THE NIAGARA GAZETTE
STANDARD OPERATING PROCEDURES FOR DRONE JOURNALISM

IT IS REQUIRED THAT EVERY NIAGARA GAZETTE FLIGHT IS LOGGED AND DOCUMENTED.

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These procedures (SOPs) should be used as a guide to operate any Niagara Gazette drone. Due to the evolving nature of drone flights, this guide is adopted from other well-cited resources and protocols. It does not cover all situations and any pilot, observer and/or journalist is required to ensure safety is first under any drone-flight-situation (flight). The first question for any pilot prior to any flight is- do I have a safe environment to fly?

If there is any doubt that the answer is yes, return the drone, also known as an unmanned aerial system (UAS), to the landing zone and terminate the flight. Flying a drone means taking responsibility for the safety of those near you, on the ground and in the air. A failure to follow any of these procedures may lead to a loss of the privilege to fly Niagara Gazette drones.

Identify Flight Operations Roles

There are three flight operations roles that each flight requires and although one individual may fill all three roles, each flight should have 2 people unless permission is otherwise granted and conditions for the flight have minimal safety risks, e.g., unpopulated or deserted, open areas. The roles are as follows:

1. Pilot In Command (PIC)
2. Observer and
3. Journalist

***The Pilot In Command*:** The PIC is responsible for all flight operations. It is the PIC who has the ultimate authority on any flight. The PIC determines if the aircraft is airworthy and capable of conducting the proposed operations. The PIC is responsible for determining if the airspace allows the proposed operation. The PIC is responsible for conducting operations within all FAA regulations and any restrictions set forth by a grant of exemption. The PIC is responsible for briefing the other members of the flight crew about what the mission is, what their roles and responsibilities are, and what is expected of them before, during and after flight operations.

NOTE: The pilot in command, the one holding the FAA issued Part 107 certificate, is by regulation the final authority on if the aircraft flies or not. If an accident occurs, it is the Part 107 certificate holder who will be held responsible. As such, news managers, editors, directors and publishers must accept the pilot in command's decision about flight safety as final.

***The Observer*:** The Observer is responsible for monitoring the operational area to ensure that there are no hazards that may endanger the flight or people not part of the UAS flight operations team. The Observer is the only member of the team who can speak to the PIC during flight operations. The Observer is to alert the PIC immediately if any aircraft come into the area, or if any person or vehicle comes near the operation. The Observer must remain within speaking distance of the PIC. Do not use radios to communicate.

***The Journalist*:** The Journalist is responsible for communicating flight goals to the PIC before flight and verifying results after landing. The Journalist determines what is needed for the story and communicates that to the PIC. The PIC is responsible for determining if the Journalist's goals are possible under the conditions presented. During flight, the PIC may ask for feedback from the Journalist, but the Journalist should only speak to the pilot if asked while the aircraft is aloft. The Journalist can act as Observer.

Under Part 107, operations can occur with only a PIC. If no additional personnel are available for the flight, care and consideration must be taken for the additional workload that the PIC will take on, including having to watch the operation area for hazards, completing journalistic goals and ensuring flight safety.

The greater the number of environmental variables (bystanders, structures, trees, wind, etc.) in an operating environment, the more substantial the demands are on the PIC and therefore there is a greater the need for a second person for the flight.

Be Ethical and Respect Privacy During Flights

UAS enable individuals to remotely access spaces and vantage points that may be otherwise out of reach. Refer to the SPJ Code of Ethics, especially the principles about minimizing harm, such as the ones seen below, which are relevant to UAS operations:

> "Balance the public's need for information against potential harm or discomfort. Pursuit of the news is not a license for arrogance or undue intrusiveness." While Part 107 prohibits flights over people it doesn't stop you from flying near them laterally. Be mindful of bystanders and consider their perceptions of drones, and what you're doing in the air with a UAS. Remember: They don't know what you are going to do with a device that makes many uncomfortable. Don't deliberately fly over private property if publicly accessible views are available. Don't use a drone to antagonize.
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> "Show compassion for those who may be affected by news coverage. Realize that private people have a greater right to control information about themselves than public figures and others who seek power, influence or attention. Weigh the consequences of publishing or broadcasting personal information. Avoid pandering to lurid curiosity, even if others do." In short, respect people's privacy, and don't use a UAS as a tool for intrusion. Don't fly up to people's windows, and seek permission to fly over private property where practical. While there has been extensive speculation about how high above the ground private property extends, there is currently no clear legal precedent indicating where private property ends and public airspace, in the context of drones, begins. Until a legal standard is set, all due caution should be exercised.

Refer to the National Press Photographers Association Code of Ethics, including the following standards:

> Do not intentionally sabotage the efforts of other journalists." When covering a news event along with other media organizations flying UASs, avoid using your UAS to obstruct or take down another UAS. Doing so could not only hurt bystanders and damage property, but also require a report to the FAA, jeopardizing

your Part 107 certification. Media using UAS should coordinate with each other, just as manned helicopter pilots have done since the 1950s.

"While photographing subjects do not intentionally contribute to, alter, or seek to alter or influence events." UAS systems, especially multirotors, are loud. Consider how the noise generated by your UAS, and its presence, influences events, people, and animals.

Operating Procedures

A professional UAS operation is one that involves careful planning. Before using drones to do journalism, pilots and organizations should take several steps. First, the pilot should practice with the drone to be used. Familiarization with the platform is essential.

The general operating procedures for drone flights are divided into sections:

- Pre- trip
- Pre-flight
- Flight
- Post-flight

The general requirements in each are encapsulated in checklists (attached) designed to help ensure each step is accomplished.

Pre-Trip

Prior to embarking on any drone operation, the pilot in command must gather information about the proposed flight area to ensure safe operations that comply with Federal Aviation Regulations.

Location

PIC must answer questions about the location:

- What is there?
- Are there hazards to aviation? What airspace is it in?
- Do you need permission from air traffic control (ATC)?
- Are you flying on or over private property?
- Do you have permission of the landowner to operate there?
- How many people can you expect around the area? What is your plan to prevent flight over people?
- Have you pulled publicly available aerial images of the area or conducted a site survey?
- What will the weather be? Have you consulted an aviation weather forecast? Or if the trip is immediate, have you consulted local weather sources, such as an aviation weather report (METAR), or obtained a flight briefing from
- Flight Services?
- Are your weather parameters within Part 107 minimums?
- Are wind levels below the operational maximums set by the manufacturer or by your own operational guidelines?
- What's the altitude of the location?
- How might it affect your UAS and payload during flight?
- Have you factored in the effects of temperature on the batteries?

Operational Goals

Before bringing a UAS into an environment, operational personnel should define the goals of the UAS flight before leaving for the location.

- Be specific. What shots do you need?
- What purpose is the drone serving in your story?
  What context is the drone adding to your story?
- How much drone video or photography do you need to tell the story? What privacy issues can you anticipate and what steps have you taken to mitigate them?
- What ethical issues can you anticipate and what steps have you taken to mitigate them?

Logistics

Before leaving for the operational area, consider what equipment you will need, and check the status of your equipment.

- When do you need to be at the location?
  How much travel time is involved?
- Have you built in time for a walkthrough of the location to note any hazards only visible on site?
- Do you have sufficient batteries to accomplish the task?
- Are they charged?

Briefing

The PIC is responsible for briefing all operations personnel on each phase of flight. The PIC will designate the observer and the journalist, will explain their roles and what will happen during flight.

A PIC briefing should cover, at a minimum:

- Who is fulfilling each role in flight operations.
- The expectations of each member of the flight crew. A general description of the operations area.
- The expected weather at the location.
- Any known hazards, including winds, obstacles, known high traffic areas, any nearby airports or expected air traffic.
- The specific mission goals, including expected shots, angles or subjects.
- Any known privacy or ethical issues and mitigation steps.

Pre-Trip Inspection

Before leaving for the operations area, the PIC should conduct a pre-trip inspection of the UAS. A pre-trip inspection includes charging batteries, checking various mounting hardware, and checking the camera and storage media to ensure it is sufficient for the task.

Pre-Flight

Pre-flight operations are done immediately before any flight work is to occur. The pre-flight checklist repeats some of the pre-trip checklist, such as inspecting the aircraft and some of the control surfaces. Pre-trip and pre-flight inspections help ensure airworthiness and will serve as an early warning for both maintenance issues and for mechanical issues that could substantially affect or cancel flight operations.

The general rules of pre-flight are:

- The PIC touches the UAS. The PIC is responsible for the aircraft and all around them. Thus, the PIC will conduct the pre-flight inspection, connect the batteries, etc.
- When on site, operations personnel must delineate a takeoff and landing area

of at least 10 feet x 10 feet and ensure it is free of debris.

- When on site, if non-operations people are around, operations personnel may be required to secure an area to be kept free of people so the UAS can operate without flying over people. That place may be the takeoff and landing zone. That space, to remain free of people, should be as large as the PIC thinks is practical.
- Weather can be very localized. When you arrive, you should check your location weather against the weather report you got from a flight briefing or automated observation service. Cloud ceilings will be most difficult to estimate on site, so be reasonable. If the clouds look low, stay low.
- ***Don't fly if fog is present.***
- Wind conditions also vary by location. An anemometer is a valuable tool for measuring wind on site, informing the PIC if wind speeds are within operational limits and how they may affect flight operations.
- Turn off WiFi connectivity on any UAS mounted devices, such as cameras. Active WiFi devices on the UAS can interfere with critical 2.4 GHz RC and video transmissions. Because most non-military UAS systems use 2.4GHz for either RC or video transmission, only enable WiFi if you are certain there will be no interference with your UAS hardware.
- Before takeoff, make sure your compass is not receiving interference from nearby metal objects, and that you have enough GPS satellite connections.

Flight

UAS operators must:

- Be constantly scanning for airborne traffic or obstacles. The observer must report them immediately.
- Be constantly scanning for people on the ground in the flight area. The observer must report them immediately.
- Be constantly checking battery levels and returning before reaching 25 percent of the remaining capacity.
- Be constantly checking flight parameters like altitude to ensure they remain within restrictions and operational goals.

Only at battery changes should the PIC, Observer and Journalist discuss changes to the operational plan. While the UAS is in flight, the PIC needs to focus on flying, and the

observer needs to focus on hazards.

Post-Flight

The post-flight checklist is broken into three parts: Shutting down the drone, which is done by the PIC; inspecting the aircraft; and filling out logs. Logging is an important part of aviation safety and will serve as an important document in maintenance of your UAS.

Logging

UAS operations can be divided into three separate logs, largely transported over from manned aviation. They are a maintenance log, a battery log, and a flight log.

Maintenance Log

A maintenance log is a simple list of issues to be checked or fixed between flights. PICs should note any issue that should be checked, from an odd wobble, unusual sound, an unusually hot motor at landing, to a complete component failure. The log should include the date, UAS Make & Model, UAS Registration Number, the ID number of the battery used when the issue occurred, the issue, who reported it, the date repaired, who repaired it and notes.

Battery Log

A battery log serves as a warning for when a battery is getting worn out and could fail. UAS batteries will degrade, providing progressively less flight time. Fully charged batteries that go unused and are not discharged for over a week can also lead to damaged battery cells. A battery log will highlight failing batteries, and give the PIC a guide as to how much time a battery will give in flight. A battery log should note the date, UAS make and model, UAS registration number, the number of past charges, the percentage of battery power remaining at shutdown, total flight time, battery depletion rate, any signs of puffing (an indicator that the battery is damaged), and usage conditions. For example, if you loaded a DJI Inspire with a 360 video camera rig containing six GoPros cameras, and flew it on a 100°F, you would make note of those operating conditions.

Flight Log

A flight log will highlight the important events that occur from the time a UAS takes off to the time it has landed and been powered down by the PIC. Each UAS will have it's own log. It should note the date, the battery used during flight, and the total flight time. Each entry should also have space for important and relevant notes about the flight, which may include a mission overview, flying conditions, distance flown, take-off and landing locations, a hard landing, etc.

Normal Operating Checklists (attached)

What follows are the normal operating checklists to be completed for each flight.

Emergency Procedures

Lost Link/Mission Procedures (attached)

The RC link is for the PIC to directly control the aircraft. If the PIC enables the UAS to operate autonomously and automated flight functionality is lost, the drone will revert to RC control and the PIC will take over flight, return it to the landing zone and land. If the UAS starts showing any sign of not following the automated flight path, and the manual override doesn't happen automatically, the PIC should take the steps necessary for manual control. Check your UAS manual for how to manually override autonomous operation. If the RC link is lost, many commercial based UAS systems are configured with an automatic return to home procedure built-in to the UAS flight controller to prevent drift outside of the operation area.

Emergency Assumption of Control

During any automated flight, if there is any concern that the UAS is not flying the planned mission or that control characteristics are abnormal, the PIC will take manual control of the UAS with RC control, return it to the landing zone if possible, and land it. There may be minor problems that do not require emergency assumption of control. In these cases, the GCS communication can direct the UAS to land or the PIC can manually land the UAS.

Loss of Sight

Regulations require that the UAS remain within Visual Line of Sight(VLOS) at all times. If, that VLOS is broken, the PIC should return to VLOS immediately if possible. If PIC cannot return UAS to VLOS, using the GCS, the PIC should execute a preprogrammed flight path to return to the landing zone. *Loss of Sight Checklist (attached)*

Other In-Flight Emergencies *(see checklists attached)*

In most emergency situations, the general protocol is to land as soon as is safely practical. In many emergency situations, landing at the pre-determined landing zone will not be possible. The goal is a controlled, safe landing.

References: Drone Journalism Lab Manual https://www.dropbox.com/sh/32pi2e2gv6huyzg/AAAwGq7b1mO5ekikCn-7JFiMa?dl=0&preview=opsmanual.docx