

# **UAS Launch and Recovery Procedures – SiCX-12 Cloud Cap/Piccolo COA Application**

## **Launch/Recovery Procedures**

Prior to executing the Launch procedure for the Guided Systems SiCX-12 Rotorcraft the following steps are taken:

1. Site Selection
2. Notification of Appropriate ATC Facility
3. Safety Briefing
4. Mission Briefing
5. Communications Check
6. Ground Station Setup
7. Hardware-in-Loop Autopilot Simulation or Configuration
8. Preflight Inspection of Aircraft
9. Preflight check of Cloud Cap Piccolo Autopilot System
10. Helicopter Ground Check-Runup

## **Expanded Procedures**

### **Pre-Launch**

- After the UAS has cleared the pre-flight checklist and is deemed safe for flight, the aircraft is placed onto the landing/recovery pad located in on a flat open zone free from obstacles and personnel. Any crew members within 50 meters of the UAS must be under cover. With all of the observers in position for launch, the PIC will conduct final radio checks with observers and ATC (as necessary). With the takeoff zone cleared, the aircraft is armed. The PIC will review his final pre-flight checklists to verify UAS status then announce to all personnel it is time to launch. If at any time during the pre-launch procedure an observer or PIC notices something is amiss (aircraft in area, environmental changes, public encroaching flight area etc.) all personnel will be notified and the mission shall be suspended.

### **Launch**

- The utmost attention to detail and focus must be practiced by the PIC and observers especially during launch and recovery since this is the time during the flight when the aircraft is closest to personnel. One of the observers is specifically trained to watch the aircraft for any abnormalities (such as vibrations, abrupt movement, unexpected flight path etc.) and has the authority to take the UAS out of autonomous control, manually take over and immediately land the aircraft back onto the vacant takeoff pad. The remaining observers are focused on the surroundings of the aircraft to ensure the flight area remains clear at launch.

### **Just Prior to Recovery/Landing**

- Before the aircraft returns back to the recovery/landing zone, the observers must verify that the zone is cleared. The PIC waits for radio verification that it is safe to return to land at which point he returns hovering at 20 meters AGL. Once the aircraft reaches its final recovery coordinate (prior to descending), the PIC verifies with the observers that the nearby ground below is flat and clear of all objects. Any necessary adjustments of position are conducted at this point under the direction of the aircraft observer.

### **During Recovery/Landing**

- The aircraft is brought to the landing zone, and autonomously slowly descends to 1 meter. The aircraft waits there until completely stable with no translation and then touches down and kills the engine. The Zone remains cleared of all unnecessary personnel until the aircraft is fully disarmed. If at any time the aircraft seems to be responding poorly, the trained aircraft observer has the authority to assume manual control and land the aircraft immediately onto the safe recovery zone. Once there has been full verification the aircraft is disarmed, the PIC announces an 'all clear' and the aircraft is recovered to undergo its post flight checklist.