Exemption No. 11192

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

In the matter of the petition of **VIKING UNMANNED AERIAL SYSTEMS, INC.** for an exemption from part 21; §§ 45.23(b); 61.113(a) and (b); 91.7(a); 91.9(b)(2); 91.103; 91.109; 91.119; 91.121; 91.151(a); 91.203(a) and (b); 91.405(a); 91.407(a)(1); 91.409(a)(2); and 91.417(a) and (b) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA–2014–0850**

GRANT OF EXEMPTION

By letter dated June 6, 2014 Mr. Christopher M. Taylor, Viking Unmanned Aerial Systems, Inc. (AgriView Aerial Solutions Division) (hereinafter Petitioner or Operator), 16 Sanford Drive, Suite 5, Gorham, Maine 04038 petitioned the Federal Aviation Administration (FAA) for an exemption from part 21, §§ 45.23(b), 61.113(a) and (b), 91.7(a), 91.9(b)(2), 91.103, 91.109, 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a) and (b) of Title 14, Code of Federal Regulations (14 CFR). The exemption would allow the petitioner to operate the Viking Ranger EX unmanned aircraft system (UAS) to conduct aerial photography and 3D mapping for the agriculture industry.

The petitioner supports its request with the following information:

The petitioner proposes to operate the Viking Ranger EX UAS to conduct aerial photography and 3D mapping for the agriculture industry. See Appendix A for the petition submitted to the FAA, including the regulations from which the petitioner seeks an exemption.

The petitioner has provided the following information to support its request for an exemption, which includes proprietary supporting documents:

1) AgriView Aerial Solutions Flight Operations Standard Operating Procedure

2) Viking Ranger EX 3dMapping – UAS System Deployment Manual and Specifications
3) Viking Ranger EX UAS Aircraft Safety Checklist
4) Pixhawk Autopilot Quick Start Guide
5) Pixhawk Flight Controller Component Maintenance Manual Overview

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

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.

UAS

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts.* 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, and any associated noise certification and testing requirements of part 36, is not necessary.

Manned aircraft conducting aerial photography and 3D mapping for the agriculture industry can weigh thousands of pounds or more and are operated by an onboard pilot, in addition to other crewmembers as necessary. The petitioner's UA weighs less than 6 lbs. The pilot and crew will be remotely located from the aircraft. The limited weight reduces the potential for harm to participating and nonparticipating 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 UA carries no fuel, and therefore the risk of fire following an incident or accident due to fuel spillage is eliminated.

This exemption does not require an electronic means to monitor and communicate with other aircraft, such as transponders or sense and avoid technology. Rather, the FAA is mitigating the risk of these operations by placing limits on altitude, requiring stand-off distance from clouds, permitting daytime operations only, and requiring that the UA be operated within visual line of sight (VLOS) and yield right of way to all manned operations. Additionally, the exemption provides that the operator will request a notice to airmen (NOTAM) prior to operations to alert other users of the NAS.

The petitioner has stated that its UAS has the capability to operate safely after experiencing certain in-flight contingencies or failures and uses a failsafe mode to return to home and land

in those instances. The petitioner stated as well that its UAS is able to respond to a loss of GPS or a lost-link event with pre-coordinated automated flight maneuvers.

Regarding the petitioner's requested relief from 14 CFR § 45.23(b), *Display of marks*, the petitioner's request is made under the assumption that marking with the word "experimental" will be required as a condition of an exemption request. However, this marking is reserved for aircraft that are issued experimental certificates under § 21.191. Since the petitioner's UAS will not be certificated under 14 CFR § 21.191, a relief from 14 CFR § 45.23(b) is not necessary. Markings must be as large as practicable per § 45.29(f).

Regarding the petitioner's requested relief from 14 CFR §§ 91.405(a) *Maintenance required*, 91.407(a)(1) *Operation after maintenance, preventive maintenance, rebuilding, or alteration*, 91.409(a)(2) *Inspections*, and 91.417(a) and (b) *Maintenance records*, the FAA has 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 notes that the petitioner's operating documents contain preflight checks for the UAS. The petitioner also states that all required maintenance will be performed and logged. 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. In accordance with the petitioner's UAS maintenance, inspection, and recordkeeping requirements, the FAA finds that exemption from 14 CFR §§ 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b) is warranted subject to the conditions and limitations below.

UAS PIC

Regarding the petitioner's requested relief from 14 CFR § 61.113 *Private pilot privileges and limitations*, the FAA must consider the appropriate level of pilot certification for the petitioner's proposed operations. The petitioner states it would operate its UAS with a pilot holding a sport pilot certificate or a recreational pilot certificate and certified by the UA manufacturer and has completed the FAA private pilot written exam. Under current regulations, civil operations for compensation or hire require a PIC holding a commercial pilot certificate per 14 CFR part 61. As established in 14 CFR § 61.113(a), with limited exception, a pilot holding a private pilot certificate cannot act as a PIC of an aircraft for 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. Additionally, as previously determined by the Secretary of Transportation, the requirement to have an airman certificate ameliorates security concerns over civil UAS operations conducted in accordance with Section 333.

The FAA has analyzed the petitioner's proposed operation and determined it does not differ significantly from the situation described in Grant of Exemption No. 11062 (Astraeus). The petitioner commits to operating in Class G airspace, over private property or other confined areas, and with a security perimeter established in which a safe separation from non-consenting persons can be maintained. Given: 1) the similar nature of the petitioner's proposed operating environment to that of Astraeus, 2) the parallel nature of private pilot aeronautical knowledge requirements to those of commercial requirements, and 3) the airmanship skills necessary to operate the UAS, the FAA finds that the additional manned airmanship experience of a commercially certificated pilot would not correlate to the airmanship skills necessary 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 and that granting relief from 14 CFR § 61.113(a) is warranted.

With regard to the airmanship skills necessary to operate the UAS, the petitioner has stated that it will require its PICs be certified by the manufacturer of the UAS to be operated. The conditions and limitations below require the petitioner to ensure the PIC has demonstrated 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 people, vessels, vehicles, and structures.

The petitioner indicates it will supplement its proposed operation(s) with a visual observer (VO) who has met the petitioner's training requirements. 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 limit operations of the UA to distances within the visual capabilities of both the PIC and VO.

The FAA considers the PIC to be designated for the duration of the flight. Therefore, per the conditions and limitations below, the PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight.

UAS Operating Parameters

The petitioner requested relief from 14 CFR § 91.7(a) *Civil aircraft airworthiness* and the FAA finds that relief from § 91.7(a) is necessary. While the petitioner's UAS will not require an airworthiness certificate in accordance with 14 CFR part 21, subpart H, 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.

Additionally, in accordance with 14 CFR § 91.7(b), the PIC of the UAS is responsible for determining whether the aircraft is in a condition for safe flight and the FAA finds that the PIC can comply with this requirement.

Regarding the petitioner's requested relief from 14 CFR § 91.9(b)(2) *Civil aircraft flight manual, marking, and placard requirements* and 14 CFR § 91.203(a) and (b) *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 § 91.103, *Preflight action*, the petitioner's operating documents require the PIC to take certain actions before flight to ensure the safety of the flight. The procedures outlined in the operating documents address the FAA's concerns regarding compliance with § 91.103. According to the petitioner, the PIC will take all actions including reviewing weather, flight battery requirements, landing, and takeoff distances/conditions, and aircraft performance data before initiation of flight. The FAA has imposed stricter requirements with regard to visibility and distance from clouds; this is to both keep the UA from departing VLOS and to preclude the UA from conflicting with other aircraft operating in the NAS. The FAA also notes the risks associated with sun glare; the FAA believes that the PIC's and VO's ability to still see other air traffic, combined with the PIC's ability to initiate a return-to-home sequence, are sufficient mitigations in this respect. The PIC will also account for all relevant site-specific conditions in his or her preflight procedures. Therefore, the FAA finds that exemption from 14 CFR § 91.103 is not necessary.

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 through the procedures referenced in the operating documents. Furthermore, the FAA is requiring that the petitioner's PICs possess at least a private pilot's certificate. Also, 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 self-administered training and internal procedures outlined in the operating documents. Therefore, the FAA finds that the petitioner can conduct its operations without the requested relief from § 91.109.

Regarding the petitioner's requested relief from 14 CFR § 91.119, *Minimum safe altitude*, the petitioner states that all operations will be conducted in Class G airspace, will avoid congested or densely populated areas (as identified by yellow areas on VFR sectional charts), will operate within a confined "sterile area" with landowner permission, and will operate with the consent of all persons inside the sterile area. The petitioner also states that it will operate as close as 30 feet to consenting persons based upon an equivalent level of safety determination. The petitioner did not further describe how a "sterile area" would be created nor did it provide information on how persons not participating in or essential to the flight operations would be protected from an accident involving the UA. Therefore, the FAA is requiring that prior to conducting UAS specific 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. the PIC, VO, and any sensor operator). The FAA has also considered that the UA in this case will weigh less than 6 pounds. If barriers or structures are present that can sufficiently protect nonparticipating persons from debris in the event of an accident, then the UA may operate closer than 500 feet to persons afforded such protection. 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. 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 land owner/controller grants such permission and the PIC makes a safety assessment of the risk of operating closer to those objects.

Thus, the FAA finds that relief from § 91.119(c) is necessary because all operations will be conducted below 400 feet above ground level (AGL) and may be operated closer than 500 feet from persons, vessels, vehicles, and structures as described above. Provided adherence to the procedures in the operating documents and the additional conditions and limitations outlined below, the FAA finds that relief from § 91.119(c) is warranted.

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 14 CFR § 91.119(b), *operation over congested areas*, is not applicable, because the petitioner states that operations will only be conducted within the sterile area described in the operating documents. The conditions and limitations below will specifically prohibit operations over those areas. Relief from § 91.119(d) is also not necessary due to the nature of the proposed UAS operations.

The petitioner also noted that it will avoid congested or populated areas “which are depicted in yellow on VFR charts.” Since there is no precise definition of the term “congested area” and because aeronautical charts and NOTAMS provide only general guidance for developing a proposed route that complies with § 91.119, the petitioner should consult with the local Flight Standards District Office (FSDO) to discuss areas that would reasonably be considered “congested” within proximity of the proposed operations. Ultimately, the PIC is responsible for maintaining the minimum safe altitudes required in § 91.119.

Regarding the requested relief from 14 CFR § 91.121 *Altimeter settings*, the petitioner stated that its UAS uses a global positioning system (GPS) altitude indicator rather than a barometric altimeter. 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 GPS altitude indicator to zero feet AGL, if that option exists, 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 14 CFR 91.151(a) F*uel requirements for flight in VFR conditions*, relief has been granted for manned aircraft to operate at less than the minimums prescribed in 14 CFR § 91.151(a), 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 petitioner states that its UAS operations will be conducted in a confined "sterile area," with an unmanned aircraft (UA) weighing under 6 pounds, within VLOS, and limited to 90 minutes of flying. These factors, combined with the petitioner's stated intention to terminate flights with 25% remaining battery power, provides the FAA with sufficient reason to grant the requested relief from 14 CFR § 91.151(a). In accordance with the conditions and limitations below, 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 25% battery power remaining.

Additionally, in evaluating the petitioner's proposed operating parameters with regard to VLOS and a safe operating perimeter, the FAA considered operations from a moving device or vehicle. Since the petitioner did not discuss provisions for these circumstances, the conditions and limitations below preclude operations from moving devices or vehicles.

Regarding an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA), the majority of current UAS operations occurring in the NAS are being coordinated through ATC by the issuance of a COA. This is an existing process that 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 potential improvements to the efficiency and yield of U.S. farm lands using a UAS with the specifications described by the petitioner, and carrying no passengers or crew, instead of a manned aircraft of significantly greater proportions, 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 the relief sought by the petitioner:

Relief considered (14 CFR)	FAA determination (14 CFR)
Part 21	Relief not necessary
45.23(b)	Relief not necessary
61.113(a)	Relief granted with conditions and limitations
91.7(a)	Relief granted with conditions and limitations
91.9(b)(2)	Relief not necessary
91.103	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 necessary
91.121	Relief granted with conditions and limitations
91.151(a)	Relief from 91.151(a)(1), day, granted 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)(2)	Relief granted with conditions and limitations; relief from 91.409(a)(1) also 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, Viking Unmanned Aerial Systems Inc. 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 aerial photography and 3D mapping for the agriculture industry. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

Relative to this grant of exemption, Viking Unmanned Aerial Systems Inc. is hereafter referred to as the operator.

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

1) AgriView Aerial Solutions Flight Operations Standard Operating Procedure
2) Viking Ranger EX 3dMapping – UAS System Deployment Manual and Specifications
3) Viking Ranger EX UAS Aircraft Safety Checklist
4) Pixhawk Autopilot Quick Start Guide
5) Pixhawk Flight Controller Component Maintenance Manual Overview

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.

The following conditions and limitations are subject to all flights utilizing this exemption:

1. Operations authorized by this grant of exemption are limited to the following aircraft described in the operating documents which has one motor, is fixed wing, and weighs less than 6 pounds: Viking Ranger EX. 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 aerial photography and 3D mapping for the agriculture industry.

3. The UA may not be flown at a speed exceeding 70 knots.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL).

5. The UA must be operated within visual line of sight (VLOS) of the 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 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 aircraft 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 of the flight in the UAS aircraft records. The requirements and procedures for a functional test flight and aircraft record entry must be added to the operating documents.

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, and alterations must be noted in the aircraft logbook, including total time in service, description of work accomplished, and signature of the person authorized to return the UAS to service.
14. The authorized person must make an entry in the aircraft record of the corrective action taken against discrepancies discovered between inspections.

15. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

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. Prior to operations conducted for the purpose of aerial photography and 3D mapping the PIC must have met the operator's qualification criteria and completed the operator's mission specific training. Training, proficiency, and experience-building flights can be conducted under this grant of exemption to qualify the operator's PIC(s), VO(s), and any sensor operators. However, said training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights the PIC is required to operate the UA with appropriate distance from non-participants in accordance with 14 CFR § 91.119.

18. Prior to operations conducted for the purpose of aerial photography and 3D mapping the PIC, VO, and any sensor operators must have met all qualification and training requirements, as outlined in the operating documents. A record of completion of these requirements must be documented and made available to the Administrator upon request.

19. The operator may not permit the PIC to operate the UAS for the purpose of aerial photography and 3D mapping unless the PIC has demonstrated and logged in a manner consistent with 14 CFR § 61.51(b), 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 people, vessels, vehicles, and structures.

20. 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.

21. The UA may not operate within 5 nautical miles of the 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 NOTAM as required by the operator's COA. The letter of agreement with airport management must be made available to the Administrator upon request.

22. 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.

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

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

25. 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 25% battery power remaining.

26. The operator must obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under this grant of exemption. This COA will also require the operator to request a Notice to Airman (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.

27. 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.

28. 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.

29. 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.

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

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

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

33. 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 property owner/controller of 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 near the PIC, VO, sensor operator, operator trainees or other essential persons, do not present an undue hazard to these persons per § 91.119(a).

34. 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.

35. 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