Corrected Copy

This action corrects the March 12, 2015, grant of exemption for Exemption No. 11206. A correction was made to reflect an expiration date of March 31, 2017, instead of March 31, 2015. Below is the amended Exemption No. 11206 that includes the aforementioned change. We have made the correction in our records as of March 12, 2015.

Exemption No. 11206

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

In the matter of the petition of **BNSF RAILWAY COMPANY** for an exemption from §§ 61.113(a) and (b); 91.7(a); 91.9(b)(2); 91.109(a); 91.119(c); 91.151; 91.203(a) and (b); 91.405(a); 91.407(a)(1); and 91.409(a) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA–2014-0704**

GRANT OF EXEMPTION

By letter dated September 2, 2014, Mr. Gary Grissum, Assistant Vice President , BNSF Railway Company (hereinafter petitioner or operator), 2650 Lou Menk Drive, TOB, Fort Worth, TX 76131, petitioned the Federal Aviation Administration (FAA) for an exemption from Sections 61.113(a) and (b), 91.7(a), 91.9(b)(2), 91.109(a), 91.119(c), 91.151, 91.203(a) and (b), 91.405(a), 91.407(a)(1), and 91.409(a) of Title 14, Code of Federal Regulations (14 CFR). The exemption would allow the petitioner to operate the AirRobot AR180, AirRobot AR200, and 3DRobotics Spektre Industrial Multi-Rotor Aerial Vehicle (all multi-rotor unmanned aircraft) to conduct small unmanned aircraft system (UAS) operations over BNSF owned or controlled railroad infrastructure and operations.

The petitioner supports its request with the following information:

The petitioner proposes to operate the the AirRobot AR180, AirRobot AR200, and 3DRobotics Spektre Industrial Multi-Rotor Aerial Vehicle to conduct small UAS operations over BNSF owned or controlled land. See Appendix A for the petition submitted to the FAA

describing the proposed operations, including the regulations from which the petitioner seeks an exemption.

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

1. Example Operational Areas
2. Description of AirRobot AR180 and AR200
3. Description of the 3DRobotics Spektre Industrial Multi-Rotor Aerial Vehicle
4. UAS Operating Manual

Discussion of Public Comments:

A summary of the petition was published in the Federal Register on September 30, 2014, (79 FR 58854). Three comments were received. The Small UAS Coalition (Coalition), the National Agricultural Aviation Association (NAAA), and an individual commented on the petition.

In support of the petition, the Coalition stated the petitioner has proposed to abide by stronger safety measures than hobby and modeler groups operating similar aircraft. The Coalition stated that it does not believe that heightened safety measures should be required for the petitioner simply because of the commercial nature of its operations. The Coalition urged the FAA to adopt an evaluation framework for UAS operations under section 333 of Pub. L. 112–95 that weighs the relative safety issues and risks of UAS by class and operational circumstances, rather than adopting artificial distinctions among unmanned aerial vehicles based on commercial and noncommercial operations. The Coalition suggested FAA safety regulations be proportionate to the risks posed by the particular proposed UAS operations by distinguishing between UAS. The petitioner's UAS pose considerably less safety risk than larger UAS used for defense and aerospace purposes. The Coalition asserted that because UAS operations like the petitioner's pose minimal risk to safety, they should be subject to minimal and appropriate regulations.

The Coalition noted the FAA is to consider the seven factors[1] in section 333 as a minimum. The Coalition stated the petition shows the FAA should consider factors other than those specified in section 333, such as the location and altitude of its small UAS. The Coalition maintained that the petitioner's proposed operations satisfy the seven factors in section 333 and include several additional mitigating factors to ensure the safety and security of the

[1] Section 333(b) of P.L. 112-95 states, in part: "In making the determination under subsection (a), the Secretary shall determine, at a minimum-- (1) which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security; . . . ."

proposed UAS operations. The Coalition emphasized the FAA must evaluate each factor within the context of the petitioner's proposed UAS operations.

The Coalition also commented that the FAA should grant relief from the requirement to hold an airman's certificate, but stated that at a minimum the FAA should provide an exception from part 61 and approve training and testing regiments that pertain to UAS commercial operations pertinent to the aircraft and operation proposed. The Coalition also asserted that Congress intended the section 333 national security criterion to focus on the operation rather than on the pilot and that shifting that focus imposes an unnecessary burden.

In response, as discussed in the grant of exemption to Trimble Navigation Ltd. (Exemption No. 11110), neither section 333 nor the FAA's authority to exempt from its regulations found in 49 USC § 44701(f), authorizes the FAA to provide exemption to the statutory requirement to hold an airman certificate as prescribed in 49 USC § 44711. The FAA notes that under this exemption the petitioner proposed to use pilots holding private certificates and it will be able to use the training program it proposed. Finally, the FAA does not agree that relying on the pilot certificate for a national security finding poses an unnecessary burden because pilots under this exemption, and the exemptions granted previously to section 333 requests, are already required to hold a pilot certificate to satisfy 49 USC § 44711.

The Coalition commented that a VO should not be required for all small UAS operations. The Coalition further asserted that the presence of one or more VOs may allow the UAS to be operated beyond VLOS of the PIC and that the petitioner's proposal to operate the UA within VLOS of the PIC and/or VO should be permitted. The FAA notes that one of the determinations for operations under section 333 is operation within visual line of sight. As the PIC is determined to be in command of the UA, he must maintain VLOS while operating the UA. The FAA also notes that a VO complements the PIC's capability to see and avoid other aircraft, including when the PIC may be momentarily attending to other flying tasks. The VO provides an additional level of operational safety.

NAAA stated it represents the interests of small business owners and pilots licensed as commercial applicators. NAAA explained that its members operate in low-level airspace, and clear low-level airspace is vital to the safety of these operators.

NAAA stated that seeing and avoiding other aircraft and hazardous obstructions is the backbone for agricultural safety, and agricultural pilots depend on pilots of other aircraft to perform their see-and-avoid functions needed to prevent collisions. NAAA believed UA operations at low altitudes will increase the potential of collision hazards with agricultural aircraft. NAAA argued that until adequate see-and-avoid technology is developed, the FAA should require UAS operators to post a Notice to Airmen (NOTAM) 48 to 72 hours before operations. NAAA proposed UAS aircraft be painted a highly visible color, be equipped with

strobe lights, and use Automatic Dependent Surveillance–Broadcast (ADS–B) or other similar location reporting technology. To address these concerns the FAA has incorporated associated conditions and limitations into this exemption, including: a) NOTAMs issued for all operations, b) operations conducted within VLOS of the PIC and the VO, and c) the UAS PIC must always yield right-of-way to manned aircraft.

NAAA also proposed a number of operating limitations and requirements for UAS operators. NAAA stated UAS operators should have procedures to immediately ground the UAS if another low-flying aircraft is within 2 miles; be attentive and free from distractions; comply with all applicable regulations, policies, and procedures; be equipped with aviation radios set to a locally defined frequency; have a separate VO with a second-class medical certificate and perform duties for only one UAS at a time; maintain line-of-sight operations; and be well-versed in the UAS operator document. NAAA further stated UAS should be properly maintained, have a registered N-Number on an indestructible and unmovable plate, and be required to have an airworthiness certificate and liability insurance. These comments are addressed in the FAA's analysis and conditions and limitations.

An individual commented that he had no issues with the petitioner's proposed operations as long it was not used to conduct surveillance on BSNF's employees.

The FAA's analysis is as follows:

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

Unmanned Aircraft System (UAS)

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 parts 21, and any associated noise certification and testing requirements of part 36, is not necessary.

Manned aircraft conducting aerial surveying operations can weigh thousands of pounds or more and are operated by an onboard pilot, in addition to other crewmembers as necessary. Each of the petitioner's UA weighs less than 19 pounds. 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 operate safely after experiencing certain in-flight contingencies or failures and uses an auto-pilot system to maintain UAS stability and control. The UAS is also able to respond to a loss of GPS or a lost-link event with a pre-coordinated, predictable, automated flight maneuver. 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 § 91.405 (a) *Maintenance required*, § 91.407(a) *Operation after maintenance, preventive maintenance, rebuilding, or alteration*, and § 91.409(a) *Inspections*, the FAA has determined that relief from § 91.417(a) and (b) *Maintenance records* is also necessary. The FAA has evaluated the petitioner's request and determined that an exemption to these requirements is warranted. The FAA notes that the petitioner's operating documents contain preflight and post flight checks for the UAS. 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 (PIC)

The petitioner requested relief from 14 CFR § 61.113(a) and (b) *Private pilot privileges and limitations* stating in the petition that its PICs will all have a private pilot license and third class medical.

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 of 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) (*see* Docket FAA-2014-0352), the FAA determined that a PIC with a private pilot certificate operating the Astraeus UAS would not adversely affect operations in the National Airspace System (NAS) or present a hazard to persons or property on the ground.

The FAA has analyzed the petitioner's proposed operation and has determined that it does not differ significantly from the situation described in Grant of Exemption No. 11062. The petitioner plans to operate over its property with controlled access or property where the petitioner has secured permission from the owner/controller. 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 as

discussed in Exemption No. 11062, and 3) the limited 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 specific proposed operations. The FAA finds that a PIC holding a private pilot certificate and a third-class airman medical certificate, and who has completed the petitioner's training program, can conduct the proposed UAS operations without adversely affecting the safety of the NAS. Upon consideration of the overall safety case presented by the petitioner and the concerns of the commenters, the FAA finds that granting the requested relief from 14 CFR § 61.113(a) is warranted subject to the conditions and limitations outlined below. Section § 61.113(b) is not necessary.

As discussed above, all flights will be operated within VLOS of the PIC and VO. However, the petitioner stated that the VO may be in a chase aircraft while in direct communication with the PIC. Since the petitioner did not further elaborate how operations would be conducted under this type of operation, or provide specifics regarding how an equivalent level of safety would be maintained under these conditions, the FAA will require the VO to perform their duties on the ground along with the PIC. The conditions and limitations below stipulate that the PIC must ensure that the VO can perform the functions prescribed in the operating documents. 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. It is the responsibility of the PIC to be aware of the VO's visual limitations and limit operations of the UA to distances within the visual capabilities of both the PIC and VO. Moreover, the VO will not be operating the aircraft. Therefore, as in Grant of Exemption No. 11062 to Astraeus, the FAA does not consider a medical certificate necessary for the VO.

UAS Operating Parameters

Regarding the petitioner's requested relief from 14 CFR § 91.7(a) *Civil aircraft airworthiness*, 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)(1) and (2) *Civil aircraft:*

Certifications required, the FAA has previously determined, as in grant of Exemption No.11062 to Astraeus, 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 that would require fully functioning dual controls. Rather, the petitioner intends to accomplish training through the procedures referenced in the operating documents. Furthermore, the FAA is requiring the PIC to possess at least a private pilot's certificate and conduct training operations only during dedicated training sessions. Thus, the FAA finds an equivalent level of safety will be achieved by the petitioner's training program. As such, the FAA finds that the petitioner can conduct its operations without the requested relief from § 91.109(a).

Regarding the petitioner's requested relief from 14 CFR § 91.119 *Minimum safe altitudes*, the petitioner states that relief from § 91.119(c) is necessary because it proposes to operate below 500 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. In those cases, 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(c):

- All operations will be conducted over property that is owned or controlled by petitioner.
- Public access is restricted.
- Petitioner also has exclusive use of significant portions of land adjacent to the track, trains and structures which will be evaluated via UA.
- All of petitioner's personnel already wear mandatory safety equipment including hard hats, safety glasses and steel-toed boots whenever dispatched to a work site.
- A pre-job brief will be conducted and must verify control of the flight area, including the absence of members of the public in the flight area.

Regarding stand-off distances from persons, vessels, vehicles and structures, 14 CFR § 91.119(c) requires that aircraft operate no closer than 500 feet to these persons or objects. As discussed in Exemption No. 11109 (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 petitioner's UA's maximum gross weight of approximately 19 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 owner/controller of any such vessels, vehicles or structures grants permission for the operation 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.

Although petitioner did not request relief from 14 CFR § 91.121 *Altimeter Settings*, 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 global positioning system (GPS) altitude indicator 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 similar UAS in Exemption Nos. 8811, 10808, and 10673 for daytime, VFR conditions. The petitioner states its commitment to land the UAS prior to 20% battery power remaining. Its operating documents also indicate it will establish minimum and emergency fuel/power remaining requirements for each UAS vehicle operated by petitioner and each mission will be planned to allow completion above the minimum fuel/power remaining requirements for the UAS. These factors provide the FAA with sufficient reason to grant the relief from 14 CFR § 91.151(a) in accordance with the conditions and limitations below. The PIC would be prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough power to fly to the intended landing point at normal cruising speed and land the UA with 20% battery power remaining.

The FAA Air Traffic Organization (ATO) reviews all proposed UAS operations and evaluates the safety of these operations relative to the requested airspace through the existing Certificate of Waiver or Authorization (COA) process. The majority of current UAS operations occurring in the NAS are being coordinated through Air Traffic Control (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 this grant of exemption is in the public interest. 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 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. Further, this grant may also help to reduce injuries to employees on the ground by allowing for remote aerial review rather that requiring them to climb over or onto track structures in remote areas.

The following summarizes the FAA's determinations regarding relief sought by the petitioner:

Relief considered (14 CFR)	**FAA determination (14 CFR)**
61.113(a) and (b)	Relief granted from paragraph (a) with conditions limitations; paragraph (b) not necessary
91.7(a)	Relief granted with conditions and limitations
91.9(b)(2)	Relief not necessary
91.109(a)	Relief not necessary
91.119(c)	Relief granted with conditions and limitations
91.121	Relief granted with conditions and limitations
91.151	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 USC §§ 106(f), 40113, and 44701, delegated to me by the Administrator, BNSF Railway Company 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 the petitioner to operate the AirRobot AR180, AirRobot AR200, or 3DRobotics Spektre Industrial Multi-Rotor Aerial Vehicle (all multi-rotor unmanned aircraft) to conduct small UAS operations over BNSF owned or controlled railroad infrastructure and operations.

This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

Relative to this grant of exemption, petitioner is hereafter referred to as the operator.

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 include:

    a. the AR180C, a quad-rotor copter, with a maximum gross takeoff weight of 11 pounds;
    b. the AR200, a hex-rotor copter, with a maximum gross takeoff weight of 19 pounds; or
    c. the 3DRobotics Specktre Industrial Multi-Rotor Aerial Vehicle, a quad-rotor copter with a maximum gross takeoff weight of 10.5 pounds.

    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 operations over BNSF owned or controlled railroad infrastructure and operations.

3) The UA may not be flown at an indicated airspeed exceeding 50 knots.

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 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 be located on the ground and not in a chase plane. If petitioner provides further information about the specific operations requiring the VO to be located in a chase plane and how an equivalent level of safety will be maintained throughout this operation, they may seek an amendment to this petition.

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 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 in the UAS aircraft records.

11) The pre-flight inspection section in the operating documents 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, including 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 a third-class airman 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). 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 operations 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 NOTAM as required by the operator's COA. The letter of agreement with 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 UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property 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 UAS flight unless (considering wind and forecast weather conditions) there is enough power to fly at normal cruising speed to the intended landing pint and land the UA with at least 20% battery power remaining.

24) 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.

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 aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

28) The UA must remain clear and yield the right of way to all other manned 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) All 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 unmanned aircraft system (UAS), pilot in command (PIC), and operator 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 12, 2017.

/s/
Michael J. Zenkovich
Deputy Director, Flight Standards Service