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

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

August 24, 2015

Exemption No. 12579
Regulatory Docket No. FAA−2015−2380

Mr. Richard N. LaMont
Resource Programming, Inc.
dba Timberland Media, Inc.
5855 NW Vineyard Drive
Corvallis, OR 97330

Dear Mr. LaMont:

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 28, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Resource Programming, Inc., dba Timberland Media, Inc. (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial imaging, videography, surveying, mapping, inspection, product demonstration, UAS training[1], and research and development.

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.

[1] The petitioner requested authority to conduct UAS training. At this time, the FAA is unable to authorize UAS operations for training until a further assessment is completed. When the FAA completes its review, we will proceed accordingly and no further action will be required by the petitioner. However, the petitioner is permitted to train its own pilot in commands and visual observers in accordance with condition no. 14 and the other conditions and limitations in this exemption.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Phantom 2, DJI Inspire, DJI S1000, DJI S900, and a 3D Robotics Iris+.

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[2]. 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.

[2] 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, Resource Programming, Inc., dba Timberland Media, Inc., 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, Resource Programming, Inc., dba Timberland Media, Inc., 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 Inspire, DJI S1000, DJI S900, and 3D Robotics Iris+ 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 August 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

Timberland Media, Inc.

May 28, 2015

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

Re: Exemption Request; Section 333 of the FAA Modernization & Reform Act and Part 11 of the Federal Aviation Regulations

Dear Sir or Madam:

Petitioner hereby petitions the Secretary of Transportation and Federal Aviation Administration ("FAA") for exemption to the above referenced and below more fully described Federal Aviation Regulations, ("FARs") that currently may or may not apply to the recreational/business operations of model aircraft including small unmanned aerial vehicles/systems ("SUAS"). We agree to operate within the boundaries set forth by this exemption and conditions set by the FAA for commercial use.

Timberland Media is a forestry consulting company located in Oregon that intends to use SUAVs to gather images/video for forestry uses such as of timberland appraisal, precision forestry, geo-reference mapping and property inspections. We are committed to safe and responsible SUAS flight operations.

Resource Programming Inc. (d.b.a. Timberland Media) has been valuing timberland for over 35 years. A large part of the valuation process necessitates the use of maps, orthophotos, and digital photos to display property attributes such as volume per acre stocking, stream buffers, slope and aspect changes, tree vigor and others. For decades, large public and private timberland owners have used manned – fix winged aircraft or helicopters in order to gather data for the abovementioned reasons. Currently, it is only the large timberland owners who are able to finance such projects, as smaller organizations lack scale and resources for such high expense projects. Aerial photographs / cinematography obtained by an SUAS provide a cheaper and safer alternative to current methods, such as helicopters and other fixed-winged aircrafts. Furthermore, the SUAS provides smaller organizations with the same toolsets available to others. The use of SUAS in forestry as a tool can greatly improve the safety standards of the National Airspace System and benefit the public.

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act), and 14 C.F.R. Part 11, Timberland Media Inc. (Petitioner), an Oregon forestry consulting company, hereby request an exemption to operate Small Unmanned Aircraft System (SUAS) to conduct aerial photography and surveying for various forestry uses from the Federal Aviation Regulations (FARs) listed below to allow operation of our SUAS commercially in airspace regulated by the Federal Aviation Administration (FAA) so long as such operations are conducted with and under the conditions outlined herein or as may be established by the FAA as required by Section 333 and the exemption requirements.

The requested exemption is similar to previous FAA issued grants of exemption including but not limited to Exemptions:

11062, Astraeus Aerial

11109, Clayco, Inc.
11112, VDOS Global, LLC
11213, Aeryon Labs
11295, RoboFlight Systems LLC

The requested exemption would permit Timberland Media Inc. to pursue its commercial interests in providing services to clients interested in aerial photography/video, data capture and research using a SUAS in the following areas:

- Forest and Agricultural Surveying and Mapping
- Timberland Appraisal and Inspection
- Aerial filmmaking and photography
- Event photography and videography
- Product Demonstrations
- UAS Training and Safety Operations
- Research and Development

The Petitioner SUAS flights that will occur over private or controlled access property will do so with the property owner's prior consent and knowledge. Only people who have consented or otherwise have agreed to be in the area where photography and videography will take place will be captured in any photos or videos.

Additionally, the Petitioner's pilots will hold an airline transport, commercial, private, recreational, or sport pilot certificate and also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Colombia, Puerto Rico, a territory, a possession, or the Federal government. If an observer is not a qualified pilot, they will be trained by the Petitioner's pilots to understand the proper roles of an observer, communication procedures, proper visual scan techniques, operations at non-towered airports, and appropriate sections of the Aeronautical Information Manual.

We are petitioning for exemption to enable the Petitioner to operate a series of SUAS platforms that have been previously approved by exemption.

- DJI Phantom 2 - Exemption 11398
- DJI Inspire - Exemption 11398
- DJI S1000 - Exemption 11416
- DJI S900 - Exemption 11401
- 3DRobotics IRIS+ - Exemption 11419

These SUAS all weigh less than 55 lbs., have a built-in capability to limit the height flown above the ground, to limit the radius of the distance it flies from the operator and to exclude it from Class B, C and D airspace including a no fly zone feature. Each system also has the failsafe function of the autopilot system, which means when the communication between the Main Controller and the transmitter is lost, the system will automatically trigger a Return to Home and will land safely.

This submission does not include the Operating Manuals for each model requested above, as they have been reviewed by the Administrator in granting previous exemptions. Copies of all Operating Manuals for the individual models listed will be submitted on request.

The above specifications meet standards listed below:

- Petitioner will only operate its SUAS in line of sight of a pilot and/or observer and will operate at sites that are a 'sufficient distance' from populated areas within the sterile area described in the operator's manual. Such operations will insure that the SUAS will "not create a hazard to users of the national airspace system or the public."
- Petitioner will not operate SUAS within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD), unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to Petitioner.
- Maximum flight time for each operational flight will be 60 minutes.
- Flights will be terminated at 20% battery power reserve should that occur prior to the 60 minute limit.
- The SUAS will be programmed so that it will not be operated at an altitude of more than 400 feet AGL.
- Minimum crew for each operation will consist of the SUAS Pilot (PIC) and the Visual Observer.
- The SUAS PIC's (Pilot in Command) will be an airline transport, commercial, private, recreational, or sport pilot certificate and also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Colombia, Puerto Rico, a territory, a possession, or the Federal government.
- The SUAS operated by the petitioner weighs less than 55 pounds, including the payload (i.e. camera, lens, and gimbal).
- The SUAS will operate at speeds of no more than 55 knots.
- Given the small size of the SUAS and the restricted sterile environment within which they will operate, our SUAS operations adhere to the Reform Act's safety requirements.

Under the requested exemption, Petitioner will ensure that all operators have completed a small unmanned aircraft systems (SUAS) education and training program including all applicable regulations and guidance documents.

We respectfully request exemption under Section 333 to enable the Petitioner to operate safe, low-risk commercial SUAS operations for the activities stated. The Petitioner at all times will respect the space and privacy of citizens and property while operating in the National Airspace System.

Name and Address of the Petitioner

The name and address of the Petitioner and point of contact is:
Richard N. LaMont
Resource Programming Inc.
d.b.a. Timberland Media Inc.
5855 NW Vineyard Drive
Corvallis, OR 97330
541-745-7131
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The Petitioner Requests Relief From the following regulations:

Regulations from which the exemption is requested:

14 C.F.R. Part 21, Subpart H, Airworthiness Certificates
14 C.F.R. 45.23 (b). Marking of the Aircraft
14 C.F.R. 61.113 (a) & (b): Private Pilot Privileges and Limitations: Operator.
14 C.F.R. 91.7(a): Civil aircraft airworthiness.
14 C.F.R. 91.9 (b) (2): Civil Aircraft Flight Manual in the Aircraft.
14 C.F.R. 91.103: Pre-flight action
14 C.F.R. 91.109: Flight instruction:
14 C.F.R. 91.119: Minimum safe altitudes: General
14 C.F.R. 91.121 Altimeter Settings
14 C.F.R. 91.151(a): Fuel Requirements for Flight in VFR Conditions
14 C.F.R. 91.203 (a) and (b): Carrying Civil Aircraft Certification and Registration
14 C.F.R. 91.405 (a); 407 (a) (1); 409 (a) (2); 417(a) & (b): Maintenance Inspections
200-foot "blanket" COA

Exemption Requests and Equivalent Level of Safety
Petitioner requests an exemption from the following regulations as well as any additional regulations that may technically apply to the operation of the SUAS System:

14 CFR Part 21, Airworthiness Certificates

The FAA procedures for the issuance of an airworthiness certificate. While the FAA continues to work to develop airworthiness standards for Unmanned Aerial Systems, we request an experimental certificate be issued for our listed SUAS under either or both of the following provisions:

21.191 Experimental certificates.

Experimental certificates are issued for the following purposes:

(a) Research and development. Testing new aircraft design concepts, new aircraft equipment, new aircraft installations, new aircraft operating techniques, or new uses for aircraft.
(b) Showing compliance with regulations. Conducting flight tests and other operations to show compliance with the airworthiness regulations including flights to show compliance for issuance of type and supplemental type certificates, flights to substantiate major design changes, and flights to show compliance with the function and reliability requirements of the regulations.

If an experimental airworthiness certificate is not appropriate for this application, then we request an exemption of 14 CFR Part 21, Subpart H, and the requirement for an airworthiness certificate.

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

The regulation requires; when 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 nor more than 6 inches high, the words "limited," "restricted," "light-sport," "experimental," or "provisional," as applicable.

Even though the SUASs will have no airworthiness certificate, an exemption may be needed as the SUASs will have no entrance to the cabin, cockpit or pilot station on which the word "Experimental" can be placed. Given the size of the SUASs, two-inch lettering will be impossible. The word "Experimental" will be placed on the fuselage in compliance with C.F.R. 45.29 (f). The equivalent level of safety will be provided by having the SUASs marked on its fuselage as required by C.F.R. 45.29 (f) where the pilot, observer and others working with the SUASs will see the identification of the SUASs as "Experimental." The FAA has issued the following exemptions to this regulation to Exemptions Nos. 10700, 8738, 10167 and 10167 A.

14 C.F.R. 61.113 (a) & (b): Private Pilot Privileges and Limitations: Operator.

Sections 61.113 (a) & (b) limit private pilots to non-commercial operations. Because the SUASs is unmanned and will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the Operator operating the aircraft to have a FAA recreational, or sport pilot certificate. Unlike a conventional aircraft that carries the pilot and passengers, the SUASs is remotely controlled with no living thing on board. The area of operation is controlled and restricted, and all flights are planned and coordinated in advance. The level of safety provided by the requirements included herein exceed that provided by a single individual holding a commercial pilot's certificate operating a conventional aircraft. The risks associated with the operation of the SUASs are so diminished from the level of risk associated with commercial operations contemplated by Part 61 when drafted, that allowing operations of the SUASs as requested with a private pilot as the Operator exceeds the present level of safety achieved by 14 C.F.R. §61.113 (a) & (b). Our proposed operations require that the PIC must hold at least airline transport, commercial, private, recreational, or sport pilot certificate. Since the aircraft cannot carry passengers or property, we feel we meet the intent of 61.113 Subparagraph (b) even though the intent of this application is to conduct a business.

14 C.F.R. 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 regulatory standard will exist for determining airworthiness. Given the size of the aircraft and the requirements contained herein for the use of safety check lists prior to each flight, an equivalent level of safety will be provided.

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

Section 91.9 (b) (2) provides: This regulation provides that no person may operate an aircraft unless a current, approved flight manual is in the aircraft. The SUASs, given its size and configuration has no ability or place to carry such a flight manual on the aircraft, not only because there is no pilot on board,

but because there is no room or capacity to carry such an item on the aircraft. The equivalent level of safety will be maintained by keeping the SUASs operation manual and appropriate checklists at the ground control point where the pilot flying the SUASs will have immediate access to it. The FAA has issued the following exemptions to this regulation: Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 95658, 10167, 10167A, 10602, 32827, and 10700.

14 C.F.R. 91.103: Pre-flight action

This regulation requires 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 set forth hereinabove. The Operator will take all actions including reviewing weather, flight battery requirements, landing and takeoff distances and aircraft performance data before initiation of flight using appropriate checklists.

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

Section 91.103 provides that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. SUASs and remotely piloted aircraft, by their design do not have fully functional dual controls. Flight control is accomplished through the use of a radio transmitter that communicates with the aircraft via a receiver in the SUASs. The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircraft and for flight instruction in experimental aircraft. See Exemption 5778K & 9862A. The equivalent level of safety provided by the fact that neither a pilot nor passengers will be carried in the aircraft and by the size and speed of the aircraft. If a SUAS pilot is being trained, the pilot performing the training would be directly supervising and could take over the controls from the pilot in training if the need arose.

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

The regulation states that over sparsely populated areas the aircraft cannot be operated closer than 500 feet to any person, vessel, vehicle, or structure. Since the typical mission of the SUAS would be photography or survey of persons, vessels, vehicles or structures it would be necessary to operate closer than 500 feet to the items listed. Operations will only be flown over property or persons where permission has been obtained and careful pre-planned has been performed. The aircraft will be operated at a low altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface. Therefore we maintain that due to the small size of the UAS, the hazard to persons, vehicles and structures is minimal compared to manned aircraft, which should be considered in granting the exemption. In addition, the low-altitude operations of the SUASs will ensure separation between these SUASs operations and the operations of conventional aircraft that must comply with Section 91.119.

14 C.F.R. 91.121 Altimeter Settings

The regulation requires that aircraft shall maintain cruising altitudes by reference to an altimeter setting available within 100 NM of the aircraft. The SUAS will always fly below 400 feet AGL and will not need to maintain cruising altitudes in order to prevent conflict with other aircraft. An Above Ground Level altimeter measurement above the takeoff point is transmitted via radio from the SUAS on-board computer to the display screen held by the PIC, providing a constantly updated AGL readout.

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

The regulation provides that no person may begin a flight in an airplane under day-VFR conditions unless there is enough fuel to fly to the first point of intended landing and to fly after that for at least 30 minutes. We feel the intention of this paragraph is to provide an energy reserve as a safety buffer for delays to landing. Since the aircraft will never fly more than 3/4 NM from the point of intended landing, a full battery charge at launch will ensure that we meet the reserve energy requirement of this paragraph. We request an exemption to the word "fuel" and ask for an equivalent interpretation with the word "energy". We also request exemption from the 30 min reserve and ask that our reserve will be to fly the mission to the point of intended landing and have at least a 20% battery reserve after that. Similar exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673, and 10808.

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

The SUASs fully loaded weighs no more than 55 lbs. and typically less than 20 lbs. And is operated without an onboard pilot. As such, there is no ability or place to carry certification and registration documents or to display them on the SUASs. An equivalent level of safety will be achieved by keeping these documents at the ground control point where the operator/pilot flying the SUASs will have immediate access to them, to the extent they are applicable to the SUASs. The FAA has issued numerous exemptions to this regulation. A representative sample of other exceptions includes Exemption 9565, 9665, 9789, 9789A, 9797, 9797 A, 9816A, and 10700.

14 C.F.R. 91.405 (a); 407 (a) (1); 409 (a) (2); 417(a) & (b): Maintenance Inspections

These 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 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, and the requirements of pre-flight inspection required herein, these sections will not apply to the applicant. Routine and pre-flight maintenance will be accomplished by the operator. An equivalent level of safety will be achieved because these SUASs are very limited in size and will carry a very small payload and operate only in restricted areas for limited periods of time. If mechanical issues arise the SUASs can land immediately and given its small size poses very little risk to persona or property. The operator will ensure that the SUASs is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety. The PIC will document work performed in accordance with 91.417. We feel that due to the size, construction, and simplicity of the aircraft, the PIC can ensure an equivalent level of safety.

200-foot "blanket" COA

The Petitioner request an exemption from the current "blanket" 200-foot COA which allows flights anywhere in the country except restricted airspace, for flight up to 400 foot GL in elevation on forestlands only. One of the main uses of the SUAS would be to take video and photography of Pacific Northwest timberlands where the trees are likely to be 100-150 feet tall and the terrain is mountainous. The 200 foot limit would reduce the safety margin for operating the SUAS in areas of large timber. Because of these factors; tall trees and steep terrain, we would prefer to operate within the 400 foot GL restriction on forestlands, we would operate in the 200 foot "blanket" or apply for a specific COA for all other uses.

Privacy

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge. SUAS flights will be in areas where the owners will have consented to the use or otherwise have agreed to allow the SUAS and the Petitioner to be in the area where SUAS use will take place.

Conclusions

Our use of an SUAS for timberland aerial imaging will benefit the public by better information, communication and research on forestlands. Large timberland tracts can be tens of thousands of acres, which makes gathering imagery of the land challenging. Using the SUAS will allow us to obtain landscape level perspective on land that would otherwise be difficult to survey.

The SUAS can aid in obtaining measurements of forest lands which will assist in improved management and stewardship of these resources. Most often, large forestland tracts are in remote or very steep areas, which are only accessible via hiking. The amount of area a SUAS may cover in a short amount of time far outreaches the area that could be covered on foot. Furthermore, the SUAS provides a better perspective in terms of the total landscape, which aids in the overall understanding of each section.

The operation of SUASs, weighing less than 55 lbs., conducted in the conditions outlined above, will provide an equivalent level of safety supporting the grant of the exemptions requested herein. These lightweight aircraft operate at slow speeds, close to the ground, and in sparsely-populated forestlands. As a result, they are far safer than conventional operations conducted with manned aircraft operating in close proximity to the ground and people.

Sincerely,

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