



RUSSELLVILLE FIRE DEPARTMENT
POLICY MANUAL

Policy Number:
Section:
Original Date:
Revised Date:

PURPOSE

This policy establishes procedures for the safe operation of small Unmanned Aircraft System(s) by Russellville Fire Department personnel.

POLICY

The Russellville Fire Department has implemented the operation of small Unmanned Aircraft System(s), sUAS, to assist during special events, emergencies, and special operations in order to provide increased situational awareness and enhance firefighter safety. It is the policy of the Russellville Fire Department that trained and authorized personnel may deploy sUAS when such use is appropriate in the performance of their official duties, and where deployment and use, and the collection and use of any audio/video recordings or other data originating from or generated by the sUAS, comply with the policy provisions provided herein and applicable law, including either the FAA's sUAS Rule (14 CFR Part 107) or a Certificate of Authorization (COA) issued to the Russellville Fire Department by the Federal Aviation Administration (FAA), and any local, state and federal laws pertaining to sUAS usage. This policy sets forth the guidelines for aircraft operation during specified missions along with guidelines to minimize the risk to people, property, and aircraft while continuing to safeguard the right to privacy of all persons.

Definitions:

- COA – A Certificate of Authorization issued by the FAA that allows governmental operations of sUAS within the National Airspace System, within the boundaries of a public aircraft not for hire or compensation. All personnel involved in sUAS flight operations must read and comply with the contents of any COA applicable to the Russellville Fire Department.
- Crew Member - A person assigned to perform an operational duty during operations. A UAS crewmember includes the remote pilot in command, person manipulating the controls, person operating the camera (if applicable) and visual observers, but may include other people as appropriate or required to ensure safe operation of the aircraft.
- Critical infrastructure - Under Arkansas Code § 5-60-103 (a)(1), Critical infrastructure means:
 - a. An electrical power generation or delivery system;
 - b. A petroleum refinery;
 - c. A chemical or rubber manufacturing facility; or
 - d. A petroleum or chemical storage facility
- Digital Multimedia Evidence (DME) - Digital recording of images, sounds, and associated data.
- Government Function - Pursuant to 49 U.S.C. § 40125(a)(2), Government function means an activity undertaken by a government, such as national defense, intelligence missions, firefighting, search and rescue, law enforcement, aeronautical research, or biological or geological resource management.
- Notice to Airmen (NOTAM) - A notice filed with an aviation authority to alert aircraft pilots of potential hazards along a flight route or at a location that could affect the safety of the flight.
- Public Aircraft - Aircraft that are owned and operated by the Government of a State, or leased for at least 90 continuous days by the Government of a state, pursuant to 49 U.S. Code § 40102 (a)(41).
- Public Aircraft Operations - Operations using public aircraft that do not have a commercial purpose.
- Remote Pilot in Command (RPIC) - The individual responsible for the safe flight operation of a specific UA mission.

Approved

Fire Chief

1 of 7



RUSSELLVILLE FIRE DEPARTMENT
POLICY MANUAL

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Original Date:
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- **Small Unmanned Aircraft System (sUAS)** - Under Federal law (14 CFR Part 107), a small UAS means an unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft (such as communication links and the components that control the unmanned aircraft) that are required for the safe and efficient operation of the unmanned aircraft in the national airspace system.
- **Unmanned Aircraft (UA)** - Under Federal law (P.L 122-095, Section 331(8)), unmanned aircraft means an aircraft that is operated without the possibility of direct human intervention from within or on the aircraft.
- **Unmanned Aircraft System (UAS)** - Under Arkansas Code § 5-60-103 (a)(2)(A), unmanned aircraft system means an unmanned, powered aircraft that:
 - a. Does not carry a human operator;
 - b. Can be autonomous or remotely piloted or operated;
 - c. Can be expendable or recoverable.
- **Visual Observer (VO)** - The individual assigned to maintain the line-of-sight and 360 degree hazard awareness around the UA at all times and assist the RPIC in carrying out all duties required for the safe operations of the UAS.

Authority:

A. State Law: *Arkansas Code § 5-60-103*

- i. Expressly allows for the use of UAS in the following applicable instances:
 1. An unmanned aircraft system used under a Certificate of Authorization (COA) issued by the FAA. A.C.A § 5-60- 103(2)(2)(B)(v);
 2. An unmanned aircraft used by a fire department for the purpose of incident command, area reconnaissance, personnel and equipment deployment monitoring, training, or a related purpose. A.C.A § 5-60-103 (a)(2)(B)(vi);
 3. Conducting surveillance, gathering evidence, or collecting information about, or photographically or electronically recording, a person's own property;
 4. Prohibits using an unmanned aircraft system to conduct surveillance of critical infrastructure, unless the prior written consent of the owner of the critical infrastructure is obtained.

B. 14 CFR Part 107: The FAA's small UAS Rule (14 CFR Part 107) allows aircraft weighing less than 55 pounds at takeoff to operate without obtaining specific case-by-case authorization from the FAA. Russellville Fire Department personnel using this authority to operate a UAS must obtain a Remote Pilot Certificate.

C. COA: The Russellville Fire Department DOES NOT currently have a COA that would provide for Public Aircraft Operations, but may apply and obtain a COA if operational needs require it. If a COA is obtained, this section will be updated with specific details.

D. Flight-Specific COA: Pursuant to the FAA Modernization and Reform Act of 2012 (P.L. 122-095, Section 331(2)), the Russellville Fire Department can obtain a COA issued by the FAA for operation of unmanned aircraft systems for a specific flight operation. Additionally, the Act provided for a simplified process for entering into agreements with appropriate government agencies to operate public unmanned aircraft systems in the national airspace system.

Approved

Fire Chief

2 of 7



RUSSELLVILLE FIRE DEPARTMENT
POLICY MANUAL

Policy Number:
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I. Authorized uses of sUAS - All Russellville Fire Department deployments of sUAS must be specifically authorized by the Chief or his/her designee, or specified by written directive. The Russellville Fire Department has authorized the use of sUAS to provide an aerial visual perspective in responding to emergency situations, exigent circumstances, and for the following objectives:

1. Situational Awareness: To assist decision-makers (e.g., incident command staff; first responders; city, county, and state officials) in understanding the nature, scale, and scope of an incident and for planning and coordinating an effective response. To provide situational awareness of large incidents, planned or unplanned, such as special events.
2. Search and Rescue: To assist firefighters or other rescue agencies during rescue or recovery operations.
3. Mutual Aid: Deployment of the sUAS as part of mutual aid to support other agencies as needed and approved by the Fire Chief or his/her designee.
4. Site Inspections: To assist Fire, Building & Safety in surveying structures through the use of sUAS to safely accomplish inspections.
5. Officer Safety/Tactical Applications: A sUAS may be deployed in an effort to assist Russellville Police Department or other law enforcement agency to protect officers from unnecessary exposure to danger and minimize the risk of injury to bystanders, officers and suspects, and enhance the likelihood of bringing peaceful resolutions to potentially deadly incidents. Use of the sUAS for these safety purposes should be limited to incidents involving violent felony suspects, or involving persons who are emotionally or mentally debilitated and pose a risk of serious bodily injury or death to themselves or others, or those fleeing from police apprehension, or any situation requiring the capabilities of air support. Examples of these types of incidents include, but are not limited to, armed barricaded suspects, armed suicidal suspects, high-risk search warrants, high-risk violent offender apprehension, hostage situations and bomb threat/improvised explosive device investigations.
6. Crime scene/Collision scene: To assist the Russellville Police Department through the use of the sUAS to conduct crime scene and collision scene documentation.
7. Training: To provide training for proficiency and safe sUAS operations prior to deployment for the above listed objectives, as well as aid in any training provided by the Russellville Fire Department.
8. Maintenance and Testing: To test the sUAS(s) in order to ensure they are functioning properly and are operational.
9. Community Outreach: In an effort to encourage public trust and effectively engage our community, the use of a sUAS as part of a community meeting or special event is authorized. The sUAS demonstration should be limited to displaying the department's capabilities and educating the public on the UAS program.

II. Personnel Authorized to Operate sUAS: Only Russellville Fire Department employees may operate department-owned sUAS, unless otherwise authorized by the Fire Chief or his/her designee by written directive. In order to operate a sUAS, all those authorized to operate must first obtain all certifications required by the applicable authority under which they are operating a UAS (i.e., 14 CFR Part 107 or COA) and complete all required training identified below.

Approved

Fire Chief

3 of 7



RUSSELLVILLE FIRE DEPARTMENT
POLICY MANUAL

Policy Number:
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- 1. Operating sUAS under Part 107:** In order to operate UAS under 14 CFR Part 107, a Russellville Fire Department employee must become a certified RPIC by obtaining a Remote Pilot Certificate with a small UAS rating issued by the FAA pursuant to 14 CFR Part 107.
- 2. Operating sUAS under the COA:** In order to operate sUAS under a COA, a Russellville Fire Department employee must become a certified Remote Pilot in Command (RPIC) by passing the written exam for the Russellville Fire Department Remote Pilot Core Module Training Course with a score of 80% or higher.

III. Required Training for sUAS Personnel:

Russellville Fire Department personnel who are assigned sUAS responsibilities must complete an agency-approved training program to ensure proper use and operations of sUAS, including any certification courses required, training on applicable laws, regulations, policies, and procedures governing the deployment and use of sUAS. Additional training may be required at periodic intervals to ensure the continued effective use, operation, and proper calibration and performance of the equipment, and to incorporate changes, updates, or other revisions in policy and equipment.

IV. Procedures:

A. Aircraft

1. The RPIC shall be responsible for ensuring that the aircraft is airworthy prior to each mission. The RPIC and/or Observer shall perform and log a pre-flight and post-flight inspection of the aircraft. Any equipment issues shall be entered in the aircraft's log and reported in a timely manner to the Battalion Chief in charge of the Russellville Fire Department Drone Program via department email. It shall be the responsibility of the Battalion Chief to determine whether the reported issues need to be corrected prior to the next flight, which will then be documented in the aircraft's log.
2. General Airworthiness- The RFD Drone Program Battalion Chief shall be responsible for ensuring that all sUAS utilized by the Department are maintained and flight ready according to the manufacturer's recommendations and related industry standards. All Software and/or hardware changes shall be documented in the aircraft's logs. Test flights must be conducted and documented after major changes in the hardware or software.
3. Storage for Transport- The aircraft shall be stored in a secure manner to limit possible damage to the unit while in transit. Any damage occurring during transport shall be logged and reported.
4. Battery Charging- Any components related to battery charging shall be in accordance with manufacturer's recommendations. Batteries should be inspected on a regular basis for signs of damage, such as swelling, and immediately removed from use if damage is discovered.

Approved

Fire Chief

4 of 7



RUSSELLVILLE FIRE DEPARTMENT
POLICY MANUAL

Policy Number:
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B. Pilots

1. The Remote Pilot in Command (RPIC) is the person who has final authority and responsibility for the operation and safety of flight. The RPIC shall be designated before the flight. The RPIC position may rotate duties as necessary with equally qualified pilots. The individual designated as RPIC may change during flight, however the RPIC can only command one aircraft at a time.
2. All RPIC must have a minimum of three qualifying flights on each model of sUAS owned by the Department, to include three manual take-offs and landings in the last 60 days, and be current with their flight log entries to be eligible to fly a mission. Flight log entries will contain, at a minimum, aircraft number, date, duration of flight, location, purpose, conditions (i.e. weather, day/night, etc.), and report number (if applicable).
3. Recurrent training is not limited to actual pilot/observer skills, but includes knowledge of all pertinent sUAS and aviation matters. Failure to maintain or prove proficiency will result in removal from sUAS duties.

C. Visual Observer

1. The role of the VO is to see and avoid other aircraft and other hazards and the ability to identify position for purposes of relaying reports to the RPIC. While utilization of a VO is desired for each flight, it is not required.

D. Camera Operator

1. The Camera Operator will receive specific training on camera equipment operations, including recording and storing digital data for evidentiary purposes prior to assisting with mission flights. All photo or video recordings shall be stored according to 101.27 Photo and Electronic Imaging.

E. Flight Operations

1. All flight operations, outside of scheduled training, shall be approved by the on-duty Battalion Chief, Acting Battalion Chief, or any other Chief Officer.
2. For planned operations assisting RPD or other law enforcement agencies- If there are specific and articulable grounds to believe that the sUAS will collect evidence of criminal wrongdoing or otherwise be used in a manner that may intrude upon an individual's reasonable expectations of privacy, the responsible RPIC must coordinate with the Watch Commander from the Russellville Police Department or Officer in Charge for the law enforcement agency in charge.
3. After approval for flight, the RPIC shall complete and document the approved pre-flight checklist.
4. All flights shall be conducted at or below 400 feet Above Ground Level (AGL) unless FAA regulations permit, or restrict, otherwise.

Approved

Fire Chief

5 of 7



RUSSELLVILLE FIRE DEPARTMENT
POLICY MANUAL

Policy Number:
Section:
Original Date:
Revised Date:

5. All flights shall be conducted within line-of-sight of the RPIC or VO such that the Pilot or Observer may detect and avoid hazards such as aircraft and property.
6. The RPIC, and/or VO (if utilized), shall monitor the Russellville Municipal Airport CTAF/UNICOM radio frequency of 122.7mHz to avoid and give way to air traffic in the area of the sUAS flight. If a sUAS flight is approved in a mutual aid situation near another airport, that airport's CTAF/UNICOM frequency shall be monitored.
7. Flights in the immediate vicinity of the Russellville Municipal Airport (KRUE) shall be restricted as depicted in the map attached to this policy.
8. Flights in the immediate vicinity of St. Mary's Hospital Heliport shall be restricted as depicted in the map attached to this policy.
9. Flights shall only be flown in conditions that are within the manufacturer's recommended limitations, including weather, range, ceiling, wind strength, and battery charge.

F. Night Operations

1. UAS night operations are those operations that occur between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time. (*Note: this is equal to approximately 30 minutes after sunset until 30 minutes before sunrise*).
2. A Visual Observer shall be used for night time flight. Binoculars, night vision devices, etc. may not be used as the primary means for visual observation duties. Such devices are permitted ONLY for augmentation of the observer's visual capability. Visual observers must use caution to ensure the aircraft remains within normal visual line-of-sight.
3. Navigational lighting/beacon lighting shall be used on the aircraft during night operations. This lighting shall be the DJI factory installed lighting or equivalent.

G. Reporting and Logging

1. The RPIC will complete a log entry for each mission flown, to include training flights and real-world incidents.
2. Any accident or mishap shall be logged and include a description of any damage to the sUAS, contact information for any persons or property involved, and explanations of conditions at the time.
3. Flight Log entries shall contain, at a minimum, aircraft number, date, duration of flight, location, purpose, conditions (i.e. weather, day/night, etc.), and report number (if applicable).
4. Aircraft Log entries shall contain, at a minimum, aircraft number, date, and inspection items, and any maintenance performed.

Approved

Fire Chief

6 of 7

V. Prohibited Acts

- A. Department aircraft shall not be operated in violation of the Arkansas and United States constitutions, statutes, or regulations. When a search warrant is required by law and no warrant exception exists, flight is prohibited unless a search warrant signed by an authorized magistrate is obtained.
- B. Department aircraft are to be used only for mission specific duties. No Department aircraft will be flown for personal reasons or for hire by any person or entity.
- C. Department aircraft shall not be flown in airspace other than Class G, uncontrolled airspace without specific approval from the Fire Chief or his/her designee.
- D. Department aircraft shall not be flown in conditions that exceed the manufacturer's recommended limitations, including range, ceiling, wind strength, and battery charge.
- E. Department aircraft shall not be flown for any mission where the Fire Chief, or his/her designee, or the RPIC determines the risk of flying the aircraft outweighs the benefit to the mission. The Fire Chief, or his/her designee, cannot revoke a RPIC's determination to not fly a mission. However, the Fire Chief, or his/her designee, can revoke a RPIC's determination to fly a mission. The RPIC has sole accountability for the aircraft during flight operations.

Approved

Fire Chief

7 of 7