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

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

May 22, 2015

Exemption No. 11655
Regulatory Docket No. FAA–2015–0524

Mr. Tobie K. Olson
Managing Member
Aerial Productions and Imaging, LLC
118 N. Main Street
Cascade, ID 83611

Dear Mr. Olson:

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 February 6, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Aerial Productions and Imaging, LLC (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial photography.

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 a DJI Phantom 2 and Thrust UAV Freeflight x4.

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. 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 Productions and Imaging, LLC 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 Productions and Imaging, LLC 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 Thrust UAV Freeflight x4 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 5 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

Enclosures

Aerial Productions and Imaging, LLC
118 N. Main St. Cascade Id 83611

FAA Rulemaking
Section 333
Of The
FAA Reform Act and Part 11

Prepared by
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February 6, 2015

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February 6, 2015

Attention: United States Secretary of Transportation
Mr. Anthony R Foxx
1200 New Jersey Ave. SE
Washington, DC 20590

Re: Exemption Request Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations form 14 CFR 45.23(b); 14 CFR Part 21; 14 CFR61.113 (a) and (b); 91.7 (a); 91.9 (b) (2); 91.103 (b); 91.119; 91.121; 91.151 (a); 91.203 (a) and (b); 91.409 (a) (2); 91.417 (a) and (b)

Dear Mr. Secretary,

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (The Reform Act) and 14 CFR Part 11, Aerial Productions and Imaging, LLC. Is the operator of Small Unmanned Aircraft Systems (SUAS) equipped to conduct aerial photography for industrial, construction, private, survey and photography, hereby applies for an exemption from the listed Federal Aviation Regulations (FARs) to allow commercial operation of its SUAS so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.

As described in more detail below, the requested exemption would permit the operation of small, unmanned and relatively inexpensive SUAS under controlled conditions in airspace that is 1) limited 2) predetermined 3) would provide safety enhancements to the already safe operations in the industrial, construction, private and survey industries presently using conventional and unmanned aircraft. Approval of this exemption would thereby enhance safety and fulfill the Secretary of Transportation's responsibilities to "... establish requirements for the safe operation of such aircraft systems in the national airspace system" Section 333 (C) OF THE Reform Act.

The name and address of the applicant is:

Aerial Productions and Imaging, LLC.
Phone: 208-382-5469
Address: 118 N Main ST. Cascade ID 83611 PO Box 884

Regulations from which the exemption is requested:

14 CFR Part 21
14 CFR 45.23 (b)
14 CFR 61.113 (a) & (b)
14 CFR 91.7 (a)
14 CFR 91.9 (b) (2)
14 CFR 103
14 CFR 91.109
14 CFR 91.119
14 CFR 91.121
14 CFR 151 (a)
14 CFR 91.203 (a) & (b)
14 CFR 91.405 (a)
14 CFR 91.407 (a) (1)
14 CFR 91.409 (a) (2)
14 CFR 91.417 (a) & (b)

This exemption application is expressly submitted to fulfill congress' goal in passing section 333 (a) through (c) of the Reform Act. This directs the Secretary of Transportation to consider whether certain unmanned aircraft systems may operate safely in the national airspace system (NAS) before completion of the rulemaking required under Section 332 of the Reform Act. In making this determination, the Secretary is required to determine which types of SUAS do not create a hazard to users of the NAS or the public or Pose a threat to national security in light of the following:

The SUAS size, weight, speed, and operational capability

Operation of the SUAS in close proximity too airports and populated areas

Operation of the SUAS within Visual Line of Sight (VLOS) of the pilot and observers.

Reform Act §333 (a). Lastly, if the Secretary determines that such vehicles "may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft in the national airspace system." Id. §333 (c)

The Federal Aviation Act expressly grants the FAA the authority to issue exemptions. This statutory authority by its terms includes exempted civil aircraft, as the term is defined under §40101 of the Act, that includes SUAS, from the requirement that all civil aircraft must have a current airworthiness certificate. The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any sections 44702-44716 of this title if the Administrator finds the exemption in the public interest. 49 U.S.C. §44704; 14 CFR §91.203 (a) (1)

Applicants interpretation of this provision is the duty of said provision is placed on the Administrator to not only process applications for exemptions under section 333, but to also craft conditions herein for the safe operation of the SUAS, if it should be determined that the conditions set forth herein do not fulfill the statutory requirements for approval.

Aerial Productions and Imaging, LLC. SUAS are rotorcraft and fixed-wing aircraft, weighing 55 or fewer lbs. including payload. Operations of rotorcraft do not exceed more than 50 knots and are capable of hover and movement in vertical and horizontal movements simultaneously. Operations of the fixed-wing do not exceed more than 50 knots and have very similar flight characteristics of traditional airplanes. Both types of SUAS will be operated only under visual line of sight (VLOS) and will operate only within the predetermined area and under predetermined altitudes as described in the Flight Operation Manual (FOM) attached as Exhibit (a). Adherence to the FOM will insure that the SUAS will "not create a hazard to the national airspace system or the public."

The small size and weight of the SUAS involved and the predetermined area and altitude that operations are conducted will place the applicant within a level of safety congruent with Congress vision that the FAA must, by exemption, allow commercial operations of SUAS to commence immediately. Compliance of the applicants FOM given size and flight parameters of the SUAS will pose no reason that approval of the application presents no national security issue. The clear direction in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, as amended; the strong equivalent level of safety, surrounding the proposed operations, and significant public benefit, including enhanced safety, reduction in environmental impacts, including reduced emissions associated with allowing SUAS for industrial, construction, private, survey and photography operations, the grant of the requested exemptions is in the public's interest. Accordingly, the applicant respectfully requests that the FAA grant the requested exemption without delay.

The Flight Operation Manual is presented as an applicant Confidential document under 14 CFR 11.35 (b) as the entire manual contains proprietary methods and information that the applicant has not and will not share with others. The manual reflects learned experience, method, operating conditions, and procedures that are not available to the public and are protected from release under the Freedom of Information Act USC 552 et. seq. Reform Act Section 333 (b)

AIRCRAFT AND EQUIVALENT LEVEL OF SAFETY

Aerial Productions and Imaging, LLC. Requests exemptions to operate multi-engine quads and plans to add a third fixed- wing later in 2015. The applicant proposes that the exemption requested herein apply to civil aircraft that have the characteristics and that operate with the limitations listed below. These limitations provide for at least an equivalent or even higher level of safety to operations under the current FAR's. Furthermore the proposed operations enhance the safety of already safe operations for survey and photogrammetry currently conducted in conventional aircraft.

Current SUAS

1. DJI Phantom 2
2. Thrust UAV Freeflight x4

The Phantom 2 and Freeflight X4 are Quad copters designed to carry a High Definition camera, Infra-Red camera, Thermal imager and survey grade Scanners. Powered by four electric motors utilizing an internal inertial measuring unit with integrated barometric sensor augmented with GPS to maintain its geospatial orientation and position. Primary flight controls are radio controlled (RC) although the usual flight mission will be controlled by the ground control station through a PC Laptop. Real time video and telemetry information is transmitted back to the ground station allowing the Pilot in Charge (PIC)/Observer to monitor battery %, GPS signal strength, altitude, horizontal and vertical distance from the ground station and camera imagery. Built in failsafe modes initiate automatically in the event of loss of ground to aircraft signal. Altitude limitations will be programmed prior to each mission by the PIC. The flight controller/ground station has automatic low battery warnings in the form of automated announcements and also vibration warnings in the RC flight controller. The SUAS onboard flight controller monitors battery levels and will abort the mission and "return to home" in the event of low battery levels.

ALL SUAS operations conducted by Areal Productions and Imaging, LLC will:

A: Be conducted in accordance with the FOM for Aerial Productions and Imaging, LLC.

B: SUAS will weigh less than 55 lbs. including the payload SUAS and attachments I.E. camera and components

C: Preflight operations include PIC attaining FAA approved weather briefing, review of current sectional chart for the area of operation to preclude operation within 5 miles of an airport with surface class E or greater airspace.

D: Monitor Common Traffic Advisory Frequency (CTAF) or Air Traffic Control (ATC) with the ability to communicate with local traffic or ATC with intentions and current locations via handheld aviation broadband radio.

E: Be operated by an FAA certificated airman holding no less than a Private Pilot certificate and no less than a 3rd class medical.

F: Operate only in visual line of sight (VLOS) of the PIC

G: Operate at an altitude of no more than 400 feet above ground level (AGL).

H: Operate at speeds of no more than 50 knots.

I: Be operated at a lateral distance of no less than 100 feet from any inhabited structures, buildings, vehicles, vessels, or people not associated with the operation or who have not signed a waiver in advance of the operation

J: Limit each flight mission to 30 minutes or less. Flights will be terminated at 25% battery power reserve or 30 minutes which ever should occur first.

K: Have the capability to return to the point of departure or a pre-determined location if the SUAS loses RC communications or GPS signal.

L: Be monitored by the ground station, receiving real time SUAS info (i.e. battery, attitude, altitude, coarse heading, GPS location and flight time.

M: Minimum 2 man crew for each SUAS operation will consist of the PIC and Observer. In most cases a third Observer will observe or monitor imaging equipment.

14 CFR Part 21, subpart H: Airworthiness Certificates 14 CFR §91.203 (a) (1)

Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness certificates as required by FAR §91.203 (a) (1). Given the size and limited operating area associated with the aircraft to be utilized by Aerial Productions and Imaging, LLC an exemption from Part 21 Subpart H meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act. The Federal Aviation Act (49 U.S.C. §44701 (f) and Section 333 of the Reform Act both authorize the FAA to exempt aircraft from the requirement capability, and proximity to airports and populated areas of the particular (UAS). In all cases, an analysis of these criteria demonstrates that the SUAS operated without an airworthiness certificate, in the restricted environment and under the conditions proposed will be at least as safe, or safer, than a conventional aircraft operating with an airworthiness certificate without the restrictions and conditions proposed.

The SUAS to be operated hereunder is less than 55 lbs. fully loaded, carries neither a pilot nor passenger, carries no explosive materials or flammable liquid fuels, and operates exclusively within a secured area as set out in the manual. Unlike other civil aircraft, operations under this exemption will be tightly controlled and monitored by both the PIC and Observers. These safety enhancements, which already apply to civil aircraft operated in the industrial, construction, private, survey and photography, provide a greater degree of safety to the public and property owners than conventional operations conducted with airworthiness certificates issued under 14 C.F.R. Part 21, Subpart H. Lastly, application of these same criteria demonstrates that there is no credible threat to national security posed by the SUAS due to its size, speed of operation, location of operation, lack of explosive materials or flammable liquid fuels, and inability to carry a substantial external load.

14 CFR §45.23 (b): Marking of the Aircraft

The regulation requires marks include only the Roman capital letter N and the registration number is displayed on limited, restricted or light-sport category aircraft or experimental or provisionally certificated aircraft, the operator must also display on that aircraft near each entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches not more than 6 inches high, the words "limited, restricted, light-sport, experimental, or provisional", as applicable.

The SUAS will have no airworthiness certificate, and exemption may be needed as the SUAS will have no entrance to the cabin, cockpit or pilot station on which the word "Experimental" can be placed. Given the size of the SUAS, two-inch lettering will be impossible. The Word "Experimental" will be placed on the fuselage in compliance with §45.29 (f).

The equivalent level of safety will be provided by having the SUAS marked on its fuselage as required by § 45.29 (f) where the pilot, Spotter (Observer) and others working with the SUAS will see the identification of the SUAS as "Experimental." The FAA has issued the following exemptions to this regulation to Exemptions Nos. 10700, 8738, 10167 and 10167A.

14 CFR §61.113 (a) & (b): Private Pilot Privileges and Limitations – PIC

Sections 61.113 (a) & (b) limit private pilots to non-commercial operations. Given the SUAS will not carry a pilot or passenger, the proposed operations can achieve the equivalent level of safety of current operations by requiring the PIC operating the aircraft to have a private pilot's license rather than a commercial pilot's license to operate this SUAS. Unlike a conventional aircraft that carries the pilot and passengers, the SUAS is remotely controlled with no living thing on board. The area of operation is controlled and all flights are planned and coordinated in advance as set forth in the FOM. The level of safety provided by the requirements included in the FOM exceeds that of a single individual holding a commercial pilot's certificate operating a conventional aircraft. The risks associated with commercial operations contemplated by Part 61 when drafted, that allowing operations of the SUAS as requested with a private pilot as the PIC exceeds the present level of safety achieved by 14 CFR §61.113 (a) & (b).

14 CFR §91.7 (a): Civil Aircraft Airworthiness

The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft, should this exemption be granted, no FAA FAR will exist for determining airworthiness. Given the size of the aircraft and the requirements contained in the Manual for maintenance and the use of safety check lists prior to each flight, an equivalent level of safety will be provided.

14 CFR §91.9 (b) (2): Civil Aircraft Flight Manual in the Aircraft

Section 91.9 (b) (2):

No person may operate a U.S.-registered civil aircraft....

(2) For which an Airplane or Rotorcraft Flight Manual is not required by §21.5 of this chapter, 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.

Given the size and configuration of the SUAS they are incapable of carrying a flight manual, there is no room, capacity or pilot on board the aircraft.

The equivalent level of safety will be maintained by keeping the FOM at the ground station for the, PIC or the Observer to access immediately. The FAA has issued the following exemptions to this regulation: Exemption Nos.8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167A, 10602, 32827, and 10700

14 CFR §91.103: Preflight Action

This regulation required each pilot in command to take certain actions before flight to insure the safety of flight. As FAA approved rotorcraft flight manuals will not be provided for the aircraft an exemption will be needed. An equivalent level of safety will be provided as required in Aerial Productions and Imaging, LLC FOM. The PIC will take all actions including reviewing weather, battery requirements, landing and takeoff performance before initiating flight missions.

14 CFR §91.109: flight Instruction

Section 91.103 states that no person may operate a civil aircraft (except a manned free balloon) that is used for flight instruction unless that aircraft has fully functioning dual controls. SUAS is flown through the use of a control box that communicates with the aircraft via RC, by design these aircraft do not have fully functional duel controls. The FAA has approved exemptions for flight training for aircraft without fully functional dual controls, (experimental) such as Nos. 5778K and 9862A. Furthermore Aerial Productions and Imaging, LLC has a training program in the FOM provided. This will provide at minimum the equivalent level of safety.

14 CFR §91.119: Minimum Safe Altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section (b) ".... Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:...
(b) 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."
(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 to FAA.
Due to the Applicants request to operate at altitudes up to but not exceeding 400 AGL, an exemption is needed. Furthermore Aerial Production and Imaging, LLC FOM addresses the SUAS will never operate higher than 400 feet AGL. It will however be operated in areas where buildings and people will be exposed to operations only after consent is signed and owners permissions are obtained.

The equivalent level of safety will be achieved given the size, weight, speed of the SUAS as well as location. No flight will be taken without the permission of the property owner or local officials. Compared to conventional aircraft weight, flammable fuel load, and speed, the SUAS prove to be as safe or safer. In addition the low-altitude operations of the SUAS will ensure separation between these operations and those of conventional aircraft that must comply with Section 91.119.

14 CFR §91.121: Altimeter settings

This regulation requires 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". As the SUAS may not have a barometric altimeter, it utilizes GPS altitude readout, an exemption may be needed. An equivalent level of safety will be achieved by the PIC as the FOM states. Confirming the altitude of the launch site shown on the GPS altitude indicator before each flight will be an essential part of every mission.

14 CFR §91.151 (a): Fuel Requirements for Flight in VFR Conditions

Section 91.151 (a) prohibits an individual from beginning "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.

The battery powering the SUAS provide approximately 30-40 minutes of flight. To meet the 30 minute reserve requirement in 14 CFR §91.151, SUAS flights would be limited to at most 10 minutes. Given the limitations on the SUAS proposed flight area and the location of its proposed operations within a predetermined area, a longer time frame for flight in daylight or night VFR conditions is reasonable.

Aerial Productions and Imaging, LLC. Believes that an exemption from 14 CFR §91.151 (a) falls within the scope of prior exemptions. Exemption 10673 allowing Lockheed Martin Corporation to operate without compliance with FAR 91.151 (a). Operating the SUAS in a small controlled area where only people and property owners or official representatives who have signed waivers will be allowed, with 30 minute or less flight reserve, does not engender the type of risks that section 91.151 (a) was intended to alleviate given the size and speed of the SUAS. Furthermore limiting flights to 10 minutes would greatly reduce the utility for which the exemption will be granted.

The Applicant believes that an equivalent level of safety can be achieved by limiting flights to 30 minutes or 25% of battery power whichever happens first. This restriction would be more than adequate for return of the SUAS to its predetermined landing zone.

Similar exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673, and 10808.

14 CFR §91.203 (a) & (b): Carrying Civil Aircraft Certification and Registration

The regulation provides in pertinent part:

(a) Except as provided in §91.715, no person may operate a civil aircraft unless it has within it the following:

(1) An appropriate and current airworthiness certificate....

(b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (b) of this section 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.

The SUAS fully loaded weighs no more than 55 lbs. and is operated without an onboard Pilot. There is no ability or place to carry certification of registration documents or to display them on the SUAS.

An equivalent level of safety will be achieved by keeping these documents at the ground control station where the PIC will have immediate access to them, to the extent they are applicable to the SUAS. The FAA has issued numerous exemptions to this regulation including Nos. 9565, 9665, 9789, 9789A, 9797, 9797A, 9816A and 10700.

14 CFR §91.405 (a); 407 (a) & (b): Maintenance Inspections

Regulations require that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter....." and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these section and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to the applicant. Maintenance will be accomplished by the operator pursuant to the FOM. An equivalent level of safety will be achieved because these SUAS are limited in size and will carry a small payload and operate only in predetermine areas for not more than 30 minutes. If mechanical issues arise the SUAS can land immediately. Additionally the Preflight x4 is equipped with the SUAS equivalent to the ballistic para-chute; it automatically deploys with any electrical failure or can be deployed via RC controller by the PIC at any time. SUAS will be operated from no higher than 400 feet AGL. The PIC as stated in the FOM will conduct visual and control checks in the preflight operations to ensure the SUAS is in working order prior to all missions to confirm whether any maintenance is needed and furthermore will document and log any and all maintenance done as well as all flight hours. In addition the (PIC) is the most familiar person with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

Pursuant to 14 CFR Part 11, the following summary is provided to publication in the Federal Register, should it be determined that publication is needed:

Applicant seeks an exemption from the following rules:
14 CFR §21, subpart H; 14 CFR § 45.23 (b); 14 CFR §61.113 (a) & (b); 91.7 (a); 91.9 (b) (2); 91.103 (b); 91.109; 91.119; 91.121; 91.151 (a); 91.203 (a) & (b); 91.405 (a); 91.407 (a) (1); 91.409 (a) (2) and 91.417 (a) & (b) to operate commercially a small unmanned vehicle (55 lbs. or less) in industrial, construction, private, survey and photography operations.

Privacy

All flights will occur over private or controlled areas with the property owner's prior consent and knowledge. Image capture of people will rarely take place; in the event they are, they will have consented prior to being filmed or otherwise have agreed to be in the area where data collection will take place.

API's primary focus is to utilize SUAS in assisting the survey community for the purpose of aerial photogrammetry, topographic survey, volumetric survey, 3D modeling and general aerial photography. Given the high cost, environmental impact, close proximity to people, structures, and vessels, the weight (average 4000 lbs.) of conventional aircraft that are currently safely preforming these same types of missions the applicant believes with the grant of requested exemptions API can offer a more cost effective (to the consumer), more environmentally friendly (with no combustible fuel), controlled predetermine area, and weighing 55lbs or less (compared to several thousand lbs.) an equally and likely a safer option that is in the public's best interests and benefits.

Summary:

Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012 - size, weight, speed, operating capabilities, proximity to airports and populated areas and operation within visual line of sight and national security - Provide more than adequate justification for the grant of the requested exemptions allowing commercial operation of Aerial Production and Imaging, LLC SUAS in the industrial, construction, private, survey and photography industry's pursuant to the FOM attached hereto. Aerial Productions and Imaging, LLC is eagerly standing by to support the FAA and SUAS community in its quest to establish proper regulations and protocols for the safe introduction of unmanned aircraft into the national airspace.

Sincerely,

Tobie K. Olson
Managing member
Aerial Productions and Imaging, LLC.

Daniel T. Dunn
Managing member
Aerial Productions and Imaging, LLC.