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

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

May 28, 2015

Exemption No. 11707
Regulatory Docket No. FAA–2015–0788

Mr. David W. Cullens
President/Owner
Aerial Impact Southeast, Incorporated
414 Yellow River Walk
Lawrenceville, GA 30043

Dear Mr. Cullens:

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 March 25, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Aerial Impact Southeast, Incorporated (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial photography and survey for various industries.

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 and DJI S900.

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 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. 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.

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, Aerial Impact Southeast, Incorporated 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, Aerial Impact Southeast, Incorporated 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 and DJI S900 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 not 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 May 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

03/25/2015

Aerial Impact Southeast, Inc.
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Lawrenceville, Ga 30043
(407)782-8578
Dave Cullens

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

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act),
Aerial Impact Southeast (applicant), planned operator of Small Unmanned Aircraft Systems (sUAS) equipped to conduct aerial photography and survey for various industries hereby applies for exemptions to several Federal Aviation Regulations (FARs) to allow commercial operation of their sUAS, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA. We ask that the Secretary of Transportation consider whether the applicants' systems may operate safely in the national airspace system (NAS) before finalization of the sUAS rulemaking required under Section 332 of the Reform Act. In making this determination, we ask the Secretary to consider the following:

- The UAS's size, weight, speed, limited flight durations and operational capability
- Operation of the UAS below 200' agl
- Operation of the UAS within visual line of sight of the operator at all times.
- PIC is a FAA Certified Commercial Pilot (#215502328) with current 2nd class medical
- Operations will be limited to the areas being filmed as outlined in Flight Ops manual

Regulations from which the exemption is requested:

14 C.F.R. 61.113(a) & (b)
14 C.F.R. 91.7 (a)
14 CFR 91.9 (b) (2)
14 C.F. R. 91.119
14 C.F.R. 91.121
14 CFR 91.151 (a)
14 CFR 91.203 (a) & (b)
14 CFR 91.215
14 CFR 91.405 (a)
14 CFR 407 (a) (1)
14 CFR 409 (a)(1) & (2)
14 CFR 417 (a) & (b)

14 C.F.R. Part 21, Subpart H: Airworthiness Certificates 14 C.F.R. §91.203 (a) (1)

Relief not necessary (reference Exemption No. 11195)

14 C.F.R. § 45.23 (b). Marking of the Aircraft

Relief not necessary (reference Exemption No. 11195)

14 C.F.R. §91.7(a) & (b): Civil aircraft airworthiness.

Petitioner's Preflight Checklists will satisfy the airworthiness requirement. Pre-flight checks will be performed prior to each flight. The PIC will determine if the aircraft is suitable for safe flight. See attached flight operation manual.

14 C.F.R. § 91.9 (b) (2): Civil Aircraft Flight Manual in the Aircraft.

the FAA has previously determined in Grant of Exemption 11062, 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.

14 C.F.R. §91.109: Flight instruction:

Relief not necessary (reference Exemption No. 11195)

14 C.F.R. §91.119: Minimum safe altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119 (d) allows helicopters to be operated at less than the minimums prescribed, provided the person operating the helicopter complies with any route or altitudes prescribed for helicopters by the FAA. As this exemption is for a sUAS that is a helicopter and the exemption requests authority to operate at altitudes up to 200 AGL, an exemption may be needed to allow such operations. As set forth herein, the UAS will never operate at higher than 200 AGL. It will be operated in a restricted area, where buildings and people will not be exposed to operations without their pre-obtained consent. See petitioner's flight operations manual(s) for proposed operational boundaries.

14 C.F.R. §91.121 Altimeter Settings

Applicant requests exemption to allow a GPS referenced altitude be used in lieu of a pressure based altimeter. Considering the low altitudes the proposed operations will be taking place, the GPS altitude information will be at least as accurate as the mechanical pressure altimeters used in full scale aircraft. Altitude information AGL (from takeoff point) will be displayed to the pilot & observer at all times during the flight with On Screen Display telemetry information overlaid on a live video feed from the aircraft.

14 C.F.R. § 91.151(a): Fuel Requirements for Flight in VFR Conditions

Due to the very close operational distances and limited flight times that the proposed operations will take place, landing with 30 minutes reserve fuel is not a reasonable requirement. Applicant submits that flight times will be limited to 20 minutes or when battery capacity reaches 20%, whichever comes first. Aircraft will never be flown more than 1 minute away from the takeoff/ landing site.

14 C.F.R. §91.203 (a) and (b): Carrying Civil Aircraft Certification and Registration

Relief not necessary (reference Exemption No. 11195)

14 C.F.R. §91.215 ATC transponder & altitude reporting equipment & use

As applicant's aircraft will not be transponder equipped, we submit that the associated COA will satisfy this requirement and afford a level of safety at least equivalent to what is afforded by the FAR.

Summary of proposed operations

- The sUAS will weigh less than 30 lbs.
- Maximum speed will be no more than 50 kts.
- Flights will be operated within line of sight of Pilot and Observer.
- Flights will only be conducted under Day Visual Meteorological Conditions.
- Maximum total flight time for each operational flight will be 20 minutes. Flights will be terminated at 25% battery power reserve should that occur prior to the 20 minute limit.
- Flights will be operated at an altitude of no more than 200 feet AGL.
- Minimum crew for each operation will consist of the sUAS Pilot and Visual Observer.
- sUAS Pilot will be an FAA licensed airman with a Commercial Pilot certificate and 2nd class medical.
- sUAS Pilot will be Pilot in Command (PIC).
- The UAS will only be operated within the confines of the property being filmed/photographed.
- A briefing will be conducted in regard to the planned sUAS operations prior to each flight.
- Pilot and observer have been trained in operation of UAS generally and receive up-to-date information on the particular UAS to be operated
- Observer and Pilot will at all times be able to communicate by voice.
- Written and/or oral permission from the relevant property holders will be obtained.
- If the sUAS loses communications or loses its GPS signal, the UAS has capability to return to a pre-determined location and land.
- The PIC will have the ability to abort a flight at any time.

The applicants' sUAS are multirotor craft, weighting 30 or fewer lbs. including payload. They operate, under normal conditions at a speed of no more than 50 knots and are able to hover, and move in the vertical and horizontal plane simultaneously by remote control. They will operate only within line of sight and will operate only within the confines as described in the operators' procedural manual. Given the small size of the sUASs involved and the restricted areas within which they will operate, the applicant feels that its' operations will afford an equivalent or higher level of safety which the FAR's afford manned aircraft operations performing similar operations. Due to the size of the sUAS's applicant plans on using and the areas in which they will operate, applicants' operations will present no national security issue. As a Commercial Pilot, with 3000+ total flight hours, performing Aerial Photography using full scale Cessna aircraft for 16+ years and over 2500 hours, applicant feels strongly that its' operations will not be in conflict with manned aircraft operations as most of the proposed work will take place at altitudes below 100' agl, with no operations above 200' agl. This operation would in fact be an add-on service to the manned aircraft operation to get shots that would not be possible with manned aircraft, without compromising safety. In addition to the strong level of safety surrounding the proposed operations, there are also significant public benefits, including enhanced safety and reduction in environmental impacts, including reduced emissions and noise when compared to manned aircraft operations. Accordingly, the applicant respectfully requests that the FAA grant the requested exemption.

Sincerely,

e-sign David W. Cullens

David W. Cullens, President/Owner
Aerial Impact Southeast, Incorporated

Attachments:

- Aerial Impact Flight Operations manual