U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

CERTIFICATE OF WAIVER

ISSUED TO

Issued To: Operating Engineers Local 150 Apprenticeship
Responsible Party: David Bowers
Waiver Number: 107W-2019-03335

ADDRESS –

Address:
19800 W. South Arsenal Road
Wilmington, IL 60481

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED

Small Unmanned Aircraft System (sUAS) operations over human beings

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

14 CFR § 107.39(a) — Operation over human beings

STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached to and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Administrator of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

NOTE—This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

SPECIAL PROVISIONS

Special Provisions Nos. 1 to 26, inclusive, are set forth on the attached pages.

This Certificate of Waiver is effective from July 22, 2019, to July 31, 2023, and is subject to cancellation at any time upon notice by the Administrator or an authorized representative.

BY THE DIRECTION OF THE ADMINISTRATOR

JOSEPH V FAGAN JR

Digitally signed by JOSEPH V FAGAN JR
Date: 2019.07.23 06:30:02 -04'00'

General Aviation and Commercial Division AFS-800

SPECIAL PROVISION ISSUED TO

Operating Engineers Local 150 Apprenticeship

General

The FAA's Flight Standards Service has reviewed your application to ensure compliance with the requirements of 14 CFR § 107.200. The Administrator finds that the proposed sUAS operation can be conducted safely under the provisions of this Certificate of Waiver (Waiver) as listed below, because you have established adequate mitigations for risks involved with operating your sUAS in the manner you described. Adherence to the provisions of this Waiver establishes the required level of safety within the national airspace system.

This Waiver may be canceled at any time by the Administrator, the person authorized to grant the Waiver, or the representative designated to monitor a specific operation. As a general rule, this Waiver may be canceled when it is no longer required, there is an abuse of its provisions, or when unforeseen safety factors develop. Failure to comply with any provision listed below is a violation of the terms of this Waiver and may serve as justification for cancellation.

List of Regulations Waived by Section and Title. The following regulations are waived:

14 CFR § 107.39(a), Operations over human beings is waived to allow sUA operations over human beings who are not direct participants, necessary for the safe operation of the small unmanned aircraft.

No part of this waiver will function as an airspace authorization under 14 CFR § 107.41. The FAA's Air Traffic Organization responds directly to such requests.

Common Special Provisions. The Responsible Person is directly responsible for safety of operations conducted under this Waiver and will ensure the remote Pilot in Command (PIC), manipulator of the controls, and Visual Observer(s) (VO)[1] complies with all provisions of this Waiver.

1. The Responsible Person listed on the Waiver is responsible to the FAA for the safe conduct of the operations. Prior to conducting operations that are the subject of this Waiver, the responsible person:

    a. Must ensure the remote PIC, manipulators of the controls, and VO are informed on the terms and provisions of this Waiver and the strict observance of the terms and provisions herein;
    b. Must ensure the remote PIC, manipulators of the controls, and VO are informed and familiar with part 107 regulations not waived; and
    c. Evidence of the above (a and b) must be documented and must be presented for inspection upon request from the Administrator or an authorized representative;

[1] Title 14 CFR § 107.3 defines the term "visual observer." Any VO participating in operations conducted under this Waiver must meet the requirements listed in § 107.33 throughout the duration of flight operations.

2. This Waiver may not be combined with any other waiver(s), authorization(s), or exemption(s) without specific authorization from the FAA;

3. The FAA has the authority to cancel or delay any or all flight operations if the safety of persons or property on the ground or in the air, are in jeopardy or there is a violation of the terms of this Waiver;

4. A copy of this Waiver must be accessible and available to the Remote Pilot in Command (remote PIC) at the ground control station during sUAS operations that are the subject of this Waiver;

5. The Responsible Person listed on this Waiver must maintain a current list of pilots by name and remote pilot certificate number used in the Waiver holder's operations. This list must be presented for inspection upon request from the Administrator or an authorized representative;

6. The Responsible Person listed on this Waiver must maintain a current list of small unmanned aircraft (sUA) by registration number(s) used in the Waiver holder's operations. This list must be presented for inspection upon request from the Administrator or an authorized representative;

7. For the purposes of this Waiver, Direct Participants are the remote pilots in command (PICs), persons manipulating the controls, visual observers (VOs), and any persons whose involvement is necessary for safety of the sUAS operation. All other persons are considered non-participants;

Waiver Specific Special Provisions. sUAS operations may be conducted over human beings, under this waiver, provided:

OPERATIONAL PROVISIONS

8. All operations under this Waiver must use one or more VO;

9. Individuals directly participating in the operation of the sUAS must be easily identifiable visually (e.g., apparel, safety vests);

10. Prior to operations under this Waiver, all direct participants must attend a safety briefing that addresses at minimum, the following items:
    a. Designated positions, physical locations, responsibilities, and Crew Resource Management,
    b. Planned flight operating area,
    c. Designated launch and recovery areas,
    d. Verification of geo-fence boundaries,
    e. Verification of return home and land flight profile, and course,
    f. Procedures for avoidance of other aircraft,
    g. Procedures for operating under this Waiver;

11. Communication between the remote PIC and VO must occur to facilitate, when necessary, the remote PIC taking action to maneuver the sUA with sufficient time to:
    a. Give way to all other aircraft in accordance with § 107.37,
    b. React to any unforeseen operational or mechanical failure without creating a hazard to other people, other aircraft, or property in the event of a loss of control of the sUA, and
    c. Maintain compliance with this Waiver and the requirements of part 107;

12. Operations subject to this waiver must cease if, at any time:
    a. Safety of human beings or property on the ground or in the air is in jeopardy,
    b. Any failure to comply with the provisions of this Waiver exists,
    c. Full-duplex communications cannot be maintained between the remote PIC and any VO participating in the operation,
    d. sUA control link is lost,
    e. A non-participating aircraft enters the designated flight operating area,
    f. GPS signal is lost, or
    g. sUA GPS location information is degraded;

13. The Responsible Person must establish and maintain a Safety Management System (SMS) appropriate for the size, scope, and complexity of the waivered operation. Guidance on establishing and maintaining an SMS is available in FAA Advisory Circular 120-92B (or current revision). This program must be made available upon request by the Administrator;

14. The Responsible Person shall keep at its principal business office or at other places approved by the Administrator, and email the Administrator at 9-afs-820-Part107Reports@faa.gov monthly, the information listed below. The Responsible Person must retain all such records for a period of 90 days after the expiration date of the Waiver.
    a. For each sUAS flight operation conducted under the terms of this waiver:
        i. Date and location of operation
        ii. Registration number of the sUA,
        iii. Make and model of the sUA,
        iv. Name and certificate number of the remote PIC,
        v. Name of the person who acted as a VO for the sUAS operation,
        vi. Name of any persons who acted as an additional VO(s), and
        vii. Duration of the sUA operation;

    b. For each sUAS flight conducted under this Waiver that includes any equipment degradation, malfunction, or failure, the Responsible Person must make a record of the degradation, malfunction, or failure by recording the date, time, and a description of the degradation, malfunction or failure. sUAS equipment degradations, malfunctions, or failures include, but are not limited to, the following:
        i. Onboard flight control system,
        ii. Any portion of the navigation system to include GPS functionality,
        iii. Power plant malfunction or failure,
        iv. Battery malfunction or failure,
        v. Electrical power system malfunction,
        vi. Control station malfunction or failure, and
        vii. Loss of control link within the sUAS;

TECHNICAL PROVISIONS

15. Operations conducted under this Waiver may only occur with the Vantage Robotics Snap sUAS as described in the waiver application. Proposed operations of any other manufacturer, make or model of sUAS will require a new waiver application or an request to amend this Waiver;

16. sUAS operations conducted in accordance with this Waiver must adhere to all manufacturer guidelines, recommendations and limitations for the sUAS;

17. Any modification to the sUAS design is prohibited; repair and replacement of damaged components is allowed with a replacement part that is exactly the same as the original; no substitutions are allowed unless the Responsible Person submits a new waiver request describing the substitution or modification;

18. The Responsible Person must maintain each sUAS and its components in accordance with manufacturer's instructions and recommendations. sUAS maintenance includes scheduled and unscheduled overhaul, repair, inspection, modification, replacement, and system software upgrades of the sUAS and its components necessary for flight. A log of all maintenance performed must be kept for each aircraft operated under this waiver. This log must be available to the remote PIC for review prior to conducting operations that are the subject of this waiver. Each sUAS maintenance log must be presented to the Administrator when requested. The log must contain the following information for each maintenance activity:
    a. A description (or reference data acceptable to the Administrator) of work performed,
    b. The date of completion of the work performed,
    c. The name of the person who performed the work, and
    d. The signature of the person who performed the work;

19. Any sUAS that has undergone maintenance must undergo a functional test flight prior to conducting operations under this Waiver. A log entry must be made for each functional test flight. The log entry must contain at minimum the:
    a. Calendar date,
    b. sUA registration number,
    c. Remote PIC who performed the functional test flight,
    d. Duration of the flight, and
    e. The result of the functional flight test;

20. A functional test flight may only be conducted under the standard requirements of part 107 (without waiver);

21. Launch or recovery areas must be pre-designated and monitored to keep any human being who is not directly participating in the operation out of the areas prior to, during, and immediately following flight operations;

22. If the remote PIC loses command or control link with the sUA, the sUA must follow a predetermined route to either reestablish link or immediately recover/land at a predesignated location;

23. If communication between the VO and the remote PIC is by use of an electronic device;
    a. The device must be continuous full duplex,
    b. The remote PIC's device must be hands-free, and
    c. There must be a reliable back-up communication method;

24. ADS-B out (1090/978 MHz) may not be transmitted from the sUAS when operating pursuant to this Waiver;

25. All emitters used in sUAS must be in compliance with all applicable FCC regulations and all provisions of the FCC authorization granted for the emitter. A FCC experimental authorization may not be used for sUAS operations under this Waiver; and

ENVIRONMENTAL PROVISIONS

26. The sUA may sustain operations over non-participating persons. The sUA may not be operated over moving vehicles.