U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

CORRECTED COPY

The FAA is reissuing the August 14, 2015, grant of Exemption No. 12462. A correction was made to add the DJI Phantom 2 Vision +, 3DR Iris+, and the 3DR Solo aircraft to the Airworthiness Certification section and to Conditions and Limitations #1. Below is the amended Exemption No. 11260 that includes the aforementioned change. We made the correction in our records as of August 17, 2015.

August 14, 2015

Exemption No. 12462
Regulatory Docket No. FAA–2015–2196

Mr. Paul J. Fraidenburgh
Buchalter Nemer
Counsel for Panoptes Systems Corporation
18400 Von Karman Avenue Suite 800
Irvine, CA 92612

Dear Mr. Fraidenburgh:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

By letter dated May 21, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Panoptes Systems Corporation (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct research, testing, and aerial data collection.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

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.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Phantom 2, DJI Phantom 2 Vision +, 3DR Iris+, and the 3DR Solo

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 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, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[1]. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (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.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

[1] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

Our 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, Panoptes Systems Corporation is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(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 a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, Panoptes Systems Corporation 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 DJI Phantom 2, DJI Phantom 2 Vision +, 3DR Iris+, and the 3DR Solo when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported 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 or U.S. driver's license.

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 duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents 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 or any law enforcement official 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.

8. 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 prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. 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.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

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

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. 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.

14. The operator may not permit any PIC to operate unless the PIC 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). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption 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.

15. 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.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. 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.

18. 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.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. 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.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any 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.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

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

26. 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 in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects 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.

    The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

27. 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.

28. 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.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder’s MPTOM.

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 August 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/
John S. Duncan
Director, Flight Standards Service

Enclosures

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May 21, 2015

U.S. Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
Washington, DC 20590

Panoptes Systems Corporation's Petition for "Summary Grant" Exemption to Operate Unmanned Aircraft Systems for Aerial Data Collection

FAA Regulatory Docket

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I. PETITION SUMMARY

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95 (2012), 126 Stat. 11 ("Section 333") and the Federal Aviation Administration's ("FAA") general exemption authority under 49 U.S.C. § 44701(f), Panoptes Systems Corporation ("Petitioner"), a subsidiary of Aurora Flight Sciences Corporation, hereby petitions for a "Summary Grant" Exemption from 14 C.F.R. Part 21, 14 C.F.R. §§ 61.113(a) and (b), 61.133(a), 91.7(a), 91.9(b)(2), 91.103(b)(1), 91.119(c), 91.121, 91.151, 91.203(a) and (b), 91.405(a), 91.407(a)(1) 91.409(a)(2), 91.417(a)-(b). The proposed exemptions, if granted, would allow Petitioner to operate small, camera-mounted unmanned aircraft systems ("UAS") weighing 55 pounds or less for the purpose of research, testing, and aerial data collection.

Based on the small size of Petitioner's UAS, the qualifications and experience of Petitioner's UAS operators, and the restricted environments within which Petitioner will operate, the requested exemptions fall squarely within the zone of safety envisioned by Congress and set forth in Section 333. Additionally, the enhanced safety achieved by replacing significantly larger manned aircraft carrying crew and flammable fuel with small UAS carrying no passengers or crew and operated under the specific guidelines and procedures proposed by Petitioner gives the FAA good cause to find that the UAS operations enabled by the instant Petition are in the public interest. Because the requested exemption would not set precedent, and because any delay in acting on this

Petition would be detrimental to Petitioner, good cause exists for granting this Petition on an expedited basis pursuant to the FAA's streamlined "Summary Grant" process. In addition, good cause exists for foregoing a published summary of the petition in the Federal Register. Thus, Petitioner respectfully requests that the FAA grant this non-precedent setting exemption on an expedited basis.

II. STATUTORY AUTHORITY

A. Section 333

Section 333, titled "Special Rules for Certain Unmanned Aircraft Systems," provides a mechanism for seeking expedited FAA authorization of safe civil UAS operations in the National Airspace System ("NAS"). Section 333(a) states that the FAA "shall determine if certain unmanned aircraft systems may operate safely in the national airspace system before completion of the [comprehensive] plan and rulemaking required by section 332(b)(1) of this Act or the guidance required by section 334 of this Act." In Section 332(b)(1), Congress made it clear that Section 333 provides a mechanism for "expedited operational authorization." The FAA has committed to complying with this mandate by granting several petitions similar to the one at hand. *See, e.g.*, Exemption Nos. 11062, 11109, 11112, and 11213.

Section 333(b) identifies several factors that the FAA should consider in determining whether commercial UAS operations should be approved. These include UAS that, "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 [NAS] or the public or pose a threat to national security." *See* Section 333(b).

B. Section 44701(f)

In addition to the specific authority conferred by Section 333, the FAA Administrator has general authority to grant exemptions from the FAA's safety regulations and minimum standards when the Administrator decides a requested exemption is in the public interest. *See* U.S.C. § 44701(f).

III. REQUESTED EXEMPTIONS

Petitioner requests relief from the following regulations:

Part 21 prescribes, in pertinent part, the procedural requirements for issuing and changing design approvals, production approvals, airworthiness certificates, and airworthiness approvals.

Section 61.113 prescribes that "no person who holds a private pilot certificate may act as a pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft," (*see* Section 61.113(a)), and that "a private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if: (1) The flight is only incidental to that business or employment; and (2) The aircraft does not carry passengers or property for compensation or hire," (*see* Section 61.113(b)).

Section 61.133(a) sets forth privileges for persons holding commercial pilot certificates, including a provision impliedly limiting to persons holding a commercial pilot certificate the ability to act as pilot in command of an aircraft "[f]or compensation or hire."

Section 91.7(a) prescribes, in pertinent part, that no person may operate a civil aircraft unless it is in an airworthy condition.

Section 91.9(b)(2) prohibits operation of U.S. registered civil aircraft unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

Section 91.103(b)(1) prescribes, in pertinent part, that each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight, to include, "For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:… For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein."

Section 91.119(c) prescribes that, except when necessary for takeoff or landing, 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."

Section 91.121 requires, in pertinent part, each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "to the elevation of the departure airport or an appropriate altimeter setting available before departure."

Section 91.151(a) prescribes that no person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, (1) during the day, to fly after that for at least 30 minutes; or (2) at night, to fly after that for at least 45 minutes.

Section 91.203 prohibits, in subpart (a), any person from operating a civil aircraft unless it has within it (1) an appropriate and current airworthiness certificate; and (2) an effective U.S. registration certificate issued to its owner or, for operation within the United States, the second copy of the Aircraft Registration Application as provided for in § 47.31(c). Section 91.203 prescribes, in subpart (b), that no person may operate a civil aircraft unless the airworthiness certificate or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

Section 91.405(a) requires, in pertinent part, that an aircraft operator or owner shall have the aircraft inspected as prescribed in subpart E of the same part and shall, between required inspections, except as provided in paragraph (c) of the same section, have discrepancies repaired as prescribed in Part 43 of the chapter.

Section 91.407(a)(1) prohibits, in pertinent part, any person from operating an aircraft that has undergone maintenance, preventative maintenance, rebuilding, or alteration unless it has been approved for return to service by a person authorized under § 43.7 of the same chapter.

Section 91.409(a)(2) prescribes, in pertinent part, that no person may operate an aircraft unless, within the preceding 12 calendar months, it has had an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

Section 91.417(a) and (b) prescribes, in pertinent part, that-

> (a) Each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:
>
> (1) Records of the maintenance, preventative maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include-
>
> (i) A description (or reference to data acceptable to the Administrator) of the work performed; and
>
> (ii) The date of completion of the work performed; and

(iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revisions date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

IV. PETITIONER'S PROPOSED OPERATIONS SATISFY SECTION 333.

A. Unmanned Aircraft System

The UAS to be operated under this request are less than 55 lbs. fully loaded, will be operated at a speed of no more than 87 knots (100 miles per hour), carry neither a pilot nor passenger, carry no explosive materials or flammable liquids, and operate exclusively

within a secured area. In no case will the UAS be operated at airspeeds greater than the maximum UAS operating airspeed recommended by the aircraft manufacturer. Petitioner's UAS use a radio frequency spectrum for operation and control that complies with Federal Communications Commission ("FCC") requirements, and Petitioner has integrated safety features into the UAS, as described in Petitioner's Flight Operations and Procedures Manual ("FOPM").

Petitioner's UAS are equipped with redundant safety mechanisms allowing them to operate safely after experiencing certain in-flight failures. If a lost-link event occurs, including the loss of ground communications and/or the loss of a GPS signal, Petitioner's UAS have the ability to perform a pre-coordinated, predictable, automated flight maneuver and return to a predetermined location within a designated security perimeter for landing. The UAS further have the ability to abort a flight in the event of unpredicted obstacles or emergencies. The PIC will not begin a flight unless (considering wind and forecast weather conditions) there is enough available battery power for the UAS to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater. Thus, good cause exists for granting Petitioner's requested relief from 14 C.F.R. § 91.151(a) (setting forth fuel requirements for flight in VFR conditions).

Petitioner's UAS will be identified by serial number, registered in accordance with 14 C.F.R. Part 47, and have identification (N-Number) markings in accordance with 14 C.F.R. Part 45, Subpart C. Markings will be as large as practicable.

Regarding Petitioner's requested relief from 14 C.F.R. § 91.121 (Altimeter Settings), Petitioner seeks such relief because Petitioner will not have a typical barometric altimeter onboard the UAS. Instead, altitude information will be provided to the UAS PIC via a digitally encoded telemetric data feed, which downlinks from the aircraft to a ground-based on-screen display. The altitude information will be generated by equipment installed onboard the UAS, using GPS triangulation, digitally encoded barometric altimeter, radio altimeter, or any combination thereof. Prior to each flight, a zero altitude initiation point will be established and confirmed for accuracy by the UAS PIC. Thus, good cause exists for granting the requested relief from 14 C.F.R. § 91.121.

Regarding Petitioner's requested relief from 14 C.F.R. § 91.7(a), it is Petitioner's understanding that Petitioner's UAS will not require an airworthiness certificate in accordance with 14 C.F.R. Part 21, Subpart H, and that exemption from 14 C.F.R. § 91.7(a) is therefore unnecessary. To the extent such an exemption is deemed necessary, Petitioner asserts that it should be granted in light of the safety procedures proposed herein. In accordance with the pertinent part of 14 C.F.R. § 91.7(b), the operator in command of Petitioner's UAS shall be responsible for determining whether the aircraft is

in a safe condition for flight. Petitioner's manuals for maintenance and operations shall include safety checklists to be used by the operator in command prior to each flight.

Petitioner will strictly comply with safety and maintenance procedures included in all applicable UAS manufacturer's instructions and operating manuals. To the extent such information is not included in the guidelines developed by the manufacturers, Petitioner will develop and document maintenance, overhaul, replacement, and inspection requirements, procedures to document and maintain maintenance records with regard to Petitioner's UAS, and UAS technician qualification criteria. Petitioner's operations manuals will include maintenance requirements for Petitioner's UAS, including "on-condition" maintenance and modifications. In light of these mitigating factors, exemptions from 14 C.F.R. §§ 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b) are warranted.

B. UAS Pilot in Command

Petitioner's UAS pilot in command ("PIC") shall hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC shall also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. Since there are no standards for either private or commercial UAS pilot certificates, knowledge of airspace regulations acquired from FAA ground school and dexterity in the control and operation of the UAS acquired from actual operation of the

aircraft will be the most important factors in establishing an equivalent level of safety. According to the FAA, "the FAA considers the overriding safety factor for the limited operations proposed by the petitioner to be the airmanship skills acquired through UAS-specific flight cycles, flight time, and specific make and model experience, culminating in verification through testing." *See* Exemption No. 11062, Regulatory Docket No. FAA-2014-0352, at p. 18.

With those factors in mind, Petitioner will not allow any PIC to operate unless the PIC 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 will be logged in a manner consistent with 14 C.F.R. § 61.51(b). Flights for the purpose of training Petitioner's PICs and VOs (training, proficiency, and experience-building) will be conducted under the terms of the requested exemption. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC will operate the aircraft with appropriate distance from nonparticipants in accordance with 14 C.F.R. § 91.119.

Regarding Petitioner's requested relief from 14 C.F.R. § 91.9(b)(2) (Civil aircraft flight manual, marking, and placard requirements) and § 91.203(a) and (b), (Civil aircraft: certifications required), it is Petitioner's understanding that relief from these

regulations is no longer necessary in light of the FAA Memorandum "Interpretation regarding whether certain required documents may be kept at an unmanned aircraft's control station," dated August 8, 2014. To the extent the FAA deems an exemption from this section necessary for Petitioner's proposed operations, such exemption should be granted in light of the mitigating fact that Petitioner will maintain the documents required under 14 C.F.R. §§ 91.9 and 91.203 at the UAS ground control station during flights.

Additionally, 100% of Petitioner's operations will utilize a visual observer ("VO"). The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and the PIC will be able to communicate verbally at all times during operational flights.

Regarding Petitioner's requested relief from 14 C.F.R. § 91.103(b)(1), Petitioner will comply with the other applicable procedures and requirements stated in § 91.103(a) and (b). Specifically, the PIC will take all actions including reviewing weather, flight battery requirements, aircraft performance data, and landing and takeoff distances before initiation of a flight. The PIC will also account for all relevant site-specific conditions in their preflight procedures. Risks presented by sun glare will be mitigated by the PIC's and VO's ability to see other air traffic and initiate a return-to-home sequence if needed.

The PIC's UAS operation will be limited to a unique and restricted environment. Given the (1) separation of the proposed operations from manned aircraft operations, (2) parallel nature of aeronautical knowledge requirements incumbent in obtaining a private,

recreational, or sport pilot certificate versus a commercial pilot's license, and (3) the proposed UAS airmanship skills of Petitioner's PICs, the additional manned airmanship experience of a commercial pilot would not correlate to the airmanship skills necessary for Petitioner's proposed unmanned operations. Thus, Petitioner's request for relief from 14 C.F.R. § 61.113(a) and (b) and § 61.133(a) should be granted.

C. Operating Parameters of Petitioner's UAS

Petitioner's operations will remain within VLOS of the PIC and VO, below 400 feet AGL, and at speeds below 87 knots. Only participating persons will be permitted within the operating area.

Operations conducted pursuant to the requested exemption will be conducted only during daylight hours. Permission to conduct night flights is not requested herein.

Regarding the distance from nonparticipating persons, Petitioner will ensure that all operations are 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 UAS and/or debris in the event of an accident. Petitioner will 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 UAS, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and

(b) The owner/controller of any vessels, vehicles, or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and has determined that it does not present an undue hazard.

The PIC, VO, operator trainees, and other essential persons will not be considered nonparticipating persons under the requested exemption.

Unless a letter of agreement with an airport's management is obtained or the operations are otherwise permitted by a Certificate of Waiver or Authorization ("COA"), Petitioner will not conduct UAS operations within 5 nautical miles of an airport reference point ("ARP") as denoted in the current FAA Airport/Facility Directory ("AFD"). For airports not denoted with an ARP, Petitioner will not conduct UAS operations within 5 nautical miles of the center of the airport symbol as denoted on the current FAA-published aeronautical chart, without the aforementioned letter of agreement or COA in place. The letter of agreement with airport management will be made available to the FAA and any law enforcement official upon request.

All operations will be conducted in accordance with a Notice to Airmen ("NOTAM"). Additionally, Petitioner will not operate in Class B, C, or D airspace without written approval from the FAA. Nor will Petitioner operate the UAS 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.

Petitioner's UAS will remain clear and yield the right of way to all manned operations and activities at all times (including, but not limited to, ultralight vehicles, parachute activities, parasailing activities, and hang gliders).

Petitioner requests a "blanket" COA permitting commercial UAS operations at or below 200 feet AGL. For all other operations, Petitioner will obtain an Air Traffic Organization ("ATO") issued COA prior to conducting any operations under this grant of exemption. In fulfilling its requirements under the COA, Petitioner will be required to request a NOTAM not more than 72 hours in advance, but not less than 24 hours prior to the operation.

When applicable, all UAS operations will be conducted in accordance with any state or local privacy laws.

D. The Requested Exemption Promotes the Public Interest

The enhanced safety achieved by replacing significantly larger manned aircraft carrying crew and flammable fuel with small UAS carrying no passengers or crew and operated under the specific guidelines and procedures proposed by Petitioner gives the FAA good cause to find that the UAS operations enabled by the instant Petition are in the public interest.

V. CONCLUSION

For the foregoing reasons, the regulatory exemptions requested herein should be granted pursuant to the FAA's expedited "Summary Grant" process and Petitioner should be permitted to conduct small UAS operations for the purpose of research, testing, and aerial data collection.

Respectfully submitted,

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By 

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