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UAS SAFETY OPERATION AND PROCEDURE MANUAL

DRONE FIELD OPERATIONAL GUIDELINES

VERSION 1.1

PINPOINT DRONE IMAGERY, LLC

Commercial Unmanned Aircraft Systems (UAS) Safe Operation and Procedure Manual

Table of Contents

Introduction

A robust safety policy is essential for the secure operation of commercial drones.

The following pages outline fundamental operating policies and procedures to guarantee the secure operation of commercial drones for company business. This policy prioritizes the safety of employees, the general public, and property owned by others. It complies strictly with the Federal Aviation Administration (FAA) requirements governing remote pilots, equipment, and operational rules. The primary objective of this operational policy is to minimize or prevent accidents, injuries, and property damage by adhering to safe operating practices. It is essential that each employee is fully aware of their responsibilities according to this policy.

Adherence to this program is obligatory for all company drone operators. Breaches of this program may lead to disciplinary measures, including the suspension of drone operating privileges. Any deviations from this program must be promptly reported to the employee's supervisor or program administrator.

General

Management bears the responsibility of ensuring consistent establishment and enforcement of safety policies and procedures. This includes the provision of qualified pilots and defect-free, secure equipment.

Additional responsibilities;

- **Selecting Appropriate Drones:** Management should choose drones that are suitable for the specific tasks to be performed.
- **Maintenance and Safety:** Ensuring that drones are well-maintained and safe for operation.
- **Certification and Training:** Verifying that all remote pilots possess FAA certification and have been trained on the company's policies and procedures.
- **Flight Training:** Ensuring that remote pilots receive appropriate flight training specific to the drone they will use for their daily work.
- **Regulatory Compliance:** Maintaining proper FAA registrations and insurance.
- **Weight Limit:** Ensuring that the unmanned aircraft system (including payload) weighs less than 55 lbs1.

Remote pilots must adhere to all FAA requirements, procedures, and company guidelines outlined in this Safety Policy. Additionally, they are responsible for maintaining the drone appropriately to ensure safe operation and storing it securely when not in use.

Definition

- **Control Station:** Refers to the interface used by the remote pilot to control the flight path of the small unmanned aircraft.

- **Federal Aviation Administration (FAA):** The governing body responsible for setting regulations regarding the safe operation of small Unmanned Aircraft Systems (UAS) within the United States airspace. It also establishes certification requirements for remote pilots.
- **Remote Pilot:** The individual who manipulates the operating controls of the small unmanned aircraft.
- **Small Unmanned Aircraft:** An unmanned aircraft weighing less than 55 pounds during takeoff, including all items on board or attached to the aircraft.
- **Small Unmanned Aircraft System:** Comprises the small unmanned aircraft itself and its associated elements (such as communication links and control components). These are necessary for the safe and efficient operation of the small unmanned aircraft within the national airspace system.
- **Unmanned Aircraft:** An aircraft operated without direct human interaction from within or on board.
- **Visual Observer:** A designated person assisting the remote pilot in command by helping to identify and avoid other air traffic or objects both in the air and on the ground.

Authorized Remote Pilots & Personal Use

Company-owned drones and their associated equipment will be allocated to authorized employees for work-related tasks. These authorized employees must not permit any unauthorized individuals to operate the drone. In the event of an accident resulting from unauthorized use, the authorized employee may be obligated to compensate for any damages. Furthermore, disciplinary measures may be taken. The use of company drones for personal or recreational purposes is strictly forbidden.

Remote Pilot Qualifications

1. Remote Pilot Certificate:
   a. Remote pilots must obtain a **Remote Pilot Certificate** from the FAA to fly drones under the Small UAS Rule (Part 107).
   b. This certificate demonstrates understanding of regulations, operating requirements, and safe drone flying procedures.
   c. Eligibility:
      i. Be at least **16 years old**.
      ii. Be proficient in **English** (reading, writing, speaking, and understanding).
      iii. Be in a **physical and mental condition** suitable for safe drone operation.
2. Initial Aeronautical Knowledge Exam:
   a. Pass the initial **aeronautical knowledge exam** titled "Unmanned Aircraft General – Small (UAG)."
   b. Topics covered include:
      i. Regulations related to UAS rating privileges and limitations.
      ii. Airspace classification and operating requirements.
      iii. Effects of weather on drone performance.

          iv.   Emergency procedures and crew resource management.

3. Recurrent Training:
   a. Certificate holders must complete **online recurrent training** every **24 calendar months** to maintain aeronautical knowledge recency.
4. Company Policies and Procedures:
   a. Remote pilots should undergo initial training on **company policies and procedures** outlined in relevant documents.
   b. Additionally, they receive **"flight" training** specific to the unmanned aircraft (drone) assigned to them.
5. **Understanding**:
   a. Remote pilots grasp **airspace classifications** and **notification requirements**.
   b. They are familiar with the **FAA Best Practices** for Privacy, Transparency, and Accountability.

Remote Pilot Safety Rules

Here are the essential safety rules for authorized remote pilots operating drones:
1. **Read the Owner's Manual**:
   o Remote pilots are **encouraged** to thoroughly read the drone's owner's manual.
   o Understand all features, limitations, and recommended maintenance procedures.
2. **Be Courteous and Respectful**:
   o Show consideration to others:
     ▪ Motorists
     ▪ Bicyclists
     ▪ Pedestrians
     ▪ Property tenants
3. **Avoid Distracting Activities**:
   o While flying the drone, **do not engage** in distracting activities such as:
     ▪ Talking on a phone
     ▪ Texting
     ▪ Eating
     ▪ Any other task diverting attention from drone operation
4. **No Drone Operation While Driving**:
   o **Never operate** a drone while attempting to drive a vehicle.
5. **Authorized Pilots Only**:
   o **Do not allow unauthorized individuals** to operate the drone on your behalf.
6. **Stay Sober and Alert**:
   o **Avoid operating** the drone while impaired by:
     ▪ Alcohol
     ▪ Illegal drugs
     ▪ Medications
     ▪ Illness
     ▪ Fatigue
7. **Choose Safe Locations**:

- o **Avoid flying** the drone in or around:
    - ▪ Natural disasters
    - ▪ Emergency response areas
    - ▪ Related situations
8. **Ethical Operation**:
    - o **Conduct drone operations ethically** and responsibly.

Pre-flight Operational Safety Check

Here's a concise checklist for remote pilots to complete a thorough pre-flight operational and safety check for unmanned aircraft systems (UAS):

1. **Visual Inspection**:
    - o Examine the condition of the unmanned aircraft system components.
    - o Inspect the airframe structure, including flight control surfaces, lights, and linkages.
    - o Verify legible registration markings.
2. **Moveable Surfaces**:
    - o Check moveable surfaces, including airframe and attachment points.
    - o Inspect servo motor(s) and their attachment points.
3. **Propulsion System**:
    - o Examine the power plant, propellers, rotors, and ducted fans.
    - o Ensure adequate energy supply (battery) for the intended operation.
4. **Avionics and Communication**:
    - o Verify avionics components, including the control link transceiver, communication/navigation equipment, and antennas.
    - o Calibrate the compass of the unmanned aircraft system before flight.
    - o Check communication/navigation data links.
5. **Display Panel and Ground Support Equipment**:
    - o Ensure any display panel used is operating properly.
    - o Verify ground support equipment, including takeoff and landing systems.
6. **Control Link and Movement**:
    - o Confirm proper functioning of the control link between the aircraft and control system.
    - o Check control surface movement using the control system.
7. **Onboard Systems**:
    - o Inspect onboard navigation and communication systems data links.
    - o Verify the presence of a flight termination system if installed.
    - o Securely attach any equipment, such as a camera.
8. **GPS Location Acquisition**:
    - o Verify communication with the unmanned aircraft system.
    - o Confirm that the system has acquired GPS location data from at least four satellites.
9. **Propeller Inspection**:
    - o Start the propellers to inspect for any imbalance or irregular operation.
10. **Controller Verification**:
    - o Verify controller operation for heading and altitude.

11. **Obstruction Check**:
    - o Ensure there are no obstructions that may interfere with UAS operation.
12. **Safety Flight Check**:
    - o At a controllable altitude, fly within range of interference.
    - o Recheck all controls and safety measures.

Here's a concise summary of the pre-flight operational and maintenance procedures for unmanned aircraft systems (UAS):

1. **Pre-Flight Safety Check**:
   - o Before each flight, conduct a thorough pre-flight operational and safety check.
   - o If any operational or safety-related issues are identified, make necessary repairs before proceeding with the planned flight.
   - o If on-site repairs are not feasible, reschedule the flight for a later time to ensure appropriate repairs can be completed.
2. **Scheduled and Unscheduled Maintenance**:
   - o Regularly perform both scheduled and unscheduled maintenance on the UAS and its components (including the controller).
   - o Follow the manufacturer's instructions for maintenance procedures.
   - o Keep the UAS up-to-date with software updates provided by the manufacturer.

Adhering to these guidelines ensures safe and reliable drone operations!

Pre-flight Planning and Mitigation Plan

Here's a concise summary of the responsibilities and considerations for remote pilots operating unmanned aircraft:

1. **Waivers and Authorizations**:
   - o Remote pilots are responsible for obtaining any necessary waivers from the FAA for their intended business use of unmanned aircraft.
   - o Waiver requests can be submitted at FAA's UAS waiver page.
2. **Air Traffic Control Communication**:
   - o Communicate with the appropriate air traffic control facility when operating within specific airspace classes (B, C, D) or the lateral boundaries of class E airspace.
   - o Prior authorization from ATC is required when entering controlled airspace.
3. **Airport Proximity**:
   - o When flying within **five miles of an airport**, notify both the airport operator and the airport traffic control tower (if present).
   - o Be aware of traffic patterns and follow safety guidelines near airports.
4. **Operating Environment Assessment**:
   - o Consider the following factors:
     - ▪ **Local Weather Conditions**: Heavy winds, rain, and lightning can impact flight safety.
     - ▪ **Airspace Restrictions**: Check for NOTAMs (Notice to Airmen) to identify any affected areas.
     - ▪ **Pedestrian Traffic**: Avoid flying over crowded areas.

- **Traffic Areas**: Be cautious near busy roads and highways.
- **Radio/Cell Towers**: Maintain a safe distance from these structures.
- **Power Lines, Tunnels, Bridges, and Overpasses**: Avoid collisions.
- **Natural and Man-Made Obstacles**: Trees, buildings, and personal property.

Remember to prioritize safety and adhere to regulations while operating unmanned aircraft.

In-Flight Safety Rules

Here's a concise summary of the guidelines and safety precautions for flying an unmanned aircraft system (UAS):

1. **Daylight Hours**:
   - Fly the UAS during **daylight hours**, unless you have obtained a waiver.
2. **Visual Line of Sight (VLOS)**:
   - Maintain **visual sight** of the drone at all times, unless a waiver has been obtained.
3. **Altitude Restrictions**:
   - Do not fly the UAS higher than **400 feet above ground level**, unless within a 400-foot radius of a structure.
4. **Visibility Requirements**:
   - Maintain a minimum visibility of **three statute miles** from the control station location.
5. **Cloud Clearance**:
   - Keep a minimum distance of **500 feet below and 2000 feet horizontally** from any clouds.
6. **Crowds and Individuals**:
   - Do not fly the UAS over **crowds of individuals**, unless a waiver has been obtained.
7. **Operating from Moving Vehicles**:
   - Avoid operating the UAS from a **moving vehicle**, unless a waiver has been obtained.
8. **Safe and Responsible Operation**:
   - Operate the UAS in a **careful and responsible manner**.
9. **Secure Storage**:
   - Store the UAS in a **secure, locked location** when not in use.

Remember to prioritize safety, adhere to regulations, and obtain necessary waivers when required.

Accident Reporting

Here are the essential steps and reporting requirements for remote pilots in the event of an accident involving an unmanned aircraft system (UAS):

1. **Incident Reporting to Management**:
   - Any incidents involving damage to the drone, property of others, or personal injury to employees or others should be **reported to management promptly** or within 24 hours.
   - If an incident occurs, either return the drone to the home location or turn off the engine and secure the scene to prevent further damage or injury.
   - Ensure that **medical attention** is provided to any injured parties as quickly as possible.

- o In case of an accident resulting in injuries or property damage, **notify emergency personnel or law enforcement**.
2. **Gathering Information**:
   - o Collect as much information as possible about the accident.
   - o **Document facts** using West Bend's General Liability Incident Report (WB2744) attached to this document.
   - o Obtain **witness statements**, including names, addresses, and phone numbers.
   - o Take **photos of damaged property** and any conditions contributing to the accident.
3. **Reporting to the FAA**:
   - o Within **10 days** of the accident, the remote pilot must report the following to the FAA:
     - ▪ **Accidents involving serious injury or loss of consciousness**.
     - ▪ **Damage to property (other than the unmanned aircraft)** if the cost exceeds $500 for repair or replacement (whichever is lower).
   - o Submit completed accident reports through the **FAA's DroneZone Portal** at www.faadronezone.faa.gov.
   - o Include the following details in the report:
     - ▪ Name and contact information of the **remote pilot in command**.
     - ▪ **Airman certificate number** of the remote pilot in command.
     - ▪ **Location, date, and time** of the incident.
     - ▪ Information about **injured persons** and the extent of their injuries (if known).
     - ▪ Details about **property damage** and the extent of the damage (if known).
     - ▪ A brief **description of what happened**.
4. **NTSB Reporting**:
   - o Certain small UAS accidents must also be reported to the **National Transportation Safety Board (NTSB)**.
   - o Additional information on NTSB reporting can be found at www.ntsb.gov.

Remember to follow these procedures diligently to ensure safety and compliance in UAS operations.

NOTE: Management will support the remote pilot in completing and submitting all necessary incident reports to the appropriate regulatory agencies, insurance agent, and insurance carrier. The remote pilot should refrain from submitting any incident reports without prior review by management.

References

Federal Aviation Administration, Advisory Circular 107-2, Small Unmanned Aircraft Systems

Federal Aviation Administration, Federal Aviation Regulations, Part 107, Small Unmanned Aircraft Systems

Federal Aviation Administration, Part 107, Applying for a Waiver

National Transportation Safety Board Part 830, Notification and Reporting of Aircraft Accidents