Exemption No. 11193

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC 20591

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| In the matter of the petition of<br><br>**3D AERIAL SOLUTIONS, LLC**<br><br>for an exemption from part 21; §§ 45.23;45.29; 61.113; 61.133; 91.9; 91.109; 91.119; 91.121; 91.151; 91.203; and 91.401-91.417 of Title 14, Code of Federal Regulations | **Regulatory Docket No. FAA-2014-0872** |

## GRANT OF EXEMPTION

By letter dated October 13, 2014[1], Mr. Bret R. Givens, President (hereinafter Petitioner or Operator), 3D Aerial Solutions, LLC, 4725 Constitutional Court, Dayton, Ohio 45440, petitioned the Federal Aviation Administration (FAA) for an exemption from part 21; §§ 45.23, 45.29, 61.113, 61.133, 91.9, 91.109, 91.119, 91.121, 91.151, 91.203, and 91 Subpart E (91.401-91.417) of Title 14, Code of Federal Regulations (14 CFR). The exemption would allow the petitioner to operate the SenseFly eBee Mini Drone unmanned aircraft system (UAS) to conduct precision photogrammetry and crop scouting for precision agriculture.

**The petitioner supports its request with the following information:**

The petitioner proposes to operate the SenseFly eBee Mini Drone UAS to conduct precision photogrammetry and crop scouting for precision agriculture. See Appendix A for the petition submitted to the FAA describing the proposed operations, including the regulations that the petitioner seeks an exemption.

The petitioner has provided the following information to support its request for an exemption:

[1] By letter dated February 2, 2015, and posted to the public docket on February 3, the petitioner responded to the FAA's request for information.

1) SenseFly eBee User Manual Rev. 14

The petition and the document above are hereinafter referred to as the operating documents.

The FAA evaluated the petition and determined it was not precedent-setting. Therefore, a summary of the petition was not published in the Federal Register for public comment.

**The FAA's analysis is as follows:**

The FAA has organized its analysis into four sections: (1) UAS, (2) the UAS pilot in command (PIC), (3) the UAS operating parameters, and (4) the public interest.

Unmanned Aircraft System

The petitioner requested relief from 14 CFR part 21 *Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of P.L. 112-95 in reference to 49 USC § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, Subpart H, and any associated noise certification and testing requirements of part 36, is not necessary.

Manned aircraft conducting aerial imagery operations can weigh thousands of pounds, are operated by an onboard pilot and may carry other onboard crewmembers, as well as carry large quantities of fuel. The petitioner's UA weighs approximately 1.5 pounds with no onboard pilot or crew. The pilot and crew will be remotely located from the aircraft. The limited weight and construction reduces the potential for harm to persons or damage to property in the event of an incident or accident. The risk to an onboard pilot and crew during an incident or accident is eliminated with the use of a UAS for the proposed operation.

Manned aircraft are at risk of fuel spillage and fire in the event of an incident or accident. The unmanned aircraft (UA) carries no fuel and therefore the risk of fire following an incident or accident due to fuel spillage is eliminated.

The petitioner's UAS has the capability to land safely after experiencing certain in-flight contingencies or failures and is also able to respond to a loss of global positioning system (GPS) or a lost-link event with pre-coordinated automated landing maneuvers. These safety features provide an equivalent level of safety compared to a manned aircraft holding a restricted airworthiness certificate performing a similar operation.

Regarding the petitioner's requested relief from 14 CFR § 45.23(b) *Display of marks* and § 45.29 *Size of marks* the petitioner presumably requests this relief under the assumption that marking with the word "experimental" will be required as a condition of a grant of exemption. However, this marking is reserved for aircraft that are issued experimental certificates under 14 CFR § 21.191. The petitioner's UAS will not be certificated under § 21.191, and therefore

the "experimental" marking is not required. Since the petitioner's UAS will not be certificated under § 21.191, a grant of exemption for § 45.23(b) is not necessary. However, the petitioner's UA must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N-Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable, per § 45.29(f).

The petitioner requested relief from14 CFR §§ 91.405(a) *Maintenance required*, 91.407(a)(1) O*peration after maintenance, preventive maintenance, rebuilding, or alteration*, 91.409(a)(1)(2) *Inspections*, and 91.417(a) and (b) *Maintenance records*. The FAA has evaluated the petitioner's request and determined that cause for exemption to these requirements is warranted. The FAA notes that the petitioner's operating documents contain preflight and post flight checks, as well as scheduled maintenance every 10 hours for the UAS. The FAA has also determined that relief from § 91.409(a)(1) is also necessary because it is an alternate inspection requirement of § 91.409(a)(2). The FAA finds that adherence to the operating documents, as required by the conditions and limitations below, is sufficient to ensure that safety is not adversely affected.

UAS Pilot In Command

The petitioner requested relief from FAA Order 8900.227 paragraphs 16(c)(2)(c). [2] The FAA does not grant exemptions from its Orders, such as 8900.227.

Regarding the petitioner's requested relief from 14 CFR § 61.113(a) and (b), *Private pilot privileges and limitations* and 14 CFR 61.133(a) *Commercial pilot privileges and limitations,* the petitioner requested regulatory relief to operate its UAS without an FAA-certificated pilot. However, the FAA does not possess the authority to exempt the petitioner from the statutory requirement to hold an airman certificate, as prescribed in 49 USC § 44711. Although Section 333 provides limited flexibility to the statutory requirement to hold an airworthiness certificate, it does not provide flexibility for other requirements of title 49. For further information see Exemption No. 11110, Trimble Navigation, Ltd.

The FAA is also requiring a pilot certificate for UAS operations because pilots holding an FAA issued private or commercial pilot certificate are subject to security screening by the Department of Homeland Security that certificated airmen undergo. As previously determined by the Secretary, the requirement to have an airman certificate ameliorates security concerns over civil UAS operations conducted in accordance with Section 333.

Given these grounds, the FAA must determine the appropriate level of pilot certification for the petitioner's proposed operation. Under current regulations, civil operations for compensation or hire require a PIC holding a commercial pilot certificate, per 14 CFR part 61. Based on the private pilot limitations, in accordance with pertinent parts of 14 CFR § 61.113(a), a pilot holding a private pilot certificate cannot act as a PIC of an aircraft for

[2] The FAA notes that the notice referenced above is now incorporated into FAA Order 8900.1, vol. 16, chap. 4, sec. 1.

compensation or hire. However, in Grant of Exemption No. 11062 to Astraeus Aerial (Astraeus), the FAA determined that a PIC with a private pilot certificate operating the Astraeus UAS would not adversely affect operations in the NAS or present a hazard to persons or property on the ground.

The petitioner proposes to operate with a pilot who does not possess any FAA issued pilot certificate. This is similar to other petitions for exemption previously filed with and considered by the FAA. As in Exemption Nos. 11109 (Clayco, Inc.) and 11170 (Viafield), the FAA has analyzed the petitioner's proposed operation and determined it does not differ significantly from these grants of exemption. The petitioner plans to operate in the NAS over controlled access property with the permission of the property owner/controller, while also limiting property access to consenting participants while operations are underway. Given: 1) the similar nature of the petitioner's proposed operating environment to that of Clayco and Viafield, 2) the parallel nature of private pilot aeronautical knowledge requirements to those of commercial requirements [ref: Exemption No. 11062, Astraeus Aerial], and 3) the airmanship skills necessary to operate in the UAS, the FAA finds that the additional manned airmanship experience of a commercially certificated pilot would not necessarily correlate to the airmanship skills required for the petitioner's proposed operations. Therefore, the FAA finds that a PIC holding a private pilot certificate and a third-class airman medical certificate is appropriate for the proposed operations.

With regard to the airmanship skills necessary to operate the UAS, the petitioner has proposed pilot qualification criteria and a training program. The conditions and limitations below stipulate that the petitioner may not permit any PIC to operate unless that PIC has completed the petitioner's training program, that the PIC is able to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. The petitioner is responsible for assessing its operations and identifying any additional skills required to operate safely under normal and abnormal conditions. Normal condition skills may include the ability to maintain altitude, maintain visual line of sight (VLOS), and navigational skills. Abnormal condition skills may include the ability to avoid obstacles, avoid air traffic, and respond to loss of link.

In conclusion, the FAA finds that a PIC holding a current private pilot certificate and a third-class airman medical certificate, and who has completed the petitioner's flight training requirements, can conduct the proposed UAS operations without adversely affecting the safety of the National Airspace System (NAS) and persons or property on the ground. Upon consideration of the overall safety case presented by the petitioner and the concerns of the commenters, the FAA finds that granting the relief from 14 CFR § 61.113(a) is warranted. The FAA also finds that relief from 14 CFR § 61.113(b) is not necessary. Additionally, relief from 14 CFR § 61.133(a) is not necessary.

The petitioner indicates it plans to supplement its proposed operation(s) with a visual observer (VO), and likewise requests relief from the requirement (in FAA Order 8900.1) that the VO possess a second-class medical certificate. The FAA notes that one of the determinations for

operations under section 333 is operation within VLOS. As the PIC is determined to be in command of the UA, he or she must maintain VLOS while operating the UA. The FAA also notes that a visual observer complements the PIC's capability to see and avoid other aircraft including when the PIC may be momentarily attending to other flying tasks (e.g., maneuvering the aircraft close to structures, vehicles, or other objects). The VO provides an additional level of operational safety and thus the UA must never be operated beyond the actual visual capabilities of the VO, and the VO and PIC must have the ability to maintain VLOS with the UA at all times. The conditions and limitations below stipulate that the PIC must ensure that the VO can perform the functions prescribed in the operating documents. It is the responsibility of the PIC to be limit operations of the UA to distances within the visual capabilities of both the PIC and VO. Therefore, as in Grant of Exemption No. 11062 to Astraeus Aerial, the FAA does not consider a medical certificate necessary for the VO.

UAS Operating Parameters

While the petitioner did not request relief from 14 CFR § 91.7(a) *Civil aircraft airworthiness*, the FAA considers the petitioner's compliance with its operating documents to be a sufficient means for determining an airworthy condition. Therefore, relief from § 91.7(a) is granted. The petitioner is still required to ensure that its aircraft is in an airworthy condition, based on compliance with the operating documents prior to every flight, and as stated in the conditions and limitations below.

In accordance with 14 CFR § 91.7(b) *Civil aircraft airworthiness*, the PIC of the UAS is responsible for determining whether the aircraft is in a condition for safe flight. The FAA, as in grant of Exemption No. 11062 to Astraeus, has determined that the operating documents include procedures to be used prior to each flight that can ensure compliance with § 91.7(b). The petitioner is required to ensure that its aircraft is in a condition for safe flight – based on compliance with the operating documents– prior to every flight.

Regarding the petitioner's requested relief from 14 CFR § 91.9(b)(2) and 14 CFR § 91.203 *Civil aircraft: Certifications required*, the FAA has previously determined in Grant of Exemption 11062, Astraeus Aerial, that relief from these sections is not necessary. Relevant materials may be kept in a location accessible to the PIC in compliance with the regulations.

Regarding the petitioner's requested relief from 14 CFR § 91.109 *Flight instruction; Simulated instrument flight and certain flight tests*, the petitioner did not describe training scenarios in which a dual set of controls would be utilized or required, i.e. dual flight instruction, provided by a flight instructor or other company-designated individual, that would require that individual to have fully functioning dual controls. Rather, the petitioner intends to accomplish training as described in the operating documents. This exemption will require that training operations only be conducted during dedicated training sessions. The FAA finds that safety will not be adversely impacted if the petitioner follows the training outlined in the operating documents. Therefore, the FAA finds that relief is not necessary.

Regarding the petitioner's requested relief from 14 CFR § 91.119 *Minimum safe altitudes*, the petitioner did not specify the paragraph(s) in 14 CFR § 91.119 from which it requires relief. Relief from § 91.119(a), which requires operating at an altitude that allows a safe emergency landing if a power unit fails, is not granted. The FAA expects the petitioner to be able to perform an emergency landing without undue hazard to persons or property on the surface if a power unit fails. Relief from § 91.119(b), operation over congested areas, is not applicable, because the petitioner states that operations will be conducted over sparsely populated areas.

Relief from § 91.119(c) is necessary because the aircraft will be operated at altitudes below 400 feet above ground level (AGL). Section 91.119(c) states that no person may operate an aircraft below the following altitudes: *over other than congested areas*, an altitude of 500 feet above the surface, except over open water or sparsely populated areas. Section 91.119(c) provides that in operations over water or sparsely populated areas, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure. The petitioner states that it will operate pursuant to the following, self-imposed restrictions related to § 91.119:

- Petitioner will conduct operations over private property with the permission of the landowner;
- Petitioner will avoid operations over congested areas, heavily trafficked roads, or any open-air assembly of persons;
- Petitioner will limit operations to Visual Flight Rules Meteorological Conditions (VMC) and daylight hours;
- Petitioner will ensure aircraft operations remain within VLOS no greater than 0.5 nautical miles of the PIC and will be visually monitored at all times;
- Petitioner will operate no closer than 3 miles from an airport or heliport

Though the petitioner states that it will operate its UAS within VLOS, at distances no greater than 0.5 nautical mile, at all times, the FAA notes that the UAS's small size (96cm wingspan) may make such a distance impractical and stresses the requirement for VLOS at all times.

The petitioner proposes to avoid congested areas and operations over open air assemblies of persons; however the petitioner did not describe specific minimum stand-off distances from persons, vessels, vehicles and structures. As discussed in Exemption No. 11109 to Clayco, Inc., operations conducted closer than 500 feet to the ground may require that the UA be operated closer than 500 feet to essential persons, or objects that would not be possible without additional relief. Therefore, the FAA is requiring that prior to conducting UAS operations, all persons not essential to flight operations (nonparticipating persons) must remain at appropriate distances. In open areas this requires the UA to remain 500 feet from all persons other than essential flight personnel (i.e. PIC, VO, operator trainees or essential persons).

The FAA has also considered that the UA will weigh about 1.5 pounds. If barriers or structures are present that can sufficiently protect nonparticipating persons from the UA or debris in the event of an accident, then the UA may operate closer than 500 feet to persons

afforded such protection. The operator must also ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately. When considering how to immediately cease operations, the primary concern is the safety of those nonparticipating persons. In addition, the FAA finds that operations may be conducted closer than 500 feet to vessels, vehicles and structures when the property owner/controller grants such permission and the PIC makes a safety assessment of the risk of operating closer to those objects and determines that it does not present an undue hazard.

Thus, the FAA finds that relief from § 91.119(c) is warranted, provided adherence to the procedures in the operating documents and the FAA's additional conditions and limitations outlined below. Relief from § 91.119(a) is unwarranted as the FAA expects the petitioner to be able to perform an emergency landing without undue hazard to persons or property on the surface. Relief from §§ 91.119(b) and 91.119(d) are not applicable.

Regarding the petitioner's requested relief from 14 CFR § 91.121 *Altimeter Settings*, the petitioner has a barometric altimeter and GPS derived altitude capabilities. However, as stated in the conditions and limitations below, the FAA requires any altitude reported to Air Traffic Control (ATC) to be in feet AGL. The petitioner may choose to set the altimeter to zero feet AGL rather than local barometric pressure or field altitude before flight. Considering the limited altitude of the proposed operations, relief from 14 CFR § 91.121 is granted to the extent necessary to comply with the applicable conditions and limitations stated below.

Regarding the petitioner's requested relief from § 91.151(a) *Fuel requirements for flight in VFR conditions,* prior relief has been granted for manned aircraft to operate at less than the prescribed minimums, including Exemption Nos. 2689, 5745, and 10650. In addition, similar UAS-specific relief has been granted in Exemption Nos. 8811, 10808, and 10673 for daytime VFR conditions. The operating documents state that the UA batteries provide approximately 45 minutes of powered flight. Information provided in the operating documents discusses procedures regarding remaining battery power. Those documents provide explanation of the automatic landing procedures that are executed when the UA exhausts battery power. The FAA believes that, given the limitations on its proposed operations and the location of those proposed operations, a reduced minimum power reserve for flight in daytime VFR conditions is reasonable. These factors provide the FAA with sufficient reason to grant the relief from 14 CFR § 91.151(a) as requested in accordance with the conditions and limitations below, which prohibit the PIC from beginning a flight unless the battery is fully charged, stipulate that the flight will never fly more than ½ nautical mile from the point of intended landing, and (considering wind and forecast weather conditions) require enough power to fly at normal cruising speed to the intended landing point and land the UA with 30% battery power remaining.

This exemption requires that the operator obtain a Certificate of Authorization or Waiver (COA) from the FAA. As part of that process the FAA Air Traffic Organization (ATO) evaluates whether the operations could be conducted safely in the requested airspace. The majority of current UAS operations occurring in the NAS are being coordinated through ATC

by the issuance of a COA. This process not only makes local ATC facilities aware of UAS operations, but also provides ATC the ability to consider airspace issues that are unique to UAS operations. The COA will require the operator to request a NOTAM, which is the mechanism for alerting other users of the NAS to the UAS activities being conducted. The conditions and limitations below prescribe the requirement for the petitioner to obtain an ATO-issued COA.

Public Interest

The FAA finds that a grant of exemption is in the public interest. The UA is able to collect high-resolution data that, according to the petitioner, would provide farmers the ability to direct precise application of fertilizer, reducing the overall use of chemicals and impact on the environment, while maximizing crop yields. The enhanced safety achieved using a UA with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions and carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

The following table summarizes the FAA's determinations regarding regulatory relief:

| Relief considered (14 CFR) | FAA determination (14 CFR) |
|---|---|
| Part 21, Subpart H | Relief not necessary |
| 45.23(b) | Relief not necessary |
| 45.29 | Relief not necessary |
| 61.113(a) and (b) | Relief from 61.113(a) is granted with conditions and limitations; relief from 61.113(b) not necessary |
| 61.133 | Relief not necessary |
| 91.7(a) | Relief granted with conditions and limitations |
| 91.9(b)(2) | Relief not necessary |
| 91.109 | Relief not necessary |
| 91.119 | Relief not granted for paragraph (a); paragraph (b) relief not applicable; paragraph (c) relief granted with conditions and limitations; paragraph (d) relief not applicable |
| 91.121 | Relief granted with conditions and limitations |
| 91.151(a) | Relief granted for paragraph (a)(1), day, with conditions and limitations |
| 91.203(a) and (b) | Relief not necessary |
| 91.405(a) | Relief granted with conditions and limitations |
| 91.407(a)(1) | Relief granted with conditions and limitations |
| 91.409(a)(1) and (2) | Relief granted with conditions and limitations |
| 91.417(a) and (b) | Relief granted with conditions and limitations |

**The FAA's Decision**

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, 3D Aerial Solutions, LLC is granted an exemption from 14 CFR §§ 61.113(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b) to the extent necessary to allow petitioner to operate a UAS for the purpose of conducting precision photogrammetry and crop scouting for precision agriculture. This exemption is subject to the conditions and limitations listed below.

**Conditions and Limitations**

Relative to this grant of exemption, 3D Aerial Solutions, LLC is hereafter referred to as the operator in the following Conditions and Limitations.

The petition and the following supporting documentation are hereinafter referred to as the operating documents:

1) SenseFly eBee User Manual Rev. 14

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1) Operations authorized by this grant of exemption are limited to the following aircraft, described in the operating documents, which is a fixed-wing aircraft weighing approximately 1.5 pounds: SenseFly eBee Mini Drone. Proposed operations of any other aircraft will require a new petition or a petition to amend this grant.

2) UAS operations under this exemption are limited to conducting operations for the purpose of aerial imagery to support agriculture.

3) The UA may not be flown at an indicated airspeed exceeding 45 mph.

4) The UA must be operated at an altitude of no more than 400 feet above ground level (AGL), as indicated by the procedures specified in the operating documents. All altitudes reported to ATC must be in feet AGL.

5) The UA must be operated within visual line of sight (VLOS) of the pilot in command (PIC) at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate.

6) All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times. Electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the functions prescribed in the operating documents.

7) The VO must not perform any other duties beyond assisting the PIC with seeing and avoiding other air traffic and other ground based obstacles/obstructions and is not permitted to operate the camera or other instruments.

8) The operating documents and this grant of exemption must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS-80) may be contacted if questions arise regarding updates or revisions to the operating documents.

9) Prior to each flight, the PIC must inspect the UAS to ensure it is in a condition for safe flight. If the inspection reveals a condition that affects the safe operation of the UAS, the UAS is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight. The Ground Control Station must be included in the preflight inspection. All maintenance and alterations must be properly documented in the aircraft records.

10) Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics (e.g. replacement of a flight critical component) must undergo a functional test flight. The PIC who conducts the functional test flight must make an entry in the aircraft records.

11) The pre-flight inspection must account for all potential discrepancies, e.g. inoperable components, items, or equipment, not already covered in the relevant sections of the operating documents.

12) The operator must follow the UAS manufacturer's aircraft/component, maintenance, overhaul, replacement, inspection, and life limit requirements.

13) The operator must carry out its maintenance, inspections, and record keeping requirements in accordance with the operating documents. Maintenance, inspection, alterations, and status of replacement/overhaul component parts must be noted in the aircraft records. This includes total time in service, description of work accomplished, and the signature of the authorized person returning the UAS to service.

14) Each UAS operated under this exemption must comply with all manufacturer Safety Bulletins.

15) The authorized person must make an entry in the aircraft record of the corrective action taken against discrepancies discovered between inspections.

16) The PIC must possess at least a private pilot certificate and at least a current third-class medical certificate. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

17) The operator may not permit any PIC to operate unless the PIC meets the operator's qualification criteria and demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). The PIC must ensure that the VO is trained appropriately in order to fulfill her or her duties. A record of training must be documented and made available upon request by the Administrator. Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) are permitted under the terms of this exemption. However, training may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

18) UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

19) The UA may not operate within 5 nautical miles of an airport reference point as denoted on a current FAA-published aeronautical chart unless a letter of agreement with that airport's management is obtained, and the operation is conducted in accordance with a Notice to Airmen (NOTAM), as required by the operator's Certificate of Waiver or Authorization (COA). The letter of agreement between the petitioner and the airport management must be made available to the Administrator upon request.

20) The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

21) If the UA loses communications or loses its GPS signal, it must return to a pre-determined location within the planned operating area and land or be recovered in accordance with the operating documents.

22) The PIC must abort the flight in the event of unpredicted obstacles or emergencies in accordance with the operating documents.

23) The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough power to fly at normal cruising speed to the intended landing point and land the UA with 30% battery power remaining.

24) The operator must obtain an Air Traffic Organization (ATO) issued COA prior to conducting any operations under this grant of exemption. This COA will require the operator to request a NOTAM not more than 72 hours in advance, but not less than 48 hours prior to the operation. All operations shall be conducted in accordance with airspace requirements in the ATO issued COA including class of airspace, altitude level and potential transponder requirements.

25) All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N-Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

26) Before conducting operations, the radio frequency spectrum used for operation and control of the UA must comply with the Federal Communications Commission (FCC) or other appropriate government oversight agency requirements.

27) The documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the UAS is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

28) The UA must remain clear of and yield the right of way to all manned aviation operations and activities at all times.

29) The UAS may not be operated by the PIC from any moving device or vehicle.

30) The UA may not be operated over congested or densely populated areas.

31) Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:

a) Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately and/or;

b) The aircraft is operated near vessels, vehicles, or structures where the owner/controller of such vessels, vehicles, or structures has granted permission and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard, and;

c) Operations nearer to the PIC, VO, operator trainees or essential persons do not present an undue hazard to those persons per § 91.119(a).

32) All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

33) Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS-80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on March 31, 2017, unless sooner superseded or rescinded.

Issued in Washington, DC, on March 3, 2015.

/s/
John Barbagallo
Acting Deputy Director, Flight Standards Service