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

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

September 16, 2015

Exemption No. 12870
Regulatory Docket No. FAA−2014−0842

Mr. Donald G. Bintz
President
Unmanned Systems, Inc.
2709 Cyrano Street
Henderson, NV 89044

Dear Mr. Bintz:

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 letters dated October 14, 2014, January 26, 2015, and May 27, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Unmanned Systems, Inc. (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct training[1] and research operations.

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. The FAA received two individual comments in opposition to the petition and one in support. In granting this exemption, the FAA has determined that the proposed operations can safely be conducted under the conditions and limitations of this exemption. As with exemptions issued to Aeryon

[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.

Lab, Astraeus Aerial, Clayco, Inc., and VDOS Global, LLC, failure to comply with the document's conditions and limitations is grounds for immediate suspension or rescission of the exemption.

Airworthiness Certification

The UAS proposed by the petitioner is a Sandstorm.

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, Unmanned Systems, 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, Unmanned Systems, 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 Sandstorm 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 September 30, 2017, unless sooner superseded or rescinded.

Sincerely,
/s/

John S. Duncan
Director, Flight Standards Service

Enclosures

October 14, 2014

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

RE: Exemption Request Under Section 333 of the FAA Modernization and Reform Act of 2012 and 14 C.F.R. Part 11

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 ("FAA Reform Act") and 14 C.F.R. Part 11, Unmanned Systems, Inc. ("USI") request exemptions from two provisions of the Federal Aviation Regulations ("FAR"), specifically portions of 14 C.F.R. Part § 91.119 and Part § 91.151(a) to allow, commercial operations of its Sandstorm unmanned aerial system ("Sandstorm") in the continental United States ("CONUS") by individuals who, at a minimum, maintain a FAA commercial pilot certification or FAA-recognized equivalents, and have successfully completed USI's FAA approved training plan for Sandstorm.

The Sandstorm is an all-environment, electric-powered, traditional fixed wing take-off and landing small unmanned aerial system ("UAS") that, is capable of transmitting live airborne location and video information to a Ground Control Station ("GCS"). Depending on payload configuration, Sandstorm will also be able of transmitting real-time high resolution video and photogrammetry collection to the ground based camera control station and stored on board for post flight production and forensics. The Sandstorm has a maximum weight of 70 pounds including payloads, a wingspan of 15 feet, and a length of 8 feet. The Sandstorm airplane weight without payload is a maximum of 40 pounds. The Sandstorm's normal cruising speed and maximum speed are 40-60 knots indicated airspeed and 80 knots indicated airspeed, respectively. It is battery powered that provides a flight endurance between one and one-half hours and three hours depending on battery configuration. Sandstorm is capable of operation in temperatures ranging from -15°F to 115°F. Launch and recovery of the aircraft is conducted via traditional fixed-wing take-off and landing procedures. The Sandstorm's 900 MHz datalink and 2.4 GHz control link has a range of five miles and provides all positional information and control capability required for safe operation of the aircraft.

The Sandstorm is unique among the various UASs applying for exemptions under Section 333 because it has received a Special Experimental Airworthiness Certificate from the FAA based on its operations near Columbia Falls, Montana. The Sandstorm has an unparalleled safety record based on our current and on-going flight operations in Montana with FAA certified aircraft. When this experience is considered in tandem with the remote areas in which it will operate, it becomes clear that the Sandstorm can operate safely in the National Airspace System ("NAS"), without posing a threat to national security, by operating in accordance with the requirements discussed herein.

The Sandstorm's capabilities, along with USI's experience to date, make it ideally suited to conduct commercial operations such as commercial film production, agriculture, aerial surveying, and patrolling in remote areas (i.e. non-congested or non-populated areas, private or controlled-access property) under Class E or Class G airspace and within Visual Line of Sight ("VLOS"). Use of the Sandstorm reduces the need to operate manned aircraft, decreasing the risk to the pilot, crew, and those on the ground as the Sandstorm will be transported to the

operational site for launch and recovery and will be not flown to the location with a load of flammable fuel.

As a result of the Sandstorm's size, weight, maximum speed, operational capability, and safety record; the distance at which it will operate from airports and populated areas; and its operation using visual observers to provide de-confliction from other air traffic, the Sandstorm does not create a hazard to users of the NAS or the public. Neither does it pose a threat to national security. Therefore, the FAA should grant USI the requested exemptions. Alternatively, if the FAA finds that modification of USI's application is required for safe operation of the Sandstorm in the NAS, USI requests that the FAA delineate the required modifications and either process USI's application as if the modifications were already made or allow USI to amend its application to incorporate the FAA's findings.

The name and address of the applicant are:

Unmanned Systems Inc.
Address: 2709 Cyrano Street, Henderson NV 89044

Attn: Don Bintz
Ph: (702) 324-9966
Fax: (702) 656-8782
Email: Don.Bintz@unmannedsystemsinc.com

Attn: William Reynolds
Ph: (702) 606-7539
Email: bill.reynolds@unmannedsystemsinc.com

USI's exemption request encompasses the following regulations:

14 C.F.R. § 21 subpart H
14 C.F.R. § 91.119
14 C.F.R. § 91.151(a)

Section 333's Mandate and the Federal Aviation Act

Grant of this exemption application for use of the Sandstorm in agriculture, precision aerial surveys, and patrols, pursuant to the exemption requested herein, will advance the Congressional mandate in Section 333 of the FAA Reform Act to accelerate the introduction of UASs into the NAS. Section 333 directs the Secretary of Transportation to consider whether certain UASs may operate safely in the NAS before completion of the rulemaking required under Section 332 of the FAA Reform Act. To make that determination, the Secretary must evaluate which types of UASs do not create a hazard to users of the NAS or the public or pose a threat to national security in light of several criteria:

- The UAS's size, weight, speed, and operational capability;
- Operation of the UAS in close proximity to airports and populated areas; and
- Operation of the UAS within visual line of sight of the operator.

FAA Reform Act § 333(b)(1). Once 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) (emphasis added).

The Federal Aviation Act expressly grants the FAA the authority to issue exemptions. 49 U.S.C. § 44701(f). This statutory authority, by its terms, includes exempting civil aircraft, as the term is defined under §40101 of the Act, from the requirements that all civil aircraft must have a current airworthiness certificate, 49 U.S.C. § 44711(a), and those used in commercial service must be piloted by private and/or commercial pilots. 14 C.F.R. §§ 61.113(a) and (b), 61.133.

The grant of the requested exemption is in the public interest based on (i) the clear direction in Section 333 of the FAA Reform Act; (ii) additional authority in the Federal Aviation Act, as amended; (iii) the strong equivalent level of safety surrounding the proposed operations; and (iv) the significant public benefit, including enhanced safety and cost savings associated with utilizing UASs for commercial film production, agriculture, aerial survey photography, and patrolling. Accordingly, USI respectfully requests that the FAA grant the requested exemption without delay.

Airworthiness

The Sandstorm is safe and fit for operation in the NAS under the conditions listed herein. The FAA has deemed the Sandstorm safe by initially issuing a Special FAA Experimental Airworthiness Certificate for flight on September 14, 2011. USI has flown the Sandstorm since this date in 2011 and currently continues to operate near Columbia Falls, Montana under the FAA issued Experimental Airworthiness Certificate for Unmanned Aircraft with an assigned Registration Mark N441KS, being the first tail USI got certified.

In support of this application, USI can provide with a request for confidentiality, the following documents: the Combined Sandstorm S3™ Aircrew Operating Handbook ("AOH"); the USI Local Pilot Initial Qualification Syllabus; the USI Observer Initial Qualification Syllabus; and the USI Safety Pilot Initial Qualification Syllabus.

Mandatory Operating Conditions

USI proposes that the grant of the exemption be subject to the following mandatory conditions, which are based upon operating conditions set forth for operation of UAS by public entities pursuant to Certificates of Waiver or Authorization, with additional restrictions:

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- Operations to avoid congested or populated areas to the maximum extent possible.
- Operations to be conducted over private or controlled-access property.
- Permission from land owner/controller required before commencing any flight.
- Operations to occur during Visual Flight Rules Meteorological Conditions (VMC).
- Aircraft to remain within Visual Line of Sight (VLOS).
- Operations to occur during daylight hours.
- Above Ground Level (AGL) altitude to be restricted to 400 feet and below.
- All operations conducted in vicinity of airport to remain more than 2.5 NM from centerline azimuth of runway centerline measured from runway thresholds.
- Operator will file a NOTAM for each flight.
- All required authorizations and permits will be obtained from territorial, state, county, or city jurisdictions, including local law enforcement, fire, or other governmental agencies.

Operator Requirements

USI respectfully proposes that operator requirements should take into account the characteristics of the particular UAS. The Sandstorm is an inherently stable, light-weight aircraft that weighs less than 40 pounds without payload, has a proven safety flight safety record and will be operated in remote areas.

Sandstorm is configured to give the Local Pilot ("LP") or Remote Pilot ("RP") full control of the aircraft during all phases of flight. It is equipped with an advanced autopilot that can be used to fly the aircraft in one of four modes: Stabilized, Return to Home ("RTH"), Circle or Nav. Stabilized mode commands the aircraft to fly straight and level with no input from the pilot. RTH mode commands the aircraft to fly to a "return to home point" designated by the pilot and then circle until transitioned to manual control by the pilot. Circle mode commands the aircraft to circle around its current position until the pilot takes control manually or activates another autopilot mode. Engaging Nav mode commands the aircraft to fly to pre-programmed waypoints designated by the pilot on the GCS Map screen. Each of these autopilot modes creates a predictable aircraft flight pattern that allows Sandstorm to operate within the intended flight envelope with minimal input from the pilot. Flight limits are coded into the autopilot and define the aircraft's normal flight operating envelope. Manual flight modes that do not use the autopilot require the operator to provide control input to maintain heading, altitude and airspeed. Pitch, roll and throttle inputs are accomplished by the LP using the handheld radio controller/transmitter (JR-12X) or by the RP using GCS RP Control Stick station via the 900 MHz or 2.4 GHz link respectively.

The GCS is the primary control station; providing the RP situational awareness and command and control interface for the UA. The S³™ GCS is a environment consisting of three monitor displays including a Map screen, a Head-up Display (HUD) screen, and a Standby Instrument Panel screen. Flight controls consist of a control stick, throttle, and rudder pedals. Additional system controls utilize touchscreen "push buttons" on the three displays to control gear position, flap position, barometric altimeter setting, transponder settings, autopilot modes, and active control link selections. The LP will always have the capability to take control of the aircraft with the handheld JR-12X if necessary for safety of flight in all phases of flight while maintaining VLOS.

In the event of a Total Lost-Link ("TLL") the autopilot shall navigate the UAS back to a designated Return to Home ("RTH") point. Standard operating procedures will have a designated RTH point prior to every flight. While in circle mode around the RTH point, recovery of control should be possible. In the event that recovery of control link is not possible, the UAS will spiral down to a controlled landing around the designated RTH point. If the motor batteries have been depleted, the avionics and flight control surfaces are powered independently to allow for continued control by the LP to conduct a pilot controlled landing of the aircraft.

Specific Exemption Requests and Equivalent Level of Safety Showings

14 C.F.R. Part 21, Subpart H: Airworthiness Certificates

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 the Applicant, 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 for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the particular UAS. In all cases, an analysis of these criteria demonstrates that the UAS 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 (fixed wing or rotorcraft) operating with an airworthiness certificate without the restrictions and conditions proposed.

Sandstorm has already been certified as airworthy via a Special Airworthiness certificate of the Experimental class and has been recertified as such on four separate occasions. The exemption USI seeks at this time is to be able to conduct commercial operations while only having an Experimental certification.

14 C.F.R. § 91.119: Minimum Safe Altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Specifically, Section 91.119(c) limits aircraft flying over areas other than congested areas to 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.

As set forth herein, the Sandstorm will never operate at higher than 400 feet AGL. It will, however, be operated in a manner that avoids congested or populated areas that are depicted in yellow on VFR sectional charts. Because commercial film flights, agriculture, aerial survey work, and patrolling must be accomplished at relatively low altitudes, *i.e.*, less than 500 feet AGL, an exemption from Section 91.119(c) is required.

The equivalent level of safety will be achieved given the size, weight, speed, and material with which the Sandstorm is built. Also, no flight will be taken without the permission of the land owner or the party controlling the operating area. With advance notice to the landowner, all affected individuals will be aware of the agriculture, survey, and patrolling flights. Compared to similar operations conducted with conventional aircraft or rotorcraft, which weigh thousands of pounds and carry flammable fuel, any risk associated with these operations will be significantly reduced from those currently allowed for conventional aircraft operating at or below 500 feet AGL. Waivers have been granted to other UAS operators for such operations in Alaska. USI believes such operations can be conducted within the CONUS in Class E and Class G airspace for the same reasons justifying like operations under the existing waiver in Alaska.

14 C.F.R. § 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.” 14 C.F.R. § 91.151(a).

The Sandstorm's batteries provide between one and three hours of powered flight. Without an exemption from 14 C.F.R. § 91.151, the Sandstorm's flights could be limited to approximately thirty minutes in length. Given the limitations on its proposed operations and the location of those proposed operations, a longer duration for flight in daylight VFR conditions is reasonable.

USI believes that an exemption from 14 C.F.R. § 91.151(a) is safe and consistent with the scope of a prior exemption. *See* Exemption 10673 (allowing Lockheed Martin Corporation to operate without compliance with 91.151(a)). Operating the Sandstorm, a small UAS, without 30 minutes of reserve fuel does not engender the type of risks that Section 91.151(a) was meant to prevent. The fact that the Sandstorm carries neither pilot, passenger, nor cargo also enhances the reduced risk to overall safety. Additionally, limiting Sandstorm flights to thirty minutes would greatly reduce the operational utility of the platform. In the unlikely event that the Sandstorm should run out of fuel, it would glide under pilot control for landing. Given its weight and construction material, the risk is significantly less than contemplated by the current regulation.

USI believes that an equivalent level of safety can be achieved by maintaining 10 minutes of reserve fuel, which, allowing at least fifty minutes of flight time, would be more than adequate to return the UAS to its planned landing zone from anywhere in its planned operating area.

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

Federal Register Summary

Pursuant to 14 C.F.R. § 11.81(f), the following summary is provided for publication in the Federal Register, should the FAA determine that publication is needed:

Petitioner: Unmanned Systems Inc.
Section of 14 C.F.R.: 14 C.F.R. § 21(h), 14 C.F.R. § 91.119, 14 C.F.R. § 91.151(a).

Approval of exemptions allowing commercial operations of UASs in the film industry will enhance safety by reducing risk. Conventional film operations, using jet or piston power aircraft, operate at extremely low altitudes in close proximity to people and structures and present the risks associated with vehicles that weigh in the neighborhood of 4,000 pounds, carrying large amounts of jet A or other fuel (140 gallons for jet helicopter) Such aircraft must fly to and from the film location. In contrast, a battery powered UAS weighing fewer than 70 pounds eliminates virtually all of that risk given the reduced mass and lack of combustible fuel carried on board. The UAS will carry no passengers or crew and, therefore, will not expose them to the risks associated with manned aircraft flights.

The operation of small UASs, weighing less than 70 pounds, conducted in the strict conditions outlined above, will provide an equivalent level of safety supporting the grant of the exemptions requested herein, including exempting the applicant from the requirements of Part 21 and allowing commercial operations. These lightweight aircraft operate at slow speeds, close to the ground, and in a sterile environment and, as a result, are far safer than conventional operations conducted with turbine helicopters operating in close proximity to the ground and people.

Privacy

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge. Filming will be of people who have also consented to being filmed or otherwise have agreed to be in the area where filming will take place.

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 with is VLOS and national security. Provided in the above documentation is adequate justification for the grant of the requested exemptions allowing commercial operation of applicant's UAS in the motion picture and television industry pursuant to the manual appended hereto.

Sincerely,

William E. Reynolds
Unmanned Systems, Inc.

From:	Bill Reynolds
To:	Troutman, Jake (FAA)
Cc:	Donald Bintz
Subject:	Re: Request for Additional Information - Unmanned Systems, Inc. [FAA-2014-0842]
Date:	Monday, January 26, 2015 11:45:46 PM
Attachments:	Combined POH S3.pdf USI Local Pilot Initial Qual Syllabus Long.pdf USI Observer Initial Qual Syllabus.pdf USI Safety Pilot Initial Qual Syllabus.pdf

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Mr. Troutman,

USI required a current FAA Class II medical certificate for all Pilots.

Provide a description of the proposed pilot medical requirements.

USI required a current FAA Class II medical certificate for all Pilots.

- Your petition references a pre-flight inspection and/or checklist. Describe the process used to determine if the UAS is airworthy and in safe condition for operation in the NAS.

Section 4-1 of the Combined Sandstorm S3™ Aircrew Operating Handbook ("AOH") addresses pre-flight procedures to establish airworthiness before each flight.

- Describe the process used to document UAS discrepancies and the corrective action taken in the aircraft record. Examples of processes include (1) the petitioner has elected to use its own process to maintain its UAS and ensure that only airworthy and safe UAS will be allowed to operate in the NAS and (2) the petitioner has elected to maintain its UAS in accordance with the manufacturer maintenance and inspection recommendations.

- Your petition references the material(s) listed below on page three of the petition, however the material(s) were not submitted for the record. Please provide a copy of the following referenced materials:
  - Combined Sandstorm S3™ Aircrew Operating Handbook ("AOH")
  - USI Local Pilot Initial Qualification Syllabus
  - USI Observer Initial Qualification Syllabus
  - USI Safety Pilot Initial Qualification Syllabus

Attached are the documents requested. They are all considered proprietary by USI.

If you have any more questions please contact myself and Don Bintz (cc'd above).

Respectfully,

William Reynolds
Business Development Manager
Unmanned Systems Inc.
702-606-7539

Dear Mr. Don Bintz:

This letter is to inform you that the following information is missing from your petition (Docket No. FAA-2014-0842). This information is necessary for the Federal Aviation Administration (FAA) to process your petition.

- Provide a description of the proposed pilot medical requirements.

- Your petition references a pre-flight inspection and/or checklist. Describe the process used to determine if the UAS is airworthy and in safe condition for operation in the NAS.

- Describe the process used to document UAS discrepancies and the corrective action taken in the aircraft record. Examples of processes include (1) the petitioner has elected to use its own process to maintain its UAS and ensure that only airworthy and safe UAS will be allowed to operate in the NAS and (2) the petitioner has elected to maintain its UAS in accordance with the manufacturer maintenance and inspection recommendations.

- Your petition references the material(s) listed below on page three of the petition, however the material(s) were not submitted for the record. Please provide a copy of the following referenced materials:
  - Combined Sandstorm S3™ Aircrew Operating Handbook ("AOH")
  - USI Local Pilot Initial Qualification Syllabus
  - USI Observer Initial Qualification Syllabus
  - USI Safety Pilot Initial Qualification Syllabus

Please submit the additional information (non-proprietary) to your docket at www.regulations.gov and submit any proprietary information to the FAA Headquarters or electronically via e-mail to jake.troutman@faa.gov. If you want us to process your request any further, we must receive the information described above by 02/09/2015. If we do not receive the information, we will close the docket without notifying you further.

If you have any questions, please feel free to contact me at (202) 267-9521.

Sincerely,

Jake J Troutman
Program Analyst | Rulemaking
FAA Office of Aviation Safety
Airmen and Airspace Rules Division
202-267-9521

May 27, 2015

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

RE: Exemption Request Under Section 333 of the FAA Modernization and Reform Act of 2012 and 14 C.F.R. Part 11

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 ("FAA Reform Act") and 14 C.F.R. Part 11, Unmanned Systems, Inc. ("USI") request exemptions from four provisions of the Federal Aviation Regulations ("FAR"), specifically portions of 14 C.F.R. § 21(h), 14 C.F.R. § 61.113(a & b), 14 C.F.R. § 91.119, 14 C.F.R. § 91.151(a) to allow, commercial operations of its Sandstorm unmanned aerial system ("Sandstorm") in the continental United States ("CONUS") by individuals who, at a minimum, maintain a FAA private pilot certification or FAA-recognized equivalents, and have successfully completed USI's company training plan for Sandstorm. **The commercial use requested is to conduct training and research operations at USI's home field in Montana and at locations coordinated with the FAA via the COA process.**

The Sandstorm is an all-environment, traditional fixed wing take-off and landing small unmanned aerial system ("UAS") that, is capable of transmitting live airborne location and video information to a Ground Control Station ("GCS"). Depending on payload configuration, Sandstorm will also be able of transmitting real-time high resolution video and photogrammetry collection to the ground based camera control station and stored on board for post flight production and forensics. The Sandstorm will be **limited to under 55 pounds** including payloads, a wingspan of 15 feet, and a length of 8 feet. The Sandstorm airplane weight without payload is a maximum of 40 pounds. The Sandstorm's normal cruising speed and maximum speed are 40-60 knots indicated airspeed and 80 knots indicated airspeed, respectively. It comes in an electric, turboprop, and gas version. Sandstorm is capable of operation in temperatures ranging from -15°F to 115°F. Launch and recovery of the aircraft is conducted via traditional fixed-wing take-off and landing procedures. The Sandstorm's 900 MHz datalink and 2.4 GHz control link has a range of five miles and provides all positional information and control capability required for safe operation of the aircraft.

The Sandstorm is unique among the various UASs applying for exemptions under Section 333 because it has received a Special Experimental Airworthiness Certificate from the FAA based on its operations near Columbia Falls, Montana. The Sandstorm has an unparalleled safety record based on our current and on-going flight operations in Montana with FAA certified aircraft. When this experience is considered in tandem with the remote areas in which it will operate, it becomes clear that the Sandstorm can operate safely in the National Airspace System ("NAS"), without posing a threat to national security, by operating in accordance with the requirements discussed herein.

The Sandstorm's capabilities, along with USI's experience to date, make it ideally suited to conduct commercial operations such as commercial film production, agriculture, aerial surveying, and patrolling in remote areas (i.e. non-congested or non-populated areas, private or controlled-access property) under Class E or Class G airspace and within Visual Line of Sight

("VLOS"). Use of the Sandstorm reduces the need to operate manned aircraft, decreasing the risk to the pilot, crew, and those on the ground as the Sandstorm will be transported to the operational site for launch and recovery and will be not flown to the location with a load of flammable fuel.

As a result of the Sandstorm's size, weight, maximum speed, operational capability, and safety record; the distance at which it will operate from airports and populated areas; and its operation using visual observers to provide de-confliction from other air traffic, the Sandstorm does not create a hazard to users of the NAS or the public. Neither does it pose a threat to national security. Therefore, the FAA should grant USI the requested exemptions. Alternatively, if the FAA finds that modification of USI's application is required for safe operation of the Sandstorm in the NAS, USI requests that the FAA delineate the required modifications and either process USI's application as if the modifications were already made or allow USI to amend its application to incorporate the FAA's findings.

The name and address of the applicant are:

Unmanned Systems Inc.
Address: 2709 Cyrano Street, Henderson NV 89044

Attn: Don Bintz
Ph: (702) 324-9966
Fax: (702) 656-8782
Email: Don.Bintz@unmannedsystemsinc.com

Attn: William Reynolds
Ph: (702) 606-7539
Email: bill.reynolds@unmannedsystemsinc.com

USI's exemption request encompasses the following regulations:

14 C.F.R. § 21 subpart H
14 C.F.R. § 61.113(a&b)
14 C.F.R. § 91.119
14 C.F.R. § 91.151(a)

Section 333's Mandate and the Federal Aviation Act

Grant of this exemption application for use of the Sandstorm in training, agriculture, precision aerial surveys, film industry, and patrols, pursuant to the exemption requested herein, will advance the Congressional mandate in Section 333 of the FAA Reform Act to accelerate the introduction of UASs into the NAS. Section 333 directs the Secretary of Transportation to consider whether certain UASs may operate safely in the NAS before completion of the rulemaking required under Section 332 of the FAA Reform Act. To make that determination, the Secretary must evaluate which types of UASs do not create a hazard to users of the NAS or the public or pose a threat to national security in light of several criteria:

- The UAS's size, weight, speed, and operational capability;
- Operation of the UAS in close proximity to airports and populated areas; and
- Operation of the UAS within visual line of sight of the operator.

FAA Reform Act § 333(b)(1). Once 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) (emphasis added).

The Federal Aviation Act expressly grants the FAA the authority to issue exemptions. 49 U.S.C. § 44701(f). This statutory authority, by its terms, includes exempting civil aircraft, as the term is defined under §40101 of the Act, from the requirements that all civil aircraft must have a current airworthiness certificate, 49 U.S.C. § 44711(a), and those used in commercial service must be piloted by private and/or commercial pilots. 14 C.F.R. §§ 61.113(a) and (b), 61.133.

The granting of the requested exemption is in the public interest based on (i) the clear direction in Section 333 of the FAA Reform Act; (ii) additional authority in the Federal Aviation Act, as amended; (iii) the strong equivalent level of safety surrounding the proposed operations; and (iv) the significant public benefit, including enhanced safety and cost savings associated with utilizing UASs for commercial by providing adequate training and testing of both pilots and equipment. Accordingly, USI respectfully requests that the FAA grant the requested exemption without delay.

Airworthiness

The Sandstorm is safe and fit for operation in the NAS under the conditions listed herein. The FAA has deemed the Sandstorm safe by initially issuing a Special FAA Experimental Airworthiness Certificate for flight on September 14, 2011. USI has flown the Sandstorm since this date in 2011 and currently continues to operate near Columbia Falls, Montana under the FAA issued Experimental Airworthiness Certificate for Unmanned Aircraft with an assigned Registration Mark N441KS, being the first tail USI got certified.

Mandatory Operating Conditions

USI proposes that the grant of the exemption be subject to the following mandatory conditions, which are based upon operating conditions set forth for operation of UAS by public entities pursuant to Certificates of Waiver or Authorization, with additional restrictions:

- Operations to avoid congested or populated areas to the maximum extent possible.
- Operations to be conducted over private or controlled-access property.
- Permission from land owner/controller required before commencing any flight.
- Operations to occur during Visual Flight Rules Meteorological Conditions (VMC).
- Aircraft to remain within Visual Line of Sight (VLOS).
- Operations to occur during daylight hours.
- Above Ground Level (AGL) altitude to be restricted to 400 feet and below.
- All operations conducted in vicinity of airport to remain more than 2.5 NM from centerline azimuth of runway centerline measured from runway thresholds.
- Operator will file a NOTAM for each flight.
- All required authorizations and permits will be obtained from territorial, state, county, or city jurisdictions, including local law enforcement, fire, or other governmental agencies.

Operator Requirements

USI respectfully proposes that operator requirements should take into account the characteristics of the particular UAS. The Sandstorm is an inherently stable, light-weight aircraft that weighs less than 40 pounds without payload, has a proven safety flight safety record and will be operated in remote areas.

Sandstorm is configured to give the Local Pilot ("LP") or Remote Pilot ("RP") full control of the aircraft during all phases of flight. It is equipped with an advanced autopilot that can be used to fly the aircraft in one of four modes: Stabilized, Return to Home ("RTH"), Circle or Nav. Stabilized mode commands the aircraft to fly straight and level with no input from the pilot. RTH mode commands the aircraft to fly to a "return to home point" designated by the pilot and then circle until transitioned to manual control by the pilot. Circle mode commands the aircraft to circle around its current position until the pilot takes control manually or activates another autopilot mode. Engaging Nav mode commands the aircraft to fly to pre-programmed waypoints designated by the pilot on the GCS Map screen. Each of these autopilot modes creates a predictable aircraft flight pattern that allows Sandstorm to operate within the intended flight envelope with minimal input from the pilot. Flight limits are coded into the autopilot and define the aircraft's normal flight operating envelope. Manual flight modes that do not use the autopilot require the operator to provide control input to maintain heading, altitude and airspeed. Pitch, roll and throttle inputs are accomplished by the LP using the handheld radio controller/transmitter (JR-12X) or by the RP using GCS RP Control Stick station via the 900 MHz or 2.4 GHz link respectively.

The GCS is the primary control station; providing the RP situational awareness and command and control interface for the UA. The flight controls consist of a control stick, throttle, and rudder pedals. The LP will always have the capability to take control of the aircraft with the handheld JR-12X if necessary for safety of flight in all phases of flight while maintaining VLOS.

In the event of a Total Lost-Link ("TLL") the autopilot shall navigate the UAS back to a designated Return to Home ("RTH") point. Standard operating procedures will have a designated RTH point prior to every flight. While in circle mode around the RTH point, recovery of control should be possible. In the event that recovery of control link is not possible, the UAS will spiral down to a controlled landing around the designated RTH point. If the motor batteries have been depleted, the avionics and flight control surfaces are powered independently to allow for continued control by the LP to conduct a pilot controlled landing of the aircraft.

Specific Exemption Requests and Equivalent Level of Safety Showings

14 C.F.R. Part 21, Subpart H: Airworthiness Certificates

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 the Applicant, 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 for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the particular UAS. In all cases, an analysis of these criteria demonstrates that the UAS 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 (fixed wing or rotorcraft) operating with an airworthiness certificate without the restrictions and conditions proposed.

Sandstorm has already been certified as airworthy via a Special Airworthiness certificate of the Experimental class and has been recertified as such on four separate occasions. The exemption USI seeks at this time is to be able to conduct commercial operations while only having an Experimental certification.

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

Sections 61.113 (a) & (b) limit private pilots to non-commercial operations. Because the UAS will not carry a pilot or passengers, 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 small UAS. 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 restricted, and all flights are planned and coordinated in advance as set forth in the Manual. To provide for the differences in knowledge level the chief pilot for USI is a commercially rated pilot that will oversee all planned flight operations and will approve all operating areas and operating plans. The risks associated with the operation of the sUAS are so diminished from the level of risk associated with commercial operations contemplated by Part 61 when drafted, that with the above oversight and plans will achieve a level of safety commiserate with the current rules set forth by 14 C.F.R. §61.113 (a) & (b).

14 C.F.R. § 91.119: Minimum Safe Altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Specifically, Section 91.119(c) limits aircraft flying over areas other than congested areas to 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.

As set forth herein, the Sandstorm will never operate at higher than 400 feet AGL. It will, however, be operated in a manner that avoids congested or populated areas that are depicted in yellow on VFR sectional charts. Because commercial film flights, agriculture, aerial survey work, and patrolling must be accomplished at relatively low altitudes, *i.e.*, less than 500 feet AGL, an exemption from Section 91.119(c) is required.

The equivalent level of safety will be achieved given the size, weight, speed, and material with which the Sandstorm is built. Also, no flight will be taken without the permission of the land owner or the party controlling the operating area. With advance notice to the landowner, all affected individuals will be aware of the agriculture, survey, and patrolling flights. Compared to similar operations conducted with conventional aircraft or rotorcraft, which weigh thousands of pounds and carry flammable fuel, any risk associated with these operations will be significantly reduced from those currently allowed for conventional aircraft operating at or below 500 feet AGL. Waivers have been granted to other UAS operators for such operations in Alaska. USI believes such operations can be conducted within the CONUS in Class E and Class G airspace for the same reasons justifying like operations under the existing waiver in Alaska.

14 C.F.R. § 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." 14 C.F.R. § 91.151(a).

The Sandstorm's batteries provide between one and three hours of powered flight. Without an exemption from 14 C.F.R. § 91.151, the Sandstorm's flights could be limited to approximately thirty minutes in length. Given the limitations on its proposed operations and the location of those proposed operations, a longer duration for flight in daylight VFR conditions is reasonable.

USI believes that an exemption from 14 C.F.R. § 91.151(a) is safe and consistent with the scope of a prior exemption. *See* Exemption 10673 (allowing Lockheed Martin Corporation to operate without compliance with 91.151(a)). Operating the Sandstorm, a small UAS, without 30 minutes of reserve fuel does not engender the type of risks that Section 91.151(a) was meant to prevent. The fact that the Sandstorm carries neither pilot, passenger, nor cargo also enhances the reduced risk to overall safety. Additionally, limiting Sandstorm flights to thirty minutes would greatly reduce the operational utility of the platform. In the unlikely event that the Sandstorm should run out of fuel, it would glide under pilot control for landing. Given its weight and construction material, the risk is significantly less than contemplated by the current regulation.

USI believes that an equivalent level of safety can be achieved by maintaining 10 minutes of reserve fuel, which, allowing at least fifty minutes of flight time, would be more than adequate to return the UAS to its planned landing zone from anywhere in its planned operating area.

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

Federal Register Summary

Pursuant to 14 C.F.R. § 11.81(f), the following summary is provided for publication in the Federal Register, should the FAA determine that publication is needed:

Petitioner: Unmanned Systems Inc.
Section of 14 C.F.R.: 14 C.F.R. § 21(h), 14 C.F.R. § 61.113(a & b), 14 C.F.R. § 91.119, 14 C.F.R. § 91.151(a).

Approval of exemptions allowing commercial operations of UASs in training and research flights will benefit the public. By allowing USI to conduct training and research flights for compensation the public will have better operators for UAVs and better UAVs by the research that USI will conduct. The UAS will carry no passengers or crew and, therefore, will not expose them to the risks associated with manned aircraft flights.

The operation of small UASs, **weighing less than 55 pounds**, conducted in the strict conditions outlined above, will provide an equivalent level of safety supporting the grant of the exemptions requested herein, including exempting the applicant from the requirements of Part 21 and allowing commercial operations. These lightweight aircraft operate at slow speeds, close

to the ground, and in a sterile environment and, as a result, are far safer than conventional operations conducted with manned aircraft operating in close proximity to the ground and people.

Privacy

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge. Overflight of any person will have consented to being filmed or otherwise have agreed to be in the area where operations will take place.

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 with is VLOS and national security. Provided in the above documentation is adequate justification for the grant of the requested exemptions allowing commercial operation of to conduct training and research operations at USI's home field in Montana and at locations coordinated with the FAA via the COA process.

Sincerely,

Donald G. Bintz
President
Unmanned Systems Inc.