardous situation before an accident occurs. The ability for the remote PIC to immediately take over the flight controls could be achieved by using a number of different methods. For example, the operation could involve a “buddy box” type system that uses two control stations (CS): one for the person manipulating the flight controls and one for the remote PIC that allows the remote PIC to override the other CS

and immediately take direct control of the small UA. Another method could involve the remote PIC standing close enough to the person manipulating the flight controls so as to be able to physically take over the CS from the other person. A third method could employ the use of an automation system whereby the remote PIC could immediately engage that system to put the small UA in a pre-programmed "safe" mode (such as in a hover, in a holding pattern, or "return home").

5.2.3 Autonomous Operations. An autonomous operation is generally considered an operation in which the remote pilot inputs a flight plan into the CS, which sends it to the autopilot onboard the small UA. During automated flight, flight control inputs are made by components onboard the aircraft, not from a CS. Thus, the remote PIC could lose the control link to the small UA and the aircraft would still continue to fly the programmed mission/return home to land. During automated flight, the remote PIC also must have the ability to change routing/altitude or command the aircraft to land immediately. The ability to direct the small UA may be through manual manipulation of the flight controls or through commands using automation.

5.2.3.1 The remote PIC must retain the ability to direct the small UA to ensure compliance with the requirements of part 107. There are a number of different methods that a remote PIC may utilize to direct the small UA to ensure compliance with part 107. For example, the remote pilot may transmit a command for the autonomous aircraft to climb, descend, land now, proceed to a new waypoint, enter an orbit pattern, or return to home. Any of these methods may be used to satisfactorily avoid a hazard or give right of way.

5.2.3.2 The use of automation does not allow a person to simultaneously operate more than one small UA.

5.3 Aeronautical Decision-Making (ADM) and Crew Resource Management (CRM). ADM is a systematic approach to the mental process used by pilots to consistently determine the best course of action in response to a given set of circumstances. A remote PIC uses many different resources to safely operate an sUAS and needs to be able to manage these resources effectively. CRM is a component of ADM, where the pilot of sUAS makes effective use of all available resources: human resources, hardware, and information. Many remote pilots operating under part 107 may use a VO, oversee other persons manipulating the controls of the small UA, or any other person who the remote PIC may interact with to ensure safe operations. Therefore, a remote PIC must be able to function in a team environment and maximize team performance. This skill set includes situational awareness, proper allocation of tasks to individuals, avoidance of work overloads in self and in others, and effectively communicating with other members of the crew, such as VOs and persons manipulating the controls of an sUAS. Appendix A, Risk Assessment Tools, contains expanded information on ADM and CRM, as well as sample risk assessment tools to aid in identifying hazards and mitigating risks.

5.4 Aircraft Registration. A small UA must be registered, as provided for in 14 CFR part 47 or part 48 prior to operating under part 107. Part 48 is the regulation that establishes the streamlined online registration option for sUAS that will be operated only within the

territorial limits of the United States. The online registration Web address is http://www.faa.gov/uas/registration/. Guidance regarding sUAS registration and marking may be found at http://www.faa.gov/licenses_certificates/aircraft_certification/aircraft_registry/. Alternatively, sUAS can elect to register under part 47 in the same manner as manned aircraft.

5.4.1 Registration of Foreign-Owned and Operated sUAS. If sUAS operations involve the use of foreign civil aircraft, the operator would need to obtain a Foreign Aircraft Permit pursuant to 14 CFR part 375, § 375.41 before conducting any commercial air operations under this authority. Foreign civil aircraft means, a) an aircraft of foreign registry that is not part of the armed forces of a foreign nation, or b) a U.S.-registered aircraft owned, controlled, or operated by persons who are not citizens or permanent residents of the United States. Application instructions are specified in § 375.43. Applications should be submitted by electronic mail to the Department of Transportation (DOT) Office of International Aviation, Foreign Air Carrier Licensing Division. Additional information can be obtained at https://cms.dot.gov/policy/aviation-policy/licensing/foreign-carriers.

5.5 sUAS Maintenance, Inspections, and Condition for Safe Operation. An sUAS must be maintained in a condition for safe operation. Prior to flight, the remote PIC is responsible for conducting a check of the sUAS and verifying that it is actually in a condition for safe operation. Guidance regarding how to determine that an sUAS is in a condition for safe operation is found in Chapter 7, sUAS Maintenance and Inspection.

5.6 Medical Condition. Being able to safely operate the sUAS relies on, among other things, the physical and mental capabilities of the remote PIC, person manipulating the controls, VO, and any other direct participant in the sUAS operation. Though the person manipulating the controls of an sUAS and VO are not required to obtain an airman medical certificate, they may not participate in the operation of an sUAS if they know or have reason to know that they have a physical or mental condition that could interfere with the safe operation of the sUAS.

5.6.1 Physical or Mental Incapacitations. Obvious examples of physical or mental incapacitations that could render a remote PIC, person manipulating the controls, or VO incapable of performing their sUAS operational duties include, but are not limited to, such things as:

1. The temporary or permanent loss of the dexterity necessary to operate the CS to safely control the small UA.
2. The inability to maintain the required "see and avoid" vigilance due to blurred vision.
3. The inability to maintain proper situational awareness of the small UA operations due to illness and/or medication(s), such as after taking medications with cautions not to drive or operate heavy machinery.
4. A debilitating physical condition, such as a migraine headache or moderate or severe body ache(s) or pain(s) that would render the remote PIC, person manipulating the controls, or VO unable to perform sUAS operational duties.

5. A hearing or speaking impairment that would inhibit the remote PIC, person manipulating the controls, and VO from effectively communicating with each other. In a situation such as this, the remote PIC must ensure that an alternative means of effective communication is implemented. For example, a person who is hearing impaired may be able to effectively use sign language to communicate.

5.7 VLOS Aircraft Operation. The remote PIC and person manipulating the controls must be able to see the small UA at all times during flight. Therefore, the small UA must be operated closely enough to the CS to ensure visibility requirements are met during small UA operations. This requirement also applies to the VO, if used during the aircraft operation. However, the person maintaining VLOS may have brief moments in which he or she is not looking directly at or cannot see the small UA, but still retains the capability to see the UA or quickly maneuver it back to VLOS. These moments can be for the safety of the operation (e.g., looking at the controller to see battery life remaining) or for operational necessity. For operational necessity, the remote PIC or person manipulating the controls may intentionally maneuver the UA so that he or she loses sight of it for brief periods of time. Should the remote PIC or person manipulating the controls lose VLOS of the small UA, he or she must regain VLOS as soon as practicable. For example, a remote PIC stationed on the ground utilizing a small UA to inspect a rooftop may lose sight of the aircraft for brief periods while inspecting the farthest point of the roof. As another example, a remote PIC conducting a search operation around a fire scene with a small UA may briefly lose sight of the aircraft while it is temporarily behind a dense column of smoke. However, it must be emphasized that even though the remote PIC may briefly lose sight of the small UA, he or she always has the see-and-avoid responsibilities set out in part 107, §§ 107.31 and 107.37. The circumstances of what would prevent a remote PIC from fulfilling those responsibilities will vary, depending on factors such as the type of UAS, the operational environment, and distance between the remote PIC and the UA. For this reason, there is no specific time interval that interruption of VLOS is permissible, as it would have the effect of potentially allowing a hazardous interruption or prohibiting a reasonable one. If VLOS cannot be regained, the remote PIC or person manipulating the controls should follow pre-determined procedures for a loss of VLOS. These procedures are determined by the capabilities of the sUAS and may include immediately landing the UA, entering hover mode, or returning to home sequence. Thus, the VLOS requirement would not prohibit actions such as scanning the airspace or briefly looking down at the small UA CS.

5.7.1 Unaided Vision. VLOS must be accomplished and maintained by unaided vision, except vision that is corrected by the use of eyeglasses (spectacles) or contact lenses. Vision aids, such as binoculars, may be used only momentarily to enhance situational awareness. For example, the remote PIC, person manipulating the controls, or VO may use vision aids to avoid flying over persons or conflicting with other aircraft. Similarly, first person view devices may be used during operations, but do not satisfy the VLOS requirement. While the rule does not set specific vision standards, the FAA recommends that remote PICs, persons manipulating the controls, and VOs maintain 20/20 distant vision acuity (corrected) and normal field of vision.

5.7.2 VO. The use of a VO is optional. The remote PIC may choose to use a VO to supplement situational awareness and VLOS. Although the remote PIC and person manipulating the controls must maintain the capability to see the UA, using one or more VOs allows the remote PIC and person manipulating the controls to conduct other mission-critical duties (such as checking displays) while still ensuring situational awareness of the UA. The VO must be able to effectively communicate:

- The small UA location, attitude, altitude, and direction of flight;
- The position of other aircraft or hazards in the airspace; and
- The determination that the UA does not endanger the life or property of another.

5.7.2.1 To ensure that the VO can carry out his or her duties, the remote PIC must ensure that the VO is positioned in a location where he or she is able to see the small UA sufficiently to maintain VLOS. The remote PIC can do this by specifying the location of the VO. The FAA also requires that the remote PIC and VO coordinate to 1) scan the airspace where the small UA is operating for any potential collision hazard, and 2) maintain awareness of the position of the small UA through direct visual observation. This would be accomplished by the VO maintaining visual contact with the small UA and the surrounding airspace, and then communicating to the remote PIC and person manipulating the controls the flight status of the small UA and any hazards which may enter the area of operation, so that the remote PIC or person manipulating the controls can take appropriate action.

5.7.2.2 To make this communication possible, the remote PIC, person manipulating the controls, and VO must work out a method of effective communication, which does not create a distraction and allows them to understand each other. The communication method must be determined prior to operation. This effective communication requirement would permit the use of communication-assisting devices, such as a hand-held radio, to facilitate communication from a distance.

5.8 Operation Near Airports; in Certain Airspace; in Prohibited or Restricted Areas; or in the Proximity of Certain Areas Designated by a Notice to Airmen (NOTAM). Though many sUAS operations will occur in uncontrolled airspace, there are some that may need to operate in controlled airspace. Operations in Class B, Class C, or Class D airspace, or within the lateral boundaries of the surface area of Class E airspace designated for an airport, are not allowed unless that person has prior authorization from air traffic control (ATC). The link to the current authorization process can be found at www.faa.gov/uas/. The sUAS remote PIC must understand airspace classifications and requirements. Failure to do so would be in violation of the part 107 regulations and may potentially have an adverse safety effect. Although sUAS will not be subject to part 91, the equipage and communications requirements outlined in part 91 were designed to provide safety and efficiency in controlled airspace. Accordingly, while sUAS operating under part 107 are not subject to part 91, as a practical matter, ATC authorization or clearance may depend on operational parameters similar to those found in part 91. The

FAA has the authority to approve or deny aircraft operations based on traffic density, controller workload, communication issues, or any other type of operations that could potentially impact the safe and expeditious flow of air traffic in that airspace. Those planning sUAS operations in controlled airspace are encouraged to contact the FAA as early as possible. (For suggested references, please see paragraph 2.3.)

5.8.1 Small UA Operations Near an Airport—Notification and Permissions. Unless the flight is conducted within controlled airspace, no notification or authorization is necessary to operate at or near an airport. When operating in the vicinity of an airport, the remote PIC must be aware of all traffic patterns and approach corridors to runways and landing areas. The remote PIC must avoid operating anywhere that the presence of the sUAS may interfere with operations at the airport, such as approach corridors, taxiways, runways, or helipads. Furthermore, the remote PIC must yield right-of-way to all other aircraft, including aircraft operating on the surface of the airport.

5.8.1.1 Remote PICs are prohibited from operating their small UA in a manner that interferes with operations and traffic patterns at airports, heliports, and seaplane bases. While a small UA must always yield right-of-way to a manned aircraft, a manned aircraft may alter its flightpath, delay its landing, or take off in order to avoid an sUAS that may present a potential conflict or otherwise affect the safe outcome of the flight. For example, a UA hovering 200 feet above a runway may cause a manned aircraft holding short of the runway to delay takeoff, or a manned aircraft on the downwind leg of the pattern to delay landing. While the UA in this scenario would not pose an immediate traffic conflict to the aircraft on the downwind leg of the traffic pattern or to the aircraft intending to take off, nor would it violate the right-of-way provision of § 107.37(a), the small UA would have interfered with the operations of the traffic pattern at an airport.

5.8.1.2 In order to avoid interfering with operations in a traffic pattern, remote PICs should avoid operating in the traffic pattern or published approach corridors used by manned aircraft. When operational necessity requires the remote PIC to operate at an airport in uncontrolled airspace, the remote PIC should operate the small UA in such a way that the manned aircraft pilot does not need to alter his or her flightpath in the traffic pattern or on a published instrument approach in order to avoid a potential collision. Because remote PICs have an obligation to yield right-of-way to all other aircraft and avoid interfering in traffic pattern operations, the FAA expects that most remote PICs will avoid operating in the vicinity of airports because their aircraft generally do not require airport infrastructure, and the concentration of other aircraft increases in the vicinity of airports.

5.8.2 Air Traffic Organization (ATO). The ATO does not have the authority to deny sUAS operations on the basis of equipage that exceeds the part 107 requirements. Because additional equipage and technologies, such as geo-fencing, have not been certificated by the FAA, they need to be examined on a case-by-case basis in order for the FAA to determine their reliability and functionality. Additionally, requiring ATC to review

equipage would place a burden on ATC and detract from other duties. Instead, a remote pilot who wishes to operate in controlled airspace because he or she can demonstrate mitigations through equipage may do so by applying for a waiver (see paragraph 5.19).

5.8.3 Recurring or Long-Term Operations. For recurring or long-term operations in a given volume of controlled airspace, prior authorization could perhaps include a letter of agreement (LOA) to identify shortfalls and establish operating procedures for sUAS. This LOA will outline the ability to integrate into the existing air traffic operation and may improve the likelihood of access to the airspace where operations are proposed. This agreement will ensure all parties involved are aware of limitations and conditions and will enable the safe flow of aircraft operations in that airspace. For short-term or short-notice operations proposed in controlled airport airspace, a LOA may not be feasible. Prior authorization is required in all cases.

5.8.4 Temporary Flight Restrictions. Certain temporary flight restrictions (http://tfr.faa.gov/tfr2/list.html) may be imposed by way of a NOTAM (https://pilotweb.nas.faa.gov/PilotWeb/). Therefore, it is necessary for the sUAS remote PIC to check for NOTAMs before each flight to determine if there are any applicable airspace restrictions.

5.8.5 Type of Airspace. It is important that sUAS remote PICs also be aware of the type of airspace in which they will be operating their small UA. Referring to the B4UFly app or a current aeronautical chart (http://faacharts.faa.gov/) of the intended operating area will aid the sUAS remote PIC's decisionmaking regarding operations in the NAS.

5.9 Preflight Familiarization, Inspection, and Actions for Aircraft Operation. The remote PIC must complete a preflight familiarization, inspection, and other actions, such as crewmember briefings, prior to beginning flight operations. The FAA has produced many publications providing in-depth information on topics such as aviation weather, aircraft loading and performance, emergency procedures, ADM, and airspace, which should all be considered prior to operations (see paragraph 5.20). Additionally, all remote pilots are encouraged to review FAA publications (see paragraph 2.3).

5.9.1 Prior to Flight. The remote PIC must:

1. Conduct an assessment of the operating environment. The assessment must include at least the following:
    - Local weather conditions,
    - Local airspace and any flight restrictions,
    - The location of persons and property on the surface, and
    - Other ground hazards.

2. Ensure that all persons directly participating in the small UA operation are informed about the following:
    - Operating conditions,
    - Emergency procedures,
    - Contingency procedures,
    - Roles and responsibilities of each person involved in the operation, and
    - Potential hazards.
3. Ensure that all control links between the CS and the small UA are working properly. For example, before each flight, the remote PIC must determine that the small UA flight control surfaces necessary for the safety of flight are moving correctly through the manipulation of the small UA CS. If the remote PIC observes that one or more of the control surfaces are not responding correctly to CS inputs, then the remote PIC may not conduct flight operations until correct movement of all flight control surface(s) is established.
4. Ensure there is sufficient power to continue controlled flight operations to a normal landing. One of the ways that this could be done is by following the sUAS manufacturer's operating manual power consumption tables. Another method would be to include a system on the sUAS that detects power levels and alerts the remote pilot when remaining aircraft power is diminishing to a level that is inadequate for continued flight operation.
5. Ensure that any object attached or carried by the small UA is secure and does not adversely affect the flight characteristics or controllability of the aircraft.
6. Ensure that all necessary documentation is available for inspection, including the remote PIC's remote pilot certificate, aircraft registration (if required), and Certificate of Waiver (CoW) (if applicable).

5.9.2 Safety Risk Assessment. These preflight familiarizations, inspections, and actions can be accomplished as part of an overall safety risk assessment. The FAA encourages the remote PIC to conduct the overall safety risk assessment as a method of compliance with the prohibition on operations over certain persons and the requirement to remain clear of other aircraft, which are discussed in paragraphs 5.11 and 5.12. Appendix A provides additional guidance on how to conduct an overall safety risk assessment.

5.10 Operating Limitations for Small UA. The small UA must be operated in accordance with the following limitations:

- Cannot be flown faster than a groundspeed of 87 knots (100 miles per hour);
- Cannot be flown higher than 400 feet above ground level (AGL), unless flown within a 400-foot radius of a structure and does not fly higher than 400 feet above the structure's immediate uppermost limit;
- Minimum visibility, as observed from the location of the CS, may not be less than 3 statute miles (sm); and

- Minimum distance from clouds being no less than 500 feet below a cloud and no less than 2000 feet horizontally from the cloud.

Note: These operating limitations are intended, among other things, to support the remote pilot's ability to identify hazardous conditions relating to encroaching aircraft or persons on the ground, and to take the appropriate actions to maintain safety.

5.10.1 Determining Groundspeed. There are many different types of sUAS and different ways to determine groundspeed. Therefore, this guidance will only touch on some of the possible ways for the remote PIC to ensure that the small UA does not exceed a groundspeed of 87 knots during flight operations. Some of the possible ways to ensure that 87 knots is not exceeded are as follows:

- Installing a Global Positioning System (GPS) device on the small UA that reports groundspeed information to the remote pilot, wherein the remote pilot takes into account the wind direction and speed and calculates the small UA airspeed for a given direction of flight, or
- Timing the groundspeed of the small UA when it is flown between two or more fixed points, taking into account wind speed and direction between each point, then noting the power settings of the small UA to operate at or less than 87 knots groundspeed, or
- Using the small UA's manufacturer design limitations (e.g., installed groundspeed limiters).

5.10.2 Determining Altitude. In order to comply with the maximum altitude requirements of part 107, as with determining groundspeed, there are multiple ways to determine a small UA's altitude above the ground or structure. Some possible ways for a remote pilot to determine altitude are as follows:

- Installing a calibrated altitude reporting device on the small UA that reports the small UA altitude above mean sea level (MSL) to the remote pilot, wherein the remote pilot subtracts the MSL elevation of the CS from the small UA reported MSL altitude to determine the small UA AGL altitude above the terrain or structure;
- Installing a GPS device on the small UA that also has the capability of reporting MSL altitude to the remote pilot;
- With the small UA on the ground, have the remote pilot and VO pace off 400 feet from the small UA to get a visual perspective of the small UA at that distance, wherein the remote pilot and VO maintain that visual perspective or closer while the small UA is in flight; or
- Using the known height of local rising terrain and/or structures as a reference.

5.10.3 Visibility and Distance from Clouds. Once the remote PIC and VO have been able to reliably establish the small UA AGL altitude, it is incumbent on the remote PIC to determine that visibility from the CS is at least 3 sm and that the small UA is kept at least 500 feet below a cloud and at least 2,000 feet horizontally from a cloud. One of the ways

to ensure adherence to the minimum visibility and cloud clearance requirements is to obtain local aviation weather reports that include current and forecast weather conditions. If there is more than one local aviation reporting station near the operating area, the remote PIC should choose the closest one that is also the most representative of the terrain surrounding the operating area. If local aviation weather reports are not available, then the remote PIC may not operate the small UA if he or she is not able to determine the required visibility and cloud clearances by other reliable means. It is imperative that the UA not be operated above any cloud, and that there are no obstructions to visibility, such as smoke or a cloud, between the UA and the remote PIC.

5.11 Prohibited Operation Over Persons. Part 107 prohibits a person from flying a small UA directly over a person who is not under a safe cover, such as a protective structure or a stationary vehicle. However, a small UA may be flown over a person who is directly participating in the operation of the sUAS, such as the remote PIC, other person manipulating the controls, a VO, or crewmembers necessary for the safety of the sUAS operation, as assigned and briefed by the remote PIC. There are several ways that the sUAS remote PIC can comply with these requirements, such as:

- Selecting an operational area (site) that is clearly unpopulated/uninhabited. If selecting a site that is populated/inhabited, have a plan of action which ensures persons remain clear of the operating area, remain indoors, or remain under safe cover until such time that the small UA flight has ended. Safe cover is a structure or stationary vehicle that would protect a person from harm if the small UA were to crash into that structure or vehicle;
- Establishing an operational area in which the remote PIC has taken reasonable precautions to keep free of persons not directly participating in the operation of the sUAS;
- Choosing an operating area that is sparsely populated, or, ideally, clear of persons if operating a small UA from a moving vehicle;
- Having a plan of action that ensures the small UA remains clear of persons who may enter the operating area.
- Adopt an appropriate operating distance from persons not directly participating in the operation of the sUAS.

5.12 Remaining Clear of Other Aircraft. A remote PIC has a responsibility to operate the small UA so it remains clear of and yields to all other aircraft. This is traditionally referred to as "see and avoid." To satisfy this responsibility, the remote PIC must know the location and flight path of his or her small UA at all times. The remote PIC must be aware of other aircraft, persons, and property in the vicinity of the operating area, and maneuver the small UA to avoid a collision, as well as prevent other aircraft from having to take action to avoid the small UA.

5.13 Operations from Moving Vehicles. Part 107 permits operation of an sUAS from a moving land or water-borne vehicle over a sparsely-populated area. However, operation from a moving aircraft is prohibited. Additionally, small UA transporting another

person's property for compensation or hire may not be operated from any moving vehicle.

5.13.1 Waiving the Sparsely-Populated Area Provision. Although the regulation states that operations from a moving vehicle may only be conducted over a sparsely-populated area, this provision may be waived (see paragraph 5.19). The operation is subject to the same restrictions that apply to all other part 107 operations. For instance, the remote PIC operating from a moving vehicle is still required to maintain VLOS and operations are still prohibited over persons not directly involved in the operation of the sUAS unless under safe cover. The remote PIC is also responsible for ensuring that no person is subject to undue risk as a result of LOC of the small UA for any reason. If a VO is not located in the same vehicle as the remote PIC, the VO and remote PIC must still maintain effective communication.

5.13.2 Careless or Reckless Operation of sUAS. Part 107 also prohibits careless or reckless operation of an sUAS. Flying an sUAS while driving a moving vehicle is considered to be careless or reckless because the person's attention would be hazardously divided. Therefore, the remote PIC or person manipulating the flight controls cannot operate an sUAS and drive a moving vehicle in a safe manner and remain in compliance with part 107.

5.13.3 Applicable Laws. Other laws, such as state and local traffic laws, may also apply to the conduct of a person driving a vehicle. Many states currently prohibit distracted driving and state or local laws may also be amended in the future to impose restrictions on how cars and public roads may be used with regard to an sUAS operation. The FAA emphasizes that people involved in an sUAS operation are responsible for complying with all applicable laws and not just the FAA's regulations.

5.14 Transportation of Property. Part 107 permits transportation of property by sUAS for compensation or hire. These operations must be conducted within a confined area and in compliance with the operating restrictions of part 107. When conducting the transportation of property, the transport must occur wholly within the bounds of a state. It may not involve transport between, 1) Hawaii and another place in Hawaii through airspace outside Hawaii, 2) the District of Columbia (DC) and another place in DC, or 3) a territory or possession of the United States and another place in the same territory or possession, as this is defined by statute as interstate air transportation.

5.14.1 Limitations. As with other operations in part 107, sUAS operations involving the transport of property must be conducted within VLOS of the remote pilot. While the VLOS limitation can be waived for some operations under the rule, it cannot for transportation of property. Additionally, part 107 does not allow the operation of an sUAS from a moving vehicle or aircraft if the small UA is being used to transport property for compensation or hire. This limitation cannot be waived. The maximum total weight of the small UA (including any property being transported) is limited to under 55 pounds. Additionally, other provisions of part 107 require the remote pilot to know the UA's location; to determine the UA's attitude, altitude, and direction; to yield the right-of-way to other aircraft; and to maintain the ability to see and avoid other aircraft.

5.14.2 Hazardous Materials. Part 107 does not allow the carriage of hazardous materials because the carriage of hazardous materials poses a higher level of risk.

5.15 Operations while Impaired. Part 107 does not allow operation of an sUAS if the remote PIC, person manipulating the controls, or VO is unable to safely carry out his or her responsibilities. It is the remote PIC's responsibility to ensure all crewmembers are not participating in the operation while impaired. While drug and alcohol use are known to impair judgment, certain over-the-counter medications and medical conditions could also affect the ability to safely operate a small UA. For example, certain antihistamines and decongestants may cause drowsiness. We also emphasize that part 107 prohibits a person from serving as a remote PIC, person manipulating the controls, VO, or other crewmember if he or she:

- Consumed any alcoholic beverage within the preceding 8 hours;
- Is under the influence of alcohol;
- Has a blood alcohol concentration of .04 percent or greater; and/or
- Is using a drug that affects the person's mental or physical capabilities.

5.15.1 Medical Conditions. Certain medical conditions, such as epilepsy, may also create a risk to operations. It is the remote PIC's responsibility to determine that their medical condition is under control and they can safely conduct a UAS operation.

5.16 Daylight Operations. Part 107 prohibits operation of an sUAS at night, which is defined in part 1 as the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in The Air Almanac, converted to local time. In the continental United States (CONUS), evening civil twilight is the period of sunset until 30 minutes after sunset and morning civil twilight is the period of 30 minutes prior to sunrise until sunrise. In Alaska, the definition of civil twilight differs and is described in The Air Almanac. The Air Almanac provides tables which are used to determine sunrise and sunset at various latitudes. These tables can also be downloaded from the Naval Observatory and customized for your location. The link for the Naval Observatory is http://aa.usno.navy.mil/publications/docs/aira.php.

5.16.1 Civil Twilight Operations. When sUAS operations are conducted during civil twilight, the small UA must be equipped with anticollision lights that are capable of being visible for at least 3 sm. However, the remote PIC may reduce the visible distance of the lighting less than 3 sm during a given flight if he or she has determined that it would be in the interest of safety to do so, for example if it impacts his or her night vision. sUAS not operated during civil twilight are not required to be equipped with anti-collision lighting.

5.17 In-Flight Emergency. An in-flight emergency is an unexpected and unforeseen serious occurrence or situation that requires urgent, prompt action. In case of an in-flight emergency, the remote PIC is permitted to deviate from any rule of part 107 to the extent necessary to respond to that emergency. A remote PIC who exercises this emergency power to deviate from the rules of part 107 is required, upon FAA request, to send a

written report to the FAA explaining the deviation. Emergency action should be taken in such a way as to minimize injury or damage to property.

5.18 Careless or Reckless Operation. As with manned aircraft, remote PICs are prohibited from engaging in a careless or reckless operation. We also note that because sUAS have additional operating considerations that are not present in manned aircraft operations, there may be additional activity that would be careless or reckless if conducted using an sUAS. For example, failure to consider weather conditions near structures, trees, or rolling terrain when operating in a densely populated area could be determined as careless or reckless operation.

5.19 Certificate of Waiver. Part 107 includes the option to apply for a Certificate of Waiver (CoW). This CoW will allow an sUAS operation to deviate from certain provisions of part 107 if the Administrator finds that the proposed operation can be safely conducted under the terms of that CoW. A list of the waivable sections of part 107 can be found in § 107.205 and are listed below:

- Section 107.25, Operation from a moving vehicle or aircraft. However, no waiver of this provision will be issued to allow the carriage of property of another by aircraft for compensation or hire.
- Section 107.29, Daylight operation.
- Section 107.31, Visual line of sight aircraft operation. However, no waiver of this provision will be issued to allow the carriage of property of another by aircraft for compensation or hire.
- Section 107.33, Visual observer.
- Section 107.35, Operation of multiple small unmanned aircraft systems.
- Section 107.37(a), Yielding the right of way.
- Section 107.39, Operation over people.
- Section 107.41, Operation in certain airspace.
- Section 107.51, Operating limitations for small unmanned aircraft.

5.19.1 Applying for a CoW. To apply for a CoW under § 107.200, an applicant must go to www.faa.gov/uas/ and follow the instructions.

5.19.2 Application Process. The application must contain a complete description of the proposed operation and a justification, including supporting data and documentation (as necessary), that establishes that the proposed operation can safely be conducted under the terms of a CoW. Although not required by part 107, the FAA encourages applicants to submit their application at least 90 days prior to the start of the proposed operation. The FAA will strive to complete review and adjudication of waivers within 90 days; however, the time required for the FAA to make a determination regarding waiver requests will vary based on the complexity of the request. The amount of data and analysis required as part of the application will be proportional to the specific relief that is requested. For example, a

request to waive several sections of part 107 for an operation that takes place in a congested metropolitan area with heavy air traffic will likely require significantly more data and analysis than a request to waive a single section for an operation that takes place in a sparsely-populated area with minimal air traffic. If a CoW is granted, that certificate may include specific special provisions designed to ensure that the sUAS operation may be conducted as safely as one conducted under the provisions of part 107. A listing of standard special provisions for part 107 waivers will be available on the FAA's Web site at http://www.faa.gov/uas/.

5.20 Supplemental Operational Information. Appendix B, Supplemental Operational Information, contains expanded information regarding operational topics that should be considered prior to operations.

CHAPTER 6. PART 107 SUBPART C, REMOTE PILOT CERTIFICATION

6.1 Applicability. This chapter provides guidance regarding the airman certification requirements and procedures for persons acting as remote pilot in command (PIC) of a small UA operated in the National Airspace System (NAS). In the aviation context, the FAA typically refers to "licensing" as "certification."

6.2 Remote Pilot Certification. A person exercising the authority of PIC in compliance with part 107 is considered a "remote pilot in command" (remote PIC). As such, prior to acting as remote PIC, he or she must obtain a remote pilot certificate with an sUAS rating.

6.3 Eligibility. A person applying for a remote pilot certificate with an sUAS rating must meet and maintain the following eligibility requirements, as applicable:

- Be at least 16 years of age.
- Be able to read, speak, write, and understand the English language. However, the FAA may make an exception if the person is unable to meet one of these requirements due to medical reasons, such as a hearing impairment.
- Be in a physical and mental condition that would not interfere with the safe operation of an sUAS.
- Pass the initial aeronautical knowledge test at an FAA-approved knowledge testing center (KTC). However, a person who already holds a pilot certificate issued under 14 CFR part 61, except a student pilot certificate, and has successfully completed a flight review in accordance with part 61 within the previous 24 calendar-months is only required to successfully complete a part 107 online training course, found at www.faasafety.gov. For more information concerning aeronautical knowledge tests and training, see paragraph 6.6.

6.4 Application Process. This paragraph provides guidance on how a person can apply for a remote pilot certificate.

6.4.1 Applicants Without Part 61 Certificates. A person who does not have a part 61 pilot certificate or a part 61 certificate holder who has not completed a part 61 flight review in the previous 24 calendar-months must use the following process. A part 61 pilot who has completed a flight review within the previous 24 calendar-months may elect to use this process.

1. Pass an initial aeronautical knowledge test administered at a KTC (see paragraph 6.6).
2. Complete the Remote Pilot Certificate and/or Rating Application for a remote pilot certificate (FAA Form 8710-13).
    - **Option 1 (Online Form):** This is the fastest and simplest method. The FAA Form 8710-13 application should be completed online using the electronic FAA Integrated Airmen Certificate and/or Rating Application (IACRA) system

(https://iacra.faa.gov/iacra/). The applicant must have already passed an initial aeronautical knowledge test. Once registered with IACRA, he or she will login with their username and password. Click on "Start New Application" and, 1) Application Type "Pilot", 2) Certifications "Remote Pilot," 3) "Other Path Information," and 4) "Start Application." Continue through the application process and, when prompted, the applicant will enter the 17-digit Knowledge Test Exam ID from the knowledge test in IACRA. It may take up to 48 hours from the test date for the knowledge test to appear in IACRA. The KTC test proctor will be the one that verified the identity of the applicant. Once the applicant completes the online application in IACRA, he or she will sign the application electronically and submit it to the Airman Registry for processing. No FAA representative will be required to sign the application if the applicant was able to self-certify.

Note: When the applicant uses this online option, the application will be transmitted electronically from the applicant to the Airman Registry. The only electronic signature that will be reflected on the IACRA application will be the applicant's. The applicant will then receive a confirmation email once his or her application has completed the Transportation Security Administration (TSA) vetting process. The email will provide information that will allow the applicant to log into the IACRA system and print a copy of the temporary certificate.

- **Option 2 (Paper Application):** An applicant could also submit a paper application. If the applicant chooses the paper method, the original initial aeronautical knowledge test report must be mailed with the application to the following address:

DOT/FAA
Airmen Certification Branch (AFS-760)
P.O. Box 25082
Oklahoma City, OK 73125

Note: A temporary airman certificate will not be provided to the remote pilot applicant if they do not hold a part 61 certificate. For this reason, it would be of the applicant's best interest to utilize Option 1 (IACRA system) instead of the paper method, in order to receive a temporary airman certificate once the application has completed the TSA vetting process.

3. Receive permanent remote pilot certificate once all other FAA internal processing is complete.

6.4.2 Applicants with Part 61 Certificates. Instead of the process described above, a person who holds a part 61 pilot certificate, except a student pilot certificate, and has completed a flight review within the previous 24 calendar-months may elect to apply using the following process:

1. Complete the online course (Part 107 small Unmanned Aircraft Systems (sUAS), ALC-451) located within the FAA Safety Team (FAASTeam) Web site (www.faasafety.gov) and receive a completion certificate.
2. Complete the Remote Pilot Certificate and/or Rating Application for a remote pilot certificate (FAA Form 8710-13).
    - **Option 1 (Online Application):** In almost all cases, the application should be completed online using the electronic FAA IACRA system (https://iacra.faa.gov/iacra/). The applicant must include verification that he or she completed the online course or passed an initial aeronautical knowledge test. The applicable official document(s) must be uploaded into IACRA either by the applicant or the certifying officer.
    - **Option 2 (Paper):** The application may be completed on paper. Using this method, the certificate of completion for the online course or original initial aeronautical knowledge test report must be included with the application. Please note that the processing time will be increased if a paper application is used.
3. Contact a FSDO, an FAA DPE, an ACR, or an FAA CFI to make an appointment to validate the applicant's identification. The applicant must present the completed FAA Form 8710-13 along with the online course completion certificate or knowledge test report (as applicable) and proof of a current flight review. The FAA Form 8710-13 application will be signed by the applicant after the FSDO, DPE, ACR, or CFI examines the applicant's photo identification and verifies the applicant's identity. The FAA representative will then sign the application. The identification presented must include a photograph of the applicant, the applicant's signature, and the applicant's actual residential address (if different from the mailing address). This information may be presented in more than one form of identification. Acceptable methods of identification include, but are not limited to U.S. drivers' licenses, government identification cards, passports, and military identification cards (refer to AC 61-65). If using paper or IACRA method, an appropriate FSDO representative, a DPE, or an ACR will issue the applicant a temporary airman certificate.

    Note: A CFI is not authorized to issue a temporary certificate. They can process applications for applicants who do not need a temporary certificate. If using IACRA and the applicant is utilizing a CFI as the FAA representative, the applicant can print their own temporary airman certificate after receiving an email from the FAA notifying them that it is available. If using the paper method and the applicant is utilizing a CFI as the FAA representative, the applicant will not be issued a temporary airman certificate. Once the FSDO has signed and approved the application, it will be mailed to the Registry for the issuance of the permanent certificate.

4. Receive permanent remote pilot certificate once all other FAA internal processing is complete.

6.5 Security Disqualification. After the FAA receives the application, the TSA will automatically conduct a background security screening of the applicant prior to issuance of a remote pilot certificate. If the security screening is successful, the FAA will issue a permanent remote pilot certificate. If the security screening is not successful, the applicant will be disqualified and a temporary pilot certificate will not be issued. Individuals who believe that they improperly failed a security threat assessment may appeal the decision to the TSA.

6.6 Aeronautical Knowledge Tests (Initial and Recurrent). It is important to have and retain the knowledge necessary to operate a small UA in the NAS. This aeronautical knowledge can be obtained through self-study, taking an online training course, taking an in-person training course, or any combination thereof. The FAA has published the Small Unmanned Aircraft Systems Airman Certification Standard (https://www.faa.gov/training_testing/testing/acs/) that provides the necessary reference material.

> **Note:** The below information regarding initial and recurrent knowledge tests apply to persons who do not hold a current part 61 airman certificate.

6.6.1 Initial Test. As described in paragraph 6.4, a person applying for remote pilot certificate with an sUAS rating must pass an initial aeronautical knowledge test given by an FAA-approved KTC. The initial knowledge test will cover the aeronautical knowledge areas listed below:

1. Applicable regulations relating to sUAS rating privileges, limitations, and flight operation;
2. Airspace classification and operating requirements, and flight restrictions affecting small UA operation;
3. Aviation weather sources and effects of weather on small UA performance;
4. Small UA loading and performance;
5. Emergency procedures;
6. Crew Resource Management (CRM);
7. Radio communication procedures;
8. Determining the performance of small UA;
9. Physiological effects of drugs and alcohol;
10. Aeronautical decision-making (ADM) and judgment;
11. Airport operations; and
12. Maintenance and preflight inspection procedures.

6.6.1.1 A part 61 certificate holder who has completed a flight review within the previous 24 calendar-months may complete an initial online training course instead of taking the knowledge test (see paragraph 6.7).

6.6.1.2 Additional information on some of the knowledge areas listed above can be found in Appendix B.

6.6.2 Recurrent Test. After a person receives a remote pilot certificate with an sUAS rating, that person must retain and periodically update the required aeronautical knowledge to continue to operate a small UA in the NAS. To continue exercising the privileges of a remote pilot certificate, the certificate holder must pass a recurrent aeronautical knowledge test within 24 calendar-months of passing either an initial or recurrent aeronautical knowledge test. A part 61 pilot certificate holder who has completed a flight review within the previous 24 calendar-months may complete a recurrent online training course instead of taking the knowledge test.

6.6.2.1 Figure 6-1, Recurrent Test Cycle Examples, illustrates an individual's possible renewal cycles.

Figure 6-1. Recurrent Test Cycle Examples

Person passes an initial aeronautical knowledge test on September 13, 2016.	then	Recurrent knowledge test must be passed no later than September 30, 2018, which does not exceed 24 calendar-months.
Person does not pass recurrent knowledge test until October 5, 2018.	then	Person may not exercise the privileges of the remote pilot certificate between October 1, 2018, and October 5, 2018, when the test is passed. The next recurrent knowledge test must be passed no later than October 31, 2020, which does not exceed 24 calendar-months.
Person elects to take recurrent knowledge test prior to October 2020. The recurrent knowledge test is taken and passed on July 15, 2020.	then	The next recurrent knowledge test must be passed no later than July 31, 2022, which does not exceed 24 calendar-months.

6.6.2.2 The recurrent aeronautical knowledge test areas are as follows:

1. Applicable regulations relating to sUAS rating privileges, limitations, and flight operation;
2. Airspace classification and operating requirements and flight restrictions affecting small UA operation;
3. Emergency procedures;
4. CRM;
5. ADM and judgment;

6. Airport operations; and
7. Maintenance and preflight inspection procedures.

6.6.3 Test Providers. KTCs will administer initial and recurrent examinations provided by the FAA. In order to take an aeronautical knowledge test, an applicant will be required to schedule an appointment with the KTC providing proper government-issued photo identification to the KTC on the day of scheduled testing. The location of the closest KTC can be found at http://www.faa.gov/training_testing/testing/media/test_centers.pdf.

6.7 Aeronautical Knowledge Training Course (Initial and Recurrent). This section is applicable only to persons who hold a part 61 airman certificate, other than a student pilot certificate, and have a current flight review.

6.7.1 Initial Training Course. As described in paragraph 6.4, a pilot applying for a remote pilot certificate may complete an initial training course instead of the knowledge test. The training course can be taken online at www.faasafety.gov. The initial training course will cover the aeronautical knowledge areas listed below:

1. Applicable regulations relating to sUAS rating privileges, limitations, and flight operation;
2. Effects of weather on small UA performance;
3. Small UA loading and performance;
4. Emergency procedures;
5. CRM;
6. Determining the performance of small UA; and
7. Maintenance and preflight inspection procedures.

Note: Additional information on some of the knowledge areas listed above can be found in Appendix B.

6.7.2 Recurrent Training Course. After a pilot receives a remote pilot certificate with an sUAS rating, that person must retain and periodically update the required aeronautical knowledge to continue to operate a small UA in the NAS. As a renewal process, the remote pilot must complete either a recurrent training course or a recurrent knowledge test within 24 calendar-months of passing either an initial or recurrent aeronautical knowledge test. Figure 6-2, Recurrent Training Course Cycle Examples, illustrates an individual's possible renewal cycles.

Figure 6-2. Recurrent Training Course Cycle Examples

Person passes an initial aeronautical knowledge test on September 13, 2016.	then	Recurrent training course must be completed no later than September 30, 2018, which does not exceed 24 calendar-months.
Person does not complete recurrent training course until October 5, 2018.	then	Person may not exercise the privileges of the remote pilot certificate between October 1, 2018, and October 5, 2018, when the course is completed. The next recurrent training course must be completed no later than October 31, 2020, which does not exceed 24 calendar-months.
Person elects to complete recurrent training course prior to October 2020. The recurrent training course is taken and completed on July 15, 2020.	then	The next recurrent training course must be completed no later than July 31, 2022, which does not exceed 24 calendar-months.

6.7.2.1 The recurrent training course areas are as follows:

1. Applicable regulations relating to sUAS rating privileges, limitations, and flight operation;
2. Emergency procedures;
3. CRM; and
4. Maintenance and preflight inspection procedures.

CHAPTER 7. sUAS MAINTENANCE AND INSPECTION

7.1 Applicability. Section 107.15 requires the remote PIC to perform checks of the UA prior to each flight to determine if the sUAS is in a condition for safe operation. This chapter provides guidance on how to inspect and maintain an sUAS. Additionally, Appendix C, sUAS Maintenance and Inspection Best Practices, contains expanded information and best practices for sUAS maintenance and inspection.

7.2 Maintenance. sUAS maintenance includes scheduled and unscheduled overhaul, repair, inspection, modification, replacement, and system software upgrades of the sUAS and its components necessary for flight. Whenever possible, the operator should maintain the sUAS and its components in accordance with manufacturer's instructions. The aircraft manufacturer may provide the maintenance program, or, if one is not provided, the applicant may choose to develop one. See paragraph 7.3.5 for suggested benefits of recordkeeping.

7.2.1 Scheduled Maintenance. The sUAS manufacturer may provide documentation for scheduled maintenance of the entire UA and associated system equipment. There may be components of the sUAS that are identified by the manufacturer to undergo scheduled periodic maintenance or replacement based on time-in-service limits (such as flight hours, cycles, and/or the calendar-days). All manufacturer scheduled maintenance instructions should be followed in the interest of achieving the longest and safest service life of the sUAS.

7.2.1.1 If there are no scheduled maintenance instructions provided by the sUAS manufacturer or component manufacturer, the operator should establish a scheduled maintenance protocol. This could be done by documenting any repair, modification, overhaul, or replacement of a system component resulting from normal flight operations, and recording the time-in-service for that component at the time of the maintenance procedure. Over time, the operator should then be able to establish a reliable maintenance schedule for the sUAS and its components.

7.2.2 Unscheduled Maintenance. During the course of a preflight inspection, the remote PIC may discover that an sUAS component is in need of servicing (such as lubrication), repair, modification, overhaul, or replacement outside of the scheduled maintenance period as a result of normal flight operations or resulting from a mishap. In addition, the sUAS manufacturer or component manufacture may require an unscheduled system software update to correct a problem. In the event such a condition is found, the remote PIC should not conduct flight operations until the discrepancy is corrected.

7.2.3 Performing Maintenance. In some instances, the sUAS or component manufacturer may require certain maintenance tasks be performed by the manufacturer or by a person or facility (personnel) specified by the manufacturer. It is highly recommended that the maintenance be performed in accordance with the manufacturer's instructions. However, if the operator decides not to use the manufacturer or personnel recommended by the manufacturer and is unable to perform the required maintenance, the operator should

consider the expertise of maintenance personnel familiar with the specific sUAS and its components. In addition, though not required, the use of certificated maintenance providers are encouraged, which may include repair stations, holders of mechanic and repairman certificates, and persons working under the supervision of these mechanics and repairman.

7.2.3.1 If the operator or other maintenance personnel are unable to repair, modify, or overhaul an sUAS or component back to its safe operational specification, then it is advisable to replace the sUAS or component with one that is in a condition for safe operation. It is important that all required maintenance be completed before each flight, and preferably in accordance with the manufacturer's instructions or, in lieu of that, within known industry best practices.

7.3 Preflight Inspection. Before each flight, the remote PIC must inspect the sUAS to ensure that it is in a condition for safe operation, such as inspecting for equipment damage or malfunction(s). The preflight inspection should be conducted in accordance with the sUAS manufacturer's inspection procedures when available (usually found in the manufacturer's owner or maintenance manual) and/or an inspection procedure developed by the sUAS owner or operator.

7.3.1 Creating an Inspection Program. As an option, the sUAS owner or operator may wish to create an inspection program for their UAS. The person creating an inspection program for a specific sUAS may find sufficient details to assist in the development of a suitable inspection program tailored to a specific sUAS in a variety of industry programs.

7.3.2 Scalable Preflight Inspection. The preflight check as part of the inspection program should include an appropriate UAS preflight inspection that is scalable to the UAS, program, and operation to be performed prior to each flight. An appropriate preflight inspection should encompass the entire system in order to determine a continued condition for safe operation prior to flight.

7.3.3 Title 14 CFR Part 43 Appendix D Guidelines. Another option and best practice may include the applicable portions of part 43 appendix D as an inspection guideline correlating to the UA only. System-related equipment, such as, but not limited to, the CS, data link, payload, or support equipment, are not included in the list in appendix D. Therefore, these items should be included in a comprehensive inspection program for the UAS.

7.3.4 Preflight Inspection Items. Even if the sUAS manufacturer has a written preflight inspection procedure, it is recommended that the remote PIC ensure that the following inspection items are incorporated into the preflight inspection procedure required by part 107 to help the remote PIC determine that the sUAS is in a condition for safe operation. The preflight inspection should include a visual or functional check of the following items:

1. Visual condition inspection of the UAS components;
2. Airframe structure (including undercarriage), all flight control surfaces, and linkages;
3. Registration markings, for proper display and legibility;
4. Moveable control surface(s), including airframe attachment point(s);
5. Servo motor(s), including attachment point(s);
6. Propulsion system, including powerplant(s), propeller(s), rotor(s), ducted fan(s), etc.;
7. Verify all systems (e.g., aircraft and control unit) have an adequate energy supply for the intended operation and are functioning properly;
8. Avionics, including control link transceiver, communication/navigation equipment, and antenna(s);
9. Calibrate UAS compass prior to any flight;
10. Control link transceiver, communication/navigation data link transceiver, and antenna(s);
11. Display panel, if used, is functioning properly;
12. Check ground support equipment, including takeoff and landing systems, for proper operation;
13. Check that control link correct functionality is established between the aircraft and the CS;
14. Check for correct movement of control surfaces using the CS;
15. Check onboard navigation and communication data links;
16. Check flight termination system, if installed;
17. Check fuel for correct type and quantity;
18. Check battery levels for the aircraft and CS;
19. Check that any equipment, such as a camera, is securely attached;
20. Verify communication with UAS and that the UAS has acquired GPS location from at least four satellites;
21. Start the UAS propellers to inspect for any imbalance or irregular operation;
22. Verify all controller operation for heading and altitude;
23. If required by flight path walk through, verify any noted obstructions that may interfere with the UAS; and
24. At a controlled low altitude, fly within range of any interference and recheck all controls and stability.

7.3.5 Benefits of Recordkeeping. sUAS owners and operators may find recordkeeping to be beneficial. This could be done by documenting any repair, modification, overhaul, or replacement of a system component resulting from normal flight operations, and recording the time-in-service for that component at the time of the maintenance procedure. Over time, the operator should then be able to establish a reliable maintenance schedule for the sUAS and its components. Recordkeeping that includes a record of all periodic inspections, maintenance, preventative maintenance, repairs, and alterations performed on the sUAS could be retrievable from either hardcopy and/or electronic logbook format for future reference. This includes all components of the sUAS, including: small UA, CS, launch and recovery equipment, C2 link equipment, payload, and any other components required to safely operate the sUAS. Recordkeeping of documented maintenance and inspection events reinforces owner/operator responsibilities for airworthiness through systematic condition for safe flight determinations. Maintenance and inspection recordkeeping provides retrievable empirical evidence of vital safety assessment data defining the condition of safety-critical systems and components supporting the decision to launch. Recordkeeping of an sUAS may provide essential safety support for commercial operators that may experience rapidly accumulated flight operational hours/cycles. Methodical maintenance and inspection data collection can prove to be very helpful in the tracking of sUAS component service life, as well as systemic component, equipage, and structural failure events.

APPENDIX A. RISK ASSESSMENT TOOLS

A.1 Purpose of this Appendix. The information in this appendix is a presentation of aeronautical decision-making (ADM), Crew Resource Management (CRM), and an example of a viable risk assessment process. This process is used to identify hazards and classify the potential risk that those hazards could present in an operation. It also provides examples of potential criteria for the severity of consequences and likelihood of occurrence that may be used by an sUAS remote pilot in command (PIC).

A.2 Aeronautical Decision-Making (ADM). The ADM process addresses all aspects of decisionmaking in a solo or crew environment and identifies the steps involved in good decisionmaking. These steps for good decisionmaking are as follows:

A.2.1 Identifying Personal Attitudes Hazardous to Safe Flight. Hazardous attitudes can affect unmanned operations if the remote PIC is not aware of the hazards, leading to such things as: getting behind the aircraft/situation, operating without adequate fuel/battery reserve, loss of positional or situational awareness, operating outside the envelope, and failure to complete all flight planning tasks, preflight inspections, and checklists. Operational pressure is a contributor to becoming subject to these pit-falls.

A.2.2 Learning Behavior Modification Techniques. Continuing to utilize risk assessment procedures for the operation will assist in identifying risk associated with the operation. Conducting an attitude assessment will identify situations where a hazardous attitude may be present.

A.2.3 Learning How to Recognize and Cope with Stress. Stress is ever present in our lives and you may already be familiar with situations that create stress in aviation. However, UAS operations may create stressors that differ from manned aviation. Such examples may include: working with an inexperienced crewmember, lack of standard crewmember training, interacting with the public and city officials, and understanding new regulatory requirements. Proper planning for the operation can reduce or eliminate stress, allowing you to focus more clearly on the operation.

A.2.4 Developing Risk Assessment Skills. As with any aviation operation, identifying associated hazards is the first step. Analyzing the likelihood and severity of the hazards occurring establishes the probability of risk. In most cases, steps can be taken to mitigate, even eliminate, those risks. Actions such as using visual observers (VO), completing a thorough preflight inspection, planning for weather, familiarity with the airspace, proper aircraft loading, and performance planning can mitigate identified risks. Figure A-1, Hazard Identification and Risk Assessment Process Chart, is an example of a risk assessment tool. Others are also available for use.

A.2.5 Using All Available Resources with More Than One Crewmember (CRM). A characteristic of CRM is creating an environment where open communication is encouraged and expected, and involves the entire crew to maximize team performance. Many of the same resources that are available to manned aircraft operations are available to UAS operations. For example, remote PICs can take advantage of traditional CRM

techniques by utilizing additional crewmembers, such as VOs and other ground crew. These crewmembers can provide information about traffic, airspace, weather, equipment, and aircraft loading and performance. Examples of good CRM include:

A.2.5.1 **Communication Procedures**. One way to accomplish this is to have the VO maintain visual contact with the small UA and maintain awareness of the surrounding airspace, and then communicate flight status and any hazards to the remote PIC and person manipulating the controls so that appropriate action can be taken. Then, as conditions change, the remote PIC should brief the crew on the changes and any needed adjustments to ensure a safe outcome of the operation.

A.2.5.2 **Communication Methods**. The remote PIC, person manipulating the controls, and VO must work out a method of communication, such as the use of a hand-held radio or other effective means, that would not create a distraction and allows them to understand each other. The remote PIC should evaluate which method is most appropriate for the operation and should be determined prior to flight.

A.2.5.3 **Task Management.** Tasks very depending on the complexity of the operation. Depending upon the area of the operations, additional crewmembers may be needed to safely operate. Enough crewmembers should be utilized to ensure no one on the team becomes overloaded. Once a member of the team becomes over worked, there's a greater possibility of an incident/accident.

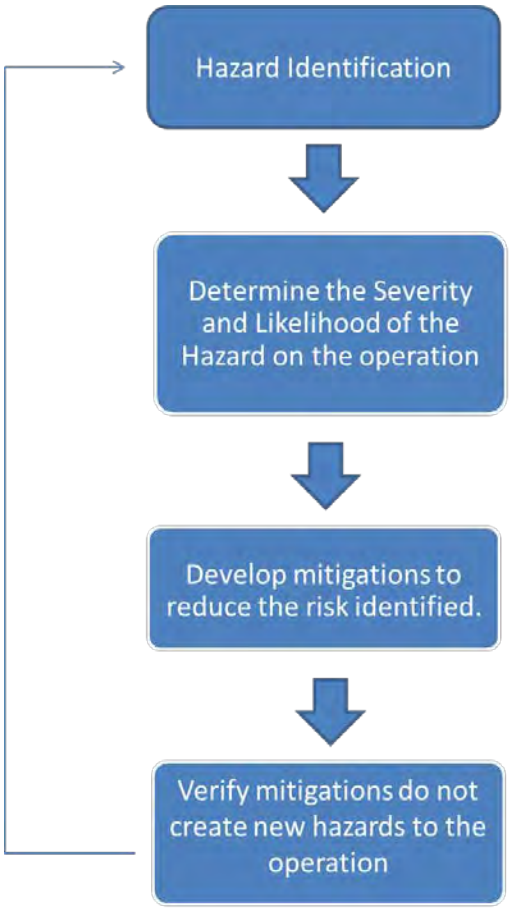
A.2.5.4 **Other Resources**. Take advantage of information from a weather briefing, air traffic control (ATC), the FAA, local pilots, and landowners. Technology can aid in decisionmaking and improve situational awareness. Being able to collect the information from these resources and manage the information is key to situational awareness and could have a positive effect on your decisionmaking.

A.2.6 Evaluating the Effectiveness of One's ADM Skills. Successful decisionmaking is measured by a pilot's consistent ability to keep himself or herself, any persons involved in the operation, and the aircraft in good condition regardless of the conditions of any given flight. As with manned operations, complacency and overconfidence can be risks, and so there are several checklists and models to assist in the decisionmaking process. Use the IMSAFE checklist to ensure you are mentally and physically prepared for the flight. Use the DECIDE model to help you continually evaluate each operation for hazards and analyze risk. Paragraph A.5.5 and the current edition of AC 60-22, Aeronautical Decision Making, can provide additional information on these models and others.

A.3 **Hazard Identification.** Hazards in the sUAS and its operating environment must be identified, documented, and controlled. The analysis process used to define hazards needs to consider all components of the system, based on the equipment being used and the

environment it is being operated in. The key question to ask during analysis of the sUAS and its operation is, "*what if*?" sUAS remote PICs are expected to exercise due diligence in identifying significant and reasonably foreseeable hazards related to their operations.

Figure A-1. Hazard Identification and Risk Assessment Process Chart



A.4 Risk Analysis and Assessment. The risk assessment should use a conventional breakdown of risk by its two components: likelihood of occurrence and severity.

A.5 Severity and Likelihood Criteria. There are several tools which could be utilized in determining severity and likelihood when evaluating a hazard. One tool is a risk matrix. Several examples of these are presented in Figure A-2, Safety Risk Matrix Examples. The definitions and construction of the matrix is left to the sUAS remote PIC to design. The definitions of each level of severity and likelihood need to be defined in terms that are realistic for the operational environment. This ensures each remote PIC's decision tools are relevant to their operations and operational environment, recognizing the extensive diversity which exists. An example of severity and likelihood definitions is shown in Table A-1, Sample Severity and Likelihood Criteria.

Table A-1. Sample Severity and Likelihood Criteria

Severity of Consequences			**Likelihood of Occurrence**		
Severity Level	Definition	Value	Likelihood Level	Definition	Value
Catastrophic	Equipment destroyed, multiple deaths.	5	Frequent	Likely to occur many times	5
Hazardous	Large reduction in safety margins, physical distress, or a workload such that crewmembers cannot be relied upon to perform their tasks accurately or completely. Serious injury or death. Major equipment damage.	4	Occasional	Likely to occur sometimes	4
Major	Significant reduction in safety margins, reduction in the ability of crewmembers to cope with adverse operating conditions as a result of an increase in workload, or as result of conditions impairing their efficiency. Serious incident. Injury to persons.	3	Remote	Unlikely, but possible to occur	3
Minor	Nuisance. Operating limitations. Use of emergency procedures. Minor incident.	2	Improbable	Very unlikely to occur	2
Negligible	Little consequence.	1	Extremely Improbable	Almost inconceivable that the event will occur	1

A.5.1 Risk Acceptance. In the development of risk assessment criteria, sUAS remote PICs are expected to develop risk acceptance procedures, including acceptance criteria and designation of authority and responsibility for risk management decisionmaking. The acceptability of risk can be evaluated using a risk matrix, such as those illustrated in Figure A-2. Table A-2, Safety Risk Matrix—Example shows three areas of acceptability.

Risk matrices may be color coded; unacceptable (red), acceptable (green), and acceptable with mitigation (yellow).

A.5.1.1 **Unacceptable (Red).** Where combinations of severity and likelihood cause risk to fall into the red area, the risk would be assessed as unacceptable and further work would be required to design an intervention to eliminate that associated hazard or to control the factors that lead to higher risk likelihood or severity.

A.5.1.2 **Acceptable (Green).** Where the assessed risk falls into the green area, it may be accepted without further action. The objective in risk management should always be to reduce risk to as low as practicable regardless of whether or not the assessment shows that it can be accepted as is.

A.5.1.3 **Acceptable with Mitigation (Yellow).** Where the risk assessment falls into the yellow area, the risk may be accepted under defined conditions of mitigation. An example of this situation would be an assessment of the impact of an sUAS operation near a school yard. Scheduling the operation to take place when school is not in session could be one mitigation to prevent undue risk to the children that study and play there. Another mitigation could be restricting people from the area of operations by placing cones or security personnel to prevent unauthorized access during the sUAS flight operation.

Figure A-2. Safety Risk Matrix Examples

Table A-2. Safety Risk Matrix—Example

Risk Likelihood		Risk Severity				
		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely Improbable	1	1A	1B	1C	1D	1E

Note: The direction of higher/lower and more/less scales on a matrix is at the discretion of the remote PIC.

A.5.2 Other Risk Assessment Tools for Flight and Operational Risk Management. Other tools can also be used for flight or operational risk assessments and can be developed by the remote PICs themselves. The key thing is to ensure that all potential hazards and risks are identified and appropriate actions are taken to reduce the risk to persons and property not associated with the operations.

A.5.3 Reducing Risk. Risk analyses should concentrate not only on assigning levels of severity and likelihood, but on determining why these particular levels were selected. This is referred to as *root cause analysis*, and is the first step in developing effective controls to reduce risk to lower levels. In many cases, simple brainstorming sessions among crewmembers is the most effective and affordable method of finding ways to reduce risk. This also has the advantage of involving people who will ultimately be required to implement the controls developed.

A.5.3.1 It is also very easy to get quite bogged down in trying to identify all hazards and risks. That is not the purpose of a risk assessment. The focus should be upon those hazards which pose the greatest risks. As stated earlier, by documenting and compiling these processes, a remote PIC can build an arsenal of safety practices that will add to the safety and success of future operations.

A.5.4 Sample Hazard Identification and Risk Assessment.

A.5.4.1 **Example.** I am the remote PIC of an sUAS in the proximity of an accident scene shooting aerial footage. Much like pilots in manned aircraft must adhere to preflight action (part 91, § 91.103), I must adhere to preflight familiarization, inspection, and aircraft operations (§ 107.49). Let's say that there is an obvious takeoff and landing site that I intend to use. What if, while I am operating a manned aircraft (emergency medical services (EMS) helicopter) requires use of the same area and I am not left with a suitable landing site? Furthermore, I am running low on power. If I consider this situation prior to flight, I can use the Basic Hazard Identification and Mitigation Process. Through this process, I might determine that an acceptable level of risk can be achieved by also having an alternate landing site and possibly additional sites at which I can sacrifice the UA to avoid imposing risk to people on the ground or to manned aircraft operations. It is really a simple process: I must consider the hazards presented during this particular operation, determine the risk severity, and then develop a plan to lessen (or mitigate) the risk to an acceptable level. By documenting and compiling these processes, I can build an arsenal of safety practices that will add to the safety and success of future operations. The following are some proven methods that can help a new remote PIC along the way:

A.5.4.2 **Hazard Identification.** Using the Personal Minimums (PAVE) Checklist for Risk Management, I will set personal minimums based upon my specific flight experience, health habits, and tolerance for stress, just to name a few. After identifying hazards, I will then input them into the Hazard Identification and Risk Management Process Chart (Figure A-1).

1. **P**ersonal: Am I healthy for flight and what are my personal minimums based upon my experience operating this sUAS? During this step, I will often use the IMSAFE checklist in order to perform a more in-depth evaluation:
    - **I**llness – Am I suffering from any illness or symptom of an illness which might affect me in flight?
    - **M**edication – Am I currently taking any drugs (prescription or over-the-counter)?
    - **S**tress – Am I experiencing any psychological or emotional factors which might affect my performance?
    - **A**lcohol – Have I consumed alcohol within the last 8 to 24 hours?
    - **F**atigue – Have I received sufficient sleep and rest in the recent past?
    - **E**ating – Am I sufficiently nourished?
2. **A**ircraft: Have I conducted a preflight check of my sUAS (aircraft, control station (CS), takeoff and landing equipment, etc.) and

determined it to be in a condition for safe operation? Is the filming equipment properly secured to the aircraft prior to flight?

3. En**V**iroment: What is the weather like? Am I comfortable and experienced enough to fly in the forecast weather conditions? Have I considered all of my options and left myself an "out?" Have I determined alternative landing spots in case of an emergency?
4. **E**xternal Pressures: Am I stressed or anxious? Is this a flight that will cause me to be stressed or anxious? Is there pressure to complete the flight operation quickly? Am I dealing with an unhealthy safety culture? Am I being honest with myself and others about my personal operational abilities and limitations?

A.5.5 Controlling Risk. After hazards and risks are fully understood through the preceding steps, risk controls must be designed and implemented. These may be additional or changed procedures, additional or modified equipment, the addition of VOs, or any of a number of other changes.

A.5.6 Residual and Substitute Risk. Residual risk is the risk remaining after mitigation has been completed. Often, this is a multistep process, continuing until risk has been mitigated down to an acceptable level necessary to begin or continue operation. After these controls are designed but before the operation begins or continues, an assessment must be made of whether the controls are likely to be effective and/or if they introduce new hazards to the operation. The latter condition, introduction of new hazards, is referred to as substitute risk, a situation where the cure is worse than the disease. The loop seen in Figure A-1 that returns back to the top of the diagram depicts the use of the preceding hazard identification, risk analysis, and risk assessment processes to determine if the modified operation is acceptable.

A.5.7 Starting the Operation. Once appropriate risk controls are developed and implemented, then the operation can begin.

APPENDIX B. SUPPLEMENTAL OPERATIONAL INFORMATION

B.1 Determining Operational Performance. The manufacturer may provide operational and performance information that contains the operational performance data for the aircraft such as data pertaining to takeoff, climb, range, endurance, descent, and landing. To be able to make practical use of the aircraft's capabilities and limitations, it is essential to understand the significance of the operational data. The use of this data in flying operations is essential for safe and efficient operation. It should be emphasized that the manufacturers' information regarding performance data is not standardized. If manufacturer-published performance data is unavailable, it is advisable to seek out performance data that may have already been determined and published by other users of the same sUAS manufacturer model and use that data as a starting point.

B.2 sUAS Loading and Its Effects on Performance.

B.2.1 Weight and Balance (W&B). Before any flight, the remote PIC should verify the aircraft is correctly loaded by determining the W&B condition of the aircraft. An aircraft's W&B restrictions established by the manufacturer or the builder should be closely followed. Compliance with the manufacturer's W&B limits is critical to flight safety. The remote PIC must consider the consequences of an overweight aircraft if an emergency condition arises.

- Although a maximum gross takeoff weight may be specified, the aircraft may not always safely take off with this load under all conditions. Conditions that affect takeoff and climb performance, such as high elevations, high air temperatures, and high humidity (high density altitudes) may require a reduction in weight before flight is attempted. Other factors to consider prior to takeoff are runway/launch area length, surface, slope, surface wind, and the presence of obstacles. These factors may require a reduction in weight prior to flight.
- Weight changes during flight also have a direct effect on aircraft performance. Fuel burn is the most common weight change that takes place during flight. As fuel is used, the aircraft becomes lighter and performance is improved, but this could have a negative effect on balance. In UAS operations, weight change during flight may occur when expendable items are used on board (e.g., a jettisonable load).

B.2.2 Balance, Stability, and Center of Gravity (CG). Adverse balance conditions (i.e., weight distribution) may affect flight characteristics in much the same manner as those mentioned for an excess weight condition. Limits for the location of the CG may be established by the manufacturer. The CG is not a fixed point marked on the aircraft; its location depends on the distribution of aircraft weight. As variable load items are shifted or expended, there may be a resultant shift in CG location. The remote PIC should determine how the CG will shift and the resultant effects on the aircraft. If the CG is not within the allowable limits after loading or do not remain within the allowable limits for safe flight, it will be necessary to relocate or shed some weight before flight is attempted.

B.3 Sources of Weather Information for Small UA Operations. Remote PICs are encouraged to obtain weather information prior to flight from Flight Service by using the Web site www.1800wxbrief.com. Remote PICs can create a free account in order to use the briefing service. While Flight Service does offer a telephone-based service, it is intended for manned aircraft pilots only.

B.3.1 National Weather Service (NWS). Remote PICs are also encouraged to visit the NWS's Aviation Weather Center (AWC) at www.aviationweather.gov. This free, Web-based service does not require registration and offers all of the weather products important to a remote PIC, such as Aviation Routine Weather Reports (METAR) and Terminal Aerodrome Forecast (TAF). While reviewing the weather for your intended operation, it is also critical that the remote PIC review any temporary flight restrictions (TFR) at the FAA's TFR Web site, which can be found at http://tfr.faa.gov.

B.4 Weather and the Effects on Performance. Weather is an important factor that influences aircraft performance and flying safety. Atmospheric pressure and density, wind, and uneven surface heating are factors that affect sUAS performance and must be considered prior to flight.

B.4.1 Wind. Wind speed and direction are important as they affect takeoff, landing, and cruise of flight operations. Geological features, trees, structures, and other anomalies can affect the wind direction and speed close to the ground. In particular, ground topography, trees, and buildings can break up the flow of the wind and create wind gusts that change rapidly in direction and speed. The remote PIC should be vigilant when operating UAS near large buildings or other man-made structures and natural obstructions, such as mountains, bluffs, or canyons. The intensity of the turbulence associated with ground obstructions depends on the size of the obstacle and the primary velocity of the wind. This same condition is even more noticeable when flying in mountainous regions. While the wind flows smoothly up the windward side of the mountain and the upward currents help to carry an aircraft over the peak of the mountain, the wind on the leeward side does not act in a similar manner. As the air flows down the leeward side of the mountain, the air follows the contour of the terrain and is increasingly turbulent. This tends to push an aircraft into the side of a mountain. The stronger the wind, the greater the downward pressure and turbulence become. Due to the effect terrain has on the wind in valleys or canyons, downdrafts can be severe.

B.4.2 Surface Heat. Different surfaces radiate heat in varying amounts. Plowed ground, rocks, sand, and barren land give off a larger amount of heat, whereas water, trees, and other areas of vegetation tend to absorb and retain heat. The resulting uneven heating of the air creates small areas of local circulation called convective currents, which creates bumpy, turbulent air. Convective currents, with their rising and sinking air can adversely affect the controllability of the small UA.

B.5 Battery Fires. Lithium-based batteries are highly flammable and capable of ignition. A battery fire could cause an in-flight emergency by causing a LOC of the small UA. Lithium battery fires can be caused when a battery short circuits, is improperly charged, is heated to extreme temperatures, is damaged as a result of a crash, is mishandled, or is

simply defective. The remote PIC should consider following the manufacturer's recommendations, when available, to help ensure safe battery handling and usage.

B.6 sUAS Frequency Utilization. An sUAS typically uses radio frequencies (RF) for the communication link between the CS and the small UA.

B.6.1 Frequency spectrum (RF) Basics. The 2.4 GHz and 5.8 GHz systems are the unlicensed band RFs that most sUAS use for the connection between the CS and the small UA. Note the frequencies are also used for computer wireless networks and the interference can cause problems when operating a UA in an area (e.g., dense housing and office buildings) that has many wireless signals. LOC and flyaways are some of the reported problems with sUAS frequency implications.

- To avoid frequency interference, many modern sUAS operate using a 5.8 GHz system to control the small UA and a 2.4 GHz system to transmit video and photos to the ground. Consult the sUAS operating manual and manufacturers recommended procedures before conducting sUAS operations.
- It should be noted that both RF bands (2.4 GHz and 5.8 GHz) are considered line of sight and the command and control link between the CS and the small UA will not work properly when barriers are between the CS and the UA. Part 107 requires the remote PIC or person manipulating the controls to be able to see the UA at all times, which should also help prevent obstructions from interfering with the line of sight frequency spectrum.

B.6.2 Spectrum Authorization. Frequency spectrum used for small UA operations are regulated by the Federal Communications Commission (FCC). Radio transmissions, such as those used to control a UA and to downlink real-time video, must use frequency bands that are approved for use by the operating agency. The FCC authorizes civil operations. Some operating frequencies are unlicensed and can be used freely (e.g., 900 MHz, 2.4 GHz, and 5.8 GHz) without FCC approval. All other frequencies require a user-specific license for all civil users, except federal agencies, to be obtained from the FCC. For further information, visit https://www.fcc.gov/licensing-databases/licensing.

APPENDIX C. sUAS MAINTENANCE AND INSPECTION BEST PRACTICES

C.1 In the interest of assisting varying background levels of sUAS knowledge and skill, below is a chart offering conditions that, if noticed during a preflight inspection or check, may support a determination that the UAS is not in a condition for safe operation. Further inspection to identify the scope of damage and extent of possible repair needed to remedy the unsafe condition may be necessary prior to flight.

Table C-1. sUAS Condition Chart

Conditions that may be found may include, but are not limited to, the following:

Condition	Action
1. Structural or skin cracking	Further inspect to determine scope of damage and existence of possible hidden damage that may compromise structural integrity. Assess the need and extent of repairs that may be needed for continued safe flight operations.
2. Delamination of bonded surfaces	Further inspect to determine scope of damage and existence of possible hidden damage that may compromise structural integrity. Assess the need and extent of repairs that may be needed for continued safe flight operations.
3. Liquid or gel leakage	Further inspect to determine source of the leakage. This condition may pose a risk of fire resulting in extreme heat negatively impacting aircraft structures, aircraft performance characteristics, and flight duration. Assess the need and extent of repairs that may be needed for continued safe flight operations.
4. Strong fuel smell	Further inspect to determine source of the smell. Leakage exiting the aircraft may be present and/or accumulating within a sealed compartment. This condition may pose a risk of fire resulting in extreme heat negatively impacting aircraft structures, aircraft performance characteristics, and flight duration. Assess the need and extent of repairs that may be needed for continued safe flight operations.
5. Smell of electrical burning or arcing	Further inspect to determine source of the possible electrical malfunction. An electrical hazard may pose a risk of fire or extreme heat negatively impacting aircraft structures,

	aircraft performance characteristics, and flight duration. Assess the need and extent of repairs that may be needed for continued safe flight operations.
6. Visual indications of electrical burning or arcing (black soot tracings, sparking)	Further inspect to determine source of the possible electrical malfunction. An electrical hazard may pose a risk of fire or extreme heat negatively impacting aircraft structures, aircraft performance characteristics, and flight duration. Assess the need and extent of repairs that may be needed for continued safe flight operations.
7. Noticeable sound (decibel) change during operation by the propulsion system	Further inspect entire aircraft with emphasis on the propulsion system components (i.e., motors and propellers) for damage and/or diminished performance. Assess the need and extent of repairs that may be needed for continued safe flight operations.
8. Control inputs not synchronized or delayed	Discontinue flight and/or avoid further flight operations until further inspection and testing of the control link between the ground control unit and the aircraft. Ensure accurate control communications are established and reliable prior to further flight to circumvent possible loss of control resulting in the risk of a collision or flyaway. Assess the need and extent of repairs that may be needed for continued safe flight operations.
9. Battery casing distorted (bulging)	Further inspect to determine integrity of the battery as a reliable power source. Distorted battery casings may indicate impending failure resulting in abrupt power loss and/or explosion. An electrical hazard may be present, posing a risk of fire or extreme heat negatively impacting aircraft structures, aircraft performance characteristics, and flight duration. Assess the need and extent of repairs that may be needed for continued safe flight operations.
10. Diminishing flight time capability (electric powered propulsion systems)	Further inspect to determine integrity of the battery as a reliable power source. Diminishing battery capacity may indicate impending failure due to exhausted service life, internal, or external damage. An electrical hazard may

	be present, posing a risk of fire or extreme heat negatively impacting aircraft structures, aircraft performance characteristics, and flight duration. Assess the need and extent of repairs that may be needed for continued safe flight operations.
11. Loose or missing hardware/fasteners	Further inspect to determine structural integrity of the aircraft and/or components with loose or missing hardware/fasteners. Loose or missing hardware/fasteners may pose a risk of negatively impacting flight characteristics, structural failure of the aircraft, dropped objects, loss of the aircraft, and risk to persons and property on the grounds. For continued safe flight operations, secure loose hardware/fasteners. Replace loose hardware/fasteners that cannot be secured. Replace missing hardware/fasteners.

Advisory Circular Feedback Form

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by contacting the General Aviation and Commercial Division (AFS-800) at 9-AFS-800-Correspondence@faa.gov or the Flight Standards Directives Management Officer.

Subject: AC 107-2, Small Unmanned Aircraft Systems (sUAS)

Date: _____

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph _____ on page _____ be changed as follows:

_____

_____

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

_____

_____

☐ Other comments:

_____

_____

☐ I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____

FAA News

Federal Aviation Administration, Washington, DC 20591

June 21, 2016

SUMMARY OF SMALL UNMANNED AIRCRAFT RULE (PART 107)

Operational Limitations	• Unmanned aircraft must weigh less than 55 lbs. (25 kg). • Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the remote pilot in command and the person manipulating the flight controls of the small UAS. Alternatively, the unmanned aircraft must remain within VLOS of the visual observer. • At all times the small unmanned aircraft must remain close enough to the remote pilot in command and the person manipulating the flight controls of the small UAS for those people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses. • Small unmanned aircraft may not operate over any persons not directly participating in the operation, not under a covered structure, and not inside a covered stationary vehicle. • Daylight-only operations, or civil twilight (30 minutes before official sunrise to 30 minutes after official sunset, local time) with appropriate anti-collision lighting. • Must yield right of way to other aircraft. • May use visual observer (VO) but not required. • First-person view camera cannot satisfy “see-and-avoid” requirement but can be used as long as requirement is satisfied in other ways. • Maximum groundspeed of 100 mph (87 knots). • Maximum altitude of 400 feet above ground level (AGL) or, if higher than 400 feet AGL, remain within 400 feet of a structure. • Minimum weather visibility of 3 miles from control station. • Operations in Class B, C, D and E airspace are allowed with the required ATC permission. • Operations in Class G airspace are allowed without ATC permission. • No person may act as a remote pilot in command or VO for more than one unmanned aircraft operation at one time. • No operations from a moving aircraft. • No operations from a moving vehicle unless the operation is over a sparsely populated area. • No careless or reckless operations. • No carriage of hazardous materials.

	• Requires preflight inspection by the remote pilot in command. • A person may not operate a small unmanned aircraft if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS. • Foreign-registered small unmanned aircraft are allowed to operate under part 107 if they satisfy the requirements of part 375. • External load operations are allowed if the object being carried by the unmanned aircraft is securely attached and does not adversely affect the flight characteristics or controllability of the aircraft. • Transportation of property for compensation or hire allowed provided that- o The aircraft, including its attached systems, payload and cargo weigh less than 55 pounds total; o The flight is conducted within visual line of sight and not from a moving vehicle or aircraft; and o The flight occurs wholly within the bounds of a State and does not involve transport between (1) Hawaii and another place in Hawaii through airspace outside Hawaii; (2) the District of Columbia and another place in the District of Columbia; or (3) a territory or possession of the United States and another place in the same territory or possession. • Most of the restrictions discussed above are waivable if the applicant demonstrates that his or her operation can safely be conducted under the terms of a certificate of waiver.
Remote Pilot in Command Certification and Responsibilities	• Establishes a remote pilot in command position. • A person operating a small UAS must either hold a remote pilot airman certificate with a small UAS rating or be under the direct supervision of a person who does hold a remote pilot certificate (remote pilot in command). • To qualify for a remote pilot certificate, a person must: o Demonstrate aeronautical knowledge by either: ▪ Passing an initial aeronautical knowledge test at an FAA-approved knowledge testing center; or ▪ Hold a part 61 pilot certificate other than student pilot, complete a flight review within the previous 24 months, and complete a small UAS online training course provided by the FAA. o Be vetted by the Transportation Security Administration. o Be at least 16 years old. • Part 61 pilot certificate holders may obtain a temporary remote pilot certificate immediately upon submission of their application for a permanent certificate. Other applicants will obtain a temporary remote pilot certificate upon successful completion of TSA security vetting. The FAA anticipates that it will be able to issue a temporary remote pilot certificate within 10 business days after receiving a completed remote pilot certificate application. • Until international standards are developed, foreign-

	certificated UAS pilots will be required to obtain an FAA-issued remote pilot certificate with a small UAS rating. A remote pilot in command must: • Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the rule. • Report to the FAA within 10 days of any operation that results in at least serious injury, loss of consciousness, or property damage of at least $500. • Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is in a condition for safe operation. • Ensure that the small unmanned aircraft complies with the existing registration requirements specified in § 91.203(a)(2). A remote pilot in command may deviate from the requirements of this rule in response to an in-flight emergency.
Aircraft Requirements	• FAA airworthiness certification is not required. However, the remote pilot in command must conduct a preflight check of the small UAS to ensure that it is in a condition for safe operation.
Model Aircraft	• Part 107 does not apply to model aircraft that satisfy all of the criteria specified in section 336 of Public Law 112-95. • The rule codifies the FAA's enforcement authority in part 101 by prohibiting model aircraft operators from endangering the safety of the NAS.

R 051700Z JAN 18
FM COMDT COGARD WASHINGTON DC//CG-7//
TO ALCOAST
UNCLAS //N03710//
ALCOAST 004/18
SUBJ: AUTHORIZED USE OF COAST GUARD UNMANNED AIRCRAFT SYSTEMS (UAS)
A. SMALL UNMANNED AIRCRAFT SYSTEMS, 14 CFR Part 107
B. COAST GUARD AIR OPERATIONS MANUAL, COMDTINST M3710.1 (SERIES)
C. COMDT (CG-7) memo 3700 of 15 May 2017
1. Short-Range UAS (SR-UAS) constitutes one of the most significant new and emerging technologies available to the Coast Guard today. In support of the COMDT's strategic commitment to invest in new technologies, the Office of Aviation Forces (CG-711) is leveraging opportunities to deliver this new technology to the field. Pursuant to REF C, COMDT (CG-711) established the Group-1 UAS Prototype Program Initiative (GUPPI) as a mechanism for testing SR-UAS use in the fleet while simultaneously developing a sustainable Program of Record (PoR). GUPPI will develop and test potential capability solutions to integrate, train, and standardize this technology.
2. The USCG recognizes that small, hand-launched SR-UAS have the potential to be a highly effective and affordable tool for many missions. In the future, SR-UAS may supplement or even replace legacy capabilities in order to meet existing mission requirements. GUPPI will assist units in identifying mission requirements which are more effectively met through the use of SR-UAS. Ice reconnaissance, post-storm survey, pollution response, antenna tower inspection, search and rescue, and law enforcement are a small sample of the potential uses of SR-UAS.
3. GUPPI is a pilot program that will provide SR-UAS capabilities to meet the operational commander's needs at the deck-plate level, employing properly trained personnel to test potential SR-UAS capability solutions. Simultaneously, SR-UAS remote pilots will generate the doctrine, training, and TTP necessary to validate a long-term PoR. The GUPPI team, consisting of FAA-certified remote pilots within COMDT (CG-711), will equip six fleet units with SR-UAS and assist unit personnel with obtaining the necessary training and certification to operate the device for authorized missions. As operations progress and mature through 2018-2019, GUPPI membership will expand and authority to approve SR-UAS operations will be disseminated and delegated down to the appropriate level. This initiative will sunset once a formal PoR has been established to fund and sustain the SR-UAS fleet. To understand our customers' needs most effectively, I request that units forward any internally-identified UAS requirements up their respective chains of command for consideration by the mission managers and COMDT (CG-711).
4. In August 2016, REF (A) established a viable certification method and operating procedures for both public and private operators to operate SR-UAS within the National Air Space. GUPPI was founded to explore potential avenues for Coast Guard operation of SR-UAS and will likely incorporate large elements for REF (A) into REF (B). Unit personnel interested in obtaining their Part 107 Remote Pilot certification are encouraged to visit the COMDT (CG-711) SR-UAS Portal Page for further guidance: https://cg.portal.uscg.mil/units/cg711/SR-UAS/default.aspx Units interested in participating in GUPPI shall route their request to COMDT (CG-711) through the appropriate chain of command for consideration.
5. In addition to GUPPI, units are authorized to contract select UAS services from commercial vendors in order to obtain cost effective near-term solutions to current capability gaps. Units are reminded that the USCG should not acquire any property or retain any property

rights in the UAS or associated hardware, or technology under these service contracts.

a. Notify COMDT (CG-711) and the next level chain of command prior to initiating any UAS contract obligations.

b. Coast Guard units are authorized to seek photo or video imagery services from commercial UAS operators, in accordance with established contracting procedures.

The following apply for any UAS services:

1) The UAS may be used for photo or video imagery in support of infrastructure inspections, environmental observation, pollution response, post-storm survey, ice survey, communications support, and public relations. Commercial UAS support for other missions, including law enforcement, intelligence, defense operations, or search and rescue requires explicit COMDT (CG-711) and chain of command approval.

2) The UAS shall not be used to collect any Personally Identifiable Information (PII).

3) CG units contracting for UAS services, and their servicing legal offices, will ensure that the contract specifies that the commercial UAS operator shall be solely responsible for the operation of the UAS and compliance with applicable FAA laws and regulations.

4) CG units contracting for UAS services or flying organic UAS shall contact the nearest CG AIRSTA and District (DM) to ensure that CG manned aircrews are aware of the UAS operations and have a plan to deconflict the airspace.

c. Use of commercial UAS for missions not listed here or for any uses other than capturing photo or video imagery requires further review by COMDT (CG-711) and shall be forwarded for consideration.

6. Units may also partner with local, State, or Federal government agencies that operate UAS to obtain information from their UAS operations in support of Coast Guard operations.

7. SR-UAS will require specific operator qualifications, airworthiness certifications, and spectrum authority, at a minimum. SR-UAS operations could subject the USCG to liability for any associated damage, injury, or death. GUPPI is addressing these challenges and policies by identifying a controlled, risk-mitigated, environment for SR-UAS operational development.

8. The U.S. Army, Navy, and Marine Corps ceased all use of the prolific, industry-standard DJI SR-UAS products on 02 August, 2017. This manufacturer of SR-UAS was found to have significant cyber security concerns, and current USCG policy is in alignment with our DoD counterparts. The Office of the Secretary of Defense plans to release DoD-wide guidance shortly on which COTS systems will be authorized by the DoD.

9. The Research and Development Center and the Coast Guard Academy currently have authorization from COMDT (CG-711) for UAS use in support of education and research activities. Units may request GUPPI team support through their chain of command in support of field missions. Unless specifically provided in this ALCOAST, all other access to SR-UAS by fleet units remains prohibited.

10. POC is CDR Daniel Broadhurst, COMDT (CG-7114).

11. RDML M.P. Ryan, Assistant Commandant for Capability, sends.

12. Internet release is authorized.

R 251700 APR 18
FM COMDT COGARD WASHINGTON DC//CG-7//
TO ALCOAST
UNCLAS //N03710//
ALCOAST 156/18
COMDTNOTE 3710
SUBJ: UPDATE TO AUTHORIZED USE OF COAST GUARD UNMANNED AIRCRAFT SYSTEMS (UAS)
A. SMALL UNMANNED AIRCRAFT SYSTEMS, 14 CFR Part 107
B. COAST GUARD AIR OPERATIONS MANUAL, COMDTINST M3710.1 (SERIES)
C. DEPARTMENT OF HOMELAND SECURITY U. S. COAST GUARD OPERATIONAL IMAGERY SECURITY CLASSIFICATION GUIDE, DHS SCG USCG 009
1. ALCOAST 004-18 solicited for six fleet units to be included in the initial fielding of Short-Range UAS (SR-UAS) capabilities through the COMDT (CG-711) sponsored Group-1 UAS Prototype Program Initiative (GUPPI). 34 applications were received from DCO and DCMS units. Due to significant fleet interest, and the opportunity to test against a wide variety of Coast Guard missions, selection was expanded from six to eight units.
2. The following units were selected based on primary mission, geographical diversity, demonstrated interest in this program, and the recommendations of Areas and Headquarters Program offices:
   a. ANT Duluth
   b. ANT Honolulu
   c. CGC Hollyhock
   d. CEU Oakland
   e. CEU Providence
   f. National Motor Lifeboat School
   g. Sector Houston/Galveston
   h. Sector Lower Mississippi River
3. As part of a comprehensive risk mitigation plan, units were selected whose missions pose typical potential cyber vulnerability, and have manageable proximity to FAA-controlled airspace.
4. There was a tremendous response from units having a Search and Rescue or Law Enforcement nexus including MSSTs, stations, and major cutters. Unfortunately, GUPPI is not yet postured to support those missions until Coast Guard policy, legal opinions, and SR-UAS capability options develop further.
5. The GUPPI team, consisting of designated Remote Instructor Pilots within COMDT (CG-711), will provide selected units with initial allowance of authorized SR-UAS systems at no cost, and then train them for use of those systems during authorized missions. Unit visits by a GUPPI training team will be scheduled SEPCOR, with all eight units completing the training by the end of FY2018.
6. Selected units will need to complete the following requirements prior to a GUPPI team visit:
   a. Have at least one member complete the following training located on the COMDT (CG-7114) UAS Portal Page.
      1) Basic Unmanned Qualification – Level 1.
      2) Obtain an FAA Remote Pilot Certificate in accordance with reference (a). There is a potential cost to the unit with this training, which can be mitigated through the use of a military testing facility.
      3) Review Appendix D of reference (b).
      4) Become familiar with the SR-UAS SOP.
      5) Review the SR-UAS Operator’s Manual.
   b. Coordinate a training plan directly with COMDT (CG-7114).
7. COMDT (CG-7114) continues to develop a system of records and methods for how long data will be stored following mission completion. In the interim, GUPPI units will handle data and imagery iaw

reference (c).
8. As operations progress and mature through 2018-2019, GUPPI membership may further expand. If this becomes the case, COMDT (CG-711) will resolicit for a second phase of the GUPPI program.
9. For those fleet units not selected for GUPPI and still desiring to employ SR-UAS capabilities, there are two other authorized methods to do so:
    a. Contract for SR-UAS services in accordance with paragraph five of ALCOAST 004-18.
    b. Partner with local, State, or Federal government agencies that operate UAS to obtain imagery or other data in support of Coast Guard operations.
10. Prior to conducting any SR-UAS operations described in paragraph 9, units will submit an Unmanned Flight Clearance (UFC) request to COMDT (CG-7114) via the UAS CG Portal page.
11. All other access to SR-UAS by fleet units, including the use of personally-owned UAS or “drones” to record or otherwise capture imagery of official Coast Guard business, remains prohibited.
12. Interested personnel not currently involved in SR-UAS operations are encouraged to obtain their FAA Part 107 Remote Pilot Certification. Visit the COMDT (CG-7114) UAS Portal Page for further guidance.
13. The COMDT (CG-7114) UAS Portal Page may be accessed at: https://cg.portal.uscg.mil/units/cg711/UAS/SitePages/Home.aspx
14. POC is LCDR Ryan Lampe, COMDT (CG-7114).
15. CAPT B. A. Cooper, Acting Assistant Commandant for Capability, sends.
16. Internet release is not authorized.

ALCOAST COMMANDANT NOTICE CANCEL DATE 13 SEP 17

R 141446Z SEP 16
FM COMDT COGARD WASHINGTON DC //CG-7//
TO ALCOAST
UNCLAS//N03710//
ACN 331/16
SUBJ: AUTHORIZED USE OF COAST GUARD UNMANNED AIRCRAFT SYSTEMS (UAS)
A. COAST GUARD AIR OPERATIONS MANUAL, COMDTINST M3710.1 (SERIES)
B. OPERATION AND CERTIFICATION OF SMALL UNMANNED AIRCRAFT SYSTEMS, FAA Rule 2120-AJ60
1. In response to the rapid proliferation of available, affordable, and highly-capable commercial small UAS (commonly known as “drones” in the civilian market), the Office of Aviation Forces (CG-711) released ALCOAST 082/14 in 2014, establishing the USCG’s baseline stance for the authorized uses of UAS technologies. In short, Coast Guard units are prohibited from independently acquiring and operating UAS. There are myriad reasons why this restriction is required, including cost, doctrine, standardization, liability, and privacy. Those limited case-by-case UAS flight operations approved by COMDT (CG-711) are still governed by the requirements of reference (A).
2. On 21 June 2016, the Federal Aviation Administration released reference (B), which proposed allowing civilian commercial operators to legally employ UAS within the national airspace, under strict flight conditions, ranges, and requisite training. Those Part 107 regulations, commonly known as “the Commercial Rule,” officially took effect on 29 August 2016. While groundbreaking for the commercial industry, the release of reference (B) does not change the requirements for public (DOD/DHS) aircraft to operate in accordance with established FAA and applicable agency regulations. All existing regulations and restrictions remain in effect.
3. The USCG recognizes that smaller, hand-launched (Group I) UAS may be a highly effective and affordable tool for many missions. However, there are no approved operational requirements for these Group I UAS capabilities. As such, COMDT (CG-711) strongly encourages the forwarding of fleet-generated UAS requirements to their mission managers in support of a Group I UAS Program of Record. To date, fleet-identified requirements include ice reconnaissance, post-storm survey, antenna tower inspection, and law enforcement. These requirements are but a small example of the potential uses of these UAS in the fleet, and COMDT (CG-711) strongly encourages the continued generation of these UAS requirements.
4. To reiterate the verbiage of ALCOAST 082/14, UAS are defined as aircraft and as such, require specific operator qualifications, airworthiness certifications, and spectrum authority, at a minimum. While executing official Government business, unauthorized UAS operations could subject the USCG to flight violations, and render the Service liable for any associated damage, injury, or death. This not only applies to UAS commonly known as Unmanned Aerial Vehicles (UAV) and Remotely Piloted Aircraft (RPA), but also those “drones” advertised as toys, models, or hobby aircraft.
5. Operational USCG units are prohibited from procuring and/or operating all UAS until operational requirements are submitted by the appropriate mission managers and approved by COMDT (CG-711). Given the potential benefits of this capability, units are highly encouraged to submit requirements to their respective mission managers through the districts and areas. Reference (A) contains specific guidance on USCG UAS operations, and should be carefully considered before submitting requirements.
6. POC is CDR Daniel Broadhurst, COMDT (CG-711).
7. CAPT D.L. Cottrell, Acting Assistant Commandant for Capability, sends.
8. Internet release is authorized.
BT
NNNN

U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

Stop 7331
2703 Martin Luther King Jr Ave SE
Washington, DC 20593-7331
Staff Symbol: CG-711
Phone: (202)372-2201
Fax: (202)372-2902

3700

MAY 15 2017

MEMORANDUM

From: RDML J. P. Nadeau
COMDT (CG-7)

Mark ws 'Please my mod to the timeline -

Reply to: (202) 475-3176
Attn of: [redacted]

To: COMDT (CG-711)

Subj: GROUP I UNMANNED AIRCRAFT SYSTEMS (UAS) PROTOTYPE PROGRAM INITIATIVE (GUPPI) TEAM CHARTER

Ref: (a) 14 CFR Part 107, Small Unmanned Aircraft Systems
(b) COMDT COGARD Washington DC 141446Z Sep 16/ALCOAST 331/16, CG-7, COMDTNOTE 3710

1. PURPOSE: IAW reference (a), this charter memorandum authorizes a team of properly vetted and trained personnel within the Office of Aviation Forces (CG-711) to develop and test potential Group I Short Range (SR)-UAS capability solutions in accordance with the Federal Aviation Administration (FAA)'s newly released Part 107 Rules for Small UAS.

2. BACKGROUND:

a. Because of the rapid growth of "drone" technology, the Coast Guard currently faces a gap in SR-UAS capabilities that are strongly desired by the fleet and immediately available via commercial off-the shelf (COTS) solution.

b. SR-UAS represent the smaller end of the systems available in the drone industry today. They are light-weight, man portable, visual line of sight (VLOS) systems intended to enhance the safety and situational awareness of a single Coast Guardsman or a single response unit. They are typically battery powered and have an endurance of 15 to 25 minutes, although some very high-end SR-UAS are capable of flights up to 2.5 hours.

c. The SR-UAS category may encompass both Group I and Group II systems, which are Department of Defense (DoD) classifications representing systems that weigh <20 lbs and 21-55 lbs, respectively.

d. Despite modern military and commercial proliferation, the Coast Guard lacks codified requirements and other formal documentation necessary to establish a program of record (POR). Depending upon the size and scope of the SR-UAS acquisition, there may be between 2 to 4 years required to complete either a non-major or major acquisition, respectively. These pre-acquisitional documents are being aggressively developed between sponsor, the Research and Development Center, and contracted support. To further accelerate the process, sponsors are also leveraging DoD equities at the Naval Air Systems Command (NAVAIR) to fast-track and streamline the development of CONOPS and requirements.

e. SR-UAS are typically low cost, widely available, and easy-to-use, making them a lucrative option to support many Coast Guard missions. However, without operational oversight, codified procedures, established training, and legal authorization, the use of SR-UAS by individual units in the Coast Guard presents an unacceptable risk. In 2016, reference (b) was released to curtail the use of these UAS without proper programmatic oversight and authorization.

3. DISCUSSION/DIRECTION:

a. In order to eliminate a prolonged gap in SR-UAS employment and safely provide this highly-desired capability to the Coast Guard, I authorize you to stand up the GUPPI program within CG-711 by:

(1) Continuing to develop the foundation documents needed to establish SR-UAS as an official POR.

(2) Eliciting a legal opinion on the implications of operating public SR-UAS via Part 107 of the Federal Aviation Regulations (FARs).

(3) Procuring a few SR-UAS for this initiative, pursuant to the legal opinion. For the purposes of the GUPPI, these UAS may be COTS systems, but shall be approved by the FAA for flight within the National Airspace System (NAS). In execution of this pilot program, you are specifically directed to procure and employ only Group I UAS.

(4) Qualifying a cadre of SR-UAS pilots IAW reference (a) and support selected Coast Guard units with these systems as workload permits.

b. The primary goal of this charter is to develop tactics, techniques, and procedures (TTP) that will ultimately validate a Capability Analysis Report (CAR) for SR-UAS capabilities. The TTP will also be incorporated into future programmatic documents focused on training, certification, operations, and sustainability of an SR-UAS POR.

c. Operational Missions for SR-UAS may include and are not limited to Aids To Navigation (ATON), antenna inspections, bridge inspections, spill response, ice operations, natural disaster surveys, and public affairs.

d. The GUPPI's team of technical authorities and sponsor's representatives shall monitor the rapid growth and evolution of Group-I UAS technology and provide guidance to your office throughout the acquisition process.

e. Your office will advise me when this capability is appropriately mature for dissemination to the Area Commanders and other operational units.

4. INITIAL MEMBERSHIP:

GUPPI Leadership Cadre	FAA Part 107 Certified Remote Pilots*
CAPT J. Kimball	CDR [redacted]
CDR [redacted]	CDR
CDR [redacted]	CDR
LCDR [redacted]	CDR
Mr. [redacted]	LCDR
	LCDR
	LCDR
	LCDR
	LT [redacted]

*Additional Remote Pilots may be authorized by CG-711

5. RESOURCE ALLOCATION: Funding for analysis, operations, and travel as required for this charter will be provided by CG-711.

6. MAJOR MILESTONE PROJECTED TIMELINE:

a. Jun 2017: Initial systems acquisition complete
b. Jul 2017: Begin operational proof-of-concept and data gathering
c. Sep 2017: ALCOAST solicitation for proof-of-concept at operational units
d. Jun 2018: CG-711 program review of status (CONOPS, TTPs, etc.) and brief to CG-711 DLO on way forward
e. Jun 2019: CG-7 program review for export of training package to Areas

#

Dist: GUPPI Membership

Copy: CG-2, CG-7, CG LANTAREA (LANT-37AF), CG PACAREA (PAC-37AF), CG-RDC

U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

Stop 7324
2703 Martin Luther King Jr. Ave. SE
Washington, DC 20593-7324
Staff Symbol: CG-711
Phone: (202) 372-2201

3700

MAR 19 2018

MEMORANDUM

From: J. B. Kimball, CAPT
COMDT (CG-711)

Reply to [redacted]
Attn of: (202) 372-1470

To: COMDT (CG-7) ROML 3/26/2018

Subj: GROUP I UNMANNED AIRCRAFT SYSTEMS (UAS) PROTOTYPE PROGRAM INITIATIVE (GUPPI) UNIT SELECTION

Ref: (a) ALCOAST 004/18//051700Z JAN 18
(b) COMDT (CG-7) Memo 3700 of 15 May 2017

1. Reference (a) solicited field units for inclusion in the GUPPI program. 34 units have expressed interest, and my office has received 23 formal requests.

2. I have selected the following units based on primary mission, geographical diversity, demonstrated interest in this program, and the recommendations of both Areas and COMDT (CG-43):

Unit	Mission
ANT Duluth	Ice/ATON Shore
ANT Honolulu	Harbor ATON/Post-Storm Survey
CGC HOLLYHOCK	Ice/ATON Underway
CEU Oakland	ATON/Infrastructure Inspections
CEU Providence	Post-Storm Assessment/Shore Infrastructure
National Motor Lifeboat School	Training/PAO
Sector Houston/Galveston	Pollution Response/Disaster Survey
Sector Lower Mississippi River	Inland ATON/Vsl Inspection/Post-Storm Survey

3. In accordance with reference (b), selected units will submit CONOPS for validation to include Aids To Navigation (ATON), antenna inspections, infrastructure inspections, spill response, ice operations, natural disaster surveys, public affairs, and training.

4. As part of a comprehensive risk mitigation plan, these mission sets will be limited to target areas that pose little threat of potential cyber vulnerability.

5. There was a tremendous response from units having a Search and Rescue or Law Enforcement nexus including MSSTs, small boat stations, and major Cutters. Unfortunately, GUPPI is not yet postured to support those missions until both Coast Guard policy and SR-UAS capability options further develop.

6. My staff will draft message traffic to promulgate this announcement to the fleet.

#

STANDARD OPERATING PROCEDURES

SHORT-RANGE UNMANNED AIRCRAFT SYSTEMS
FLIGHT OPERATIONS

Version 1.0
21 May 2018

PREPARED BY:

[redacted]
LCDR, United States Coast Guard
SR-UAS Platform Manager (CG-7114) 586-873-4315

CONCURRENCE BY:

[redacted]
LCDR, United States Coast Guard
Acting Division Chief, Unmanned Aircraft Systems (CG-7114)
U.S. Coast Guard Headquarters

SIGNATURE — DATE: 29 May 2018

F. P. Capistrano
CAPT, United States Coast Guard
Deputy Chief, Office of Aviation Forces (CG-711)
U.S. Coast Guard Headquarters

SIGNATURE — DATE: MAY 30 2018

APPROVED BY:

J. B. Kimball
CAPT, United States Coast Guard
Chief, Office of Aviation Forces (CG-711)
U.S. Coast Guard Headquarters

SIGNATURE — DATE: MAY 30 2018

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APPENDICES

1. PURPOSE. This document describes the operational procedures and operator training requirements necessary to ensure safe, efficient and lawful flight operations of Short-Range Unmanned Aircraft Systems (SR-UAS) by authorized USCG personnel. This document describes SR-UAS manuals and autonomous flight operations, maintenance and safety considerations, and personnel requirements related to the operation of SR-UAS capabilities.

   The CG Office of Aviation Forces COMDT (CG-711) has developed these Standard Operating Procedures (SOP) to guide the safe use of all SR-UAS platforms in the CG inventory. Safety, above all else, is the primary concern in each and every operation, regardless of the nature of the mission.

2. PHILOSOPHY & MISSION STATEMENT. It is the mission of CG personnel who are trained in the use of SR-UAS to use this SOP as a resource when operating any Coast Guard SR-UAS platforms, which are an additional tool for trained personnel to utilize in an effort to safely provide added value and efficiency when conducting statutory missions for the USCG.

NOTE:
This SOP must be present in the operational area of use. A copy will also be maintained at the unit.

3. APPLICABILITY. This SOP is applicable to all military, CG Auxiliary, and civilian personnel who are actively involved and designated in the CG's SR-UAS program. Operational procedures described in this SOP will be used to maintain prudent, safe operating practices and to ensure appropriate response actions are taken in the event of an emergency.

4. RESPONSIBILITIES.

   a. General. The roles and responsibilities of personnel involved in both the operation and safety of SR-UAS flight operations are defined below. Roles and responsibilities are specific to the operation of Coast Guard SR-UAS platforms. Safety is the primary concern for each mission.

   b. Short-Range Unmanned Aircraft Systems Platform Manager. This individual is responsible for the general configuration management and maintenance of the Coast Guard SR-UAS fleet. The SR-UAS Platform Manager is responsible for managing all hardware and software configurations of the Coast Guard SR-UAS fleet in accordance with appropriate Airworthiness Release(s) issued by COMDT (CG-711). The Platform Manager is also responsible for providing training and oversight of SR-UAS Remote Pilots.

   c. Short-Range Unmanned Aircraft Systems Mission Commander. For each mission that utilizes a SR-UAS, a Coast Guard service member, Auxiliarist, or general service employee who is certified by the SR-UAS Platform Manager as a SR-UAS Remote Pilot will be designated as the Mission Commander (MC). The MC is responsible for the planning, briefing, execution and safety during all SR-UAS flight operations associated with their assigned mission. The MC is empowered to make decisions and to take any immediate corrective action necessary to prevent an accident, injury to flight crew personnel and/or third parties, and/or damage to government or non-government property or equipment.

(1) While the MC typically serves as the SR-UAS pilot during the mission, another certified Remote Pilot is authorized to fly the SR-UAS; however, the MC must remain at the controlling site.

(2) The MC's duties include the following:

(a) Complete the Flight Risk Assessment Tool in Appendix A that identifies all known risks and obtain appropriate approval prior to executing any SR-UAS mission.

(b) Ensure the operational area meets any requirements prescribed for the mission location in accordance with Coast Guard and Federal Aviation Administration guidance and policy.

(c) Ensure any additional risks not previously noted on the Flight Risk Assessment Tool are identified prior to starting the SR-UAS mission.

(d) Eliminate unnecessary risks or implement adequate mitigations to risks prior to flight operations.

(e) Ensure appropriate airspace deconfliction measures have been implemented.

(f) Supervise all personnel involved in the SR-UAS mission.

(g) Ensure all personnel supporting the SR-UAS mission are qualified for the role they are assigned.

(h) Conduct a preflight brief with all SR-UAS personnel involved in the mission and any third party individuals who may be associated with the SR-UAS mission, ensuring all involved understand the plan of execution as well as the mishap action plan.

(i) Ensure SR-UAS personnel involved in the mission are aware of emergency procedures.

(j) Ensure logbooks are present and accurate prior to flight operations.

(k) Conduct a preflight inspection of the SR-UAS to ensure all equipment is verified in proper working order and properly setup prior to flight operations.

(l) Establish communication with the airspace owner/controlling agency (as required) and maintain an open line of communication throughout the duration of the SR-UAS mission.

(m) Ensure logbooks are properly and completely filled out following the SR-UAS mission.

(n) Conduct a post-flight brief with SR-UAS personnel following the mission as needed.

d. Short-Range Unmanned Aircraft Systems Remote Pilot. A Coast Guard service member, Auxiliarist, or civilian employee must be certified by COMDT (CG-7114) to become a Remote Pilot. Once certified, the individual will be designated in writing by COMDT (CG-711) as a CG SR-UAS Remote Pilot.

(1) When conducting SR-UAS flight operations, the SR-UAS Remote Pilot is responsible for the safe operation of the SR-UAS under both manual and autonomous flight modes.

NOTE:
When flying in autonomous mode, the SR-UAS Remote Pilot shall remain ready and able to resume manual control of the system at all times.

(2) The SR-UAS Remote Pilot's duties include the following:

(a) Comply with all procedures outlined in this SOP, and all requirements prescribed for the mission location in accordance with Federal Aviation Administration and/or Coast Guard guidance and policy.

(b) Maintain control of the SR-UAS at all times, unless properly relieved by the Mission Commander or by another designated Coast Guard SR-UAS Remote Pilot instructed to take control by the Mission Commander.

(c) Ensure line-of-sight visibility is maintained at all times by either SR-UAS Remote Pilot or the SR-UAS Visual Observer.

(d) Maintain communication with the SR-UAS Visual Observer throughout the duration of the mission and advise the observer of flight maneuvers the SR-UAS Remote Pilot is planning to execute.

(e) Know the preplanned "ditching zone," which is established in the mishap action plan and discussed during the preflight brief.

(f) Monitor all system status indicators on the Ground Control System of the SR-UAS platform, ensuring all systems are functioning properly.

(g) Ensure logbook is properly and completely filled out following the SR-UAS mission.

NOTE:
In the event of an emergency, the SR-UAS Pilot has the final decision on when to attempt to land or ditch the SR-UAS; however, the SR-UAS Pilot may not violate Federal Aviation Administration or Department of Defense regulations in an effort to "save" the SR-UAS.

e. Short-Range Unmanned Aircraft Systems Visual Observer. Prior to the start of all SR-UAS missions, the Mission Commander shall assign an individual to serve as the SR-UAS Visual Observer. While it is not mandatory for the Visual Observer to be a designated SR-UAS Remote Pilot, having one serve as the Visual Observer does mitigate risk, as he/she will better understand SR-UAS flight operations.

(1) Once identified, the Visual Observer must remain at the controlling site until the mission is complete.

(2) The SR-UAS Visual Observer's duties include the following:

(a) Maintain communication with the airspace owner/controlling agency (as required) and keep an open line of communication throughout the duration of the SR-UAS mission.

(b) Monitor airspace and identify advise the SR-UAS Remote Pilot of any errant aircraft or unsafe conditions that arise during flight operations.

(c) Monitor the surrounding area for personnel, equipment and other hazards (ex. birds, trees, wires, etc.) and identify the hazards to the SR-UAS Remote Pilot, ensuring the pilot avoids the areas.

(d) Ensure line-of-site visibility with the SR-UAS is maintained at all times by either the SR-UAS Remote Pilot or SR-UAS Visual Observer.

(e) Notify airspace owner/controlling agency of any mishap or emergency that occurs when conducting SR-UAS flight operations.

(f) Maintain communication with the SR-UAS Remote Pilot throughout the duration of the mission and anticipate flight maneuvers the SR-UAS Remote Pilot is planning to execute.

5. PERSONNEL DESIGNATIONS & QUALIFICATIONS.

a. Short-Range Unmanned Aircraft Systems Remote Pilot Designation.

(1) A SR-UAS Remote Pilot will be approved for flight by the COMDT (CG-711), who will designate the individual as a SR-UAS Remote Pilot in writing. The SR-UAS Platform Manager and Remote Pilot will each maintain a copy of the designation letter on file.

(2) The Designation will remain active for a period of two years. Once expired, the pilot must be reapproved by the SR-UAS Platform Manager and a new written Designation must be signed.

(3) The SR-UAS Platform Manager, unit Commanding Officer, or Officer in Charge can revoke a Remote Pilot's designation at any time. Reinstatement of a Remote Pilot's designation must include coordination between the unit Command and the SR-UAS Platform Manager.

(4) In order for an individual to be approved for flight by the Coast Guard SR-UAS Platform Manager, the individual must successfully complete all required training listed in Section 6.1 INITIAL DESIGNATION TRAINING in this SOP.

(5) Once initial designation is complete and an individual is approved by the SR-UAS Platform Manager, a Remote Pilot must fly a minimum of two (2) hours per month to maintain their SR-UAS Remote Pilot designation status. These hours can be flown on any authorized aircraft in the SR-UAS fleet and can be flown as part of a specific mission, training, or a combination of both.

b. Short-Range Unmanned Aircraft Systems Mission Commander Qualification.

(1) Any SR-UAS Remote Pilot, approved for flight by COMDT (CG-711), can act as a SR-UAS Mission Commander.

(2) Mission Commanders must meet the same qualifications as a SR-UAS Remote Pilot.

(3) Once a SR-UAS Remote Pilot is identified as a Mission Commander for a SR-UAS flight operation, he or she is responsible for the duties described in Section 4, (SHORT-RANGE UNMANNED AIRCRAFT SYSTEMS MISSION COMMANDER) in this SOP.

c. Short-Range Unmanned Aircraft Systems Visual Observer Qualification.

(1) Any Coast Guard service member, Auxiliarist, or general service employee can serve as a SR-UAS Visual Observer during SR-UAS flight operations.

(2) In order to be selected and assigned as a Visual Observer for a specific SR-UAS mission or training flight, the individual must read and understand this SOP. Furthermore, the individual must have general knowledge of the Federal Aviation Administration and Coast Guard policies and regulations with regard to SR-UAS operations.

6. TRAINING. The key to safe operations is maintaining a professional level of competency and proficiency. The first step in this process is establishing an initial designation training program. The second step involves continued training for those who become designated Remote Pilots.

a. Initial Designation Training. In order for a Coast Guard service member, Auxiliarist, or general service employee to become approved for flight by the SR-UAS Platform Manager, the individual must complete the following:

(1) Academic Training.

(a) Complete Basic Unmanned Aircraft Systems Qualification Level 1 (BUQ-1) via Joint Knowledge Online.

(b) Pass the FAA Part 107 knowledge test and obtain a Remote Pilot Certificate.

(c) Review and understand Coast Guard SR-UAS emergency procedures listed in Appendix C.

(2) Flight Operations Training.

(a) Complete a training syllabus approved by COMDT (CG-711) for authorized SR-UAS platforms to include:

1) Flight/hover maneuvers.

2) Maintaining ground track during takeoff and landing.

3) Obstacle Avoidance.

(b) Successfully complete no less than three (3) hours of training flight time, which must be supervised by a qualified SR-UAS Instructor Pilot.

b. Recurrent Training. Upon successful completion of initial designation training, SR-UAS Remote Pilots will be responsible to conduct annual SR-UAS proficiency training to maintain their designation. The following is a list of required annual training pilots must complete:

(1) Review this SOP.

(2) Review SR-UAS emergency procedures.

(3) Fly a minimum of two (2) hours each month in either a training status or mission status.

(4) Maintain the certification requirements of FAA Part 107.

7. GENERAL OPERATING PROCEDURES.

a. Authority for SR-UAS Operations. Use of Coast Guard SR-UAS capabilities in support of authorized missions will be approved by the unit Commanding Officer or Officer in Charge, who has the final authority to approve or deny SR-UAS support for a mission.

b. Airspace Deconfliction. Prior to conducting SR-UAS operations, the Mission Commander shall notify the nearest Coast Guard District (Drm) and Air Station of the planned location, altitude, and timeframe of the mission. The use of an aviation-band handheld radio should be used to monitor air traffic, deconflict airspace, and make periodic advisory notifications in accordance with appendix G when operating within 5nm of an airport.

c. Ground Operations. Prior to launching any SR-UAS flight, the following procedures must be adhered to:

(1) The Mission Commander must ensure all personnel comply with Coast Guard and Federal Aviation Administration requirements.

(2) A single, designated control station will be established and controlled by the Mission Commander.

NOTE:
If operating under dual-controller protocol, the Mission Commander will ensure that the Remote Pilot and payload operator duties are clearly assigned.

(3) The SR-UAS flight controller software/firmware will only be updated with approval by COMDT (CG-711).

(4) Recharging of flight pack and auxiliary lithium-polymer batteries will be performed with lithium-polymer compatible chargers in accordance with the operating manual or instructions.

d. Risk Management and Briefings. All SR-UAS flights, to include training flights will be operated within line of sight of either the Remote Pilot and/or the Visual Observer. Furthermore, prior to launching SR-UAS approved platforms, the Mission Commander will conduct a preflight brief with personnel supporting the flight.

e. Weather. SR-UAS shall not be operated in weather conditions that are below the limitations listed in FAA Part 107 including:

(1) [redacted]

NOTE:
The assigned Visual Observer is responsible for monitoring weather conditions throughout the duration of flight operations and advising the Mission Commander if adverse conditions are approaching.

(5) The Mission Commander will ensure that any airspace adjustments due to changes in weather are accounted for throughout the mission period. (Surface Class E, etc.)

f. Pre-flight Checklist. Prior to any flight, to include mission flights and training flights, the Mission Commander will conduct a preflight checklist (See Appendix B). Completed checklists will be kept on file at the unit for no less than 90 days.

g. Post-flight Checklist. Following any flight, to include mission flights and training flights, the Mission Commander will conduct a post-flight checklist (See Appendix B). Completed checklists will be kept on file at the unit for no less than 90 days.

h. Logbook. Following every flight, the SR-UAS Remote Pilot will complete a logbook entry, and each unit will provide a monthly report to the SR-UAS Platform Manager including flight time, currency status, and any deficiencies or lapses in designation. At minimum, the pilot will notate:

(1) Name of the Remote Pilot.

(2) Which SR-UAS was used for the flight.

(3) Total flight time of the SR-UAS in hours.
.

(4) Which SR-UAS battery(ies) was (were) used.

(5) Number of minutes the battery(ies) was (were) used.

8. INSPECTIONS / MAINTENANCE. Prior to the execution of any SR-UAS mission and following the conclusion of any SR-UAS mission, the Mission Commander and/or SR-UAS Remote Pilot will perform an inspection of both the SR-UAS and its batteries in accordance with the SR-UAS Preflight Checklist (See Appendix B,) including structural integrity, propeller mounts, and loose components.

NOTE:
If the Mission Commander and/or SR-UAS Remote Pilot deems the platform unsafe to fly, he or she will immediately suspend flight operations until sufficient maintenance is completed.

9. HAZARDOUS MATERIALS. Except for Lithium-ion Batteries, no hazardous materials will be used as part of SR-UAS flight operations. However, this SOP allows the Coast Guard SR-UAS fleet to operate in proximity of hazardous materials such as, but not limited to: ammunition and explosives on active, live-fire ranges, fuel storage facilities, or active spill locations. Safety concerns related to these hazardous material items will be documented and proper safety procedures and mitigations will be implemented prior to receiving flight approval.

10. PERSONAL PROTECTIVE EQUIPMENT (PPE). When operating any Coast Guard SR-UAS platforms, whether for an operational mission or training, the SR-UAS Remote Pilot and Visual Observer are required to wear the uniform of the day or appropriate organizational clothing. Any member that is launching or recovering the SR-UAS by hand, should consider using the following equipment:

    a. Long sleeves.

    b. Eye protection in dusty environments.

    c. Head and eye protection if hand-launching from an unstable platform or moving vessel.

11. MEDICAL REQUIREMENTS. All Flight Personnel must be in a condition fit to perform their duties safely. No person may act as a member of the SR-UAS operation if they are under the influence of any drug, alcohol, or medication likely to impair their performance of duties. The following are required to act as Mission Commander or Remote Pilot:

    a. Valid PHA (Active Duty or Reserve members).

    b. Valid state-issued vehicle operator's license (Auxiliarist and CG civilian personnel).

    c. Vision correctable to 20/20 (recommended).

12. COLLECTION AND STORAGE OF IMAGERY. All imagery and data collected by SR-UAS will be handled in accordance with appendix G.

Note:
SR-UAS, including removable media devices, shall not be connected to the CG-One network at any time in accordance with Coast Guard policy.

13. PRIVACY. The Coast Guard is committed to respecting the privacy rights of third parties impacted by and all SR-UAS flight operations. No flight will be authorized if the operation would be in violation of any local, state, or federal law or regulation regarding privacy. All efforts should be made to prevent the collection of personally identifiable information (PII) during the conduct of any SR-UAS mission.

HOW TO FILE A COMPLAINT WITH THE DEPARTMENT OF HOMELAND SECURITY

APRIL 2015

Office for Civil Rights and Civil Liberties
U.S. Department of Homeland Security
Washington, DC 20528

Homeland Security

The U.S. Department of Homeland Security ("DHS" or "Department") has many avenues for the public to make complaints involving DHS employees or programs, alleged violations of civil rights and civil liberties, immigration filings, travel redress, and other types of grievances. This guide brings together information about these avenues.

If you have questions regarding the types of information that should be included in a complaint or if you are uncertain whether a DHS office or Component listed in this guide has jurisdiction over your concerns, contact that Office or Component or visit their website for more information.

(Note: this guide does not cover employment discrimination complaints. For information on making a DHS equal employment opportunity complaint, visit: www.dhs.gov/filing-equal-employment-opportunity-eeo-complaint.)

If you are deaf, hard-of-hearing, or have a speech disability, communication assistance is available through the Federal Relay Service (FedRelay) in the following forms:

Telephonically-based:

- TTY (text telephone)/ASCII/Voice
- STS (speech to speech)
- Captioned Telephone (CapTel)

Internet-based:

- Video Relay Service (VRS)
- IP Relay
- Relay Conference Captioning (RCC)

For more information about FedRelay, visit www.federalrelay.us/.

This guide will help you direct the following types of complaints to the appropriate DHS Office:

- Discrimination and other violations of civil rights and civil liberties
- Criminal and non-criminal misconduct or serious and/or repeated violations of DHS rules, policies, or regulations by DHS employees or DHS contractors
- Travel-related complaints
- Discrimination in Federal Emergency Management Agency (FEMA) funding, services, or benefits
- Concerns with longstanding or complex U.S. Citizenship and Immigration Services (USCIS) immigration filings or applications
- Concerns regarding E-Verify and the SAVE Program
- Concerns regarding U.S. Immigration and Customs Enforcement (ICE) Enforcement and Removal Operations (ERO)
- General complaints involving any of the following:
  - U.S. Customs and Border Protection (CBP)
  - U.S. Immigration and Customs Enforcement (ICE)
  - Transportation Security Administration (TSA)
  - U.S. Citizenship and Immigration Services (USCIS)
  - Citizenship and Immigration Services Ombudsman (CIS Ombudsman)
  - U.S. Coast Guard (USCG)
  - U.S. Secret Service (USSS)
  - Federal Emergency Management Agency (FEMA)
  - Federal Protective Service (FPS)
- Privacy complaints or allegations of privacy violations

1. Discrimination and Other Violations of Civil Rights and Civil Liberties

The DHS Office for Civil Rights and Civil Liberties (CRCL) reviews and assesses information concerning abuses of civil rights, civil liberties, and profiling on the basis of race, ethnicity, or religion, by employees, contractors and officials of the Department of Homeland Security and by recipients of DHS assistance.

You may contact CRCL to file complaints alleging issues such as:

- Discrimination based on race, ethnicity, national origin, religion, sexual orientation, gender identity, or disability
- Denial of meaningful access to DHS or DHS-supported programs, activities, or services due to limited English proficiency
- Violation of rights while in immigration detention or as a subject of immigration enforcement
- Discrimination or inappropriate questioning related to entry into the United States
- Violation of right to due process, such as right to timely notice of charges or access to lawyer
- Violation of the Violence Against Women Act/T Visa/U Visa confidentiality requirements or other immigration status-related confidentiality requirements
- Physical abuse or any other type of abuse
- Any other civil rights, civil liberties, or human rights violation related to a Department program or activity, including allegations of discrimination by an organization or program that receives financial assistance from DHS

CRCL works with the entire Department to address civil rights and civil liberties concerns. More information and an optional complaint form are available at www.dhs.gov/crcl. Complaints sent to CRCL are accepted in languages other than English. The complaint form is available online in multiple languages.

As an alternative to reporting a complaint to CRCL, you may file a civil rights complaint with the DHS Office of Inspector General (See 2, below).

To file a civil rights complaint with CRCL, contact:

You may send a complaint to CRCL in writing. *Email:* CRCLCompliance@hq.dhs.gov *Fax:* 202-401-4708 You may complete CRCL's optional online fillable complaint form and email the form to CRCLCompliance@hq.dhs.gov or fax or mail the form. If you have any questions, please call CRCL: *Phone:* 202-401-1474 or 866-644-8360 *TTY:* 202-401-0470 or 866-644-8361	*Mail:* Department of Homeland Security Office for Civil Rights and Civil Liberties Compliance Branch 245 Murray Lane, SW Building 410, Mail Stop #0190 Washington, DC 20528 PLEASE NOTE: Mail takes up to 20 business days to arrive. Email is faster. Complaints are accepted in languages other than English.

2. Criminal and Non-criminal Misconduct, including Serious and/or Repeated Violations of DHS Rules, Policies, or Regulations

The DHS Office of Inspector General (OIG) is the primary investigative agency of criminal and non-criminal misconduct by DHS employees and contractors, as well as theft or misuse of DHS funds, property, or programs. For misconduct by DHS employees, the DHS OIG investigates: (1) allegations of criminal misconduct by any DHS employee; (2) allegations of misconduct against employees at the GS-15, GM-15 level or higher, or against employees in any DHS offices for internal affairs, inspections, audits or Professional Responsibility, or the DHS Office of Security; (3) allegations of serious, non-criminal misconduct against DHS law enforcement officers; and (4) allegations of visa fraud by DHS employees working in the visa issuance process. The DHS OIG also reviews DHS programs and expenditures to identify mismanagement, fraud, waste, or abuse of DHS programs, funds, contracts, or grants, including fraud by contractors and grantees.

The DHS OIG has the authority to investigate claims of civil rights abuses and whistleblower and retaliation matters within the Department. For complaints alleging criminal or non-criminal misconduct, including serious/repeated violations of DHS rules, policies, or regulations by employees of all DHS Components, visit the OIG website at www.oig.dhs.gov/ and send your complaint electronically using the online DHS OIG Allegation Form. The OIG may be contacted at:

Phone: 800-323-8603 *Fax:* 202-254-4297	*Mail:* Attn: Office of Investigations - Hotline Department of Homeland Security Office of Inspector General/Mail Stop 2600 245 Murray Lane, SW, Building 410 Washington, DC 20528

Alternative Filing Options:

As an alternative to filing a complaint to the OIG, complaints involving U.S. Immigration and Customs Enforcement (ICE) or U.S. Customs and Border Protection (CBP) employees can be sent to the Joint Intake Center (JIC). Allegations of misconduct received by the JIC are screened by the OIG and, when warranted, are returned to the JIC for appropriate action by the ICE Office of Professional Responsibility or the CBP Office of Internal Affairs.

Email: Joint.Intake@dhs.gov *Phone:* 877-2INTAKE (877-246-8253) *Fax:* 202-344-3390	*Mail:* Department of Homeland Security Joint Intake Center P.O. Box 14475 1200 Pennsylvania Avenue, NW Washington, DC 20044

Further, as an alternative to filing a complaint with the OIG, allegations of misconduct involving U.S. Citizenship and Immigration Services (USCIS) employees or contractors, may be filed with the USCIS Office of Security and Integrity (OSI) by fax or mail at:

Fax: 202-233-2453	*Mail:* Chief, Investigations Division Office of Security and Integrity, MS 2275 U.S. Citizenship and Immigration Services 633 Third Street, NW, 3rd Floor Washington, DC 20529-2275

To report criminal activity that you believe may be within the jurisdiction of the U.S. Coast Guard, visit www.uscg.mil/hq/cg2/cgis/, click on "regional contact info" and call the appropriate regional authority, or call the Coast Guard Investigative Service at 202-493-6600.

As an alternative to reporting complaints to the OIG, allegations of serious misconduct involving National Protection and Programs Directorate (NPPD) employees or Federal Protective Service Protective (FPS) Security Officers can be sent to the NPPD Office of Compliance and Security.

Email: NPPD.compliance@hq.dhs.gov *Phone:* 703-235-4963 *Fax:* 703-235-3059	*Mail:* Office of Compliance and Security National Protection and Programs Directorate U.S. Department of Homeland Security 5th Floor, Mail Stop 0662 245 Murray Lane, SW Arlington, VA 20598-0662

3. Travel-related Complaints

For complaints related to difficulties experienced during travel screening, such as watch list issues; denied or delayed entry into or departure from the U.S. at a port of entry or border crossing; or situations where you believe you have been unfairly or incorrectly delayed, denied boarding, or identified for additional screening, use the DHS Traveler Redress Inquiry Program (DHS TRIP), www.dhs.gov/dhs-trip. Once your application has been submitted, you will receive a Redress Control Number from DHS TRIP, which you may use to check the status of your application.

Email: trip@dhs.gov	*Mail:* DHS Traveler Redress Inquiry Program (TRIP) 601 S. 12th Street, TSA-901 Arlington, VA 20598-6901

For complaints about your experience while clearing customs and immigration, including concerns about the inspection process, facilities, and penalties assessed, contact the CBP INFO Center. An online complaint form is available at help.cbp.gov. Or contact:

Phone: 877-227-5511 or 202-325-8000 *TTY:* 866-880-6582	*Mail:* CBP INFO Center U.S. Customs and Border Protection 1300 Pennsylvania Avenue, NW Washington, DC 20229

For complaints alleging that you were treated unfairly or discriminated against by the Transportation Security Administration (TSA) because of your disability, race, national origin, religion, sex, or sexual orientation, or any other civil rights or civil liberties violation, contact the TSA Disability and Multicultural Division in the Office of Civil Rights & Liberties, Ombudsman and Traveler Engagement. More information and an optional online complaint form are available at www.tsa.gov/traveler-information/civil-rights-travelers.

Email: TSA-CRL@tsa.dhs.gov *Phone:* 866-289-9673	*Mail:* Transportation Security Administration Disability and Multicultural Division Office of Civil Rights & Liberties, Ombudsman and Traveler Engagement (TSA-6) 601 S. 12th Street Arlington, VA 20598-6006

4. Discrimination in FEMA Funding, Services, or Benefits

For complaints alleging discrimination in the application or distribution methods of Federal Emergency Management Agency (FEMA) funds, services, or benefits, whether by FEMA or by FEMA grantees, contact the FEMA Office of Equal Rights at:

Phone: 800-621-3362 or 202-646-3535 *Fax:* 202-646-4320 Attn: Civil Rights Title VI Program	*Mail:* FEMA - Office of Equal Rights Attn: Civil Rights Title VI Program 395 E Street, SW, 2nd Floor Washington, DC 20472-3505

5. Concerns with Longstanding or Complex USCIS Immigration Filings or Applications

For help resolving problems with U.S. Citizenship and Immigration Services (USCIS) immigration filings or applications, first try resolving the issue by using the USCIS customer service options available to you: (1) Call the USCIS National Customer Service Center at 1-800-375-5283, 1-800-767-1833 (TTY); (2) Check "Case Status at www.uscis.gov; or (3) Make an InfoPass appointment with USCIS at infopass.uscis.gov.

Individuals or employers who have exhausted all USCIS customer service options but still need help resolving a problem with an application or petition can request the assistance of DHS Headquarters by contacting the Office of the Citizenship and Immigration Services Ombudsman (CIS Ombudsman) and completing the online case assistance form, or, if outside of the United States, Form DHS-7001, Case Assistance Worksheet, found at www.dhs.gov/cisombudsman. *Please note: If the requested service involves the forms I-589, I-590, I-360 (Violence Against Women Act), I-914, I-918, or an I-751 battered spouse waiver, the applicant must sign the last page of Form DHS 7001 and attach it to the online case assistance form as a PDF file.*

The CIS Ombudsman is an independent, confidential, and impartial resource located in DHS Headquarters, and there is no fee for assistance provided by the Office. The completed worksheet and any supporting documentation can be submitted online (preferred method) or by email, fax, or postal mail:

Online case-problem assistance requests are preferred:	*Mail:* Citizenship and Immigration Services Ombudsman Department of Homeland Security Attn: Case Assistance 245 Murray Lane, SW Building 410, Mail Stop #0180 Washington, DC 20528-0180
Website: www.dhs.gov/cisombudsman *Email:* cisombudsman@hq.dhs.gov *Phone:* 202-357-8100 or *Toll-Free:* 855-882-8100 Monday through Friday (11a.m. – 3p.m. EST) *Fax:* 202-357-0042	

Concerns regarding E-Verify and the SAVE Program

E-Verify is an Internet-based system that allows businesses to determine the eligibility of their employees to work in the United States. For more information, visit www.uscis.gov/e-verify. For help resolving problems with E-Verify policies and procedures, Form I-9 and employment eligibility, contact the USCIS Verification Programs Contact Center at:

For Employers:	*Phone:* 888-464-4218 *TTY:* 877-875-6028 *Email:* E-Verify@uscis.dhs.gov
For E-Verify Employer Agents:	*Phone:* 888-464-4218 *TTY:* 877-875-6028 *Email:* E-VerifyEmployerAgent@uscis.dhs.gov
For Employees:	*Phone:* 888-897-7781 *TTY:* 877-875-6028 *Email:* E-Verify@uscis.dhs.gov

For immigration-related employment discrimination, including discrimination based on citizenship status, immigration status or national origin in Form I-9 and E-Verify processes, the U.S. Department of Justice Civil Rights Division Office of Special Counsel is available at:

Employer Hotline:	*Phone:* 800-255-8155 *TTY:* 800-362-2735 (TTY)
Employee Hotline:	*Phone:* 800-255-7688 *TTY:* 800-237-2515 (TTY)
Email:	osccrt@usdoj.gov
Website:	www.justice.gov/crt/about/osc

The SAVE Program is an inter-governmental initiative designed to aid benefit-granting agencies in determining an applicant's immigration status, thereby ensuring that only entitled applicants receive federal, state, or local public benefits and licenses. For more information, visit www.uscis.gov/save. For questions on SAVE access methods, verification processes, and forms, contact the USCIS Verification Programs Contact Center by phone at 877-469-2563 or by email at SAVE.HELP@dhs.gov.

6. Concerns about U.S. Immigration and Customs Enforcement (ICE) Enforcement and Removal Operations (ERO)

For complaints and concerns about ICE policies, programs, and operations, including ICE civil enforcement priorities, immigration detention, or ICE actions involving U.S. citizens, contact **your local ERO Community Field Liaison or the ERO Detention Reporting and Information Line** to directly address your concern.

- **Contact a Community Field Liaison**

In the field, there are 24 Community field liaisons, which correspond to ICE ERO's 24 Field Offices located throughout the United States. All concerns or questions regarding ICE practices, policies and/or programs should first be directed to the local field liaison. These dedicated liaisons are in the best position to directly resolve issues and concerns regarding ERO practices, policies, and procedures on a local level. To find the local Community field liaison in your area, use the map at this link to contact one of ICE's 24 field liaisons: www.ice.gov/contact/ero/#fieldOffice .

- **Contact the Detention Reporting and Information Line (DRIL)**

The Detention Reporting and Information Line (DRIL) is established to help those who have not been able to resolve a problem through traditional channels. Prior to contacting DRIL, you must first try to resolve your request or concern at the field level through the appropriate field office liaison. With any request, include a detailed description of all your attempts to resolve the concern and any supporting documentation. For more information about DRIL, visit www.ice.gov/contact/detention-information-line.

You may also submit your requests, inquiries, or complaints to ERO headquarters using an optional ERO Contact Form at www.ice.gov/webform/ero-contact-form.

Please note that, as is the case with all other DHS Components, ICE cannot share any details with you about another person without a signed Form G-28, privacy waiver, or, in certain circumstances, appropriate verification of an agency relationship with the individual. For information on ICE administration of privacy protections, visit: www.ice.gov/about/offices/management-administration/privacy/.

If you have any questions, please call the ICE Detention Reporting and Information Line to speak to a live operator: *Phone:* 1-888-351-4024 Monday – Friday (8 a.m. – 8 p.m. EST) You may send a complaint to the Detention Reporting and Information Line in writing: *Email:* ERO.INFO@ice.dhs.gov	*Mail:* Department of Homeland Security Detention Reporting and Information Line Custody Management Enforcement and Removal Operations U.S. Immigration and Customs Enforcement 500 12th Street, SW Washington, DC 20536

7. General Complaints

For general complaints about your overall experience with DHS—for example, those dealing with inappropriate conduct, or what you believe to have been incorrect outcomes—you can, in many circumstances, file a complaint verbally, in writing, on the phone, or on-line with the appropriate DHS Component:

U.S. Customs and Border Protection (CBP)

For complaints about the CBP customs clearance and immigration inspection process at ports of entry and customs processing of international trade:

- *In-person*: Supervisors are available to address travelers' and importers' concerns at every air, land, and sea Port of Entry. If you have a concern about your customs clearance or immigration inspection while it is happening, ask to speak to a supervisor.

- *Online*: Complaints may be filed online at: www.CBP.gov. On the home page, click on the *Questions/Complaints* tab and follow the instructions provided. Further information about the online complaints system is available at www.cbp.gov, under "Questions/Complaints," or at: help.cbp.gov/app/forms/complaint/session/L3NpZC8xbTFSdmd4bA%3D%3D.

- *By phone*: Complaints may be reported by calling the CBP INFO Center. For domestic calls, the toll-free number is 877-227-5511. For international and/or local calls, the number is 202-325-8000. The TTY number is 866-880-6582. In addition, you may contact the Port of Entry or Border Patrol Sector directly and ask to speak with a supervisor. CBP will make a record of all calls in a complaint tracking database. If your complaint cannot be resolved over the phone, CBP will refer it for additional review and resolution.

- *By mail*: Written complaints also may be sent by mail. Comments/complaints should be sent to the CBP INFO Center at:
    - CBP INFO Center
      U.S. Customs and Border Protection
      1300 Pennsylvania Avenue, NW
      Washington, DC 20229

U.S. Immigration and Customs Enforcement (ICE)

- *By phone or mail*: ICE Enforcement and Removal Operations (ERO) field offices are located around the country and each office has a distinct area of responsibility. The webpage www.ice.gov/contact/ero/ provides the address and phone number for each ERO field office.

- *By phone or mail*: ICE Homeland Security Investigations (HSI) field offices are located around the country. The webpage www.ice.gov/contact/inv/ provides the address, phone number, and fax number for the principal HSI field offices.

Transportation Security Administration (TSA)

- *In person*: Some airports are staffed with a local TSA Customer Service Manager who is available to address travelers' concerns. To contact this representative if you have concerns about your TSA inspection, travelers may ask any TSA officer at the airport. In addition, a traveler who needs assistance or is concerned about his or her screening can ask a TSA checkpoint officer or supervisor for a TSA Passenger Support Specialist (PSS). The PSS program ensures that TSA personnel are available to provide additional support and information to travelers at TSA checkpoints.

- *By phone, email or online*: Travelers may contact the TSA Contact Center for answers related to questions about TSA programs and policies. Complaints, compliments, requests for information and suggestions are recorded and directed as appropriate within TSA headquarters. The TSA Contact Center can be reached by telephone or email. More information can be found at www.tsa.gov/contact-us.

- Travelers may also contact TSA by postal mail.

Phone: 866-289-9673 *Email:* TSA-ContactCenter@tsa.dhs.gov	*Mail:* Transportation Security Administration 601 South 12th Street, TSA-1 Arlington, VA 20598

- *Claims for lost, missing or damaged items*: If travelers' property is damaged or misplaced during the TSA screening process, travelers may file a claim with TSA Claims Management Branch. The TSA Claims Management Branch will attempt to resolve your claim as quickly as possible (often within 60 days); however, they may require up to six months to fully investigate your claim before they can make a recommendation to approve, deny, or offer a settlement. Critical life-supporting medications and property will be expedited through the claims process. More information on Claims Management can be found at www.tsa.gov/traveler-information/claims-management-branch and the Claims Management Branch may be contacted by email at tsaclaimsoffice@tsa.dhs.gov.

U.S. Citizenship and Immigration Services (USCIS)

- *By phone:* To receive nationwide assistance for immigration services and benefits offered by USCIS, call the National Customer Service Center (NCSC) at 1-800-375-5283 if you are within the U.S., including Puerto Rico, Guam, and the U.S. Virgin Islands. The TTY number is 1-800-767-1833.
- *By mail:*
    - U.S. Citizenship and Immigration Services (USCIS)
      Customer Service and Public Engagement Directorate
      111 Massachusetts Avenue, NW, Suite 6000 MS 2260
      Washington, DC 20529
- If you are outside the United States, contact your local U.S. Embassy or U.S. Consulate.
- For more information, visit www.uscis.gov and click on "Contact Us."

Citizenship and Immigration Services (CIS) Ombudsman

If you have a complaint or other feedback about an interaction or experience with the CIS Ombudsman's Office, contact that Office at cisombudsman@hq.dhs.gov.

U.S. Coast Guard (USCG)

- *By email:* If you have a question or concern about the Coast Guard, you may leave a comment and your email address at www.uscg.mil/ or visit that site and follow the prompts for information on specific subjects. You also may direct your question or concern to the appropriate command or program office by clicking on "additional contact information" and following the prompts, or by obtaining a contact phone number at www.uscg.mil/global/mail/info_pg.asp.

- *In person or by phone:* If you do not have Internet access, your local Coast Guard office may be the best way to address your complaint. The phone numbers and addresses for local Coast Guard Offices are in the phone book.

- If your complaint cannot be resolved through your local Coast Guard office, you can contact the Coast Guard Office of Government and Public Affairs by postal mail at:
    - Commandant CG-092
      U.S. Coast Guard Headquarters
      2100 2nd Street, SW, Stop 7362
      Washington, DC 20593-7362
      Fax: 202-372-4980

U.S. Secret Service (USSS)

If you have a question or concern regarding the U.S. Secret Service, you may contact the Secret Service: at:

Phone:	202-406-6300	*Mail:*	U.S. Secret Service Communications Center Attn: Special Agent in Charge (SAIC) Inspection Division 245 Murray Lane, SW, Building T-5 Washington, DC 20223
Fax:	202-406-6560 or 202-406-6560		

8. Privacy Complaints and Allegations of Privacy Violations

The DHS Privacy Office and DHS Components are responsible for responding to privacy complaints submitted by DHS employees, the public, other government agencies, and the private sector. Privacy complaints are defined as allegations of harm or a violation of privacy compliance requirements or of the Privacy Act of 1974, 5 U.S.C. § 552a. Each Component manages and customizes its privacy complaint handling process to meet its needs and fulfill Department complaint handling and reporting requirements. Please direct your complaint to the Component that you believe is responsible for the issue raised. Alternatively, privacy complaints can be directed to the DHS OIG or DHS Privacy Office for consideration and/or appropriate referral if there is a potential conflict of interest or you are unsure of the appropriate Component with which to file a complaint.

CBP:
Email: Privacy.CBP@cbp.DHS.gov

DHS Privacy Office:
Email: DHSPrivacy@hq.dhs.gov
Mail: Privacy Office, Attn: Chief Privacy Officer
U.S. Department of Homeland Security
245 Murray Lane, SW, Mail Stop 0655
Washington, DC 20528-0655

FEMA:
Email: FEMA-Privacy@fema.dhs.gov
Phone: 202-646-3323

ICE:
Email: ICEPrivacy@ice.dhs.gov
Phone: 202-732-3300
Mail: Privacy Office
U.S. Immigration and Customs Enforcement
500 12th Street, SW, Mail Stop 5004
Washington, DC 20536-5004

NPPD:
Email: NPPDPrivacy@hq.dhs.gov
Mail: Office of Privacy
National Protection and Programs Directorate
U.S. Department of Homeland Security
245 Murray Lane, SW, Mail Stop 0380
Washington, DC 20528-0380

OIG:
Email: DHSOIGHOTLINE@hq.dhs.gov

POLICY:
Email: PolicyFOIA@hq.dhs.gov
Mail: Office of Policy - Front Office
U.S. Department of Homeland Security
Attn: FOIA and Privacy Officer
245 Murray Lane, SW, Mail Stop 0445
Washington, DC 20528-0445

TSA:
Email: TSAprivacy@tsa.dhs.gov
Mail: Privacy Officer
Transportation Security Administration, TSA-36
601 S. 12th Street
Arlington, VA 20598-6036

USCG:
Email: HQS-SMB-Privacy@uscg.mil
Mail: Commandant (CG-61)
Attn: Privacy Program
U.S. Coast Guard
2100 2nd Street, SW, Stop 7101
Washington, DC 20593-7101

USCIS:
Email: USCISPrivacy@uscis.dhs.gov
Phone: 202-272-8030
Mail: U.S. Citizenship and Immigration Services
Office of Privacy, Mail Stop 8000
20 Massachusetts Avenue, NW, 5th Floor
Washington, DC 20529

USCIS Verification Division:
Email: VerificationPrivacyComplaints@uscis.dhs.gov
Phone: 888-464-4218
Mail: Verification Privacy Office
U.S. Citizenship and Immigration Services
Department of Homeland Security
131 M Street, NE, Suite 200, Mail Stop 2600
Washington, DC 20529-2600

USSS:

Email: privacy@usss.dhs.gov
Mail: FOIA/PA Program
Disclosure/Privacy Officer
U.S. Secret Service
245 Murray Lane, SW
Building # T-5
Washington, DC 20223

US-VISIT:

Email: usvisitprivacy@hq.dhs.gov
Mail: Privacy Office
U.S. Department of Homeland Security
245 Murray Lane, SW, Mail Stop 0675
Washington, DC 20528-0675

Privacy Impact Assessment
for the

USCG Research and Development Center (RDC) Small Unmanned Aircraft Systems (sUAS) Program

DHS/USCG/PIA-026

February 22, 2018

Contact Point
[redacted]
United States Coast Guard
Research and Development Center (RDC)
(860) 271-2647

Reviewing Official
Philip S. Kaplan
Chief Privacy Officer
Department of Homeland Security
(202) 343-1717

Abstract

The Department of Homeland Security (DHS) United States Coast Guard (USCG) Research and Development Center (RDC) has been tasked and funded to evaluate small Unmanned Aircraft Systems (sUAS) for potential use by USCG for operational missions. sUAS include small aircrafts (typically less than 55 pounds in weight) that are generally operated using a wireless ground control station (GCS). The aircraft are equipped with sensors and cameras that can capture images and transmit them to standalone GCSs to provide aerial views of USCG missions for situational awareness to the operators and users. USCG is conducting this Privacy Impact Assessment (PIA) to address the privacy impacts of sUAS surveillance and image capturing capabilities.

Introduction

sUAS technology has the potential to be a valuable tool for rapid response and situational awareness prior to and during USCG operations. The sUAS are equipped with electro-optical (EO) and infrared (IR) cameras that feed images to standalone, non-networked flight computers (GCSs). Part of the research being conducted by the RDC is evaluating various commercially available EO/IR camera payloads for capability, capacity, limitation, and overall mission impact. All imagery collected during sUAS evaluations is transmitted directly to the operator for the purpose of safely operating the aircraft and evaluation of the system's target detection capabilities. The scope of this research includes the ongoing deployment and evaluation of sUAS from USCG vessels and shore sites at locations around the country over the next several years. This technology is meant to eventually be a tool to supplement manned assets performing USCG missions by providing critical situational awareness.

The overall objective of the RDC's research efforts is not to collect personally identifiable information (PII), but to understand how sUAS technology could facilitate USCG operations. This technology could enable more effective responses in all 11 USCG mission sets: ports, waterways, and coastal security; drug interdiction; aids to navigation; search and rescue; living marine resources; marine safety; defense readiness; migrant interdiction; marine environmental protection; ice operations; and other law enforcement activities.

Testing sUAS for USCG mission sets typically requires flights over the open water area surrounding USCG cutters. No PII is collected during these test flights by the sUAS (see below for the information USCG collects and uses). However, USCG requires USCG test participants to assist in simulating targets of interest, whether they be disabled boaters, drug smugglers, alien smugglers, or vessels fishing illegally. Tests include search patterns, EO/IR payload evaluations, and sUAS endurance and capabilities as technology advances. All individuals acting as test

participants in sUAS testing will be active and consenting members of the USCG RDC program, briefed on the capabilities of each sUAS system, assigned a portion of the test plan to execute to generate only the information required to assess sUAS for USCG research purposes.

EO and IR cameras provide the means for collecting images/information and are capable of capturing video at any altitude. However, the level of altitude impacts whether objects and images are recognizable. The higher the altitude, the less visibility and detail of a particular object/image. At no point will the test participant's personal identification information (*e.g.*, name) be available to link to the image. In addition, the quality of the imagery should only be sufficient enough to distinguish between human, animal, and target type, and the relative size differences between individuals. Any inadvertent images captured during this test will not clearly differentiate between individuals, and no facial recognition technology is used.

Nonetheless, RDC programs and projects will take all reasonable steps necessary to maintain the security of any potential PII, and will protect the data from inappropriate, unauthorized, or unlawful access, use, disclosure, or destruction. All of the data (images/video) that is initially captured in the GCS is for research exercises and can only be accessed by a few select individuals. The data is typically deleted from the GCS at the end of each day of the testing event. There are instances when images/video useful in supporting the ongoing analysis would be transferred to the USCG workstation project folder, which has access limited to the project team only. None of the images/video will constitute PII because the sUAS cameras and test procedures do not allow for such visual clarity and the data will not be maintained in a manner that allows it to be linked to any PII. Should any of the images/video be selected for use in a briefing/presentation/report, the RDC has a rigidly controlled review process that includes the Program Manager (PM), Branch Chief, Scientific and Technical Information (STINFO) Officer, Public Affairs Officer (PAO), Security Officer Technical Director, and Executive Director on a review panel to ensure that the appropriate level audience, markings, and security have been addressed.

The test plans, controls, and Federal Aviation Administration (FAA) regulations[1] that govern each test event will prohibit reckless operation of a sUAS. The images captured by sUAS are transmitted and stored on the GCS, which includes a standalone laptop. The GCS have access controls in place that ensure only those with an authorized need to know can access images. RDC stores relevant images such as snapshots of test scenarios to show validity of various payload evaluations under password protection and typically deletes all images at the end of each day of the test event, unless it is useful in supporting ongoing analysis.

[1] *See* Federal Aviation Administration regulations at 14 CFR Part 107 – Small Unmanned Aircraft Systems.

Fair Information Practice Principles (FIPPs)

The Privacy Act of 1974 articulates concepts of how the Federal Government should treat individuals and their information and imposes duties upon federal agencies regarding the collection, use, dissemination, and maintenance of PII. The Homeland Security Act of 2002 Section 222(2) states that the Chief Privacy Officer shall assure that information is handled in full compliance with the fair information practices as set out in the Privacy Act of 1974.

In response to this obligation, the DHS Privacy Office developed a set of Fair Information Practice Principles (FIPPs) from the underlying concepts of the Privacy Act to encompass the full breadth and diversity of the information and interactions of DHS. The FIPPs account for the nature and purpose of the information being collected in relation to DHS's mission to preserve, protect, and secure.

DHS conducts Privacy Impact Assessments on both programs and information technology systems, pursuant to the E-Government Act of 2002 Section 208 and the Homeland Security Act of 2002 Section 222. USCG RDC is a research entity rather than particular information technology system. This PIA examines the privacy impact of USCG RDC sUAS research activity as it relates to the FIPPs.

1. Principle of Transparency

Principle: DHS should be transparent and provide notice to the individual regarding its collection, use, dissemination, and maintenance of PII. Technologies or systems using PII must be described in a SORN and PIA, as appropriate. There should be no system the existence of which is a secret.

This PIA provides a level of transparency to the public regarding USCG RDC sUAS testing efforts. All individuals designated as test participants will be active and consenting members of the RDC program. Participants will be briefed on the capabilities of each sUAS system, assigned a portion of the test plan to execute, and fulfill a test team support role in generating only non-PII required to assess sUAS for USCG research.[2] Each participant will be made aware that his or her unidentifiable image could potentially be captured during the execution of a test and at no point will the participant's personal identification be available to correspond with the image.

None of the sUAS systems as part of this research effort are secret. Prior to each evolution of testing, RDC notifies the FAA (through the filing of publicly-available Notices to Airmen

[2] The information generated and how it is generated depends on the test performed. Often it involves determining payload performance; tactics, techniques, and procedures for operating sUAS on USCG surface platforms; and the impact the sUAS system can have on USCG mission sets.

(NOTAMs)), the local air station, CG Office of Aviation Forces (CG-711)), and local and tribal leaders.

2. Principle of Individual Participation

Principle: DHS should involve the individual in the process of using PII. DHS should, to the extent practical, seek individual consent for the collection, use, dissemination, and maintenance of PII and should provide mechanisms for appropriate access, correction, and redress regarding DHS's use of PII.

All designated test participants will be personnel from the RDC program. Participants will be briefed on the capabilities of each sUAS system, assigned a portion of the test plan to execute, and fulfill a test team support role in generating only the information required to assess sUAS for USCG research. The RDC sUAS program is designed to not collect PII. Prior to testing, all systems will be calibrated to ensure data quality and integrity. The imagery will only be of sufficient quality to distinguish between human, animal, and asset, and the relative size differences between individuals. The images taken will not be matched to any database or names of the participants, and will not be capable of performing facial recognition.

3. Principle of Purpose Specification

Principle: DHS should specifically articulate the authority which permits the collection of PII and specifically articulate the purpose or purposes for which the PII is intended to be used.

The purpose of the research is to determine the effectiveness of sUAS in supporting various USCG operations, consistent with the requirements and authorities spelled out in 14 U.S.C. §§ 81 and 87-89. This technology is meant to eventually be a tool to supplement manned assets performing USCG missions by providing critical situational awareness.

USCG RDC currently owns unmanned aircraft systems that include aircraft typically under 55 pounds with wingspans of three (3) to six (6) feet or less that are characteristically operated using a GCS. Each sUAS is equipped with sensors and cameras capable of capturing images or other data, and transmitting them to GCSs to provide aerial views in support of numerous USCG missions.

The systems under test will not collect PII when operated in accordance with the test plans, FAA regulations, and DHS and USCG policies that govern this effort.

4. Principle of Data Minimization

Principle: DHS should only collect PII that is directly relevant and necessary to accomplish the specified purpose(s) and only retain PII for as long as is necessary to fulfill the specified purpose(s). PII should be disposed of in accordance with DHS records disposition schedules as approved by the National Archives and Records Administration (NARA).

sUAS are only being tested for use as a potential situational awareness tool to support USCG missions. The RDC will provide its own test participants and platforms to generate imagery and telemetry to assess sUAS capabilities. While not collecting PII from sUAS, the RDC will have access to the basic PII of participants necessary to run the program. This PII will never be linked to data collected by sUAS.

Any information generated during this research will be from consenting RDC program personnel. Prior to testing, all systems will be calibrated to ensure data quality and integrity. The quality of the imagery should only be sufficient enough to distinguish between human, animal, and asset, and the relative size differences between individuals. The images taken will not be matched to any database and will not be used to support a facial recognition program.

Any inadvertent images captured during this test will not clearly identify individuals. Images taken would consist of things like letter boards or an item in the water to simulate an oil spill. The RDC will take all reasonable steps necessary to maintain the security of the images captured and ensure no PII is captured. All data and images retained from the sUAS testing events will be protected from inappropriate, unauthorized, or unlawful access, use, disclosure, or destruction.

Information collected by or on behalf of the RDC using sUAS is deleted from the GCS at the end of each day of the test operation, unless retention of the information is determined to be necessary to the ongoing technology assessment; it is then maintained in a system of records relative to the applicable USCG mission.

Privacy Risk: There is a potential risk that sUAS operators may inadvertently collect more information than needed.

Mitigation: RDC programs and projects use the least amount of information consistent with the documented purpose(s), and use minimization techniques such as synthetic data or anonymization where appropriate and practicable. The sUAS research projects do not need, nor would use any images of non-USCG targets for use in reporting test results. If any private or public images are inadvertently captured they will be deleted immediately and steps will be taken to minimize the possibility of recurrence.

5. Principle of Use Limitation

Principle: DHS should use PII solely for the purpose(s) specified in the notice. Sharing PII outside the Department should be for a purpose compatible with the purpose for which the PII was collected.

Although research test analysis data may be shared with federal partners, no PII data is collected from the sUAS, and thus none is shared externally or internally.

The systems under test will not collect PII when operated in accordance with the test plans, FAA regulations, and DHS and USCG policies that govern this effort. The authority to collect or purpose for the collection and use of PII harbor no conceivable benefit to the research effort.

Information will only be used to assess the platform and payloads of the sUAS. Detection and vessel identification are key components to evaluating the systems and their ability to facilitate USCG missions. RDC will provide its own test participants and assets to generate imagery for this assessment.

Privacy Risk: There is risk that identifiable images of test participants will be collected inadvertently during the test efforts and used in analysis reports/presentations.

Mitigation: USCG mitigates this risk by only using technology that does not allow for such visual clarity to identify any specific individuals. The RDC further mitigates this risk by carefully reviewing video and images captured by the GCS and used in analysis reports/presentations to ensure no images contain PII.

6. Principle of Data Quality and Integrity

Principle: DHS should, to the extent practical, ensure that PII is accurate, relevant, timely, and complete, within the context of each use of the PII.

Information collected will only be used to assess the platform and payloads of the sUAS. The video and images generated by the sUAS are used only to evaluate the system. There is no need for PII to be collected to perform the assessment of the sUAS.

RDC will be providing its own test participants and assets to generate imagery for this assessment. Prior to testing, all assets and systems will be calibrated to ensure data quality and integrity. The quality of the imagery should only be sufficient enough to distinguish between human, animal, and asset, and the relative size differences between individuals. The images taken will not be matched to any database and will not be capable of performing facial recognition.

7. Principle of Security

Principle: DHS should protect PII (in all forms) through appropriate security safeguards against risks such as loss, unauthorized access or use, destruction, modification, or unintended or inappropriate disclosure.

DHS and USCG will adhere to the security safeguards that govern all DHS and USCG operations as they would in the course of any research effort. All images captured by sUAS during the test exercises are transmitted to an encrypted, password-protected GCS, and only those individuals with an authorized need to know will have access to the GCS and the information contained therein.

Any private or public images/video captured by the sUAS will be deleted from the GCS immediately. The sUAS research projects do not need, nor would use any footage of non-USCG targets for use in reporting test results.

Privacy Risk: There is a risk unauthorized individuals may access the data.

Mitigation: RDC programs and projects will take all reasonable steps necessary to maintain the security of all data collected, and will protect the data from inappropriate, unauthorized, or unlawful access, use, disclosure, or destruction. All images captured by the sUAS during the test exercises are transmitted to an encrypted, password protected, standalone GCS and accessed only by those having a need to know. Any PII inadvertently collected will be safeguarded along with all other data collected, but the PII will be deleted from the GCS once discovered.

8. Principle of Accountability and Auditing

Principle: DHS should be accountable for complying with these principles, providing training to all employees and contractors who use PII, and should audit the actual use of PII to demonstrate compliance with these principles and all applicable privacy protection requirements.

No PII will be collected by sUAS as part of this research effort; however, all RDC personnel are required to complete annual DHS privacy training regarding the safe handling and protection of PII.

The images/video data initially captured in the GCS for research exercises is only accessible to a few select individuals. Data is deleted from the GCS at the end of each day of testing unless there are instances in which the data might be useful in supporting the ongoing analysis. In such cases, the data would then be transferred to the USCG workstation project folder, which only the project team can access.

Conclusion

Unmanned aircraft technology has the potential to be a valuable tool for rapid response and increased situational awareness prior to and during potentially dangerous USCG operations. The overall objective of the RDC research efforts is not to collect PII, but to understand how this technology could facilitate USCG operations. Using sUAS for USCG mission sets typically requires flights over unpopulated areas or over open water, to determine the location or presence of vessels without the fidelity to collect images of individuals aboard. All data captured by sUAS are transmitted and stored on the GCS, which includes a standalone, non-networked laptop. The GCS has access controls in place that ensure that only those with an authorized need to know access the system. RDC only stores relevant images of USCG test targets and conducts all test events in accordance with the sensitive information protection policies of DHS and USCG. RDC does not retain any imagery collected by sUAS that is not relevant to evaluating the operational utility of the system(s).

Responsible Officials

[redacted]
Research and Development Center
United States Coast Guard

Approval Signature

Original, signed copy on file with the DHS Privacy Office.

Philip S. Kaplan
Chief Privacy Officer
Department of Homeland Security

Privacy Impact Assessment
for the

USCG Research and Development Center (RDC) Small Unmanned Aircraft Systems (sUAS) Program

DHS/USCG/PIA-026

February 22, 2018

Contact Point

[redacted]

United States Coast Guard
Research and Development Center (RDC)
(860) 271-2647

Reviewing Official
Philip S. Kaplan
Chief Privacy Officer
Department of Homeland Security
(202) 343-1717

Abstract

The Department of Homeland Security (DHS) United States Coast Guard (USCG) Research and Development Center (RDC) has been tasked and funded to evaluate small Unmanned Aircraft Systems (sUAS) for potential use by USCG for operational missions. sUAS include small aircrafts (typically less than 55 pounds in weight) that are generally operated using a wireless ground control station (GCS). The aircraft are equipped with sensors and cameras that can capture images and transmit them to standalone GCSs to provide aerial views of USCG missions for situational awareness to the operators and users. USCG is conducting this Privacy Impact Assessment (PIA) to address the privacy impacts of sUAS surveillance and image capturing capabilities.

Introduction

sUAS technology has the potential to be a valuable tool for rapid response and situational awareness prior to and during USCG operations. The sUAS are equipped with electro-optical (EO) and infrared (IR) cameras that feed images to standalone, non-networked flight computers (GCSs). Part of the research being conducted by the RDC is evaluating various commercially available EO/IR camera payloads for capability, capacity, limitation, and overall mission impact. All imagery collected during sUAS evaluations is transmitted directly to the operator for the purpose of safely operating the aircraft and evaluation of the system's target detection capabilities. The scope of this research includes the ongoing deployment and evaluation of sUAS from USCG vessels and shore sites at locations around the country over the next several years. This technology is meant to eventually be a tool to supplement manned assets performing USCG missions by providing critical situational awareness.

The overall objective of the RDC's research efforts is not to collect personally identifiable information (PII), but to understand how sUAS technology could facilitate USCG operations. This technology could enable more effective responses in all 11 USCG mission sets: ports, waterways, and coastal security; drug interdiction; aids to navigation; search and rescue; living marine resources; marine safety; defense readiness; migrant interdiction; marine environmental protection; ice operations; and other law enforcement activities.

Testing sUAS for USCG mission sets typically requires flights over the open water area surrounding USCG cutters. No PII is collected during these test flights by the sUAS (see below for the information USCG collects and uses). However, USCG requires USCG test participants to assist in simulating targets of interest, whether they be disabled boaters, drug smugglers, alien smugglers, or vessels fishing illegally. Tests include search patterns, EO/IR payload evaluations, and sUAS endurance and capabilities as technology advances. All individuals acting as test

participants in sUAS testing will be active and consenting members of the USCG RDC program, briefed on the capabilities of each sUAS system, assigned a portion of the test plan to execute to generate only the information required to assess sUAS for USCG research purposes.

EO and IR cameras provide the means for collecting images/information and are capable of capturing video at any altitude. However, the level of altitude impacts whether objects and images are recognizable. The higher the altitude, the less visibility and detail of a particular object/image. At no point will the test participant's personal identification information (*e.g.*, name) be available to link to the image. In addition, the quality of the imagery should only be sufficient enough to distinguish between human, animal, and target type, and the relative size differences between individuals. Any inadvertent images captured during this test will not clearly differentiate between individuals, and no facial recognition technology is used.

Nonetheless, RDC programs and projects will take all reasonable steps necessary to maintain the security of any potential PII, and will protect the data from inappropriate, unauthorized, or unlawful access, use, disclosure, or destruction. All of the data (images/video) that is initially captured in the GCS is for research exercises and can only be accessed by a few select individuals. The data is typically deleted from the GCS at the end of each day of the testing event. There are instances when images/video useful in supporting the ongoing analysis would be transferred to the USCG workstation project folder, which has access limited to the project team only. None of the images/video will constitute PII because the sUAS cameras and test procedures do not allow for such visual clarity and the data will not be maintained in a manner that allows it to be linked to any PII. Should any of the images/video be selected for use in a briefing/presentation/report, the RDC has a rigidly controlled review process that includes the Program Manager (PM), Branch Chief, Scientific and Technical Information (STINFO) Officer, Public Affairs Officer (PAO), Security Officer Technical Director, and Executive Director on a review panel to ensure that the appropriate level audience, markings, and security have been addressed.

The test plans, controls, and Federal Aviation Administration (FAA) regulations[1] that govern each test event will prohibit reckless operation of a sUAS. The images captured by sUAS are transmitted and stored on the GCS, which includes a standalone laptop. The GCS have access controls in place that ensure only those with an authorized need to know can access images. RDC stores relevant images such as snapshots of test scenarios to show validity of various payload evaluations under password protection and typically deletes all images at the end of each day of the test event, unless it is useful in supporting ongoing analysis.

[1] *See* Federal Aviation Administration regulations at 14 CFR Part 107 – Small Unmanned Aircraft Systems.

Fair Information Practice Principles (FIPPs)

The Privacy Act of 1974 articulates concepts of how the Federal Government should treat individuals and their information and imposes duties upon federal agencies regarding the collection, use, dissemination, and maintenance of PII. The Homeland Security Act of 2002 Section 222(2) states that the Chief Privacy Officer shall assure that information is handled in full compliance with the fair information practices as set out in the Privacy Act of 1974.

In response to this obligation, the DHS Privacy Office developed a set of Fair Information Practice Principles (FIPPs) from the underlying concepts of the Privacy Act to encompass the full breadth and diversity of the information and interactions of DHS. The FIPPs account for the nature and purpose of the information being collected in relation to DHS's mission to preserve, protect, and secure.

DHS conducts Privacy Impact Assessments on both programs and information technology systems, pursuant to the E-Government Act of 2002 Section 208 and the Homeland Security Act of 2002 Section 222. USCG RDC is a research entity rather than particular information technology system. This PIA examines the privacy impact of USCG RDC sUAS research activity as it relates to the FIPPs.

1. Principle of Transparency

Principle: DHS should be transparent and provide notice to the individual regarding its collection, use, dissemination, and maintenance of PII. Technologies or systems using PII must be described in a SORN and PIA, as appropriate. There should be no system the existence of which is a secret.

This PIA provides a level of transparency to the public regarding USCG RDC sUAS testing efforts. All individuals designated as test participants will be active and consenting members of the RDC program. Participants will be briefed on the capabilities of each sUAS system, assigned a portion of the test plan to execute, and fulfill a test team support role in generating only non-PII required to assess sUAS for USCG research.[2] Each participant will be made aware that his or her unidentifiable image could potentially be captured during the execution of a test and at no point will the participant's personal identification be available to correspond with the image.

None of the sUAS systems as part of this research effort are secret. Prior to each evolution of testing, RDC notifies the FAA (through the filing of publicly-available Notices to Airmen

[2] The information generated and how it is generated depends on the test performed. Often it involves determining payload performance; tactics, techniques, and procedures for operating sUAS on USCG surface platforms; and the impact the sUAS system can have on USCG mission sets.

(NOTAMs)), the local air station, CG Office of Aviation Forces (CG-711)), and local and tribal leaders.

2. Principle of Individual Participation

Principle: DHS should involve the individual in the process of using PII. DHS should, to the extent practical, seek individual consent for the collection, use, dissemination, and maintenance of PII and should provide mechanisms for appropriate access, correction, and redress regarding DHS's use of PII.

All designated test participants will be personnel from the RDC program. Participants will be briefed on the capabilities of each sUAS system, assigned a portion of the test plan to execute, and fulfill a test team support role in generating only the information required to assess sUAS for USCG research. The RDC sUAS program is designed to not collect PII. Prior to testing, all systems will be calibrated to ensure data quality and integrity. The imagery will only be of sufficient quality to distinguish between human, animal, and asset, and the relative size differences between individuals. The images taken will not be matched to any database or names of the participants, and will not be capable of performing facial recognition.

3. Principle of Purpose Specification

Principle: DHS should specifically articulate the authority which permits the collection of PII and specifically articulate the purpose or purposes for which the PII is intended to be used.

The purpose of the research is to determine the effectiveness of sUAS in supporting various USCG operations, consistent with the requirements and authorities spelled out in 14 U.S.C. §§ 81 and 87-89. This technology is meant to eventually be a tool to supplement manned assets performing USCG missions by providing critical situational awareness.

USCG RDC currently owns unmanned aircraft systems that include aircraft typically under 55 pounds with wingspans of three (3) to six (6) feet or less that are characteristically operated using a GCS. Each sUAS is equipped with sensors and cameras capable of capturing images or other data, and transmitting them to GCSs to provide aerial views in support of numerous USCG missions.

The systems under test will not collect PII when operated in accordance with the test plans, FAA regulations, and DHS and USCG policies that govern this effort.

4. Principle of Data Minimization

Principle: DHS should only collect PII that is directly relevant and necessary to accomplish the specified purpose(s) and only retain PII for as long as is necessary to fulfill the specified purpose(s). PII should be disposed of in accordance with DHS records disposition schedules as approved by the National Archives and Records Administration (NARA).

sUAS are only being tested for use as a potential situational awareness tool to support USCG missions. The RDC will provide its own test participants and platforms to generate imagery and telemetry to assess sUAS capabilities. While not collecting PII from sUAS, the RDC will have access to the basic PII of participants necessary to run the program. This PII will never be linked to data collected by sUAS.

Any information generated during this research will be from consenting RDC program personnel. Prior to testing, all systems will be calibrated to ensure data quality and integrity. The quality of the imagery should only be sufficient enough to distinguish between human, animal, and asset, and the relative size differences between individuals. The images taken will not be matched to any database and will not be used to support a facial recognition program.

Any inadvertent images captured during this test will not clearly identify individuals. Images taken would consist of things like letter boards or an item in the water to simulate an oil spill. The RDC will take all reasonable steps necessary to maintain the security of the images captured and ensure no PII is captured. All data and images retained from the sUAS testing events will be protected from inappropriate, unauthorized, or unlawful access, use, disclosure, or destruction.

Information collected by or on behalf of the RDC using sUAS is deleted from the GCS at the end of each day of the test operation, unless retention of the information is determined to be necessary to the ongoing technology assessment; it is then maintained in a system of records relative to the applicable USCG mission.

Privacy Risk: There is a potential risk that sUAS operators may inadvertently collect more information than needed.

Mitigation: RDC programs and projects use the least amount of information consistent with the documented purpose(s), and use minimization techniques such as synthetic data or anonymization where appropriate and practicable. The sUAS research projects do not need, nor would use any images of non-USCG targets for use in reporting test results. If any private or public images are inadvertently captured they will be deleted immediately and steps will be taken to minimize the possibility of recurrence.

5. Principle of Use Limitation

Principle: DHS should use PII solely for the purpose(s) specified in the notice. Sharing PII outside the Department should be for a purpose compatible with the purpose for which the PII was collected.

Although research test analysis data may be shared with federal partners, no PII data is collected from the sUAS, and thus none is shared externally or internally.

The systems under test will not collect PII when operated in accordance with the test plans, FAA regulations, and DHS and USCG policies that govern this effort. The authority to collect or purpose for the collection and use of PII harbor no conceivable benefit to the research effort.

Information will only be used to assess the platform and payloads of the sUAS. Detection and vessel identification are key components to evaluating the systems and their ability to facilitate USCG missions. RDC will provide its own test participants and assets to generate imagery for this assessment.

Privacy Risk: There is risk that identifiable images of test participants will be collected inadvertently during the test efforts and used in analysis reports/presentations.

Mitigation: USCG mitigates this risk by only using technology that does not allow for such visual clarity to identify any specific individuals. The RDC further mitigates this risk by carefully reviewing video and images captured by the GCS and used in analysis reports/presentations to ensure no images contain PII.

6. Principle of Data Quality and Integrity

Principle: DHS should, to the extent practical, ensure that PII is accurate, relevant, timely, and complete, within the context of each use of the PII.

Information collected will only be used to assess the platform and payloads of the sUAS. The video and images generated by the sUAS are used only to evaluate the system. There is no need for PII to be collected to perform the assessment of the sUAS.

RDC will be providing its own test participants and assets to generate imagery for this assessment. Prior to testing, all assets and systems will be calibrated to ensure data quality and integrity. The quality of the imagery should only be sufficient enough to distinguish between human, animal, and asset, and the relative size differences between individuals. The images taken will not be matched to any database and will not be capable of performing facial recognition.

7. Principle of Security

Principle: DHS should protect PII (in all forms) through appropriate security safeguards against risks such as loss, unauthorized access or use, destruction, modification, or unintended or inappropriate disclosure.

DHS and USCG will adhere to the security safeguards that govern all DHS and USCG operations as they would in the course of any research effort. All images captured by sUAS during the test exercises are transmitted to an encrypted, password-protected GCS, and only those individuals with an authorized need to know will have access to the GCS and the information contained therein.

Any private or public images/video captured by the sUAS will be deleted from the GCS immediately. The sUAS research projects do not need, nor would use any footage of non-USCG targets for use in reporting test results.

Privacy Risk: There is a risk unauthorized individuals may access the data.

Mitigation: RDC programs and projects will take all reasonable steps necessary to maintain the security of all data collected, and will protect the data from inappropriate, unauthorized, or unlawful access, use, disclosure, or destruction. All images captured by the sUAS during the test exercises are transmitted to an encrypted, password protected, standalone GCS and accessed only by those having a need to know. Any PII inadvertently collected will be safeguarded along with all other data collected, but the PII will be deleted from the GCS once discovered.

8. Principle of Accountability and Auditing

Principle: DHS should be accountable for complying with these principles, providing training to all employees and contractors who use PII, and should audit the actual use of PII to demonstrate compliance with these principles and all applicable privacy protection requirements.

No PII will be collected by sUAS as part of this research effort; however, all RDC personnel are required to complete annual DHS privacy training regarding the safe handling and protection of PII.

The images/video data initially captured in the GCS for research exercises is only accessible to a few select individuals. Data is deleted from the GCS at the end of each day of testing unless there are instances in which the data might be useful in supporting the ongoing analysis. In such cases, the data would then be transferred to the USCG workstation project folder, which only the project team can access.

Conclusion

Unmanned aircraft technology has the potential to be a valuable tool for rapid response and increased situational awareness prior to and during potentially dangerous USCG operations. The overall objective of the RDC research efforts is not to collect PII, but to understand how this technology could facilitate USCG operations. Using sUAS for USCG mission sets typically requires flights over unpopulated areas or over open water, to determine the location or presence of vessels without the fidelity to collect images of individuals aboard. All data captured by sUAS are transmitted and stored on the GCS, which includes a standalone, non-networked laptop. The GCS has access controls in place that ensure that only those with an authorized need to know access the system. RDC only stores relevant images of USCG test targets and conducts all test events in accordance with the sensitive information protection policies of DHS and USCG. RDC does not retain any imagery collected by sUAS that is not relevant to evaluating the operational utility of the system(s).

Responsible Officials

[redacted]
Research and Development Center
United States Coast Guard

Approval Signature

Original, signed copy on file with the DHS Privacy Office.

Philip S. Kaplan
Chief Privacy Officer
Department of Homeland Security

PRIVACY THRESHOLD ANALYSIS (PTA)

This form is used to determine whether a Privacy Impact Assessment is required.

Please use the attached form to determine whether a Privacy Impact Assessment (PIA) is required under the E-Government Act of 2002 and the Homeland Security Act of 2002.

Please complete this form and send it to your component Privacy Office. If you do not have a component Privacy Office, please send the PTA to the DHS Privacy Office:

Senior Director, Privacy Compliance
The Privacy Office
U.S. Department of Homeland Security
Washington, DC 20528
Tel: 202-343-1717

PIA@hq.dhs.gov

Upon receipt from your component Privacy Office, the DHS Privacy Office will review this form. If a PIA is required, the DHS Privacy Office will send you a copy of the Official Privacy Impact Assessment Guide and accompanying Template to complete and return.

A copy of the Guide and Template is available on the DHS Privacy Office website, www.dhs.gov/privacy, on DHS Connect and directly from the DHS Privacy Office via email: pia@hq.dhs.gov, phone: 202-343-1717.

PRIVACY THRESHOLD ANALYSIS (PTA)

SUMMARY INFORMATION

Project or Program Name:	Robotic Aircraft for Maritime Public Safety (RAMPS)		
Component:	U.S. Coast Guard	**Office or Program:**	Research and Development Center (RDC) Aviation Branch
Xacta FISMA Name (if applicable):	N/A	**Xacta FISMA Number (if applicable):**	N/A
Type of Project or Program:	Research, Development, Test, & Evaluation (RDTE)	**Project or program status:**	Pilot/Funded
Date first developed:	05 March 2013	**Pilot launch date:**	20 April 2015
Date of last PTA update	20 April 2016	**Pilot end date:**	31 December 2018
ATO Status (if applicable)	N/A	**ATO expiration date (if applicable):**	N/A

PROJECT OR PROGRAM MANAGER

Name:	[redacted]		
Office:	USCG RDC Aviation Branch	**Title:**	PM for RAMPS
Phone:	860-271-2789	**Email:**	[redacted]@uscg.mil

INFORMATION SYSTEM SECURITY OFFICER (ISSO) (IF APPLICABLE)

Name:	N/A		
Phone:	N/A	**Email:**	N/A

SPECIFIC PTA QUESTIONS

1. Reason for submitting the PTA: Choose an item.
In partnership with the Department of Homeland Security (DHS) Borders and Maritime Security Division (BMD), the USCG RDC will conduct quarterly small Unmanned Aircraft System (SUAS) field testing at the Chesapeake Bay Test Range, Webster Field, MD. US Navy Webster Field was selected because the SUAS test flights are limited to restricted airspace where UAS tests and drills are already routinely conducted. A follow on effort was funded for evaluating payloads at Webster Field against CG mission scenarios. After the payloads have been evaluated the systems will be taken to various locations on CG assets for assessing the payload against real CG missions in different geographical locations. During the tests, the RDC RAMPS team will evaluate each unmanned system using key performance parameters for each payload selected under a wide variety of simulated, but realistic and relevant real-world operational scenarios, focusing on maritime response to situations where human lives or marine resources are in imminent danger. Safety concerns are also assessed, including the unmanned aircraft's capability for safe flight in the event of a loss of communications between the aircraft and the ground controller. Part of RAMPS project evaluation will include assessment of capabilities of RDC-owned PUMA unmanned aircraft. This PTA submission is an update to the original RAMPS PTA. The original PTA determination stated that resubmission was required upon receipt of funding, and that the CONOPS/Test Plan be made available to the DHS Privacy Office before beginning testing. Funding for this project has now been received and the CONOPS/Test Plan for this project is currently under development and is anticipated to be completed in December 2018. Upon completion of development, a copy of the CONOPS/Test Plan will be forwarded to the DHS Privacy Office. Testing is currently scheduled to begin in April 2017.

2. Does this system employ any of the following technologies: *If you are using any of these technologies and want coverage under the respective PIA for that technology please stop here and contact the DHS Privacy Office for further guidance.*	☒ Closed Circuit Television (CCTV) ☐ Social Media ☐ Web portal[1] (e.g., SharePoint) ☐ Contact Lists ☐ None of these

3. From whom does the Project or Program collect, maintain, use, or	☒ This program does not collect any personally identifiable information[2]

[1] Informational and collaboration-based portals in operation at DHS and its components that collect, use, maintain, and share limited personally identifiable information (PII) about individuals who are "members" of the portal or "potential members" who seek to gain access to the portal.

disseminate information? *Please check all that apply.*	☐ Members of the public ☐ DHS employees/contractors (list components): ☐ Contractors working on behalf of DHS ☐ Employees of other federal agencies

4. What specific information about individuals is collected, generated or retained?

The UAV platform has the ability to carry various sensors such as an Electro Optical Camera (EO) and an Infrared Camera (IR) which will be evaluated during the RAMPS demonstration. The imagery collected from these payloads will be transmitted back to the operator for the purpose of safely operating the aircraft and for evaluation of target detection capabilities. During the evaluation periods of the RAMPS demonstrations, the EO and IR will be operational within the restricted airspace of US Navy Webster Field.

Once CG UAVs are deployed and deemed fully operational, they will have the capability of acquiring images of vessel crew/vessel passengers during CG search and rescue missions and images of CG pollution/law enforcement operations and relaying the data back to the operator/command center for evaluation.

The RAMPS/PUMA will not retain this information; any such information collected is deleted at the end of each day's operations.

4(a) Does the project, program, or system retrieve information by personal identifier?	☒ No. Please continue to next question. ☐ Yes. If yes, please list all personal identifiers used:
4(b) Does the project, program, or system use Social Security Numbers (SSN)?	☒ No. ☐ Yes.
4(c) If yes, please provide the specific legal basis and purpose for the collection of SSNs:	N/A

[2] DHS defines personal information as "Personally Identifiable Information" or PII, which is any information that permits the identity of an individual to be directly or indirectly inferred, including any information that is linked or linkable to that individual, regardless of whether the individual is a U.S. citizen, lawful permanent resident, visitor to the U.S., or employee or contractor to the Department. "Sensitive PII" is PII, which if lost, compromised, or disclosed without authorization, could result in substantial harm, embarrassment, inconvenience, or unfairness to an individual. For the purposes of this PTA, SPII and PII are treated the same.

4(d) If yes, please describe the uses of the SSNs within the project, program, or system:	N/A
4(e) If this project, program, or system is an information technology/system, does it relate solely to infrastructure? *For example, is the system a Local Area Network (LAN) or Wide Area Network (WAN)?*	☒ No. Please continue to next question. ☐ Yes. If a log kept of communication traffic, please answer the following question.
4(f) If header or payload data[3] is stored in the communication traffic log, please detail the data elements stored.	
N/A	

5. Does this project, program, or system connect, receive, or share PII with any other DHS programs or systems[4]?	☒ No. ☐ Yes. If yes, please list: Click here to enter text.
6. Does this project, program, or system connect, receive, or share PII with any external (non-DHS) partners or systems?	☒ No. ☐ Yes. If yes, please list: Click here to enter text.
6(a) Is this external sharing pursuant to new or existing information sharing access agreement (MOU, MOA, LOI, etc.)?	Choose an item. Please describe applicable information sharing governance in place:
7. Does the project, program, or system provide role-based training for personnel who have access in addition to annual privacy training required of all DHS personnel?	☒ No. ☐ Yes. If yes, please list:

[3] When data is sent over the Internet, each unit transmitted includes both header information and the actual data being sent. The header identifies the source and destination of the packet, while the actual data is referred to as the payload. Because header information, or overhead data, is only used in the transmission process, it is stripped from the packet when it reaches its destination. Therefore, the payload is the only data received by the destination system.
[4] PII may be shared, received, or connected to other DHS systems directly, automatically, or by manual processes. Often, these systems are listed as "interconnected systems" in Xacta.

8. Per NIST SP 800-53 Rev. 4, Appendix J, does the project, program, or system maintain an accounting of disclosures of PII to individuals who have requested access to their PII?	☒ No. What steps will be taken to develop and maintain the accounting: ☐ Yes. In what format is the accounting maintained:
9. Is there a FIPS 199 determination?[4]	☒ Unknown. ☐ No. ☐ Yes. Please indicate the determinations for each of the following: Confidentiality: ☐ Low ☐ Moderate ☐ High ☐ Undefined Integrity: ☐ Low ☐ Moderate ☐ High ☐ Undefined Availability: ☐ Low ☐ Moderate ☐ High ☐ Undefined

PRIVACY THRESHOLD REVIEW

(TO BE COMPLETED BY COMPONENT PRIVACY OFFICE)

Component Privacy Office Reviewer:	[redacted]
Date submitted to Component Privacy Office:	April 21, 2016
Date submitted to DHS Privacy Office:	May 6, 2016

[4] FIPS 199 is the Federal Information Processing Standard Publication 199, Standards for Security Categorization of Federal Information and Information Systems and is used to establish security categories of information systems.

Component Privacy Office Recommendation: *Please include recommendation below, including what new privacy compliance documentation is needed.*
CG RAMPS has received funding to evaluate payloads at US Navy Webster Field, MD. During the evaluation period at US Navy Webster Field, the Electro Optical Camera and Infrared Camera will be operational within the restricted airspace however all imagery will be deleted at the conclusion of each day's mission. Upon completion of this evaluation period, payloads will be taken to various locations aboard CG assets to conduct tests under a wide variety of simulated but realistic maritime scenarios. The CG RAMPS CONOPS/Test Plan is under development and is scheduled to be completed on or about December 2018. DHS/S&T/PIA-026, titled Robotic Aircraft and Public Safety (RAPS) Project and DHS/S&T-001, entitled Research, Development, Test, and Evaluation Records provides coverage for this collection.

(TO BE COMPLETED BY THE DHS PRIVACY OFFICE)

DHS Privacy Office Reviewer:	[redacted]
PCTS Workflow Number:	1124239
Date approved by DHS Privacy Office:	May 31, 2016.
PTA Expiration Date	May 31, 2018.

DESIGNATION

Privacy Sensitive System:	Yes. If "no" PTA adjudication is complete.
Category of System:	Other. If "other" is selected, please describe: Pilot testing.
Determination:	☐ PTA sufficient at this time. ☐ Privacy compliance documentation determination in progress. ☐ New information sharing arrangement is required. ☐ DHS Policy for Computer-Readable Extracts Containing Sensitive PII applies. ☐ Privacy Act Statement required. ☒ Privacy Impact Assessment (PIA) required. ☐ System of Records Notice (SORN) required.

	☐ Paperwork Reduction Act (PRA) Clearance may be required. Contact your component PRA Officer. ☐ A Records Schedule may be required. Contact your component Records Officer.
PIA:	Covered by existing PIA. If covered by existing PIA, please list: DHS/S&T/PIA-026 Robotic Aircraft for Public Safety (RAPS) Project
SORN:	Choose an item. If covered by existing SORN, please list:

DHS Privacy Office Comments:
Please describe rationale for privacy compliance determination above.

USCG has submitted this PTA as an update to their original Robotic Aircraft for Maritime Public Safety (RAMPS) PTA. This PTA serves as a progress update that includes funding, test plans, and a Concept of Operations (CONOPS). The test simulates various realistic "real-world" scenarios that requires rapid response to situations of distress, such as a loss of communications between an aircraft and a ground controller. RAMPS will evaluate payloads such as the Electro Optical Camera and Infrared Camera. Because the test location, US Navy Webster Field in Maryland, is within the restricted airspace, any imagery collected during testing will be deleted at the end of each test day.

The DHS Privacy Office finds that the RAMPS pilot test program is a privacy-sensitive system because the volunteer list combined with imagery collected by Small Unmanned Aircraft System (SUAS) constitute personally identifiable information (PII). Although any images of private citizens or property captured during the testing will be immediately deleted by the S&T RAPS team, images of consenting volunteers may be used in test reports or presentations to demonstrate the SUAS capabilities.

The DHS Privacy Office finds that the DHS/S&T/PIA-026 Robotic Aircraft and Public Safety (RAPS) Project continues to provide coverage for the pilot test program and is consistent with the purpose of the PIA in that a military facility is considered a restricted airspace for testing and drills and limits public exposure to unwanted collection. A new PIA will be required when this pilot test becomes operational.

The DHS Privacy Office requires the USCG Privacy office to submit the CONOPS test plans prior to the test commencement of actual testing in April 2017. USCG shall submit an updated PTA within 60 days of the completion of the test plans if those plans include the collection of PII or new sensitive personal information. USCG shall ensure the test plans include and comply with the requirements set forth in the February 15, 2015 Presidential Memorandum.

This PTA expires one year after completion of the test plan or in April 2018, whichever comes first.

Homeland Security

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Washington, DC 20528
Tel: 202-343-1717

PIA@hq.dhs.gov

Upon receipt from your component Privacy Office, the DHS Privacy Office will review this form. If a PIA is required, the DHS Privacy Office will send you a copy of the Official Privacy Impact Assessment Guide and accompanying Template to complete and return.

A copy of the Guide and Template is available on the DHS Privacy Office website, www.dhs.gov/privacy, on DHSConnect and directly from the DHS Privacy Office via email: pia@hq.dhs.gov, phone: 202-343-1717.

PRIVACY THRESHOLD ANALYSIS (PTA)

SUMMARY INFORMATION

Project or Program Name:	USCG Research & Development Center (RDC) Arctic UAS Operations		
Component:	U.S. Coast Guard	**Office or Program:**	RDC Systems & Unmanned Technology Branch
Xacta FISMA Name (if applicable):	N/A	**Xacta FISMA Number (if applicable):**	N/A
Type of Project or Program:	Research, Development, Test and Evaluation (RDT&E)	**Project or program status:**	Research
Date first developed:	March 2017	**Pilot launch date:**	July 2017
Date of last PTA update	N/A	**Pilot end date:**	August 2017
ATO Status (if applicable)	N/A	**ATO expiration date (if applicable):**	N/A

PROJECT OR PROGRAM MANAGER

Name:	[redacted]		
Office:	RDC Systems & Unmanned Technology Branch	**Title:**	Project Manager
Phone:	860-271-2815	**Email:**	keely.j.higbie@uscg.mil

INFORMATION SYSTEM SECURITY OFFICER (ISSO) (IF APPLICABLE)

Name:	N/A		
Phone:	N/A	**Email:**	N/A

SPECIFIC PTA QUESTIONS

1. Reason for submitting the PTA: NEW
The USCG Research and Development Center (RDC) are engaged in an effort to determine the suitability of Unmanned Aircraft Systems (UAS) to conduct Coast Guard missions in the maritime environment solely in a research capacity. The scope of this research includes the deployment of UAS from USCG vessels in the Arctic in international airspace. UAS will be operated at altitudes no greater than 700' Mean Sea Level (MSL) by properly trained Coast Guard operators. Testing in this remote area ensures that our technology will not be interfered with and minimizes the possibility of interactions with other air or sea assets allowing for a safe test bed for some newer technology. The purpose of these efforts is not to collect information on individuals, but rather to assess the capabilities of the unmanned systems under test. Specifically, these UAS will capture images of our technology deployed in the Arctic and will help the team better coordinate technology and assets for evaluation. The UAS involved carry Electro-Optical (EO) and Infrared (IR) cameras that feed images to standalone, non-networked flight computers. All of the imagery collected during UAS evaluations is transmitted directly to the operator for the purpose of safely operating the aircraft and for coordination of technology and asset deployment. Upon completion of the exercise, imagery will be post processed for evaluation and deleted. Images/stills that are kept after post processing will be of technology in the water and will be used for report/presentation purposes. It will not include personnel or PII. All RDC UAS evaluations shall be conducted in accordance with the following guidelines and policies: -MD 11056.1 - DHS SENSITIVE SECURITY INFORMATION -MD 11042.1 - DHS SAFEGUARDING SENSITIVE BUT UNCLASSIFIED (FOUO) INFORMATION -CIM 5500.13 SERIES - US COAST GUARD SECURITY AND INFORMATION ASSURANCE MANUAL -National Telecommunications and Information Administration (NTIA) Best Practices for UAS Privacy, Transparency, and Accountability

2. Does this system employ any of the following technologies: *If you are using any of these technologies and want coverage under the respective PIA for that technology please stop here and contact the DHS Privacy Office for further guidance.*	☐ Closed Circuit Television (CCTV) ☐ Social Media ☐ Web portal[1] (e.g., SharePoint) ☐ Contact Lists ☒ None of these

3. From whom does the Project or Program collect, maintain, use, or disseminate information?	☒ This program does not collect any personally identifiable information[2]

[1] Informational and collaboration-based portals in operation at DHS and its components that collect, use, maintain, and share limited personally identifiable information (PII) about individuals who are "members" of the portal or "potential members" who seek to gain access to the portal.

[2] DHS defines personal information as "Personally Identifiable Information" or PII, which is any information that permits the identity of an individual to be directly or indirectly inferred, including any information that is linked or linkable to that individual,

Please check all that apply.	☐ Members of the public ☐ DHS employees/contractors (list components): ☐ Contractors working on behalf of DHS ☐ Employees of other federal agencies

4. What specific information about individuals is collected, generated or retained?	
None.	
4(a) Does the project, program, or system retrieve information by personal identifier?	☒ No. Please continue to next question. ☐ Yes. If yes, please list all personal identifiers used:
4(b) Does the project, program, or system use Social Security Numbers (SSN)?	☒ No. ☐ Yes.
4(c) If yes, please provide the specific legal basis and purpose for the collection of SSNs:	N/A
4(d) If yes, please describe the uses of the SSNs within the project, program, or system:	N/A
4(e) If this project, program, or system is an information technology/system, does it relate solely to infrastructure? *For example, is the system a Local Area Network (LAN) or Wide Area Network (WAN)?*	☒ No. Please continue to next question. ☐ Yes. If a log kept of communication traffic, please answer the following question.
4(f) If header or payload data[3] is stored in the communication traffic log, please detail the data elements stored.	

regardless of whether the individual is a U.S. citizen, lawful permanent resident, visitor to the U.S., or employee or contractor to the Department. "Sensitive PII" is PII, which if lost, compromised, or disclosed without authorization, could result in substantial harm, embarrassment, inconvenience, or unfairness to an individual. For the purposes of this PTA, SPII and PII are treated the same.

[3] When data is sent over the Internet, each unit transmitted includes both header information and the actual data being sent. The header identifies the source and destination of the packet, while the actual data is referred to as the payload. Because header information, or overhead data, is only used in the transmission process, it is stripped from the packet when it reaches its destination. Therefore, the payload is the only data received by the destination system.

N/A

5. Does this project, program, or system connect, receive, or share PII with any other DHS programs or systems[4]?	☒ No. ☐ Yes. If yes, please list: Click here to enter text.
6. Does this project, program, or system connect, receive, or share PII with any external (non-DHS) partners or systems?	☒ No. ☐ Yes. If yes, please list: Click here to enter text.
6(a) Is this external sharing pursuant to new or existing information sharing access agreement (MOU, MOA, LOI, etc.)?	Choose an item. Please describe applicable information sharing governance in place: N/A
7. Does the project, program, or system provide role-based training for personnel who have access in addition to annual privacy training required of all DHS personnel?	☒ No. ☐ Yes. If yes, please list:
8. Per NIST SP 800-53 Rev. 4, Appendix J, does the project, program, or system maintain an accounting of disclosures of PII to individuals who have requested access to their PII?	☒ No. What steps will be taken to develop and maintain the accounting: N/A ☐ Yes. In what format is the accounting maintained:
9. Is there a FIPS 199 determination?[4]	☐ Unknown. ☒ No. ☐ Yes. Please indicate the determinations for each of the following: Confidentiality:

[4] PII may be shared, received, or connected to other DHS systems directly, automatically, or by manual processes. Often, these systems are listed as "interconnected systems" in Xacta.
[4] FIPS 199 is the Federal Information Processing Standard Publication 199, Standards for Security Categorization of Federal Information and Information Systems and is used to establish security categories of information systems.

	☐ Low ☐ Moderate ☐ High ☐ Undefined Integrity: ☐ Low ☐ Moderate ☐ High ☐ Undefined Availability: ☐ Low ☐ Moderate ☐ High ☐ Undefined

PRIVACY THRESHOLD REVIEW

(TO BE COMPLETED BY COMPONENT PRIVACY OFFICE)

Component Privacy Office Reviewer:	[redacted]
Date submitted to Component Privacy Office:	4/14/2017
Date submitted to DHS Privacy Office:	4/25/2017
Component Privacy Office Recommendation: *Please include recommendation below, including what new privacy compliance documentation is needed.*	
The USCG Research & Development Center (RDC) Arctic UAS Operations Program is not a privacy sensitive system.	

(TO BE COMPLETED BY THE DHS PRIVACY OFFICE)

DHS Privacy Office Reviewer:	[redacted]
PCTS Workflow Number:	1142471
Date approved by DHS Privacy Office:	May 12, 2017
PTA Expiration Date	May 12, 2020

DESIGNATION

Privacy Sensitive System:	No If "no" PTA adjudication is complete.
Category of System:	Choose an item. If "other" is selected, please describe: Click here to enter text.
Determination:	☒ PTA sufficient at this time.

	☐ Privacy compliance documentation determination in progress. ☐ New information sharing arrangement is required. ☐ DHS Policy for Computer-Readable Extracts Containing Sensitive PII applies. ☐ Privacy Act Statement required. ☐ Privacy Impact Assessment (PIA) required. ☐ System of Records Notice (SORN) required. ☐ Paperwork Reduction Act (PRA) Clearance may be required. Contact your component PRA Officer. ☐ A Records Schedule may be required. Contact your component Records Officer.
PIA:	Choose an item. If covered by existing PIA, please list:
SORN:	System covered by existing SORN If covered by existing SORN, please list:

DHS Privacy Office Comments:
Please describe rationale for privacy compliance determination above.

The DHS Privacy Office finds that the USCG Research and Development Center (RDC) efforts to determine the suitability of Unmanned Aircraft Systems (UAS) is non privacy sensitive. The Coast Guard will deploy UAS from USCG vessel in international airspace in the arctic, operating at altitudes no greater than 700' above sea level in order to test the functionality of the UAS' technology in an environment free of interference and with minimal possibility of interaction with other air/sea assets. The systems are equipped with cameras capable of capturing both video and still images. Though capable of capturing PII, retained images will only include only a few videos/stills of technology (supporting equipment, to include buoys/data markers, Unmanned Surface Vehicles, Dye in the Water, Unmanned Underwater Vehicles), and the vast majority of imagery will be deleted. No images of personnel or PII will be collected. The DHS Privacy Office finds that PIA and SORN coverage are not necessary for this effort. However, the further implementation of UAS technology beyond the scope of this PIA would require a PTA update, and potentially additional compliance documentation.

Homeland Security

PRIVACY THRESHOLD ANALYSIS (PTA)

This form is used to determine whether a Privacy Impact Assessment is required.

Please use the attached form to determine whether a Privacy Impact Assessment (PIA) is required under the E-Government Act of 2002 and the Homeland Security Act of 2002.

Please complete this form and send it to your component Privacy Office. If you do not have a component Privacy Office, please send the PTA to the DHS Privacy Office:

Senior Director, Privacy Compliance
The Privacy Office
U.S. Department of Homeland Security
Washington, DC 20528
Tel: 202-343-1717

PIA@hq.dhs.gov

Upon receipt from your component Privacy Office, the DHS Privacy Office will review this form. If a PIA is required, the DHS Privacy Office will send you a copy of the Official Privacy Impact Assessment Guide and accompanying Template to complete and return.

A copy of the Guide and Template is available on the DHS Privacy Office website, www.dhs.gov/privacy, on DHS Connect and directly from the DHS Privacy Office via email: pia@hq.dhs.gov, phone: 202-343-1717.

PRIVACY THRESHOLD ANALYSIS (PTA)

SUMMARY INFORMATION

Project or Program Name:	USCG Research and Development Center (RDC) small Unmanned Aircraft Systems (sUAS) Program		
Component:	U.S. Coast Guard	**Office or Program:**	Research and Development Center (RDC) Aviation Branch
Xacta FISMA Name (if applicable):	N/A	**Xacta FISMA Number (if applicable):**	N/A
Type of Project or Program:	New Project	**Project or program status:**	Development
Date first developed:	10/01/2015	**Pilot launch date:**	N/A
Date of last PTA update	N/A	**Pilot end date:**	N/A
ATO Status (if applicable)	N/A	**ATO expiration date (if applicable):**	N/A

PROJECT OR PROGRAM MANAGER

Name:	[redacted]		
Office:	USCG RDC Aviation Branch	**Title:**	PM for sUAS Program
Phone:	860-271-2647	**Email:**	Evan.D.Gross@uscg.mil

INFORMATION SYSTEM SECURITY OFFICER (ISSO) (IF APPLICABLE)

Name:	N/A		
Phone:	N/A	**Email:**	N/A

SPECIFIC PTA QUESTIONS

1. Reason for submitting the PTA: Choose an item.
The USCG Research and Development Center (RDC) is engaged in an effort to determine the suitability of Unmanned Aircraft Systems (UAS) to conduct all of Coast Guard's 11 missions (Ports Waterways and Coastal Security, Drug Interdiction, Aids to Navigation, Search and Rescue, Living Marine Resources, Marine Safety, Defense Readiness, Migrant Interdiction, Marine Environmental Protection, Ice Operations, and Other Law Enforcement) in the maritime environment solely in a research capacity. The scope of this research includes the ongoing deployment and evaluation of UAS from USCG vessels and shore sites at locations around the country over the next several years. The purpose of these efforts is not to collect information on individuals, but rather to assess the capabilities of the unmanned systems under test. The UAS involved include Electro-Optical (EO) and Infrared (IR) cameras that feed images to standalone, non-networked flight computers. All of the imagery collected during UAS evaluations is transmitted directly to the operator for the purpose of safely operating the aircraft and for evaluation of the system's target detection capabilities. While it is not the goal of this research, the potential exists for the inadvertent collection of images, which may include property such as vessels, as UAS system evaluations are conducted. However, as the flight control computers are intentionally separate from all network connections, all collected images are deleted from flight control computers at the end of each evaluation day, and all UAS operators shall be trained in DHS and Coast Guard policy for the identification, disposition, and safeguarding of PII. There exists little opportunity for the collection of and/or inadvertent dissemination of PII. All RDC UAS evaluations shall be conducted in accordance with the following guidelines and policies: -MD 11056.1 - DHS SENSITIVE SECURITY INFORMATION -MD 11042.1 - DHS SAFEGUARDING SENSITIVE BUT UNCLASSIFIED (FOUO) INFORMATION -CIM 5500.13 SERIES - US COAST GUARD SECURITY AND INFORMATION ASSURANCE MANUAL -National Telecommunications and Information Administration (NTIA) Best Practices for UAS Privacy, Transparency, and Accountability

2. Does this system employ any of the following technologies: *If you are using any of these technologies and want coverage under the respective PIA for that*	☒ Closed Circuit Television (CCTV) ☐ Social Media ☐ Web portal[1] (e.g., SharePoint)

[1] Informational and collaboration-based portals in operation at DHS and its components that collect, use, maintain, and share limited personally identifiable information (PII) about individuals who are "members" of the portal or "potential members" who seek to gain access to the portal.

technology please stop here and contact the DHS Privacy Office for further guidance.	☐ Contact Lists ☐ None of these

3. From whom does the Project or Program collect, maintain, use, or disseminate information? *Please check all that apply.*	☒ This program does not collect any personally identifiable information[2] ☐ Members of the public ☐ DHS employees/contractors (list components): ☐ Contractors working on behalf of DHS ☐ Employees of other federal agencies

4. What specific information about individuals is collected, generated or retained?	
None.	
4(a) Does the project, program, or system retrieve information by personal identifier?	☒ No. Please continue to next question. ☐ Yes. If yes, please list all personal identifiers used:
4(b) Does the project, program, or system use Social Security Numbers (SSN)?	☒ No. ☐ Yes.
4(c) If yes, please provide the specific legal basis and purpose for the collection of SSNs:	N/A
4(d) If yes, please describe the uses of the SSNs within the project, program, or system:	N/A
4(e) If this project, program, or system is an information technology/system, does it relate solely to infrastructure?	☒ No. Please continue to next question.

[2] DHS defines personal information as "Personally Identifiable Information" or PII, which is any information that permits the identity of an individual to be directly or indirectly inferred, including any information that is linked or linkable to that individual, regardless of whether the individual is a U.S. citizen, lawful permanent resident, visitor to the U.S., or employee or contractor to the Department. "Sensitive PII" is PII, which if lost, compromised, or disclosed without authorization, could result in substantial harm, embarrassment, inconvenience, or unfairness to an individual. For the purposes of this PTA, SPII and PII are treated the same.

For example, is the system a Local Area Network (LAN) or Wide Area Network (WAN)?	☐ Yes. If a log kept of communication traffic, please answer the following question.
4(f) If header or payload data[3] is stored in the communication traffic log, please detail the data elements stored.	
N/A	

5. Does this project, program, or system connect, receive, or share PII with any other DHS programs or systems[4]?	☒ No. ☐ Yes. If yes, please list: Click here to enter text.
6. Does this project, program, or system connect, receive, or share PII with any external (non-DHS) partners or systems?	☒ No. ☐ Yes. If yes, please list: Click here to enter text.
6(a) Is this external sharing pursuant to new or existing information sharing access agreement (MOU, MOA, LOI, etc.)?	Choose an item. Please describe applicable information sharing governance in place: N/A
7. Does the project, program, or system provide role-based training for personnel who have access in addition to annual privacy training required of all DHS personnel?	☐ No. ☒ Yes. If yes, please list: UAS operators training includes information specific to the system regarding the display and storage of data. All test participants much show proficiency and currency with the UAS system under test.
8. Per NIST SP 800-53 Rev. 4, Appendix J, does the project, program, or system maintain an accounting of disclosures	☒ No. What steps will be taken to develop and maintain the accounting:

[3] When data is sent over the Internet, each unit transmitted includes both header information and the actual data being sent. The header identifies the source and destination of the packet, while the actual data is referred to as the payload. Because header information, or overhead data, is only used in the transmission process, it is stripped from the packet when it reaches its destination. Therefore, the payload is the only data received by the destination system.

[4] PII may be shared, received, or connected to other DHS systems directly, automatically, or by manual processes. Often, these systems are listed as "interconnected systems" in Xacta.

of PII to individuals who have requested access to their PII?	☐ Yes. In what format is the accounting maintained:
9. Is there a FIPS 199 determination?[4]	☐ Unknown. ☒ No. ☐ Yes. Please indicate the determinations for each of the following: Confidentiality: ☐ Low ☐ Moderate ☐ High ☐ Undefined Integrity: ☐ Low ☐ Moderate ☐ High ☐ Undefined Availability: ☐ Low ☐ Moderate ☐ High ☐ Undefined

PRIVACY THRESHOLD REVIEW

(TO BE COMPLETED BY COMPONENT PRIVACY OFFICE)

Component Privacy Office Reviewer:	[redacted]
Date submitted to Component Privacy Office:	November 1, 2016
Date submitted to DHS Privacy Office:	November 4, 2016
Component Privacy Office Recommendation: *Please include recommendation below, including what new privacy compliance documentation is needed.*	
The USCG Research and Development Center (RDC) small Unmanned Aircraft Systems (sUAS) Program is not a privacy sensitive system.	

(TO BE COMPLETED BY THE DHS PRIVACY OFFICE)

[4] FIPS 199 is the Federal Information Processing Standard Publication 199, Standards for Security Categorization of Federal Information and Information Systems and is used to establish security categories of information systems.

DHS Privacy Office Reviewer:	[redacted]
PCTS Workflow Number:	1134632
Date approved by DHS Privacy Office:	November 23, 2016
PTA Expiration Date	November 23, 2019

DESIGNATION

Privacy Sensitive System:	Yes. If "no" PTA adjudication is complete.
Category of System:	Other If "other" is selected, please describe: Program.

Determination:

☐ PTA sufficient at this time.

☐ Privacy compliance documentation determination in progress.

☐ New information sharing arrangement is required.

☐ DHS Policy for Computer-Readable Extracts Containing Sensitive PII applies.

☐ Privacy Act Statement required.

☒ Privacy Impact Assessment (PIA) required.

☐ System of Records Notice (SORN) required.

☐ Paperwork Reduction Act (PRA) Clearance may be required. Contact your component PRA Officer.

☐ A Records Schedule may be required. Contact your component Records Officer.

PIA:	**System covered by existing PIA** If covered by existing PIA, please list: DHS/USCG/PIA-026 USCG Research and Development Center (RDC) Small Unmanned Aircraft Systems (sUAS) Program
SORN:	Choose an item. If covered by existing SORN, please list: Click here to enter text.

DHS Privacy Office Comments:
Please describe rationale for privacy compliance determination above.

The DHS Privacy Office finds that efforts/tests conducted by the USCG Research and Development Center (RDC) small Unmanned Aircraft Systems (sUAS) Program to determine the suitability of UAS to support the Coast Guard's mission in the maritime environment represent privacy-sensitive test. While it is PRIV's understanding that there is no intention to collect personally identifiable information (PII), the nature of this technology raises privacy concerns. Though a PIA is not required for this type of activity under either the E-Government Act or the Privacy Act, the DHS Privacy Office finds that under its

statutory responsibility (Section 222 of the Homeland Security Act) to assure that technologies sustain and do not erode privacy protections related to the use, collection, and disclosure of personal information, a FIPPs-based PIA is necessary. The PIA will provide an opportunity to outline the privacy risks and mitigations associated with this type of effort, as well as provide transparency for the public into how the Coast Guard is employing this type of technology. The DHS Privacy Office regularly conducts PIAs of technologies that may be considered privacy sensitive.

Factors that contribute to the determination of whether a PIA is required include:

1. Whether the UAS flies over inhabited public spaces,
2. Whether the UAS has the capability to collect images of the members of the public; and,
3. Whether the existing public perception of the UAS program warrants additional transparency for DHS to maintain the public trust in DHS operations.

This PTA expires in one year.

After a review, the DHS Privacy Office finds that this program is covered by the recently approved DHS/USCG/PIA-026 USCG Research and Development Center (RDC) Small Unmanned Aircraft Systems (sUAS) Program.

The expiration date for this PTA has been extended to November 23, 2019.