The FAA's Center of Excellence for UAS Research

ASSURE

Alliance for System Safety of UAS through Research Excellence

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Final Report – Beyond Part 107 Document

ASSURE A28: Disaster Preparedness and Response Using UAS

June 1st, 2022

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16. ABSTRACT

The Alliance for System Safety of UAS through Research Excellence (ASSURE) team was tasked by the Federal Aviation Administration (FAA) with research related the safe integration of Unmanned Aircraft Systems (UAS) into the disaster preparedness and response areas. This research will look at how UAS can aid in disaster preparedness and response to different natural and human-made disasters. It will focus on procedures to coordinate with the Department of Interior (DOI), the Department of Homeland Security (DHS) including the Federal Emergency Management Agency (FEMA) and other federal, local, and state governments to ensure proper coordination during those emergencies.

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TABLE OF ACRONYMS

ADIZ	Air Defense Identification Zone
AGL	Above Ground Level
ATM	Air Traffic Management
AWOS	Automated Weather Observing System
CFR	Code of Federal Regulations
COTS	Commercial Off-the-Shelf
CoW/A	Certificate of Waiver or Authorization
CS	Control Station
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FPV	First-Person View
GPS	Global Positioning System
LAANC	Low-Altitude Authorization Notification Capability
LOA	Letter of Agreement
MHz	Megahertz
MOC	Means of Compliance
NAS	National Airspace System
NOTAM	Notice to Airmen
NPRM	Notices of Proposed Rulemaking
NTSB	National Transportation Safety Board
OEM	Original Equipment Manufacturer
RID	Remote Identification
RPIC	Remote Pilot in Command
sUAS	Small Unmanned Aircraft System
TFR	Temporary Flight Restriction
UA	Unmanned Aircraft
UAS	Unmanned Aircraft Systems
USC	United States Code
UTM	Unmanned Traffic Management
VO	Visual Observer

1 INTRODUCTION/PURPOSE OF RESEARCH

The Alliance for System Safety of UAS through Research Excellence (ASSURE) team was tasked by the Federal Aviation Administration (FAA) with conducting research to provide insight into the safe integration of Unmanned Aircraft Systems (UAS) into the disaster preparedness and response areas. This research would look at how UAS could aid in disaster preparedness and response to different natural and human-made disasters. It would focus on procedures to coordinate with the Department of Interior (DOI), the Department of Homeland Security (DHS), including the Federal Emergency Management Agency (FEMA), and other federal, local and state governments to ensure proper coordination during those emergencies. The research results would develop requirements, technical standards, policies, procedures, guidelines, and regulations needed to enable emergency response operations for UAS. Effective and efficient use of UAS in a disaster have been the two primary goals of this project. The results were intended to offer an effective tool to assist first responders to save lives faster and accelerate personnel and infrastructure recovery.

This research is broken into Phase I and Phase II, each with clear research questions and objectives. Successful completion of this phase of research sheds important insights into interactions between human factors, technology, and procedures, and will further improve regulatory processes and practices that govern UAS integration into the National Airspace System (NAS). This research will enhance UAS use in disaster response by making UAS use more effective and more efficient. Developed streamlined processes will drive UAS use in an organized manner.

The University of Alabama – Huntsville (UAH) directed the overall project, ensuring coordination of the participating universities, each with their assigned subtasks as indicated below. The participating universities, along with UAH include:

- University of Alaska-Fairbanks (UAF);
- New Mexico State University (NMSU);
- University of Vermont (UVM) – Subcontractor to UAH;
- Oregon State University (OrSU);
- Mississippi State University (MSU); and
- North Carolina State University (NCSU).

The participating universities have completed extensive research and operational conduct across natural and human-made disasters using UAS.

2 EXECUTIVE SUMMARY: HOW TO USE THIS DOCUMENT

This document is developed to aid the first responder community in a better understanding of the use of UAS in disaster response by providing a clear understanding of the SMALL UNMANNED AIRCRAFT SYSTEMS (UAS) REGULATIONS (14 CFR PART 107). Each section of this document describes in detail the intent and clarifications of each part of Part 107. Definitions are clarified and expanded in an easy to understand way. This document sets the standard for first responders to have a better understanding to assist them in clarification of their UAS operating policies and procedures.

Up front, the document provides some clear and concise sets of information to assist first responders in their UAS operations. UAS registration, operations, pilot certifications, airspace authorizations and regulatory permissions are discussed. The document also points the first responders to a FAA Drone Zone for the FAA reference.

Whereas several sections are easily understood, this document takes the more complex sections of Part 107 and states the law, offers an interpretation, and offers practical suggestions for compliance.

The document should be used to assist in an effective use of UAS during a disaster response. The document should be studied and its recommended suggestions / procedures trained, documented, practiced, and put in to action.

In the future, the document can be modified to address specific needs for specific disasters.

3 SMALL UNMANNED AIRCRAFT SYSTEMS (UAS) REGULATIONS (14 CFR PART 107)

Operating Requirements

Just as there are rules of the road when driving a car, there are rules of the sky when operating a drone, such as:

- Always avoid manned aircraft.
- Never operate in a careless or reckless manner.
- Keep the drone within sight. If using First Person View or similar technology, the user must have a visual observer always keep the drone within unaided sight (for example, no binoculars).
- The user cannot be a pilot or visual observer for more than one drone operation at a time.
- Do not fly a drone over people unless they are directly participating in the operation.
- Do not operate a drone from a moving vehicle or aircraft unless flying the drone over a sparsely populated area and it does not involve the transportation of property for compensation or hire.
- The user can fly during daylight (30 minutes before official sunrise to 30 minutes after official sunset, local time) or in twilight if the drone has anti-collision lighting. Minimum weather visibility is three miles from the control station. The maximum allowable altitude is 400 feet above the ground, and higher if the drone remains within 400 feet of a structure. Maximum speed is 100 mph (87 knots).
- The drone can carry an external load if it is securely attached and does not adversely affect the flight characteristics or controllability of the aircraft. The user may transport property for compensation or hire within state boundaries provided the drone (including its attached systems), payload, and cargo, weigh less than 55 pounds total and the user obeys the other flight rules. (Some exceptions apply to Hawaii and the District of Columbia.)
- The user can request a waiver of most restrictions if they can show the operation will provide a level of safety at least equivalent to the restriction from which they want the waiver. Some of the most requested waivers are for operations beyond visual line of sight, during nighttime, and over people. See FAA DroneZone below for more information on requesting waivers.

Registration

Anyone flying under Part 107 must register each drone they intend to operate. Registration is available for five dollars at faadronezone.faa.gov.

When the drone is registered, a registration number will be provided that must be visible on the drone. The registration number can be engraved, added to a label, or written with permanent marker. Users must carry their registration when operating the drone.

Pilot Certification

To operate the controls of a drone under Part 107, a user needs a remote pilot certificate with a small UAS rating or operate under the direct supervision of a person who holds such a certificate.

A user must be at least 16 years old to qualify for a remote pilot certificate. A remote pilot certificate can obtained in one of two ways: 1)Passing an initial aeronautical knowledge test at an FAA-approved knowledge testing center, or 2) If the user already have a Part 61 pilot certificate, they must have completed a flight review in the previous 24 months and they must take a UAS online training course provided by the FAA.

Users who have a Part 61 certificate will immediately receive a temporary remote pilot certificate when applying for a permanent certificate. Other applicants will obtain a temporary remote pilot certificate upon successful completion of Transportation Security Administration security vetting.

Drone Certification

The user is responsible for ensuring a drone is safe before flying, but the FAA does not require small drones to comply with current agency airworthiness standards or obtain aircraft certification. For example, the user will have to perform a preflight inspection that includes checking the communications link between the control station and the drone.

Other Requirements

If acting as pilot in command, the user will have to comply with several other provisions of Part 107:

- The drone must be available to the FAA for inspection or testing on request, and the user must provide any associated records required to be kept under the rule.
- Any operation that results in serious injury, loss of consciousness, or property damage of at least $500 must be reported to the FAA within 10 days.

Airspace Authorizations

Operations in Class G airspace are allowed without Air Traffic cCntrol (ATC) permission. Operations in Class B, C, D and E airspace need ATC authorization.

The Low Altitude Authorization and Notification Capability (LAANC, pronounced “LANCE”) uses desktop and mobile apps designed to support the volume of drone operations with almost real-time airspace authorizations. It is now live at more than 530 FAA ATC facilities covering over 726 airports throughout the country and many authorizations are granted within seconds of being submitted.

Currently, LAANC only applies to FAA ATC facilities and does not yet include contract or Department of Defense ATC facilities. Authorizations for those facilities need to follow the manual process through FAA DroneZone.

FAA DroneZone

DroneZone is a one-stop, online shop for drone registration and for requesting waivers or airspace authorizations (where LAANC is not available). Examples of operations that require waivers would include operations at night, beyond visual line of sight, over people, or other complex actions. The FAA DroneZone website has more details. The FAA generally responds to waiver requests within 90 days, depending on the complexity of the request.

DroneZone may also be used to file drone accident reports.

4 SUBPART A - GENERAL

4.1 Part 107.1 Applicability.

(a) Except as provided in paragraph (b) of this section, this part applies to the registration, airman certification, and operation of civil small unmanned aircraft systems within the United States. This part also applies to the eligibility of civil small unmanned aircraft systems to operate over human beings in the United States.

(b) This part does not apply to the following:

(1) Air carrier operations;

(2) Any aircraft subject to the provisions of 49 U.S.C. 44809;

(3) Any operation that the holder of an exemption under section 333 of Public Law 112-95 or 49 U.S.C. 44807 elects to conduct pursuant to the exemption, unless otherwise specified in the exemption; or

(4) Any operation that a person elects to conduct under Part 91 of this chapter with a small unmanned aircraft system that has been issued an airworthiness certificate.

4.1.1 *Interpretation of Part 107.1 for First Responders*

A civil aircraft is a domestic or foreign aircraft operated by private individuals or corporations, or foreign government-owned aircraft operated for commercial purposes

4.1.2 *Practical Suggestions for Complying with Part 107.1*

In this section “civil aircraft” is defined. There is no specific rule within this part to comply with as a first responder, however it is advisable to be clear with the reasons for flight. Typically, that will be as Public Aircraft Operators and the user will follow 49 U.S.C.A. § 40125 guidance which defines the qualifications for public aircraft status and the types of missions considered “governmental functions”

4.2 Part 107.2 Applicability of certification procedures for products and articles.

The provisions of Part 21 of this chapter do not apply to small unmanned aircraft systems operated under this part unless the small unmanned aircraft system will operate over human beings in accordance with § 107.140.

4.2.1 *Interpretation of Part 107.2 for First Responders*

This section states that the rules pertaining to flying over humans do not apply unless it's an aircraft that meets Category 4 operational criteria and the event will be over human beings. Category 4 operations require that an aircraft have certain eligibility requirements that are discussed in Section 7.9, Part 107.140 of this document.

4.2.2 *Practical Suggestions for Complying with Part 107.2*

Refer to Category 4 UAS definition in Section 7.9 Part 107.140. If the aircraft and flight event will not be categorized as category 4, the user may continue flight operations with strict adherence to other applicable FAA rules and regulations.

4.3 Part 107.3 Definitions.

The following definitions apply to this part. If there is a conflict between the definitions of this part and definitions specified in § 1.1 of this chapter, the definitions in this part control for purposes of this part:

Control station means an interface used by the remote pilot to control the flight path of the small unmanned aircraft.

Corrective lenses mean spectacles or contact lenses.

Declaration of compliance means a record submitted to the FAA that certifies the small unmanned aircraft conforms to the Category 2 or Category 3 requirements under subpart D of this part.

Small unmanned aircraft means an unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft.

Small unmanned aircraft system (small UAS) means a small unmanned aircraft and its associated elements (including communication links and the components that control the small unmanned aircraft) that are required for the safe and efficient operation of the small unmanned aircraft in the national airspace system.

Unmanned aircraft means an aircraft operated without the possibility of direct human intervention from within or on the aircraft.

Visual observer means a person who is designated by the remote pilot in command to assist the remote pilot in command and the person manipulating the flight controls of the small UAS to see and avoid other air traffic or objects aloft or on the ground.

4.3.1 *Interpretation of Part 107.3 for First Responders*

No Interpretation required as this is a description of definitions

4.3.2 *Practical Suggestions for Complying with Part 107.3*

No practical suggestion required as this is a description of definitions

4.4 Part 107.5 Falsification, reproduction, or alteration.

(a) No person may make or cause to be made -

(1) Any fraudulent or intentionally false record or report that is required to be made, kept, or used to show compliance with any requirement under this part.

(2) Any reproduction or alteration, for fraudulent purpose, of any certificate, rating, authorization, record or report under this part.

(b) The commission by any person of an act prohibited under paragraph (a) of this section is a basis for any of the following:

(1) Denial of an application for a remote pilot certificate or a certificate of waiver;

(2) Denial of a declaration of compliance;

(3) Suspension or revocation of any certificate, waiver, or declaration of compliance issued or accepted by the Administrator under this part and held by that person; or

(4) A civil penalty.

4.4.1 ***Interpretation of Part 107.5 for First Responders***
Rule is self-explanatory.

4.4.2 ***Practical Suggestions for Complying with Part 107.5***
Rule is self-explanatory.

4.5 Part 107.7 Inspection, testing, and demonstration of compliance.

(a) A remote pilot in command, owner, or person manipulating the flight controls of a small unmanned aircraft system must -

(1) Have in that person's physical possession and readily accessible the remote pilot certificate with a small UAS rating and identification when exercising the privileges of that remote pilot certificate.

(2) Present his or her remote pilot certificate with a small UAS rating and identification that contains the information listed at § 107.67(b)(1) through (3) for inspection upon a request from -

(i) The Administrator;

(ii) An authorized representative of the National Transportation Safety Board;

(iii) Any Federal, State, or local law enforcement officer; or

(iv) An authorized representative of the Transportation Security Administration.

(3) Make available, upon request, to the Administrator any document, record, or report required to be kept under the regulations of this chapter.

(b) The remote pilot in command, visual observer, owner, operator, or person manipulating the flight controls of a small unmanned aircraft system must, upon request, allow the Administrator to make any test or inspection of the small unmanned aircraft system, the remote pilot in command, the person manipulating the flight controls of a small unmanned aircraft system, and, if applicable, the visual observer to determine compliance with this part.

(c) Any person holding an FAA-accepted declaration of compliance under subpart D of this part must, upon request, make available to the Administrator:

(1) The declaration of compliance required under subpart D of this part; and

(2) Any other document, record, or report required to be kept under the regulations of this chapter.

(d) Any person holding an FAA-accepted declaration of compliance under subpart D of this part must, upon request, allow the Administrator to inspect its facilities, technical data, and any manufactured small UAS and witness any tests necessary to determine compliance with that subpart.

4.5.1 *Interpretation of Part 107.7 for First Responders*

Ensure all RPIC's are in possession of their remote pilot certificate when operating under this rule, as well as photo ID and physical or digital flight records. § 107.7(c) refers directly to the Operations Over People rules in Subpart D and stipulates a Declaration of Compliance must also be readily available when operating under such permission. Additionally, operators, owners, and other listed personnel are compelled to comply with requests of the administrator or authorized representative.

4.5.2 *Practical Suggestions for Complying with Part 107.7*

Any requests made by the administrators or authorized representatives should be followed to the best of the individual's ability. This can include furnishing required documentation, as well as answering questions relevant to the operation or any knowledge assessment applicable to Part 107 certification. Good practice for pilots in any operating environment is to have available all required documentation pertaining to the approval authority for the operation. This may include pilot certificates and recurrency certificates; regional (state or local) approvals; COAs, waivers, declarations of compliance; landowner permission (if written permission exists); etc. A binder or protected folder is ideal to maintain hard copies of these items, while digital copies can be kept via cloud storage or fleet management software or similarly available electronically.

4.6 Part 107.9 – Accident Reporting

No later than 10 calendar days after an operation that meets the criteria of either paragraph (a) or (b) of this section, a remote pilot in command must report to the FAA, in a manner acceptable to the Administrator, any operation of the small unmanned aircraft involving at least:

(a) Serious injury to any person or any loss of consciousness; or

(b) Damage to any property, other than the small unmanned aircraft, unless one of the following conditions is satisfied:

(1) The cost of repair (including materials and labor) does not exceed $500; or

(2) The fair market value of the property does not exceed $500 in the event of total loss.

4.6.1 *Interpretation of Part 107.9 for First Responders*

The RPIC of the sUAS is required to report an accident to the FAA within 10 days if it meets any of the following thresholds: Serious injury to any person, or any loss of consciousness. 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).

The RPIC must also report any damage to property that results in the (fair market value) repair or replacement cost of $500 (whichever is lower). This does not include their personal aircraft which may be valued greater than $500. An example of repair valuation: 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.

4.6.2 *Practical Suggestions for Complying with Part 107.9*

As the RPIC, the user should contact an FAA administrator any time they harm someone to the point of needing medical attention or they have lost consciousness. The RPIC must also report any damage to property resulting in a repair cost (materials and labor) greater than $500 to repair the property. Damage to personal aircraft resulting in a greater than $500 repair cost does not need to be reported.

Acceptable forms of reporting: the accident 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, contact the FAA Regional Operations Center. Reports may also be made to the nearest jurisdictional Flight Standards District Office.

5 SUBPART B - OPERATING RULES

5.1 Part 107.11 Applicability.

This subpart applies to the operation of all civil small unmanned aircraft systems subject to this part.

5.1.1 *Interpretation of Part 107.11 for First Responders*

All operations conducted under 14 CFR Part 107 are required to adhere to the rules and regulations in Subpart B.

5.1.2 *Practical Suggestions for Complying with Part 107.11*

All operations conducted under 14 CFR Part 107 are required to adhere to the rules and regulations in Subpart B.107.12 Requirement for a remote pilot certificate with a small UAS rating.

5.2 107.12 Requirement for a remote pilot certificate with a small UAS rating.

(a) Except as provided in paragraph (c) of this section, no person may manipulate the flight controls of a small unmanned aircraft system unless:

(1) That person has a remote pilot certificate with a small UAS rating issued pursuant to subpart C of this part and satisfies the requirements of § 107.65; or

(2) That person is under the direct supervision of a remote pilot in command and the remote pilot in command has the ability to immediately take direct control of the flight of the small unmanned aircraft.

(b) Except as provided in paragraph (c) of this section, no person may act as a remote pilot in command unless that person has a remote pilot certificate with a small UAS rating issued pursuant to Subpart C of this part and satisfies the requirements of § 107.65.

(c) The Administrator may, consistent with international standards, authorize an airman to operate a civil foreign-registered small unmanned aircraft without an FAA-issued remote pilot certificate with a small UAS rating.

5.2.1 *Interpretation of Part 107.12 for First Responders*

Functioning as a RPIC in the National Airspace System (NAS) under Part 107 requires an FAA remote pilot certificate. The RPIC can directly manipulate the sUAS flight controls via the Ground

Control Station (GCS) or directly supervise someone else manipulating the flight controls as long as the RPIC can assume the flight controls if needed. There are specific knowledge areas required with the privileges of a remote pilot certificate, and those knowledge areas are based on whether the pilot already has a Part 61 pilot certificate.

5.2.2 *Practical Suggestions for Complying with Part 107.12*

The best way to learn how to operate an sUAS is with someone who has a remote pilot certificate and is familiar with, and has flown, the specific sUAS make/model. Always practice with someone who is already proficient with the aircraft. Currently there are no flight skills tasks in the sUAS remote pilot Airman Certification Standards or a flight practical test that demonstrates flying competency. Therefore, the user has the best perspective on whether they possess the skill and proficiency to safely operate a specific aircraft make/model sUAS in the NAS.

5.3 Part 107.13 Registration.

A person operating a civil small unmanned aircraft system for purposes of flight must comply with the provisions of § 91.203(a)(2) of this chapter.

5.3.1 *Interpretation of Part 107.13 for First Responders*

The UAS owner must apply for and obtain a US registration certificate for the UAS in order to comply with requirements for flying the UAS.

5.3.2 *Practical Suggestions for Complying with Part 107.13*

The UAS owner can apply for the US registration certificate and while waiting for the certification can carry a copy of the certificate of the Aircraft Registration Application as a temporary authority to operate the UAS without registration.

5.4 Part 107.15 Condition for safe operation.

(a) No person may operate a civil small unmanned aircraft system unless it is in a condition for safe operation. Prior to each flight, the remote pilot in command must check the small unmanned aircraft system to determine whether it is in a condition for safe operation. (b) No person may continue flight of the small unmanned aircraft when he or she knows or has reason to know that the small unmanned aircraft system is no longer in a condition for safe operation.

5.4.1 *Interpretation of Part 107.15 for First Responders*

An unmanned aircraft system must be in a safe condition to fly. Check documentation and logs to ensure the aircraft has not been taken out of service and for any known issues. Pre-flight inspections and in-flight monitoring of the aircraft and systems are required to ensure safe operations.

5.4.2 *Practical Suggestions for Complying with Part 107.15*

Common sense checks and review of all flight systems and documentation before flight are a basis for safe operations. It is recommended to not fly if the user feels the system is not safe or fully operational. Check flight logs to make sure the system has not been taken out of operation or if any previous issues have been noted. Generate and utilize a pre-flight system checklist. Refer to the UAS Operator's Manual for guidance. This should become a natural routine for each UAS system. Include all parts of the UAS: battery, fuel, electrical connections, antennas, flight controls, engine, prop, landing gear and fuselage. (check everything). Inspect for damage, loose

connections, missing parts, foreign objects or debris (tools, safety wire, towels etc.). If a UAS has been deemed unsafe during pre-flight check or while in-flight, prominently mark it so it cannot and will not be flown.

5.5 Part 107.17 Medical condition.

No person may manipulate the flight controls of a small unmanned aircraft system or act as a remote pilot in command, visual observer, or direct participant in the operation of the small unmanned aircraft if he or she knows or has reason to know that he or she has a physical or mental condition that would interfere with the safe operation of the small unmanned aircraft system.

5.5.1 *Interpretation of Part 107.17 for First Responders*

Safe operation of a UAS requires all participants in the UAS operations to be physically and mentally fit to perform UAS duties. An issue that would prevent operating a vehicle or heavy machinery is a good indicator. Limited vision, limited range of motion, and mentally stressful conditions should be considered when deciding to fly or participate in flight operations.

5.5.2 *Practical Suggestions for Complying with Part 107.17*

Common sense is the guide in supporting flights if there is medical condition. If something might be a medical limitation, then it likely is a concern. Possibly utilize an informal personal fit for duty checklist ensure performance of UAS operational duties. This could include such things as hand dexterity, vision acuity, illness, migraine, severe body aches and pains or medication that may interfere with situational awareness, hearing or speaking impairment without the ability to use alternative means of communication and alcohol or drug use. Implementation of flight crew rest requirements and crew duty cycles during continuous operations is necessary to mitigate the effects of chronic and acute fatigue on aircrew performance. If physical or mental conditions change during flight and are of a concern, safely end the flight/mission as soon as possible and let your team know.

5.6 Part 107.19 Remote pilot in command.

(a) A remote pilot in command must be designated before or during the flight of the small unmanned aircraft.

(b) The remote pilot in command is directly responsible for and is the final authority as to the operation of the small unmanned aircraft system.

(c) The remote pilot in command must ensure that the small unmanned aircraft will pose no undue hazard to other people, other aircraft, or other property in the event of a loss of control of the small unmanned aircraft for any reason.

(d) The remote pilot in command must ensure that the small UAS operation complies with all applicable regulations of this chapter.

(e) The remote pilot in command must have the ability to direct the small unmanned aircraft to ensure compliance with the applicable provisions of this chapter.

5.6.1 *Interpretation of Part 107.19 for First Responders*

The RPIC is overall responsible for the safe operation of the UAS. This pilot will have "operational control" over the flight. Operational control is defined as: the exercise of authority over initiating, conducting, or terminating a flight.

5.6.2 *Practical Suggestions for Complying with Part 107.19*

The RPIC should be designated during the flight planning stage. While responsible for all aspects of the flight, the RPIC does not have to be the person directly controlling the aircraft at all times. However, the RPIC should be present and ready to take control.

5.7 Part 107.21 In-flight emergency.

(a) In an in-flight emergency requiring immediate action, the remote pilot in command may deviate from any rule of this part to the extent necessary to meet that emergency.

(b) Each remote pilot in command who deviates from a rule under *paragraph (a)* of this section must, upon request of the Administrator, send a written report of that deviation to the Administrator.

5.7.1 *Interpretation of Part 107.21 for First Responders*

During an in-flight emergency, it may be necessary to deviate from federal regulations. It is expected that the RPIC deviate to the extent necessary to meet the emergency. The FAA may request a written explanation of the deviation and, under this rule, the RPIC is required to respond if requested.

5.7.2 *Practical Suggestions for Complying with Part 107.21*

If the aircraft poses a threat to human life or property the RPIC should take whatever steps that are necessary, including deviation from other 14 CFR Part 107 rules and regulations or crashing the UAS, to prevent harm.

5.8 Part 107.23 Hazardous operation.

No person may:
(a) Operate a small unmanned aircraft system in a careless or reckless manner so as to endanger the life or property of another; or
(b) Allow an object to be dropped from a small unmanned aircraft in a manner that creates an undue hazard to persons or property.

5.8.1 *Interpretation of Part 107.23 for First Responders*

The pilot of a UAS is expected to operate their aircraft in a safe manner. While dropping of objects from the UAS is allowed by this rule, it is the RPIC's responsibility to ensure the area below the aircraft is clear and that dropping an object will not cause harm to a person or property.

5.8.2 *Practical Suggestions for Complying with Part 107.23*

In general, flying a UAS according to the Federal Aviation Regulations (FAR) will result in a safe flight. It is important that the RPIC always operate their aircraft with care and responsibility. Tools like risk assessments should be used to evaluate an operation. The phrase "Careless and Reckless" is often referred to as a catch-all. Incidents, accidents, and injuries, not specifically covered by other sections of Part 107 may be evaluated as being unsafe and therefore, careless or reckless. The RPIC must identify alternatives to accomplish an operation that is deemed hazardous by relying on predetermined contingency measures, assigning aircrew appropriately, limiting operations in hazardous conditions, and even canceling an operation until safety for the aircrew and surroundings is ensured.

5.9 Part 107.25 Operation from a moving vehicle or aircraft.

No person may operate a small unmanned aircraft system -
(a) From a moving aircraft; or
(b) From a moving land or water-borne vehicle unless the small unmanned aircraft is flown over a sparsely populated area and is not transporting another person's property for compensation or hire.

5.9.1 *Interpretation of Part 107.25 for First Responders*

No person may operate a small unmanned aircraft from a moving aircraft. A person may operate from a moving land or water-borne vehicle if the aircraft is flown over a sparsely populated area and is not transporting another person's property for compensation or hire. The RPIC may not be the operator of the moving vehicle or boat while they are also flying the sUAS.

5.9.2 *Practical Suggestions for Complying with Part 107.25*

The RPIC may operate the sUAS from a moving vehicle, such as a car/van/truck or boat as long as the RPIC is not also the operator of the vehicle and if doing so does not increase the risk or pose a hazard to the operation.

5.10 Part 107.27 Alcohol or drugs.

A person manipulating the flight controls of a small unmanned aircraft system or acting as a remote pilot in command or visual observer must comply with the provisions of *§§ 91.17* and *91.19 of this chapter*.

5.10.1 *Interpretation of Part 107.27 for First Responders*

No person participating in a UAS operation will be under the influence of drugs or alcohol, or over-the-counter medications that may inhibit the ability to safely operate a UAS. Further, no person shall operate a UAS carrying drugs or substances not authorized by any Federal or State statute or agency.

5.10.2 *Practical Suggestions for Complying with Part 107.27*

Safe operators lead to safe flights. Pilots need full capabilities to operate safely. Organizations can develop a substance abuse program that complies with provisions 99.17 and 91.19 of this chapter. Participants should not consume any alcoholic beverages or drugs within the prior 8 hours. Participants should not fly under the influence of alcohol (an alcohol concentration of 0.04 or greater in a blood or breath specimen) or drugs. Participants should not fly when using a drug or medication that affects the persons mental or physical abilities. During the remote pilot pre-flight, a provision to self-certify they are not under the influence of drugs or alcohol and are able to ensure safe UAS operations. Include in the pre-flight checklist an inspection of the cargo area for unauthorized drugs or substances.

5.11 Part 107.29 Operation at night.

(a) Except as provided in paragraph (d) of this section, no person may operate a small unmanned aircraft system at night unless -
(1) The remote pilot in command of the small unmanned aircraft has completed an initial knowledge test or training, as applicable, under § 107.65 after April 6, 2021; and
(2) The small unmanned aircraft has lighted anti-collision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision. The remote pilot in command may

reduce the intensity of, but may not extinguish, the anti-collision lighting if he or she determines that, because of operating conditions, it would be in the interest of safety to do so. (b) No person may operate a small unmanned aircraft system during periods of civil twilight unless the small unmanned aircraft has lighted anti-collision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision. The remote pilot in command may reduce the intensity of, but may not extinguish, the anti-collision lighting if he or she determines that, because of operating conditions, it would be in the interest of safety to do so.
(c) For purposes of paragraph (b) of this section, civil twilight refers to the following:
(1) Except for Alaska, a period of time that begins 30 minutes before official sunrise and ends at official sunrise;
(2) Except for Alaska, a period of time that begins at official sunset and ends 30 minutes after official sunset; and
(3) In Alaska, the period of civil twilight as defined in the Air Almanac.
(d) After May 17, 2021, no person may operate a small unmanned aircraft system at night in accordance with a certificate of waiver issued prior to April 21, 2021 under § 107.200. The certificates of waiver issued prior to March 16, 2021 under § 107.200 that authorize deviation from § 107.29 terminate on May 17, 2021.

5.11.1 *Interpretation of Part 107.29 for First Responders*

Operating a UAS during either civil twilight or at night requires UAS to be outfitted with anti-collision lighting visible to 3 statute miles with a flash rate sufficient to prevent a collision with other aircraft. There are no additional requirements to operate a UAS during civil twilight, defined as starting 30 minutes before official sunrise and 30 minutes after official sunset, except in Alaska which requires reference to the Air Almanac. The intensity of this lighting device may be reduced for safety, but the light must not be turned off. A further requirement for operating at night, the time between civil evening twilight and civil morning twilight, is that the RPIC must have completed the testing and certification requirements as outlined in Section **Error! Reference source not found.** of this document.

5.11.2 *Practical Suggestions for Complying with Part 107.29*

For operating at night or during civil twilight, it is critical that a strobe light meeting the requirements above is attached to and activated on the UAS. Some UAS may have such a device built into its hardware, while other UAS will require the installation of a third-party strobe lighting device to satisfy these requirements. The user may rely on manufacturer statements and specifications related to the visibility of such a light. There are no specific guidelines related to lighting color, though it is mandatory that the light cannot be solid but must be strobing.

5.12 Part 107.31 Visual line of sight aircraft operation.

(a) With vision that is unaided by any device other than corrective lenses, the remote pilot in command, the visual observer (if one is used), and the person manipulating the flight control of the small unmanned aircraft system must be able to see the unmanned aircraft throughout the entire flight in order to:
(1) Know the unmanned aircraft's location;
(2) Determine the unmanned aircraft's attitude, altitude, and direction of flight;
(3) Observe the airspace for other air traffic or hazards; and
(4) Determine that the unmanned aircraft does not endanger the life or property of another.

(b) Throughout the entire flight of the small unmanned aircraft, the ability described in paragraph (a) of this section must be exercised by either:
(1) The remote pilot in command and the person manipulating the flight controls of the small unmanned aircraft system; or
(2) A visual observer.

5.12.1 ***Interpretation of Part 107.31 for First Responders***

In order to comply with visual line of sight operations, the RPIC and the person manipulating the flight controls, or the visual observer (VO) (if one is used), must be able to see the aircraft throughout the entire flight unaided by any device other than corrective lenses. While maintaining line of sight, the person must be able to know the unmanned aircraft's location; determine the unmanned aircraft's attitude, altitude, and direction of flight. They must also be able to observe the airspace for other traffic or hazards, and determine that the aircraft does not endanger the life or property of another.

5.12.2 ***Practical Suggestions for Complying with Part 107.31***

Although it is not required, it is good practice to designate a visual observer for each flight. Having a dedicated VO may take some tasks away from the RPIC or person manipulating the flight controls in case of an emergency. A VO may also be located at a place other than the launch and recovery area in order to communicate better to the RPIC and the aircraft's position and the possible hazards.

5.13 Part 107.33 Visual observer.

If a visual observer is used during the aircraft operation, all of the following requirements must be met:
(a) The remote pilot in command, the person manipulating the flight controls of the small unmanned aircraft system, and the visual observer must maintain effective communication with each other at all times.
(b) The remote pilot in command must ensure that the visual observer is able to see the unmanned aircraft in the manner specified in § 107.31.
(c) The remote pilot in command, the person manipulating the flight controls of the small unmanned aircraft system, and the visual observer must coordinate to do the following:
(1) Scan the airspace where the small unmanned aircraft is operating for any potential collision hazard; and
(2) Maintain awareness of the position of the small unmanned aircraft through direct visual observation.

5.13.1 ***Interpretation of Part 107.33 for First Responders***

When using a VO, the RPIC, the person manipulating the flight controls, and the VO must maintain effective communication with each other at all times in order to maintain visual line of sight (107.31) the unmanned. The RPIC, the person manipulating the flight controls, and the VO must coordinate in order to scan the airspace where the unmanned aircraft is flying for any potential collision hazard and maintain awareness of the position of the unmanned aircraft through direct visual observation.

5.13.2 ***Practical Suggestions for Complying with Part 107.33***

If aircrew are not located where face-to-face communication is difficult, one recommendation is 2-way radios for crew communications. This will allow everyone involved in the flight to have direct communications with each other. If using multiple observers, each observer must have direct communication with the remote pilot in command and/or the person manipulating the flight controls. The daisy chaining (telephone game) of communications is prohibited.

5.14 Part 107.35 Operation of multiple small unmanned aircraft.

A person may not manipulate flight controls or act as a remote pilot in command or visual observer in the operation of more than one unmanned aircraft at the same time.

5.14.1 ***Interpretation of Part 107.35 for First Responders***

The user should not operate more than one sUAS at a time, nor concurrently act as a Visual Observer while operating as the RPIC on another sUAS.

5.14.2 ***Practical Suggestions for Complying with Part 107.35***

Commit your attention to your specific flight responsibility. Do not try to multi-task outside of the responsibilities of an RPIC operating an aircraft. Ensure you utilize crew resource management by positively controlling your launch and recovery area. If necessary, task the VO with ensuring a sterile working area while operating your aircraft. This means task the VO with keeping observers from distracting your attention. You should always prioritize your attention to the safe operation of the single aircraft you are manipulating.

5.15 Part 107.36 Carriage of hazardous material.

A small unmanned aircraft may not carry hazardous material. For purposes of this section, the term hazardous material is defined in 49 CFR 171.8.

5.15.1 ***Interpretation of Part 107.36 for First Responders***

Per 49 CFR 171.8, a hazardous material is a substance or material deemed capable of risk to health, safety, and property when transported.

5.15.2 ***Practical Suggestions for Complying with Part 107.36***

If something is hazardous then it should not be flown. It is recommended to include a visual inspection for the following classes of hazardous material in pre-flight checklist. Ensure all chemicals and substances utilized in the maintenance and operations of a UAS are properly designated, labeled and stored including the following:

- Class 1: Explosives
- Class 2: Gases
- Class 3: Flammable and combustible liquid
- Class 4: Flammable Solid, Spontaneously Combustible, and Dangerous When Wet
- Class 5: Oxidizer and Organic Peroxide
- Class 6: Poison (Toxic) and Poison Inhalation Hazard
- Class 7: Radioactive
- Class 8: Corrosive

- Class 9: Miscellaneous / Dangerous

5.16 Part 107.37 Operation near aircraft; right-of-way rules.

(a) Each small unmanned aircraft must yield the right of way to all aircraft, airborne vehicles, and launch and reentry vehicles. Yielding the right of way means that the small unmanned aircraft must give way to the aircraft or vehicle and may not pass over, under, or ahead of it unless well clear.

(b) No person may operate a small unmanned aircraft so close to another aircraft as to create a collision hazard.

5.16.1 *Interpretation of Part 107.37 for First Responders*

In all cases, the unmanned aircraft must yield to other flying traffic. For small unmanned-manned aircraft, well clear is defined as maintaining a minimum of 2000 feet horizontal and 250 feet vertical separation. Typical general aviation traffic will have either 1000 foot (densely populated areas) or 500-foot minimum safe altitudes, however, in many first responder operations there may be aircraft with permission to operate at very low altitudes. A Near Mid Air Collision is defined at less than 500 feet horizontal or 100 feet vertical separation.

5.16.2 *Practical Suggestions for Complying with Part 107.37*

Situational awareness when flying is the most critical component to see-and-avoid operations. Visual scanning techniques are well documented in aviation and a part of the Part 107 Study Guide and Exam. The use of additional Visual Observers is also an option and a key tool when environmental or other factors hinder the RPIC's ability to monitor the entire airspace in the vicinity of flight. When experiencing an air traffic encounter, quick response is key to maintaining well clear. For most UAS use cases, rapid decent is often the best avoidance maneuver, as accurate perception of horizontal separation can be very difficult given the size discrepancy between UAS and manned aircraft. Maintaining a First-Person View (FPV) video display on a tablet, laptop, or phone mounted to the hand-held controller is an excellent method to assist pilots with maintaining situational awareness of the UAV's heading and attitude when operating at a distance from the flight crew.

5.17 Part 107.39 Operation over human beings.

No person may operate a small unmanned aircraft over a human being unless -

(a) That human being is directly participating in the operation of the small unmanned aircraft;

(b) That human being is located under a covered structure or inside a stationary vehicle that can provide reasonable protection from a falling small unmanned aircraft; or

(c) The operation meets the requirements of at least one of the operational categories specified in subpart D of this part.

5.17.1 *Interpretation of Part 107.39 for First Responders*

Only operate the UAS over human beings if they are under covered structures, are inside stationary vehicles, or are part of the team operating the UAS. Subpart D in Section 7 of this document also provides provisions that permit flights over humans.

5.17.2 *Practical Suggestions for Complying with Part 107.39*

If the operation cannot meet the requirements of at least one operation category within Subpart D seen in Section 7 of this document, then the operation should ensure all bystanders, personnel, and other responding agencies' personnel are either under a covered structure or are in stationary vehicles. The operation should ensure that only the individuals involved with the operation (e.g., spotters, UAS logistics personnel, pilot in command) are the personnel over which the UAS flies.

5.18 Part 107.41 Operation in certain airspace.

No person may operate a small unmanned aircraft 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 unless that person has prior authorization from Air Traffic Control (ATC).

5.18.1 *Interpretation of Part 107.41 for First Responders*

Operations of sUAS in controlled airspace without coordination and approval from ATC is prohibited. Controlled airspace starting at the surface, or zero feet Above Ground Level (AGL), exists within a five nautical mile radius around most airports with an active control tower.

5.18.2 *Practical Suggestions for Complying with Part 107.41*

It is imperative for all sUAS operators to know how to identify controlled airspace and how to navigate the approval process from air traffic authority. This step begins in the operations planning process. Part 107 remote pilots may request access to operate in controlled airspace in two distinct ways: (1) Through a Part 107.41 Airspace Authorization Waiver application found at https://faadronezone.faa.gov; or (2) Through the Low-Altitude Authorization Notification Capability (LAANC) application. A Letter of Agreement (LOA) between public safety agencies and Air Traffic Management (ATM) are encouraged in addition to a Part 107.41 airspace authorization waiver. However, an LOA does not authorize operations in controlled airspace without an authorization waiver. LAANC is an automated service for participating airports that automatically authorizes operations in certain airspace. The FAA has approved numerous UAS Service Suppliers to facilitate LAANC requests. A Notice to Airmen (NOTAM) is strongly encouraged when operating sUAS in controlled airspace because this is shared airspace with manned aviation.

5.19 Part 107.43 Operation in the vicinity of airports.

No person may operate a small unmanned aircraft in a manner that interferes with operations and traffic patterns at any airport, heliport, or seaplane base.

5.19.1 *Interpretation of Part 107.43 for First Responders*

sUAS operations near airports must be coordinated in a way to avoid any interference with day-to-day airport functions. The RPIC must be prepared to always give way to manned aircraft. These include small and specialized airports, for instance, uncontrolled airports without a tower, heliports, grass strip airports, and seaplane bases.

5.19.2 *Practical Suggestions for Complying with Part 107.43*

While operating a small UAS near an airport the RPIC must maintain their situational awareness to keep clear of manned aircraft operations. It is strongly advised that the RPIC use a VO during operations near airports as well as a radio tuned to the airport, or the nearest airport, and Common Traffic Advisory Frequency.

5.20 Part 107.45 Operation in prohibited or restricted areas.

No person may operate a small unmanned aircraft in prohibited or restricted areas unless that person has permission from the using or controlling agency, as appropriate.

5.20.1 *Interpretation of Part 107.45 for First Responders*

Per CFR 91.103, each RPIC shall, before beginning of flight, become familiar with all available information concerning that flight. If the airspace is prohibited or restricted, then a formal approval to fly in these areas must be obtained.

5.20.2 *Practical Suggestions for Complying with Part 107.45*

It is recommended to develop a Pre-Flight checklist for the RPIC that includes considerations for operations in and around prohibited or restricted areas. Pilots should know before flight if they are near or in prohibited or restricted areas and fully understand the bounds and restrictions of the flight space. RPICs should obtain approval for flights in prohibited or restricted area. This should be a formal approval and not just a verbal one. Authorization from ATC for operations in controlled airspace classes is required. For flights near or adjacent to prohibited or restricted areas, the RPIC should ensure flight profiles are sufficiently away from these areas to prevent accidental incursions. The RPIC should review weather reports and forecasts to inform flight operations and potentials for conditions where incursions may occur. The RPIC should review NOTAMs.

5.21 Part 107.47 Flight restrictions in the proximity of certain areas designated by notice to airmen.

A person acting as a remote pilot in command must comply with the provisions of §§ 91.137 through 91.145 and 99.7 of this chapter.

5.21.1 *Interpretation of Part 107.47 for First Responders*

In addition to controlled, uncontrolled, and special use airspace, there is other airspace in and around the US that is managed by the FAA. The RPIC must comply with all FAA-issued NOTAMs and Temporary Flight Restrictions (TFR) for the following: 1) associated disaster/hazard areas (§ 91.137); and 2) aerial demonstrations and major sporting events (§ 91.145). The RPIC must also comply with FAA special security instructions related to the North American Air Defense Identification Zone (ADIZ) consisting of airspace surrounding the southern border and coastlands of the U.S. The purpose of TFRs is to protect people on the surface and in the air and to maintain air safety and efficiency. The purpose of the ADIZ and defense areas in the U.S. is national security.

5.21.2 *Practical Suggestions for Complying with Part 107.47*

An assessment of the operating environment is always necessary before takeoff and during flight. Besides coordination with ATC, the user should review and comply with any airspace flight restrictions in the desired operational area.

5.22 Part 107.49 Preflight familiarization, inspection, and actions for aircraft operation.

Prior to flight, the remote pilot in command must: (a) Assess the operating environment, considering risks to persons and property in the immediate vicinity both on the surface and in the air. This assessment must include:

(1) Local weather conditions;

(2) Local airspace and any flight restrictions;

(3) The location of persons and property on the surface; and

(4) Other ground hazards.

(b) Ensure that all persons directly participating in the small unmanned aircraft operation are informed about the operating conditions, emergency procedures, contingency procedures, roles and responsibilities, and potential hazards;

(c) Ensure that all control links between ground control station and the small unmanned aircraft are working properly;

(d) If the small unmanned aircraft is powered, ensure that there is enough available power for the small unmanned aircraft system to operate for the intended operational time;

(e) Ensure that any object attached or carried by the small unmanned aircraft is secure and does not adversely affect the flight characteristics or controllability of the aircraft; and

(f) If the operation will be conducted over human beings under subpart D of this part, ensure that the aircraft meets the requirements of § 107.110, § 107.120(a), § 107.130(a), or § 107.140, as applicable.

5.22.1 ***Interpretation of Part 107.49 for First Responders***

Before takeoff, the RPIC must thoroughly evaluate the area of intended operation and the aircraft to be flown.

5.22.2 ***Practical Suggestions for Complying with Part 107.49***

Appendix E of Advisory Circular 107.2, Small Unmanned Aircraft System, provides a sample preflight assessment and inspection checklist for the RPIC. The user can use the assessment or checklist or develop one based on specific operation and aircraft make/model.

5.23 Part 107.51 Operating limitations for small unmanned aircraft.

A remote pilot in command and the person manipulating the flight controls of the small unmanned aircraft system must comply with all of the following operating limitations when operating a small unmanned aircraft system:

(a) The groundspeed of the small unmanned aircraft may not exceed 87 knots (100 miles per hour).

(b) The altitude of the small unmanned aircraft cannot be higher than 400 feet above ground level, unless the small unmanned aircraft:

(1) Is flown within a 400-foot radius of a structure; and

(2) Does not fly higher than 400 feet above the structure's immediate uppermost limit.

(c) The minimum flight visibility, as observed from the location of the control station must be no less than 3 statute miles. For purposes of this section, flight visibility means the average slant distance from the control station at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.

(d) The minimum distance of the small unmanned aircraft from clouds must be no less than:

(1) 500 feet below the cloud; and

(2) 2,000 feet horizontally from the cloud.

5.23.1 *Interpretation of Part 107.51 for First Responders*

The operating limits defined in § 107.51 for sUAS operations in the NAS ensure that the RPIC has time to properly identify operational hazards and take appropriate actions to maintain appropriate levels of flight safety.

5.23.2 *Practical Suggestions for Complying with Part 107.51*

The Advisory Circular (AC) for sUAS (107.20) addresses different ways to determine groundspeed and altitude when flying. The best way to determine sUAS groundspeed and altitude is referencing a properly calibrated groundspeed indicator and altimeter displayed on the GCS. Many commercial GCS interfaces allow the operator to set a maximum ground speed and altitude using the Global Positioning System (GPS). This can serve as an effective means of compliance with § 107.51. Visibility on the ground can be determined through aviation weather services, e.g. airport Meteorological Terminal Air Report, Automated Weather Observing System, and Automated Surface Observing System. If a local airport is not nearby, predetermined ground references, such as buildings, land markers, and geography, can be used to estimate visibility distances. Distance from clouds is harder to estimate than visibility, but the user can improve the distance estimations from clouds by comparing aviation weather services ceiling reports to the sight picture from the ground with actual ceiling conditions.

6 SUBPART C - REMOTE PILOT CERTIFICATION

6.1 Part 107.52 ATC transponder equipment prohibition.

Unless otherwise authorized by the Administrator, no person may operate a small unmanned aircraft system under this part with a transponder on.

6.1.1 *Interpretation of Part 107.52 for First Responders*

Unless the user has authorization to do otherwise, they may not operate an sUAS with a transponder on. Automatic Dependent Surveillance-Broadcast (ADS-B) Out works by broadcasting information about an aircraft's GPS location, altitude, ground speed, and other data to ground stations and other aircraft, once per second.

6.1.2 *Practical Suggestions for Complying with Part 107.52*

The user should not operate a sUAS with a transponder on.

6.2 Part 107.53 Automatic Dependent Surveillance-Broadcast (ADS-B) Out prohibition.

Unless otherwise authorized by the Administrator, no person may operate a small unmanned aircraft system under this part with ADS-B Out equipment in transmit mode.

6.2.1 *Interpretation of Part 107.53 for First Responders*

Unless they have authorization by an Administrator, or FAA representative, no person is allowed to operate a sUAS with ADS-B Out transmitting. ADS-B Out works by broadcasting information about an aircraft's GPS location, altitude, ground speed and other data to ground stations and other aircraft, once per second.

6.2.2 *Practical Suggestions for Complying with Part 107.53*

The user should not operate a sUAS with ADS-B out equipment in transmit mode.

6.3 Part 107.56 Applicability.

This subpart prescribes the requirements for issuing a remote pilot certificate with a small UAS rating.

6.3.1 *Interpretation of Part 107.56 for First Responders*

A rating is defined as a part of a certificate, sets forth special conditions, privileges, or limitations. This section prescribes the requirement for issuance of a Remote Pilot Certificate.

6.3.2 *Practical Suggestions for Complying with Part 107.56*

This Part 107 rule advises, recommends, and authorizes the requirements for issuing a pilot certificate with regards to operations of a sUAS

6.4 Part 107.57 Offenses involving alcohol or drugs.

(a) A conviction for the violation of any Federal or State statute relating to the growing, processing, manufacture, sale, disposition, possession, transportation, or importation of narcotic drugs, marijuana, or depressant or stimulant drugs or substances is grounds for:

(1) Denial of an application for a remote pilot certificate with a small UAS rating for a period of up to 1 year after the date of final conviction; or

(2) Suspension or revocation of a remote pilot certificate with a small UAS rating.

(b) Committing an act prohibited by § 91.17(a) or § 91.19(a) of this chapter is grounds for:

(1) Denial of an application for a remote pilot certificate with a small UAS rating for a period of up to 1 year after the date of that act; or

(2) Suspension or revocation of a remote pilot certificate with a small UAS rating.

6.4.1 *Interpretation of Part 107.57 for First Responders*

Personnel that has convictions, denials, suspensions, or has committed any of the acts noted should not participate in UAS operations.

6.4.2 *Practical Suggestions for Complying with Part 107.57*

Users who answer yes to any of the above items should not participate in UAS operations.

6.5 Part 107.59 Refusal to submit to an alcohol test or to furnish test results.

A refusal to submit to a test to indicate the percentage by weight of alcohol in the blood, when requested by a law enforcement officer in accordance with § 91.17(c) of this chapter, or a refusal to furnish or authorize the release of the test results requested by the Administrator in accordance with § 91.17(c) or (d) of this chapter, is grounds for:

(a) Denial of an application for a remote pilot certificate with a small UAS rating for a period of up to 1 year after the date of that refusal; or

(b) Suspension or revocation of a remote pilot certificate with a small UAS rating.

6.5.1 *Interpretation of Part 107.59 for First Responders*

Refusal to submit to an alcohol test or to release test results may result in suspension or revocation of a remote pilot certificate or authorization, or denial of an application for remote pilot certification for up to a year.

6.5.2 *Practical Suggestions for Complying with Part 107.59*

This is about both safe flights and the development and fostering of a safe flight culture within a group or organization. Develop a substance abuse program that complies with provisions 99.17 and 91.19 of this chapter. Develop a drug and alcohol training program. Develop a log / tracking system to ensure the ineligible operators are not allowed to operate.

6.6 Part 107.61 Eligibility.

Subject to the provisions of § 107.57 and § 107.59, in order to be eligible for a remote pilot certificate with a small UAS rating under this subpart, a person must:

(a) Be at least 16 years of age;

(b) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, the FAA may place such operating limitations on that applicant's certificate as are necessary for the safe operation of the small unmanned aircraft;

(c) Not know or have reason to know that he or she has a physical or mental condition that would interfere with the safe operation of a small unmanned aircraft system; and

(d) Demonstrate aeronautical knowledge by satisfying one of the following conditions, in a manner acceptable to the Administrator:

(1) Pass an initial aeronautical knowledge test covering the areas of knowledge specified in § 107.73; or

(2) If a person holds a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meets the flight review requirements specified in § 61.56, complete training covering the areas of knowledge specified in § 107.74.

6.6.1 *Interpretation of Part 107.61 for First Responders*

This section describes minimum requirements for eligibility for Part 107. Subparts (a) and (d) are self-explanatory. Subpart (b) may be of importance in communities where English is not the dominant language. Subpart (c) requires a subjective evaluation of a person's current condition. In emergency response, some typical factors to pay special attention to are sleep deprivation and fatigue.

6.6.2 *Practical Suggestions for Complying with Part 107.61*

Compliance with this part is inherent for certificated Part 107 pilots as the FAA's application/testing process will require Subparts (a), (b), and (d). For subpart (c), all operators should utilize crew resource management tools for ensuring safe operations as part of mission planning and pre-flight routines. An example would be to include the FAA's IM SAFE checklist for evaluating aircrew readiness for flight operations (https://www.thebalancecareers.com/the-i-m-safe-checklist-282948).

6.7 Part 107.63 Issuance of a remote pilot certificate with a small UAS rating.

An applicant for a remote pilot certificate with a small UAS rating under this subpart must make the application in a form and manner acceptable to the Administrator.

(a) The application must include either:

(1) Evidence showing that the applicant passed an initial aeronautical knowledge test. If applying using a paper application, this evidence must be an airman knowledge test report showing passage of the knowledge test; or

(2) If a person holds a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meets the flight review requirements specified in § 61.56, a certificate of completion of an initial training course under this part that covers the areas of knowledge specified in § 107.74.

(b) If the application is being made pursuant to paragraph (a)(2) of this section:

(1) The application must be submitted to the responsible Flight Standards office, a designated pilot examiner, an airman certification representative for a pilot school, a certificated flight instructor, or other person authorized by the Administrator;

(2) The person accepting the application submission must verify the identity of the applicant in a manner acceptable to the Administrator; and

(3) The person making the application must, by logbook endorsement or other manner acceptable to the Administrator, show the applicant meets the flight review requirements specified in § 61.56 of this chapter.

6.7.1 *Interpretation of Part 107.63 for First Responders*

To receive a Part 107 remote pilot certificate, the applicant must demonstrate the requisite aeronautical knowledge for that certificate. If the user doed not have a pilot certificate with a current flight review, a passing score of 70% is required on a remote pilot airman knowledge test report. If the user has a pilot certificate with a current flight review, then the applicant must demonstrate the completion of the Part 107 Small UAS Initial – Part 61 Pilots online training, which is found at the following link: https://www.faasafety.gov/gslac/ALC/CourseLanding.aspx?cID=451. After completing the online training, Part 61 pilots must verify their identity and their current § 61.56 flight review with one of the FAA representatives listed in § 107.63(b)(1).

6.7.2 *Practical Suggestions for Complying with Part 107.63*

The knowledge requirements for acquiring a Part 107 remote pilot certificate can be divided in two categories: 1) the user does not possess a Part 61 pilot certificate; and 2) the user does possess a Part 61 pilot certificate. Many of the Part 107 aeronautical knowledge areas for the non Part 61 pilot and Part 61 pilot are similar, but the following additional requirements complete the knowledge gaps for the non Part 61 applicants: 1) airspace regulations affecting small unmanned aircraft operation; 2) radio communication procedures; 3) physiological effects of drugs and alcohol; 4) aeronautical decision-making and judgment; and 5) airport operations. If you are a Part 61 pilot but do not have a current flight review, as defined in § 61.56, then the initial and recurrent training is the same as the non Part 61 pilot.

6.8 Part 107.64 Temporary certificate.

(a) A temporary remote pilot certificate with a small UAS rating is issued for up to 120 calendar days, at which time a permanent certificate will be issued to a person whom the Administrator finds qualified under this part.

(b) A temporary remote pilot certificate with a small UAS rating expires:

(1) On the expiration date shown on the certificate;

(2) Upon receipt of the permanent certificate; or

(3) Upon receipt of a notice that the certificate sought is denied or revoked.

6.8.1 *Interpretation of Part 107.64 for First Responders*

The temporary report pilot certification is issued by the FAA for up to 120 calendar days. The permanent certification may be issued after the temporary remote pilot certificate expires. The temporary remote pilot certificate can expire on the date shown on the certificate, when the permanent certificate is received, or on notification that the request for a certificate was denied or the temporary certificate is revoked.

6.8.2 *Practical Suggestions for Complying with Part 107.64*

The temporary certificate is valid for up to 120 calendar days. The user should ensure that the date of the temporary certificate expiration is has not passed. If the permanent certificate is received, then the temporary certificate has expired. If the request for a permanent certificate is denied or the FAA revokes the temporary certificate, then the temporary certificate is no long valid.

6.9 Part 107.65 Aeronautical knowledge recency.

A person may not exercise the privileges of a remote pilot in command with small UAS rating unless that person has accomplished one of the following in a manner acceptable to the Administrator within the previous 24 calendar months:

(a) Passed an initial aeronautical knowledge test covering the areas of knowledge specified in § 107.73;

(b) Completed recurrent training covering the areas of knowledge specified in § 107.73; or

(c) If a person holds a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meets the flight review requirements specified in § 61.56, completed training covering the areas of knowledge specified in § 107.74.

(d) A person who has passed a recurrent aeronautical knowledge test in a manner acceptable to the Administrator or who has satisfied the training requirement of paragraph (c) of this section prior to April 6, 2021 within the previous 24 calendar months is considered to be in compliance with the requirement of paragraph (b) or (c) of this section, as applicable.

6.9.1 *Interpretation of Part 107.65 for First Responders*

To maintain currency, a RPIC operating under Part 107 regulations must, every 24 months (2 years) either pass the initial knowledge test or the recurrent training as discussed in Section **Error! Reference source not found.** of this document. A person with a Part 61 pilot license meeting the relevant flight review requirements may alternatively complete the training discussed in Section **Error! Reference source not found.** every 24 months

6.9.2 ***Practical Suggestions for Complying with Part 107.65***

This section states that recurrent training must be completed 24 months after passing the initial knowledge test or 24 months after passing a recurrent training. It is critical to ensure that this re-currency certification is completed on time.

6.10 Part 107.67 Knowledge tests: General procedures and passing grades.

(a) Knowledge tests prescribed by or under this part are given by persons and in the manner designated by the Administrator.

(b) An applicant for a knowledge test must have proper identification at the time of application that contains the applicant's:

(1) Photograph;

(2) Signature;

(3) Date of birth, which shows the applicant meets or will meet the age requirements of this part for the certificate and rating sought before the expiration date of the airman knowledge test report; and

(4) Permanent mailing address. If the applicant's permanent mailing address is a post office box number, then the applicant must also provide a current residential address.

(c) The minimum passing grade for the knowledge test will be specified by the Administrator.

6.10.1 ***Interpretation of Part 107.67 for First Responders***

To apply for a Knowledge Test, the applicant must have a photo ID including signature, date of birth, and permanent mailing address. The minimum passing grade for the knowledge test will be specified by the FAA.

6.10.2 ***Practical Suggestions for Complying with Part 107.67***

Examples of identification required to apply for a knowledge test may include a driver's license, state or federal ID, passport, or other identification meeting the requirements listed.

6.11 Part 107.69 Knowledge tests: Cheating or other unauthorized conduct.

(a) An applicant for a knowledge test may not:

(1) Copy or intentionally remove any knowledge test;

(2) Give to another applicant or receive from another applicant any part or copy of a knowledge test;

(3) Give or receive assistance on a knowledge test during the period that test is being given;

(4) Take any part of a knowledge test on behalf of another person;

(5) Be represented by, or represent, another person for a knowledge test;

(6) Use any material or aid during the period that the test is being given, unless specifically authorized to do so by the Administrator; and

(7) Intentionally cause, assist, or participate in any act prohibited by this paragraph.

(b) An applicant who the Administrator finds has committed an act prohibited by paragraph (a) of this section is prohibited, for 1 year after the date of committing that act, from:

(1) Applying for any certificate, rating, or authorization issued under this chapter; and

(2) Applying for and taking any test under this chapter.

(c) Any certificate or rating held by an applicant may be suspended or revoked if the Administrator finds that person has committed an act prohibited by paragraph (a) of this section.

6.11.1 ***Interpretation of Part 107.69 for First Responders***

Cheating, such as copying a knowledge test, sharing or receiving part of a knowledge test, providing or receiving help to/from another applicant during a test, using unauthorized material or aid, or representing or being represented by another person are not allowed. Consequences for intentionally causing, assisting, or participating in any of these acts include a 1-year prohibition in applying for any certificate, rating, or authorization in addition to a prohibition in applying for or taking any knowledge test. Current certificates or ratings held may also be suspended or revoked.

6.11.2 ***Practical Suggestions for Complying with Part 107.69***

The consequences for cheating during a knowledge test can result in suspension of current certificates/ratings in addition to a 1-year probation from future testing. The user should not commit any of the actions prohibited in this section.

6.12 Part 107.71 Retesting after failure.

An applicant for a knowledge test who fails that test may not reapply for the test for 14 calendar days after failing the test.

6.12.1 ***Interpretation of Part 107.71 for First Responders***

If a knowledge test is failed, the applicant may retest after 14 calendar days, or 2 weeks, from the date of the failed test.

6.12.2 ***Practical Suggestions for Complying with Part 107.71***

An applicant must wait 14 days in order to apply to retake a failed knowledge exam.

6.13 Part 107.73 Knowledge and training.

An initial aeronautical knowledge test and recurrent training covers the following areas of knowledge:

(a) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;

(b) Airspace classification, operating requirements, and flight restrictions affecting small unmanned aircraft operation;

(c) Aviation weather sources and effects of weather on small unmanned aircraft performance;

(d) Small unmanned aircraft loading;

(e) Emergency procedures;

(f) Crew resource management;

(g) Radio communication procedures;

(h) Determining the performance of the small unmanned aircraft;

(i) Physiological effects of drugs and alcohol;

(j) Aeronautical decision-making and judgment;

(k) Airport operations;

(l) Maintenance and preflight inspection procedures; and

(m) Operation at night.

6.13.1 ***Interpretation of Part 107.73 for First Responders***

This section lists the 13 areas of knowledge that are included in both the initial knowledge testing and recurrent trainings.

6.13.2 ***Practical Suggestions for Complying with Part 107.73***

The user should ensure that knowledge of these categories is sound and sufficient prior to taking the initial knowledge test or recurrent training.

6.14 Part 107.74 Small unmanned aircraft system training.

Training for pilots who hold a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meet the flight review requirements specified in § 61.56 covers the following areas of knowledge:

(a) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;

(b) Effects of weather on small unmanned aircraft performance;

(c) Small unmanned aircraft loading;

(d) Emergency procedures;

(e) Crew resource management;

(f) Determining the performance of the small unmanned aircraft;

(g) Maintenance and preflight inspection procedures; and

(h) Operation at night.

6.14.1 ***Interpretation of Part 107.74 for First Responders***

This section lists the 8 areas of knowledge that are included in the trainings for pilots who hold a Part 61 pilot certificate.

6.14.2 ***Practical Suggestions for Complying with Part 107.74***

The user should ensure that knowledge of these categories is sound and sufficient prior to taking the training.

6.15 Part 107.77 Change of name or address.

(a) Change of name. An application to change the name on a certificate issued under this subpart must be accompanied by the applicant's:

(1) Remote pilot certificate with small UAS rating; and

(2) A copy of the marriage license, court order, or other document verifying the name change.

(b) The documents in paragraph (a) of this section will be returned to the applicant after inspection.

(c) Change of address. The holder of a remote pilot certificate with small UAS rating issued under this subpart who has made a change in permanent mailing address may not, after 30 days from that date, exercise the privileges of the certificate unless the holder has notified the FAA of the change in address using one of the following methods:

(1) By letter to the FAA Airman Certification Branch, P.O. Box 25082, Oklahoma City, OK 73125 providing the new permanent mailing address, or if the permanent mailing address includes a post office box number, then the holder's current residential address; or

(2) By using the FAA Web site portal at www.faa.gov providing the new permanent mailing address, or if the permanent mailing address includes a post office box number, then the holder's current residential address.

6.15.1 ***Interpretation of Part 107.77 for First Responders***

In order to change the identifying information on the license, particularly the name or address on file, the user must provide the FAA documents listed. If after 30 days the information has officially changed and the user has not updated your information with the FAA, their privileges will be suspended until they send the FAA the required documents and proof by way of postal service or by using the FAA's website. The user may not use a P.O. Box as an official address. If sending hard copy documents, the FAA will return them after review.

6.15.2 ***Practical Suggestions for Complying with Part 107.77***

To comply with this rule, the user needs to provide the FAA with updated information within 30 days. The user should send it in the most expeditious manner possible, or might lose privileges until such time the information has been updated in the FAA database. For a name change, the user may send qualifying documents like marriage license, court orders, or other document identifying a name change.

6.16 Part 107.79 Voluntary surrender of certificate.

(a) The holder of a certificate issued under this subpart may voluntarily surrender it for cancellation.

(b) Any request made under paragraph (a) of this section must include the following signed statement or its equivalent: "I voluntarily surrender my remote pilot certificate with a small UAS rating for cancellation. This request is made for my own reasons, with full knowledge that my certificate will not be reissued to me unless I again complete the requirements specified in §§ 107.61 and 107.63."

6.16.1 ***Interpretation of Part 107.79 for First Responders***

A Part 107 certificate may be voluntarily surrendered at any time. A request must be made to the FAA via a signed statement as outlined in this section.

6.16.2 ***Practical Suggestions for Complying with Part 107.79***

The user should use the statement provided, with a signature, to surrender a certificate to the FAA.

7 SUBPART D - OPERATIONS OVER HUMAN BEINGS

7.1 Part 107.100 Applicability.

This subpart prescribes the eligibility and operating requirements for civil small unmanned aircraft to operate over human beings or over moving vehicles in the United States, in addition to those operations permitted by § 107.39(a) and (b).

7.1.1 *Interpretation of Part 107.100 for First Responders*

sUAS operators are unlikely to be able to develop and demonstrate a complete Means of Compliance for the § 107.100 on their own. Operators are most likely to be able to conduct Operations over People by purchasing an aircraft that has § 107.100 compliance labeling and then following operators' manual instructions for conducting Operations over Human Beings. sUAS Original Equipment Manufacturers (OEM) are the most likely entities to be able to meet the requirements for Operations over Human Beings, which aside from validating that the aircraft does not exceed FAA injury thresholds and do not have exposed rotating components, require that an applicant ensure that there are no safety defects in the aircraft, have reliable variable operational modes for Operations over Human Beings, and are supported by an enterprise system for product notifications and firmware updates. It is unlikely that an operator that did not manufacture an aircraft could conduct system safety analysis and maintain aircraft firmware.

7.1.2 *Practical Suggestions for Complying with Part 107.100*

Following purchase of an aircraft for which an OEM has demonstrated compliance with requirements for Operations over Human Beings, operators must comply with relevant limitations stated in the operator manual. For example, adherence to maximum airspeed and maximum altitude for operations over human beings. It is most likely that OEMs will be required to develop specific flight modes that must be activated prior to launch to implement these operational limits for the duration of the Operations over People. Operators will have to implement any relevant OEM-stated operational limitations in order to conduct Operations over Human Beings.

7.2 Part 107.105 Limitations on operations over human beings.

Except as provided in §§ 107.39(a) and (b) and 107.145, a remote pilot in command may conduct operations over human beings only in accordance with the following, as applicable: § 107.110 for Category 1 operations; §§ 107.115 and 107.120 for Category 2 operations; §§ 107.125 and 107.130 for Category 3 operations; or § 107.140 for Category 4 operations.

7.2.1 *Interpretation of Part 107.105 for First Responders*

First Responders should only use aircraft for the categories of Operations over Human Beings for which the sUAS OEM has demonstrated compliance with the requirements of § 107.100. First Responders should only conduct Operations over Human Beings if they are able to implement operational limitations required for Operations over Human Beings stated in the respective aircraft's operator's manual.

7.2.2 *Practical Suggestions for Complying with Part 107.105*

There are three critical aspects that First Responders should initially consider as they look for sUAS solutions that enable execution of Operations over Human Beings. First, operators need to understand what kind of payload and flight profile are needed to conduct their operations.

Operators must also determine whether they are able to limit access to their operational areas during sUAS flight operations. First Responders must also determine if their mission requires a particular flight profile, i.e. specific ranges of ground speed and altitude that the sUAS will fly in order to complete the mission when operating over people.

Understanding payload requirements for a specific mission will narrow down the number and type of aircraft (Fixed-Wing, Multirotor, VTOL-capable Fixed-Wing, etc.) models that are capable of carrying the required payload. After the payload is known and the operator has determined which aircraft are operationally capable of carrying the payload, then they must determine which of the potential aircraft is supported by an FAA-accepted Declaration of Compliance with the requirements of the Final Rule for Operations over People. sUAS that are compliant with the Final Rule will have labeling that specifies which Categories of Operations over People the aircraft is compliant with. For information regarding the DOC and Operations over People, please refer to https://uasdoc.faa.gov.

The primary aircraft attribute that determines Category 1 compliance is that the aircraft must weight 0.55 lbs or less. This weight limitation imposes significant limitations on available payloads and mission endurance. Category 1 Operations over Human Beings, most likely, provide little valued added to First Responder actions during an emergency.

The principle requirement of Category 2 operations that affects aircraft payload carrying capability, endurance and flight profile is that an aircraft will not cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of 11 foot-pounds (ft-lbs) of kinetic energy upon impact from a rigid object.

The principle requirement of Category 3 operations that affects aircraft payload carrying capability, endurance, and flight profile is that an aircraft will not cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of 25 foot-pounds (ft-lbs) of kinetic energy upon impact from a rigid object.

Aside from aircraft structural attributes, the principle ways to limit injury potential of an aircraft to acceptable levels are to maintain the lowest weight possible and limit the airspeed and altitude of Operations over People. Aircraft weight includes available payload and battery weight. Payload and endurance requirements may eliminate the potential for conducting Category 2 operations. After an operator identifies a potential aircraft that can be, legally, used for Operations over Human Beings in support of their specific mission based on available payloads, they must evaluate whether the airspeed and altitude limitations applied to that aircraft for regulatory compliance are permissible within their operational environment. Lastly, the operator has to determine whether they can limit access to their flight area, which is also a requirement for Category 3 Operations over People. If an operator cannot limit access to their flight area, then they cannot conduct Category 3 Operations over People. Table 1 summarizes the aforementioned categories.

Table 1. Operation Categories.

	Cat. 1 §107.110	Cat. 2 §107.115	Cat. 3 §107.125	Cat. 4 §107.140
Weight/Force	.55 lbs or less (Gross Weight	No more than 11 foot-pounds	No more than 25 foot-pounds	N/A
Exposed Rotating Parts	Shielded Props	Shielded Props	Shielded Props	N/A
Sustained Flight Over Open-Air Assembly	Allowed with RID	Allowed with RID	Allowed in restricted-access sites	Allowed with Waiver
Remote ID	Required	Required	N/A	Required
Part 21 Airworthiness Certification	N/A	N/A	N/A	Required

7.3 Part 107.110 Category 1 operations.

To conduct Category 1 operations -

(a) A remote pilot in command must use a small unmanned aircraft that -

(1) Weighs 0.55 pounds or less on takeoff and throughout the duration of each operation under Category 1, including everything that is on board or otherwise attached to the aircraft; and

(b) Does not contain any exposed rotating parts that would lacerate human skin upon impact with a human being.

(c) No remote pilot in command may operate a small unmanned aircraft in sustained flight over open-air assemblies of human beings unless the operation meets the requirements of either § 89.110 or § 89.115(a) of this chapter.

7.3.1 *Interpretation of Part 107.110 for First Responders*

Category 1 remote pilot operations must limit the size of an sUAS to 0.55lbs to include all possible attachments to the aircraft including safety lighting, payloads, cargo, or anything else that may add weight to the aircraft. This weight restriction must be maintained for the duration of the flight from time of take-off to landing. Any sUAS larger than 0.55lbs exceeds the maximum weight in Category 1 and is subject to either Category 2, 3, or 4. Aircraft in Category 1 weight limit are not required to be registered with the FAA. Category 1 sUAS may not have exposed rotors that would lacerate skin upon impact. Due to the weight and registration requirements, Category 1 operations do not meet the need for compliance with § 89.110 or § 89.115(a) which is an aircraft remote identification and FAA Means of Compliance request and approval. No Remote Identification (RID) requirement or registration with FAA is needed for this category of operations as long as the aircraft weight is kept under 0.55lbs.

7.3.2 *Practical Suggestions for Complying with Part 107.110*

When operating a Category 1 sUAS aircraft over people, the pilot should ensure that the weight of the aircraft does not exceed 0.55lbs for the duration of the flight. The pilot must also ensure that there are no exposed rotating mechanisms that might cut a person's skin if it were to fall on them. Propeller guards are commonly used to prevent injury as long as they do not increase the weight of the aircraft in excess of .55lbs.

7.4 Part 107.115 Category 2 operations: Operating requirements.

To conduct Category 2 operations -

(a) A remote pilot in command must use a small unmanned aircraft that -

(1) Is eligible for Category 2 operations pursuant to § 107.120(a);

(2) Is listed on an FAA-accepted declaration of compliance as eligible for Category 2 operations in accordance with § 107.160; and

(3) Is labeled as eligible to conduct Category 2 operations in accordance with § 107.120(b)(1).

(b) No remote pilot in command may operate a small unmanned aircraft in sustained flight over open-air assemblies of human beings unless the operation meets the requirements of either § 89.110 or § 89.115(a) of this chapter.

7.4.1 *Interpretation of Part 107.115 for First Responders*

Category 2 operations define a different set of rules for aircraft weighing more than .55lbs but do not have an airworthiness certificate under Part 21. To conduct category 2 operations over people, there are additional requirements that must be met: 1) the sUAS will not cause an injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of 11 foot-pounds of kinetic energy upon impact from a rigid object; and 2) The aircraft does not contain any exposed rotating parts that would lacerate human skin upon impact with a human being. Pursuant to § 107.120(a) the sUAS must also have a label permanently affixed to the aircraft indicating eligibility to conduct Category 2 operations. The label must be in English and be legible, prominent, and permanently affixed to the sUAS. Category 2 operations must also have a Declaration of Compliance (DOC) listed. The Means of Compliance is provided by an aircraft manufacturer. Along with aircraft weight and compliance requirements, sustained flight over open air assemblies under Category 2 are only allowed if the aircraft is compliant with RID.

7.4.2 *Practical Suggestions for Complying with Part 107.115*

To comply with Category 2 operational rules, the aircraft must be registered with the FAA. Any flight over an open-air assembly under Category 2 with a sUAS must be capable of transmitting remote identification. This is in reference to the § 89.110 or § 89.115(a) statement within this particular Part 107 rule. The user will be required to land the aircraft if the broadcast of the flight information, by way of remote ID, is no longer broadcasting message elements such as location, altitude, emergency status, time mark and vehicle speed. It is also required that the aircraft not have any exposed rotating mechanisms that could cause harm.

7.5 Part 107.120 Category 2 operations: Eligibility of small unmanned aircraft and other applicant requirements.

(a) To be eligible for use in Category 2 operations, the small unmanned aircraft must be designed, produced, or modified such that it -

(1) Will not cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of 11 foot-pounds of kinetic energy upon impact from a rigid object;

(2) Does not contain any exposed rotating parts that would lacerate human skin upon impact with a human being; and

(3) Does not contain any safety defects.

(b) The applicant for a declaration of compliance for a small unmanned aircraft that is eligible for use in Category 2 operations in accordance with paragraph (a) of this section, must meet all of the following requirements for the applicant's unmanned aircraft to be used in Category 2 operations:

(1) Display a label on the small unmanned aircraft indicating eligibility to conduct Category 2 operations. The label must be in English and be legible, prominent, and permanently affixed to the small unmanned aircraft.

(2) Have remote pilot operating instructions that apply to the operation of the small unmanned aircraft system. The applicant for a declaration of compliance must make available these instructions upon sale or transfer of the aircraft or use of the aircraft by someone other than the applicant who submitted a declaration of compliance pursuant to § 107.160. Such instructions must address, at a minimum -

(i) A system description that includes the required small unmanned aircraft system components, any system limitations, and the declared category or categories of operation;

(ii) Modifications that will not change the ability of the small unmanned aircraft system to meet the requirements for the category or categories of operation the small unmanned aircraft system is eligible to conduct; and

(iii) Instructions for how to verify and change the mode or configuration of the small unmanned aircraft system, if they are variable.

(3) Maintain a product support and notification process. The applicant for a declaration of compliance must maintain product support and notification procedures to notify the public and the FAA of -

(i) Any defect or condition that causes the small unmanned aircraft to no longer meet the requirements of this subpart; and

(ii) Any identified safety defect that causes the small unmanned aircraft to exceed a low probability of casualty.

7.5.1 *Interpretation of Part 107.120 for First Responders*

In order to be eligible for Category 2 aircraft operations over people, the user must first meet certain registration, documentation, and safety requirements. This rule specifically defines what those requirements are. The operator of a category 2 aircraft must ensure that the aircraft is registered, labeled appropriately, and will not cause injury greater than what 11 foot-pounds of kinetic injury would cause. There should be no modifications to an aircraft that will affect the specific categorical requirements. The aircraft doesn't possess any safety defects, and the user must have available instructions to verify and change the mode or configuration of the aircraft. Additionally, the operation may not conduct sustained (hovering) flights over open-air assemblies of human beings unless there is sufficient notice of sUAS flight events and the aircraft is compatible with RID.

7.5.2 *Practical Suggestions for Complying with Part 107.120*

To determine eligibility and before operations over people are conducted with an aircraft weighing over .55lbs, the RPIC should make sure that they have satisfied the items listed in this rule. Because this rule presents the requirements in a bulletized format, it would be advisable to consider this as another checklist of items to complete or verify before your flight.

7.6 Part 107.125 Category 3 operations: Operating requirements.

To conduct Category 3 operations, a remote pilot in command -

(a) Must use a small unmanned aircraft that -

(1) Is eligible for Category 3 operations pursuant to § 107.130(a);

(2) Is listed on a current declaration of compliance as eligible for Category 3 operations in accordance with § 107.160; and

(3) Is labeled as eligible for Category 3 operations in accordance with § 107.130(b)(1);

(b) Must not operate the small unmanned aircraft over open-air assemblies of human beings; and

(c) May only operate the small unmanned aircraft above any human being if operation meets one of the following conditions:

(1) The operation is within or over a closed- or restricted-access site and all human beings located within the closed- or restricted-access site must be on notice that a small unmanned aircraft may fly over them; or

(2) The small unmanned aircraft does not maintain sustained flight over any human being unless that human being is -

(i) Directly participating in the operation of the small unmanned aircraft; or

(ii) Located under a covered structure or inside a stationary vehicle that can provide reasonable protection from a falling small unmanned aircraft.

7.6.1 *Interpretation of Part 107.125 for First Responders*

Category 3 is more limited in the ability to overfly humans in an open-air assembly but increases the level of acceptable injury to 25lbs of kinetic energy. This rule is very similar to Category 2 in that the aircraft must be registered with FAA and labeled appropriately. The user must still satisfy the safety criteria to prevent injury to human skin. The user may overfly humans only if the operation is within a closed or restricted-access site, meaning there is a control of how the assembly gets in and out of the area of operation. The aircraft doesn't maintain sustained flight, meaning the user may not hover in place over non-participants and the user must give notice to anyone that is located inside of the operational area that unmanned aircraft operations will be conducted. The only other exception would be if all non-participants are positioned under a structure or a vehicle that would prevent or reduce injury if struck by the aircraft.

7.6.2 *Practical Suggestions for Complying with Part 107.125*

This rule is the category of operational rules the user would use when flying in an area that has limited or restricted access and no assembly of people. An example of this could be a large construction site or area under development that would intentionally limit access for safety reasons and even have a defined area of limited access. Conceivably, but not absolutely, the only people

in the area would have permission to be there and are aware that an sUAS is flying over the area. The user must still provide notice that you will be operating an unmanned aircraft in some means of effective communication. The aircraft still needs to satisfy all other rules regarding registration and labeling. If non-participants are covered by a structure or inside of a vehicle operations may continue. The exception for overflight of a human would be for anyone participating in the flight operations. Sustained flight is over any person not participating in the operation or not located under structure or inside a vehicle is not permitted.

7.7 Part 107.130 Category 3 operations: Eligibility of small unmanned aircraft and other applicant requirements.

(a) To be eligible for use in Category 3 operations, the small unmanned aircraft must be designed, produced, or modified such that it -

(1) Will not cause injury to a human being that is equivalent to or greater than the severity of the injury caused by a transfer of 25 foot-pounds of kinetic energy upon impact from a rigid object;

(2) Does not contain any exposed rotating parts that would lacerate human skin upon impact with a human being; and

(3) Does not contain any safety defects.

(b) The applicant for a declaration of compliance for a small unmanned aircraft that is eligible for use in Category 3 operations in accordance with paragraph (a) of this section, must meet all of the following requirements for the applicant's small unmanned aircraft to be used in Category 3 operations:

(1) Display a label on the small unmanned aircraft indicating eligibility to conduct Category 3 operations. The label must be in English and be legible, prominent, and permanently affixed to the small unmanned aircraft.

(2) Have remote pilot operating instructions that apply to the operation of the small unmanned aircraft system. The applicant for a declaration of compliance must make available these instructions upon sale or transfer of the aircraft or use of the aircraft by someone other than the applicant who submitted a declaration of compliance pursuant to § 107.160. Such instructions must address, at a minimum -

(i) A system description that includes the required small unmanned aircraft system components, any system limitations, and the declared category or categories of operation;

(ii) Modifications that will not change the ability of the small unmanned aircraft system to meet the requirements for the category or categories of operation the small unmanned aircraft system is eligible to conduct; and

(iii) Instructions for how to verify and change the mode or configuration of the small unmanned aircraft system, if they are variable.

(3) Maintain a product support and notification process. The applicant for a declaration of compliance must maintain product support and notification procedures to notify the public and the FAA of -

(i) Any defect or condition that causes the small unmanned aircraft to no longer meet the requirements of this subpart; and

(ii) Any identified safety defect that causes the small unmanned aircraft to exceed a low probability of fatality.

7.7.1 *Interpretation of Part 107.130 for First Responders*

Category 3 operations require more than the previous categories in that they still must satisfy the registration and labeling requirement of the FAA, but must also include and have available certain instructions for piloting operations, system description, modifications, and instructions for how to verify and change mode or configuration of the aircraft. The operator of the aircraft must also maintain a product support and notification process. Any defects or condition that causes the aircraft to be incapable of meeting the requirement of this section is a disqualifying condition and must be satisfied before operations can process. Lastly, any safety defect that causes the aircraft to increase it's potential for being dangerous to be point of fatality to a human, is not allowable.

7.7.2 *Practical Suggestions for Complying with Part 107.130*

This category of operational compliance limits operations to participants of the operations, or non-participants that have been notified. The operator must satisfy the items listed in this rule. Because this rule presents the requirements in a bulletized format, it would be advisable to consider this as a checklist of items to complete or verify before flight in a limited or restricted access location.

7.8 Part 107.135 Labeling by remote pilot in command for Category 2 and 3 operations.

If a Category 2 or Category 3 label affixed to a small unmanned aircraft is damaged, destroyed, or missing, a remote pilot in command must label the aircraft in English such that the label is legible, prominent, and will remain on the small unmanned aircraft for the duration of the operation before conducting operations over human beings. The label must correctly identify the category or categories of operation over human beings that the small unmanned aircraft is qualified to conduct in accordance with this subpart.

7.8.1 *Interpretation of Part 107.135 for First Responders*

Aircraft labeling is required for Category 2 and Category 3 sUAS operations over people. The label indicates the operations over people category or categories in which the RPIC is eligible and qualified to conduct. If the category label is damaged, destroyed, or missing, the RPIC must relabel the aircraft to remain eligible for operations over people.

7.8.2 *Practical Suggestions for Complying with Part 107.135*

Before each flight, the operator should always check the presence and condition of the operations over people category label. The operator should recheck the category label post flight to determine if a replacement label is needed before the next flight.

7.9 Part 107.140 Category 4 operations.

(a) Remote pilot in command requirements. To conduct Category 4 operations -

(1) A remote pilot in command -

(i) Must use a small unmanned aircraft that is eligible for Category 4 operations pursuant to paragraph (b) of this section; and

(ii) Must operate the small unmanned aircraft in accordance with all operating limitations that apply to the small unmanned aircraft, as specified by the Administrator.

(2) No remote pilot in command may operate a small unmanned aircraft in sustained flight over open-air assemblies of human beings unless the operation meets the requirements of either § 89.110 or § 89.115(a) of this chapter.

(b) Small unmanned aircraft requirements for Category 4. To be eligible to operate over human beings under this section, the small unmanned aircraft must -

(1) Have an airworthiness certificate issued under part 21 of this chapter.

(2) Be operated in accordance with the operating limitations specified in the approved Flight Manual or as otherwise specified by the Administrator. The operating limitations must not prohibit operations over human beings.

(3) Have maintenance, preventive maintenance, alterations, or inspections performed in accordance with paragraph (c)(1) of this section.

(c) Maintenance requirements for Category 4. The owner must (unless the owner enters into an agreement with an operator to meet the requirements of this paragraph (c), then the operator must) meet the requirements of this paragraph (c):

(1) Ensure the person performing any maintenance, preventive maintenance, alterations, or inspections:

(i) Uses the methods, techniques, and practices prescribed in the manufacturer's current maintenance manual or Instructions for Continued Airworthiness that are acceptable to the Administrator, or other methods, techniques, and practices acceptable to the Administrator;

(ii) Has the knowledge, skill, and appropriate equipment to perform the work;

(iii) Performs the maintenance, preventive maintenance, or alterations on the small unmanned aircraft in a manner using the methods, techniques, and practices prescribed in the manufacturer's current maintenance manual or Instructions for Continued Airworthiness prepared by its manufacturer, or other methods, techniques, and practices acceptable to the Administrator;

(iv) Inspects the small unmanned aircraft in accordance with the manufacturer's instructions or other instructions acceptable to the Administrator; and

(v) Performs the maintenance, preventive maintenance, or alterations using parts of such a quality that the condition of the aircraft will be at least equal to its original or properly altered condition.

(2) Maintain all records of maintenance, preventive maintenance, and alterations performed on the aircraft and ensure the records are documented in a manner acceptable to the Administrator. The records must contain the description of the work performed, the date the work was completed, and the name of the person who performed the work.

(3) Maintain all records containing -

(i) The status of life-limited parts that are installed on, or part of, the small unmanned aircraft;

(ii) The inspection status of the aircraft; and

(iii) The status of applicable airworthiness directives including the method of compliance, the airworthiness directive number, and revision date. If the airworthiness directive involves recurring action, the record must contain the time and date of the next required action.

(4) Retain the records required under paragraphs (c)(2) and (3) of this section, as follows:

(i) The records documenting maintenance, preventive maintenance, or alterations performed must be retained for 1 year from when the work is completed or until the maintenance is repeated or superseded by other work.

(ii) The records documenting the status of life-limited parts, compliance with airworthiness directives, and inspection status of the small unmanned aircraft must be retained and transferred with the aircraft upon change in ownership.

(5) Ensure all records under paragraphs (c)(2) and (3) of this section are available for inspection upon request from the Administrator or any authorized representative of the National Transportation Safety Board (NTSB).

(d) Compliance with parts 43 and 91 of this chapter. Compliance with part 43 and part 91, subpart E, of this chapter fulfills the requirements in paragraphs (b)(3) and (c) of this section.

7.9.1 *Interpretation of Part 107.140 for First Responders*

Category 4 allows sUAS with an approved airworthiness certificate under Part 21 to operate over people, so long as the operating limitations specified in the approved Flight Manual or as otherwise specified by the Administrator, do not prohibit operations over people. All operations under Category 4 must be compliant with RID in order to operate an sUAS in sustained flight over open-air assemblies. To preserve the continued airworthiness of the small unmanned aircraft and continue to meet a level of reliability that the FAA finds acceptable for operating over people in accordance with Category 4, additional requirements apply such as keeping and maintaining maintenance records which include records on Life (by time or cycle) limited components, preventative maintenance, and alterations performed on the aircraft and ownership.

7.9.2 *Practical Suggestions for Complying with Part 107.140*

Simply put, this category of aircraft is not frequently seen outside of an organized aviation program that has documentation for the complete history of the aircraft and all life cycle or life limited components attached to it. If the operator is planning to operate in compliance with Category 4 operations and aircraft, they will need to coordinate heavily with the FAA and be able to provide relevant documentation to include complete maintenance records of the aircraft as well as an airworthiness certification for the sUAS and the current maintenance status of the aircraft. Additionally, the operator will need to comply with all notifications and restrictions of flights over open air assembly.

7.10 Part 107.145 Operations over moving vehicles.

No person may operate a small unmanned aircraft over a human being located inside a moving vehicle unless the following conditions are met:

(a) The operation occurs in accordance with § 107.110 for Category 1 operations; § 107.115 for Category 2 operations; § 107.125 for Category 3 operations; or § 107.140 for Category 4 operations.

(b) For an operation under Category 1, Category 2, or Category 3, the small unmanned aircraft, throughout the operation -

(1) Must remain within or over a closed- or restricted-access site, and all human beings located inside a moving vehicle within the closed- or restricted-access site must be on notice that a small unmanned aircraft may fly over them; or

(2) Must not maintain sustained flight over moving vehicles.

(c) For a Category 4 operation, the small unmanned aircraft must -

(1) Have an airworthiness certificate issued under part 21 of this chapter.

(2) Be operated in accordance with the operating limitations specified in the approved Flight Manual or as otherwise specified by the Administrator. The operating limitations must not prohibit operations over human beings located inside moving vehicles.

7.10.1 *Interpretation of Part 107.145 for First Responders*

Operations over moving vehicles must be conducted using aircraft that are approved for either Category 1, 2, 3, or 4. Operations over moving vehicles must be conducted with appropriate Operations over Human Beings flight profile limitations in place for the aircraft being used, per the aircraft operator's manual. Category 1, 2, and 3 Operations over Moving Vehicles must occur within a close or restricted access site, may only traverse vehicles and not loiter over vehicles, and people within the vehicles must be informed about the operation. Category 4 Operations over moving vehicles must be conducted in accordance with the limitations for these operations stated in the aircraft flight manual.

7.10.2 *Practical Suggestions for Complying with Part 107.145*

First Responders should only purchase aircraft that are labeled as being complaint with requirements for Operations over Human Beings in order to conduct Operations over Human Beings or Operations over Moving Vehicles. First Responders must implement operational limitations per the aircraft flight manual in order to conduct any of these operations.

7.11 Part 107.150 Variable mode and variable configuration of small unmanned aircraft systems.

A small unmanned aircraft system may be eligible for one or more categories of operation over human beings under this subpart, as long as a remote pilot in command cannot inadvertently switch between modes or configurations.

7.11.1 *Interpretation of Part 107.150 for First Responders*

When a UAS is allowed to conduct operations in more than one category, switching between various modes and configurations while flying over humans is allowed, must be controlled as an intentional act, and in such a way that inadvertent switching is avoided.

7.11.2 *Practical Suggestions for Complying with Part 107.150*

The operator must be conscious of the aircraft mode and configuration during all phases of flight, especially during operations over people. Best practice is to not vary the mode or configuration in flight over people at any point from takeoff to landing at mission completion, unless necessary to prevent an accident. The operator should test the aircraft in each of the modes and configurations it will be operating in and submit a Means of Compliance (MOC) to the FAA.

7.12 § 107.155 Means of compliance.

(a) Establishment of compliance. To meet the requirements of § 107.120(a) for operations in Category 2, or the requirements of § 107.130(a) for operations in Category 3, the means of compliance must consist of test, analysis, or inspection.

(b) Required information. An applicant requesting FAA acceptance of a means of compliance must submit the following information to the FAA in a manner specified by the Administrator:

(1) Procedures. Detailed description of the means of compliance, including applicable test, analysis, or inspection procedures to demonstrate how the small unmanned aircraft meets the requirements of § 107.120(a) for operations in Category 2 or the requirements of § 107.130(a) for operations in Category 3. The description should include conditions, environments, and methods, as applicable.

(2) Compliance explanation. Explanation of how application of the means of compliance fulfills the requirements of § 107.120(a) for operations in Category 2 or the requirements of § 107.130(a) for operations in Category 3.

(c) FAA acceptance. If the FAA determines the applicant has demonstrated compliance with paragraphs (a) and (b) of this section, it will notify the applicant that it has accepted the means of compliance.

(d) Rescission.

(1) A means of compliance is subject to ongoing review by the Administrator. The Administrator may rescind its acceptance of a means of compliance if the Administrator determines that a means of compliance does not meet any or all of the requirements of this subpart.

(2) The Administrator will publish a notice of rescission in the Federal Register.

(e) Inapplicability of part 13, subpart D, of this chapter. Part 13, subpart D, of this chapter does not apply to the procedures of paragraph (a) of this section.

7.12.1 *Interpretation of Part 107.155 for First Responders*

The FAA requires a detailed MOC when seeking eligibility for one or more categories of operation over human beings under this subpart to meet the required safety level. An acceptable MOC must include inspection, test, and analysis which demonstrates compliance to safety requirements. The FAA Administrator may accept or rescind the MOC if all requirements are not met. For most First Responders engaged in flight operations, this will not be a focus of mission support and it is unlikely that a First Responder organization can complete all of the required tasks to submit a complete Declaration of Compliance on its own.

7.12.2 *Practical Suggestions for Complying with Part 107.155*

For First Responders, this MOC is something addressed at a program level of an organization and not by the operators themselves. It is a process and approval well before any in-field or mission operations. The MOC, if in place, will detail what is and is not allowed. The user should utilize the remote pilot operating instructions to describe how to verify and change the mode or configuration. They should describe in details all test, inspection and analysis procedures including conditions, environments and methods. They should explain how the MOC will fulfill the requirements of Category 2 and 3 as appropriate.

7.13 Part 107.160 Declaration of compliance.

(a) Required information. In order for an applicant to declare a small unmanned aircraft is compliant with the requirements of this subpart for Category 2 or Category 3 operations, an applicant must submit a declaration of compliance for acceptance by the FAA, in a manner specified by the Administrator, that includes the following information:

(1) Applicant's name;

(2) Applicant's physical address;

(3) Applicant's email address;

(4) The small unmanned aircraft make and model name, and series, if applicable;

(5) The small unmanned aircraft serial number or range of serial numbers that are the subject of the declaration of compliance;

(6) Whether the declaration of compliance is an initial declaration or an amended declaration;

(7) If the declaration of compliance is an amended declaration, the reason for the re-submittal;

(8) The accepted means of compliance the applicant used to fulfill requirements of § 107.120(a) or § 107.130(a) or both;

(9) A declaration that the applicant -

(i) Has demonstrated that the small unmanned aircraft, or specific configurations of that aircraft, satisfies § 107.120(a) or § 107.130(a) or both, through the accepted means of compliance identified in paragraph (a)(8) of this section;

(ii) Has verified that the unmanned aircraft does not contain any safety defects;

(iii) Has satisfied § 107.120(b)(3) or § 107.130(b)(3), or both; and

(iv) Will, upon request, allow the Administrator to inspect its facilities, technical data, and any manufactured small unmanned aircraft and witness any tests necessary to determine compliance with this subpart; and

(10) Other information as required by the Administrator.

(b) FAA acceptance. If the FAA determines the applicant has demonstrated compliance with the requirements of this subpart, it will notify the applicant that it has accepted the declaration of compliance.

(c) Notification of a safety issue. Prior to initiating rescission proceedings pursuant to paragraphs (d)(1) through (3) of this section, the FAA will notify the applicant if a safety issue has been identified for the declaration of compliance.

(d) Rescission.

(1) No person may operate a small unmanned aircraft identified on a declaration of compliance that the FAA has rescinded pursuant to this subpart while that declaration of compliance is rescinded.

(2) The FAA may rescind a declaration of compliance if any of the following conditions occur:

(i) A small unmanned aircraft for which a declaration of compliance was accepted no longer complies with § 107.120(a) or § 107.130(a);

(ii) The FAA finds a declaration of compliance is in violation of § 107.5(a); or

(iii) The Administrator determines an emergency exists related to safety in accordance with the authority in 49 U.S.C. 46105.

(3) If a safety issue identified under paragraph (c) of this section has not been resolved, the FAA may rescind the declaration of compliance as follows:

(i) The FAA will issue a notice proposing to rescind the declaration of compliance. The notice will set forth the Agency's basis for the proposed rescission and provide the holder of the declaration of compliance with 30 calendar days from the date of issuance of the proposed notice to submit evidentiary information to refute the proposed notice.

(ii) The holder of the declaration of compliance must submit information demonstrating how the small unmanned aircraft meets the requirements of this subpart within 30 calendar days from the date of issuance of the proposed notice.

(iii) If the FAA does not receive the information required by paragraph (d)(3)(ii) of this section within 30 calendar days from the date of the issuance of the proposed notice, the FAA will issue a notice rescinding the declaration of compliance.

(4) If the Administrator determines that an emergency exists in accordance with paragraph (d)(2)(iii) of this section, the FAA will exercise its authority under 49 U.S.C. 46105(c) to issue an order rescinding a declaration of compliance without initiating the process in paragraph (d)(3) of this section.

(e) Petition to reconsider the rescission of a declaration of compliance. A person subject to an order of rescission under paragraph (d)(3) of this section may petition the FAA to reconsider the rescission of a declaration of compliance by submitting a request to the FAA in a manner specified by the Administrator within 60 days of the date of issuance of the rescission.

(1) A petition to reconsider the rescission of a declaration of compliance must demonstrate at least one of the following:

(i) A material fact that was not present in the original response to the notification of the safety issue and an explanation for why it was not present in the original response;

(ii) The FAA made a material factual error in the decision to rescind the declaration of compliance; or

(iii) The FAA did not correctly interpret a law, regulation, or precedent.

(2) Upon consideration of the information submitted under paragraph (e)(1) of this section, the FAA will issue a notice either affirming the rescission or withdrawing the rescission.

(f) Inapplicability of part 13, subpart D, of this chapter. Part 13, subpart D, of this chapter does not apply to the procedures of paragraphs (d) and (e) of this section.

7.13.1 *Interpretation of Part 107.160 for First Responders*

This section is focused on a program level approval and not toward the First Responder's application and operations in the field for response. It is the "paperwork and approvals" before some flights if the one wants to conduct operations over people. Along with a MOC, an applicant must submit to the FAA Administrator a Declaration of Compliance. The FAA may accept, notify of a safety issue, or rescind the declaration. The notification of safety issue must be addressed within 30 calendar days from the date of issuance of the proposed notice. The FAA may rescind the declaration if the safety issue is not resolved. However, the applicant may petition to reconsider the rescission of a declaration of compliance within 60 days from the date of issuance of the proposed notice.

7.13.2 *Practical Suggestions for Complying with Part 107.160*

The organization should decide as a group if this is required. If so, the organization should then refer to FAA Advisory Circular AC 89-2 - Declaration of Compliance Process for Remote Identification of Unmanned Aircraft. This is a paperwork and approval process that is outlined in the wording.

7.14 Part 107.165 Record retention.

(a) A person who submits a declaration of compliance under this subpart must retain and make available to the Administrator, upon request, the information described in paragraph (a)(1) of this section for the period of time described in paragraph (a)(2) of this section.

(1) All supporting information used to demonstrate the small unmanned aircraft meets the requirements of §§ 107.120(a), for operations in Category 2, and 107.130(a), for operations in Category 3.

(2) The following time periods apply:

(i) If the person who submits a declaration of compliance produces a small unmanned aircraft, that person must retain the information described in paragraph (a)(1) of this section for two years after the cessation of production of the small unmanned aircraft system for which the person declared compliance.

(ii) If the person who submits a declaration of compliance designs or modifies a small unmanned aircraft, that person must retain the information described in paragraph (a)(1) of this section for two years after the person submitted the declaration of compliance.

(b) A person who submits a means of compliance under this subpart must retain and make available to the Administrator, upon request, and for as long as the means of compliance remains accepted, the detailed description of the means of compliance and justification showing how the means of compliance meets the requirements of §§ 107.120(a), for operations in Category 2, and 107.130(a), for operations in Category 3.

7.14.1 *Interpretation of Part 107.165 for First Responders*

Operations over people or moving vehicles requires an extra level of documentation and record keeping/retention. The documents must be held for specified periods of time. Declarations of Compliance records must be retained for two years after cessation of production, design, or modification of a sUAS. A person who submits a MOC must retain and make available to the FAA the MOC and justification for as long as the MOC remains accepted.

7.14.2 *Practical Suggestions for Complying with Part 107.165*

This is a documentation and record keeping requirement. The organization should define the Point of Contact in the organization that is responsible for submitting the MOC and tracking all documentation and records. The organization should develop a Records Retention Policy and Schedule that defines what is kept and for how long. The organization should ensure all retained records are backed up.

8 SUBPART E - WAIVERS

8.1 Part 107.200 Waiver policy and requirements.

(a) The Administrator may issue a certificate of waiver authorizing a deviation from any regulation specified in § 107.205 if the Administrator finds that a proposed small UAS operation can safely be conducted under the terms of that certificate of waiver.

(b) A request for a certificate of waiver must contain a complete description of the proposed operation and justification that establishes that the operation can safely be conducted under the terms of a certificate of waiver.

(c) The Administrator may prescribe additional limitations that the Administrator considers necessary.

(d) A person who receives a certificate of waiver issued under this section:

(1) May deviate from the regulations of this part to the extent specified in the certificate of waiver; and

(2) Must comply with any conditions or limitations that are specified in the certificate of waiver.

8.1.1 *Interpretation of Part 107.200 for First Responders*

Should the RPIC feel the need to fly their sUAS in outside of the rules and regulation of 14 CFR 107, there are methods of obtaining waivers from the FAA. The waiver process can take as long as 90 days to get approved. When filing a waiver, the RPIC must clearly define the operation and any risk mitigating actions they intend on implementing to make the operation as safe as possible. If the FAA feels the need for increased safety, they can issue the waiver with additional actions the RPIC must follow while operating under the waiver. When the waiver is approved by the FAA, the RPIC may then deviate from the regulations for the portion approved by the FAA, but must remain in compliance with all other parts of the regulation.

8.1.2 *Practical Suggestions for Complying with Part 107.200*

Nearly any Part 107 rule may be waived if the FAA is satisfied with the safety mitigations and has decided the operation can conducted without harming anyone or damaging any property. The RPIC may submit waiver applications via DroneZone or through the COA Application Process (CAPS) but must fly the operation as described and with any additional conditions or limitations placed on the RPIC by the FAA.

8.2 Part 107.205 List of regulations subject to waiver.

A certificate of waiver issued pursuant to § 107.200 may authorize a deviation from the following regulations of this part:

(a) 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.

(b) Section 107.29(a)(2) and (b) - Anti-collision light required for operations at night and during periods of civil twilight.

(c) 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.

(d) Section 107.33 - Visual observer.

(e) Section 107.35 - Operation of multiple small unmanned aircraft systems.

(f) Section 107.37(a) - Yielding the right of way.

(g) Section 107.39 - Operation over people.

(h) Section 107.41 - Operation in certain airspace.

(i) Section 107.51 - Operating limitations for small unmanned aircraft.

(j) Section 107.145 - Operations over moving vehicles.

8.2.1 *Interpretation of Part 107.205 for First Responders*

Though restricted from certain operations, through the waiver process the RPIC can conduct outside of the restrictions and limitations of 14 CFR Part 107 under FAA approved conditions. Those operations are: flying from a moving vehicle or aircraft; not using anti-collision lights at night or during periods of civil twilight; flying beyond visual line of sight; not utilizing a VO in the manner prescribed in 107.33; operating multiple sUAS at the same time; not yielding the right of way or remaining well clear of manned aircraft; operating sUAS over people; operating small UAS in controlled airspace (i.e. class B, C, D, or surface E); operating a small UAS faster than 100 m.p.h., higher than 400 feet AGL, or weather less than 3 miles visibility.

8.2.2 *Practical Suggestions for Complying with Part 107.205*

If a RPIC needs to fly their sUAS in one of the conditions listed above, then the provisions of 107.200 will apply.