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

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

May 14, 2015

Exemption No. 11585
Regulatory Docket No. FAA–2015–0442

Nathan Earl Robison
President, Principal Engineer
Robison Engineering Company, Inc.
846 Victorian Ave.
Suite 20
Sparks, NV 89431

Dear Mr. Robison:

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 19, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Robison Engineering Company, Inc. (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial mapping.

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 is a SenseFly SA eBee RTK.

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, Robison Engineering Company, 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, Robison Engineering Company, 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 SenseFly SA eBee RTK 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

Enclosures

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

Date: February 19, 2015

SUBJECT: **Exemption Request Under Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations**

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 C.F.R. Part 11, Robison Engineering Company, Inc., seeks an exemption from Federal Aviation Regulations ("FARs") detailed below for the eBee RTK Unmanned Aircraft System (UAS) manufactured by SenseFly SA of Switzerland.

The requested exemption would support an application for a commercial Certificate of Authorization to use the system in UAS aerial mapping of mine sites in Nevada and California. The eBee RTK system consists of a lightweight (1.6 lbs.) battery operated aircraft, a PC-based ground control station, and associated communications equipment. The aircraft carries an onboard geo-referenced still camera that allows it to conduct precision photogrammetry at the resolution necessary for highly accurate topographic mapping. This high-resolution data can be used for determining disturbance areas during the mine permitting and reclamation processes. This data can also improve efficiency in mining efforts for more accurately tracking movement of ore in pits and stockpiles. The use of an airborne survey vehicle also prevents personnel from entering dangerous areas of a mine operation. By approving these exemptions, the FAA will create benefits to both public agencies and private mine operators which are ultimately in the public interest.

The aircraft will be operated in the field with both a Pilot in Command (PIC) and a ground-based Visual Observer (VO) in accordance with FAA Policy N 8900.227 Section 14 "Operational Requirements for UAS" with the following additional restrictions:

- All operations will occur in Class G airspace at no more than 400 ft. above ground level (AGL).
- Operations will occur over private property with the permission of the land owner.
- All required permits will be obtained from state and local government prior to operation.
- The aircraft will not be operated over urban or populated areas.
- The aircraft will not be operated at air shows or over an open-air assembly of people.
- The aircraft will not be operated directly over heavily trafficked roads.
- The aircraft will not be operated within 5 nautical miles (NM) of an airport or heliport[1]
- Operations will be limited to daytime and visual meteorological conditions (VFR flight rules).

[1] 10 of the 12 intended mine sites are beyond 5 NM of Class E non-tower controlled airports. Please see Appendix C for further information on the remaining two sites.

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- Aircraft will remain within Visual Line of Sight (VLOS) at no greater than 1/2 NM from the PIC at all times.
- While the aircraft is airborne, the VO will be positioned within voice and/or radio distance from the PIC.

The PIC and VO will meet the requirements outlined in FAA Policy N 8900.227 Section 16 Personnel Qualifications. Additionally, the PIC and VO will perform maintenance on the system and will complete a course of maintenance instruction as part of their initial training from the manufacturer. Due to the simplicity of the system, we do not anticipate the need for a supplemental pilot.

While performing UAS mapping operations on active mine sites, the PIC and VO will be under the jurisdiction of the Mine Safety and Health Administration (MSHA). Any personnel working on an active mine site must obtain an initial 24 hours of safety training and an 8 hour annual refresher course. The operator of the UAS must also sign an MSHA Form 5000-23 which states the PIC has been trained appropriately before operating equipment on a mine site. While MSHA regulations do not apply to the National Airspace System (NAS), we feel these added safety regulations further enhance our awareness and intent to operate a UAS with the utmost care, attention, and responsibility. Furthermore, the use of a UAS will help eliminate the need for personnel to enter hazardous and dangerous mining areas to measure and collect topographic data. A UAS can help prevent injury and the loss of life while working on active mine sites.

We submit that the combination of the aircraft's light weight, historically demonstrated flight performance, qualified flight crew and strict operation under the guidelines established in 8900.227, the FAA can have confidence that the operation will have an equivalent or greater level of safety to manned aircraft performing the same mission.

The name and contact information of the applicant are:

Robison Engineering Company, Inc.
Attn: Michael Detwiler, LSI
Geomatics Professional
Phone: 775-852-2251 ext: 714
Fax: 775-852-9736
Email: michael@robisoneng.com

Or

Nathan Earl Robison, PE
President, Principal Engineer
Phone 775-852-2251 ext: 700
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The regulations from which the exemption is requested are as follows:

- 14 CFR Part 21
- 14 CFR 91.203
- 14 CFR 45.23, 45.29
- 14 CFR 91.9
- 14 CFR 61.113, 61.133
- 14 CFR 91.109, 91.119
- 14 CFR 91.121, 91.151
- 14 CFR Subpart E (91.401 - 91.417)
- FAA Policy 8900.227 Paragraph 16(c)(4) and Paragraph 16(e)(1)

We are prepared to modify or amend any part of this request to satisfy the need for an equivalent level of safety. We look forward to working with your office. Please contact us at any time if you require additional information or clarification.

Sincerely,

DocuSigned by:
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2/19/2015

Nathan Earl Robison
President

Appendices:

A. Exemption Request and Equivalent Level of Safety
B. Public Interest
C. Supporting Information from Manufacturer's Section 333 Application
D. Mine Location Information
E. Map of Intended UAS Operating Locations (Mines)
F. Maintenance Procedures
G. User Manual
H. Manufacturer Airworthiness Justification
I. Training Documentation

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APPENDIX A - EXEMPTION REQUESTS AND EQUIVALENT LEVEL OF SAFETY

Robison Engineering Company requests an exemption from the following regulations as well as any additional regulations that may technically apply to the operation of the SenseFly eBee RTK:

14 CFR Part 21, Subpart H: Airworthiness Certificates

This part establishes the procedures for the issuance of an airworthiness certificate. While the FAA continues to work to develop airworthiness standards for UAS, we request an experimental certificate be issued for the SenseFly eBee RTK 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.
Since the experimental certificate can be used for commercial purposes such as market surveys, sales demonstrations, and customer crew training, we would expect that an experimental certificate would permit our commercial purpose as well.

The aircraft will not carry persons or property, will not carry fuel, and will only fly under strict operational requirements. Combined with the fact that the aircraft weighs only 1.6 pounds and is constructed primarily out of foam, we propose that the eBee RTK will be at least as safe, if not safer, than a conventionally certificated aircraft performing the same mission.

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 requirements for an airworthiness certificate in general, citing the equivalent level of safety outlined in the previous paragraph.

We would also like to site the proposal made in the Notice of Proposed Rule Making on February 15, 2015 (Appendix 5 – Alternative 2) that the FAA allows all UAS under 55 pounds exempt from an airworthiness certificate.

14 CFR 91.203(a) & (b) Civil aircraft: Certifications required.

The regulation provides that an airworthiness certificate, with the registration number assigned to the aircraft and a registration certificate must be aboard the aircraft. Additionally, subparagraph (b) provides that the airworthiness certificate be "displayed at the cabin or cockpit entrance so that it is legible to passengers or crew". At 1.6 lbs., the eBee RTK is too small to

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carry documentation, does not have an entrance, and is not capable of carrying passengers or crew.

To obtain an equivalent level of safety and meet the intent of 91.203, we propose that documents deemed appropriate for this aircraft by the FAA will be co-located with the crew at the ground control station and available for inspection upon request. In order to identify the aircraft, we propose that the information found on airworthiness and registration certificates be permanently affixed to the aircraft via placard:

EXPERIMENTAL
Manufacturer: SenseFly SA
Model: eBee RTK
Serial Number: ER-01-23715
FAA Registration: N846RE

Registered to:
Robison Engineering Company, Inc.
846 Victorian Ave. Suite 20
Sparks, NV. 89431

If found please contact: (775)-852-2251.

14 CFR 45.23 Display of marks; general and 45.29 Size of marks.

These regulations provide that each aircraft must display "N" and the aircraft's registration number in letters at least 3 inches high. Additionally, the aircraft must display the word "EXPERIMENTAL" in letters at least 2 inches high near the entrance to the cabin, cockpit, or pilot station.

The 1.6 lb. eBee RTK does not have an entrance in which the word "EXPERIMENTAL" can be placed, and may not have a registration number assigned to it by the FAA.

We propose to achieve an equivalent level of safety by including the word "EXPERIMENTAL" on the top of the aircraft, where the PIC, VO and others in the vicinity of the aircraft while it is preparing for launch will be able to see the designation. Additionally, the permanent placard discussed in the previous paragraph will provide the aircraft's registration information should it be found on the ground. Finally, we will display at the ground control station a high contrast flag or banner that contains the words "Unmanned Aircraft Ground Station" in letters 12 inches high. Since the aircraft will operate within VSOL of the ground station, the banner should be visible to anyone that observes the aircraft and chooses to investigate its point of origin.

14 CFR 91.9 Civil aircraft flight manual, marking, and placard requirements.

This regulation provides that no person may operate an aircraft unless a current, approved flight manual is in the aircraft.

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We assume that the intent of this requirement is to ensure that flight manual information is available to the aircrew while operating the aircraft. We request an exemption to this requirement since the aircraft is too small to carry documentation.

To obtain an equivalent level of safety and meet the intent of 91.9, we propose that a current, approved Airplane Flight Manual (Appendix G) be available to the crew at the ground control station anytime the aircraft is in, or preparing for, flight.

14 CFR 61.113 Private pilot privileges and limitations: Pilot in Command and 61.133 Commercial pilot privileges and limitations.

The regulation provides that no person may serve as a required pilot flight crewmember of a civil aircraft of the United States, unless that person:

(1) Has a pilot certificate or special purpose pilot authorization issued under this part in that person's physical possession or readily accessible in the aircraft when exercising the privileges of that pilot certificate or authorization. However, when the aircraft is operated within a foreign country, a pilot license issued by that country may be used.

The regulation provides also that no person that holds a private pilot certificate may act as pilot in command of an aircraft for compensation or hire. Subparagraph (b) allows a private pilot to act as pilot in command of an aircraft in connection with any business or employment if:

(1) The flight is only incidental to that business or employment;
(2) The aircraft does not carry passengers or property for compensation or hire.

Robison Engineering Company requests the FAA to consider manufacturer training highlighted and detailed in Appendix I, as sufficient training for staff members intended to act as PIC of the eBee RTK. Siting the Notice of Proposed Rulemaking issued on February 15, 2015 (Appendix 5 – Alternative 3) and the proposed rules for a micro UAS class for aircraft less than 4.4 pounds, The eBee RTK weighing only 1.6 pounds would fall in this category. We feel at this time the training we have received is sufficient to safely and responsibly operate in the NAS.

14 CFR 91.109 Flight instruction; simulated instrument flight and certain flight tests

The regulation provides that "No person may operate a civil aircraft that is being used for flight instruction unless that aircraft has fully functioning dual controls."

The eBee ground control station is based on a small hand-held computer and includes a manual joystick-style override set of controls. With the PIC and VO having both real-time computer control and the option of "hands-on" the controls during flight, we feel that this technique meets the intent 91.109 and provides an equivalent level of safety.

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14 CFR 91.119 Minimum safe altitudes: General.

The regulation provides that over sparsely populated areas the aircraft cannot be operated closer than 500 feet to any person, vessel, vehicle, or structure.

Since the aircraft will be operating at a maximum of 400 feet AGL, we cannot comply with this requirement.

To provide an equivalent level of safety we will only fly over private property with the permission of the land owner or mine operator. The land owner and mine operations department will be briefed of the expected route of flight and the associated risks to persons and property on the ground. We maintain that due to the small size of the eBee RTK, the hazard to persons, vessels, vehicles, and structures is not comparable to manned aircraft and this physical limit to risk should be considered in granting the exemption.

The aircraft will not be operated over congested areas nor over any open air assembly of persons. The aircraft will be operated at an altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

14 CFR 91.121 Altimeter settings.

The regulation provides that aircraft shall maintain cruising altitudes by reference to an altimeter setting available within 100 nautical miles of the aircraft.

The aircraft will fly below 400 feet AGL and will not need to maintain hemispherical cruising altitudes in order to de-conflict with other aircraft. As such, an appropriate altimeter measurement presented to the pilot should be Above Ground Level and should be based on the barometric pressure at the point of launch. To provide an equivalent level of safety, the UAS's AGL altimeter will be set to zero on the ground prior to every flight. Since the aircraft will fly no more than 50 minutes, even rapid changes in barometric pressure will have limited effect on the safety of the flight.

14 CFR 91.151 Fuel requirements for flight in VFR conditions.

The regulation provides that no person may begin a flight in an airplane under day, Visual Flight Rules (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 presume the intention of this paragraph is to provide a reserve of energy as a safety buffer for go-arounds and other delays to landing.

The eBee RTK is battery operated and the maximum duration of flight from a single battery charge is 50 minutes. The eBee RTK has a thoroughly tested safety system that calculates remaining battery time and distance from ground control station and based on those parameters, calculates the duration needed to return to the ground control station with enough

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battery time to land safely. Since the aircraft will never fly more than 1/2 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".

14 CFR Subpart E (91.401 - 91.417) - Maintenance, Preventive Maintenance, and Alterations

The regulation provides that the operator is primarily responsible for maintaining the aircraft in an airworthy condition, including compliance with part 39 and 43. Paragraphs 91.407 and 91.409 require that the aircraft be "approved for return to service by a person authorized under 43.7" after maintenance and inspection.

It is our intention that the PIC perform maintenance and inspection of the aircraft and "be authorized to approve the aircraft for return to service."

As provided in the attached Maintenance Procedures (appendix D), the PIC will ensure that the aircraft is in an airworthy condition prior to flight and conduct detailed inspections after every 10 hours. Maintenance performed by the PIC is limited to repairing small damage, typically scraping of Styrofoam during landing, replacing a propeller, and updating software and firmware. All other maintenance will be performed by the manufacturer. 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.

8900.227 Paragraph 16(c)(4) PIC Medical and Paragraph 16(e)(1) Observer Medical.

This policy provides that the PIC must have a valid FAA third-class medical certificate issued under part 67 in order to perform as a pilot.

The eBee RTK aircraft weighs 1.6 lbs., is constructed out of foam composite materials, and is unmanned. Requiring the crew to meet the same medical requirements as a commercial pilot carrying passengers in a large aircraft is an unnecessary burden.

We propose that the minimum medical requirements be:

1) vision corrected to 20/20
2) a valid state issued driver's license
3) current first aid/CPR training.

Due to the size and weight of the aircraft, the greatest hazard of our proposed operation will be driving to the launch site on active mine sites. A licensed driver is medically qualified to operate a much larger vehicle. The 20/20 vision requirement will ensure that the PIC and VO can see and avoid air traffic. Given the unlikely event that both the PIC and VO become medically incapacitated while the aircraft is in flight, the eBee RTK will recover autonomously to the landing location designated prior to launch without crew intervention.

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It is furthermore our intention to hire and train military veterans that have experience operating or otherwise familiar with electric UAS. Some of these veterans are disabled. Despite such disability, a military veteran will bring invaluable operational experience ultimately making our operations safer. This request is in the public interest as it opens aviation related jobs to a section of the public that would not otherwise be medically qualified.

Using the approved Section 333 exemption submitted by Advanced Aviation Solutions, LLC. as a set of guidelines, Robison Engineering Company proposes to adhere to the conditions and limitations outlined in the Grant of Exemption under Docket No. FAA-2014-0508 as listed below:

1. Operations authorized by this grant of exemption are limited to the following aircraft described in the operating documents which is a fixed-wing aircraft weighing approximately 1.6 pounds: senseFly eBee RTK (eBee RTK). Proposed operations of any other aircraft will require a new petition or a petition to amend this grant.

2. The UAS may not be flown at an indicated airspeed exceeding 70 knots

3. The UAS must be operated at an altitude of no more than 400 feet above ground level (AGL), as indicated by the procedures specified in the operating documents. All altitudes reported to ATC must be in feet AGL.

4. The UAS 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.

5. All operations must utilize a visual observer (VO). The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the functions prescribed in the operating documents.

6. The operating documents and this grant of exemption must be maintained and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for 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.

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7. Prior to each flight the PIC must inspect the UAS to ensure it is in a condition for safe flight. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight. The Ground Control Station must be included in the preflight inspection. All maintenance and alterations must be properly documented in the aircraft records.

8. Any UAS maintenance or alterations that affect the UAS operation or flight characteristics, e.g. replacement of a flight critical component, must undergo a functional test flight. The PIC who conducts the functional test flight must make an entry in the aircraft records.

9. The pre-flight inspection section in the operating documents must account for all discrepancies, i.e. inoperable components, items, or equipment, not already covered in the relevant sections of the operating documents.

10. The operator must follow the UAS aircraft/component, maintenance, overhaul, replacement, inspection, and life limit requirements.

11. The operator must carry out its maintenance, inspections, and record keeping requirements, in accordance with the operating documents. Maintenance, inspection, and alterations must be noted in the aircraft records, including total flight hours, description of work accomplished, and the signature of the PIC returning the UAS to service.

12. Each UAS operated under this exemption must comply with all manufacturer System and Safety Bulletins.

13. The PIC must make an entry in the aircraft record of the corrective action taken against discrepancies discovered between inspections.

14. The Pilot in Command (PIC) must meet the following medical requirements:
    a. vision corrected to 20/20
    b. a valid state issued driver's license
    c. current first aid/CPR training.

15. The operator may not permit any PIC to operate unless that PIC has demonstrated through the operator’s training that the PIC is able 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. A record of training must be documented and made available upon request by the Administrator. Flights for the purposes of training the operator’s PICs and VOs (training, proficiency, and experience-building), are permitted under the terms of this exemption. However, said training operations may only be conducted during dedicated training sessions.

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16. 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.

17. The FAA stipulated Advanced Aviation Solutions will conduct operations in Class G airspace. Robison Engineering Company proposes to conduct operations in Class G airspace.

18. The UAS may not operate within 5 nautical miles of the airport reference point as denoted on a current FAA-published aeronautical chart.

19. The UAS 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.

20. If the UAS loses communications or loses its GPS signal, it must return to a pre-determined location within the planned operating area and land or be recovered in accordance with the operating documents.

21. The PIC must abort the flight in the event of unpredicted obstacles or emergencies in accordance with the operating documents.

22. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough power to fly at normal cruising speed to the intended landing point and land the UAV with 30% battery power remaining.

23. The operator must obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under this grant of exemption. This COA will also require the operator to request a Notice to Airman (NOTAM) not more than 72 hours in advance, but not less than 48 hours prior to the operation.

24. 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.

25. Before conducting operations, the radio frequency spectrum used for operation and control of the UA must comply with the Federal Communications Commission (FCC) or other appropriate government oversight agency requirements.

26. The documents required under 14 CFR 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

27. The UAS must remain clear and yield the right of way to all other manned aviation operations and activities at all times.

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

29. The UAS may not be operated over congested or densely populated areas.

30. 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 UAS, flight operations must cease immediately and/or;

    b) the aircraft is operated near vessels, vehicles or structures where the land owner/controller has granted permission and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard, and

    c) Operations nearer to the PIC, VO, operator trainees or essential persons do not present an undue hazard to those persons per § 91.119(a).

31. All operations shall be conducted over private or controlled-access property with permission from the land owner/controller or authorized representative. Permission from land owner/controller or authorized representative will be obtained for each flight to be conducted.

32. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS-80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

Unless otherwise specified in this grant of exemption, the 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.