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

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

September 25, 2015

Exemption No. 13009
Regulatory Docket No. FAA−2015−1802

Mr. Scott Aschoff
CEO
OCEANdrive Capital Advisors
5188 Ocean Drive
Avalon, NJ 08202

Dear Mr. Aschoff:

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 posted to the public docket May 28, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of OCEANdrive Capital Advisors (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct inspections, research and development, and search and rescue 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.

Airworthiness Certification

The UAS proposed by the petitioner is a Trimble UX5.

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[1]. 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, OCEANdrive Capital Advisors 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 collectionThis exemption is subject to the conditions and limitations listed below.

[1] 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.

Conditions and Limitations

In this grant of exemption, OCEANdrive Capital Advisors 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 Trimble UX5 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 October 31, 2017, unless sooner superseded or rescinded.

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

Enclosures

Scott Aschoff
CEO
OCEAN*drive* Capital Advisors
5188 Ocean Drive
Avalon NJ 08202
856-313-3654

The petitioner is requesting relief on the following regulations to improve the safety and reduce the response time of first responders.

Part 21 prescribes, in pertinent part, the procedural requirements for issuing and changing design approvals, productions approvals, airworthiness certificates, and airworthiness approvals.

Section 45.23(b) prescribes, in pertinent part, that when marks include only the Roman capital letter "N" and the registration number is displayed on limited, restricted or light- sport category aircraft or experimental or provisionally certificated aircraft, the operator must also display on that aircraft near each entrance to the cabin, cockpit, or pilot.

Section 61.113(a) and (b) prescribe that—
(a) no person who holds a private pilot certificate may act as a pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.
(b) a private pilot may, for compensation or hire, 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; and
(2) The aircraft does not carry passengers or property for compensation or hire.
Section 61.133(a) prescribes, in pertinent part, that a person who holds a commercial pilot certificate may act as pilot in command of an aircraft: (i) Carrying persons or property for compensation or hire, provided the person is qualified in accordance with this part and with the applicable parts of this chapter that apply to the operation; and (ii) For compensation or hire, provided the person is qualified in accordance with this part and with the applicable parts of this chapter that apply to the operation.

Section 91.7(a) prescribes that no person may operate a civil aircraft unless it is in an airworthy condition.

Section 91.7(b) prescribes that the pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur.
Section 91.9(b)(2) prohibits operation of U.S.-registered civil aircraft unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.
Section 91.109(a) prescribes, in pertinent part, that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls.
Section 91.119 prescribes that, except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:
(a) *Anywhere.* An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) *Over congested areas.* Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.
(c) *Over other than congested areas.* An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.
(d) *Helicopters, powered parachutes, and weight-shift-control aircraft.* If the operation is conducted without hazard to persons or property on the surface—
(1) A helicopter may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section, provided each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA; and
(2) A powered parachute or weight-shift-control aircraft may be operated at less than the minimums prescribed in paragraph (c) of this section.

Section 91.151(a) prescribes that no person may begin a flight in an airplane under visual flight rules (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* [emphasis added].

Section 91.203(a) prescribes, in pertinent part, that no person operate a civil aircraft unless it has within it (1) an appropriate and current airworthiness certificate; and (2) an effective U.S. registration certificate issued to its owner or, for operation within the United States, the second copy of the Aircraft registration Application as provided for in § 47.31(c).

Section 91.203(b) prescribes, in pertinent part, that no person may operate a civil aircraft unless the airworthiness certificate or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

Section 91.319(a)(1), Aircraft having experimental certificates: Operating limitations, prescribes in pertinent part that no person may operate an aircraft that has an experimental certificate for other than the purpose for which the certificate was issued.

Section 91.405(a) requires, in pertinent part, that an aircraft operator or owner shall have that aircraft inspected as prescribed in subpart E of the same part and shall, between required inspections, except as provided in paragraph (c) of the same section, have discrepancies repaired as prescribed in part 43 of the chapter.

Section 91.407(a)(1) prohibits, in pertinent part, any person from operating an aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless it has been approved for return to service by a person authorized under § 43.7 of the same chapter.

Section 91.409(a)(2) prescribes that no person may operate any aircraft unless, within the preceding 12 calendar months, it has had an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

Section 91.417(a) prescribes, in pertinent part, that—
(a) Each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:
(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved

inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include—
(i) A description (or reference to data acceptable to the Administrator) of the work performed; and
(ii) The date of completion of the work performed; and
(iii) The signature, and certificate number of the person approving the aircraft for return to service.
(2) Records containing the following information:
(i) The total time in service of the airframe, each engine, each propeller, and each rotor.
(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.
5
(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.
(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.
(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.
(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

The petitioner has provided or will provide the following information via hyperlinks– contained in its petition and proprietary supporting documentation: 1) Trimble UX5 Safety Checklist, 2) Training Manual, 3) UX5 Maintenance and Inspection Manual, and 4) Trimble UX5 Aerial Imaging Solution User Guide (User Guide), – in support of its exemption request.

The petitioner will submit additional information 1) FAA Experimental Airworthiness Certificate for its UX5, and

The petitioner states that given the size, weight, speed, and limited operating area associated with the aircraft to be utilized by the applicant, an exemption from 14 CFR part 21, Subpart H (Airworthiness Certificates), subject to certain conditions and limitations, is warranted and meets the requirements for an equivalent level of safety under 14 CFR part 11 and Section 333 of P.L. 112-95 (Section 333).

The petitioner states that the unmanned aircraft (UA) to be operated under this request is a fixed-wing aircraft, weighs less than 6 pounds fully loaded, flies at a maximum speed of no more than 74.5 knots indicated airspeed (KIAS), and a cruise speed of 49 KIAS, carries neither a pilot nor passenger, carries no flammable fuels, and operates exclusively within a pre-disclosed area. Operations under this exemption will be tightly controlled and monitored by both the operator and local public safety requirements.
In addition, the UX5 has a semi-autonomous navigation and control system comprised of a Ground Control Station (GCS) and auto-pilot system. All flights are pre-programmed with precise global positioning system (GPS) guidance and do not require human intervention.

The flight mission area and routing cannot be changed after launch. Flights are not directed by positive manual control by the operator, nor are evasive maneuvers. In the case of unplanned events, the operator inputs pre-programmed evasive maneuvers from the GCS and the UX5 executes that maneuver. Pre-programmed operator interventions include diversion to the right; initiation of holding at present position; suspension of mission; fly back to launch point; fly to point and hold; abort mission and land; and emergency power cut off and land.

Additional automated safety functions and safety enhancing features of the UX5 include: a. Auto-pilot detection of lost GPS or of insufficient satellites initiates an immediate spiral landing; b. Low power on the aircraft triggers escalating alarms at GCS at 35% and 10% levels; c. If the auto-pilot detects a lost-link to the GCS for longer than 30 seconds, landing procedure begins; d. The UX5 is inherently unstable; auto-pilot failure will result in a rapid exit from flight; e. The UX5 has an on-board fail safe that limits speed of a dive to no more than 14 m/s; f. The UX5 weighs less than 6 pounds and is constructed of EPP foam or similar material which is intended to absorb impact energy; and g. The UX5's motor is driven by a pulse width modulated signal, not an analog signal.

Regarding the display of appropriate aircraft markings (14 CFR 45.23), the petitioner states that the UX5 has no entrance to the cabin, cockpit, or pilot station on which the word "experimental" can be placed. Further, given the size of the UA, two-inch lettering would be impossible. The petitioner states that an equivalent level of safety will be achieved by having the UX5 marked on its forward fuselage as required by § 45.23(f) where the pilot, observer and others working with the UA will see the identification of the UAS as "experimental."

The petitioner states that maintenance of the UX5 will be accomplished by the owner/operator in accordance with the UX5 Maintenance & Inspection Manual. The UAS is small in size, carries no external payload, and is not a complex mechanical aeronautical device.

Furthermore, the petitioner states that the UX5 operator will attend a manufacturer's training program, is the most familiar with the UX5, and is best suited to maintain the aircraft in an airworthy condition.

Additionally, the UX5 Maintenance & Inspection Manual contains procedures for periodic inspections and replacement intervals for UX5 airframe and component parts, including instructions for the performance of inspections, maintenance and record keeping.

Other companies have been issued an FAA Special Airworthiness Certificate in the Experimental Category for the UX5. The UX5 has accumulated more than 200 registered test flights and more than 475 registered production flights, amounting to a total of more than 170 flight hours of testing.
UAS Pilot In Command (PIC).

The petitioner asserts that operators of the UX5 should not be required to hold a commercial or private pilot certification and the petitioner notes that unlike a conventional aircraft that carries a pilot, passengers, and cargo, the UX5 is remotely controlled with no passengers or property of others on board. The petitioner proposes that operator requirements should take into account the characteristics of the particular UAS. The petitioner states that the UX5 has a high degree of pre-programmed control and various built-in technical capabilities that strictly limit the potential for operation outside of the operating conditions set forth in its petition for exemption.

The petitioner states that given the UX5 safety features, it proposes that the operators of the UX5 should be required to (1) have successfully completed FAA private pilot ground instruction and passed the FAA Private Pilot written examination or FAA-recognized equivalents; and (2) have will successfully complete the manufacturer's training program for operation of the UAS which has been approved by the FAA through its Special Airworthiness Certificate process.

The petitioner notes that the FAA has found that safety factors permitted operation of UASs by operators with these qualifications in the case of operations pursuant to public COAs when the mandatory operating conditions specified above were present. The petitioner argues that given these conditions and restrictions, an equivalent level of safety will be provided by allowing operation of the UX5 without a private pilot's certificate or a commercial pilot's certificate.

The petitioner also believes the FAA has the statutory authority to grant exemptions to the requirements for, and privileges associated with, the grant of airmen's certificates and then references 49 USC § 44701 (f).
UAS Operating Parameters.

The petitioner notes that the UX5 will be restricted to an altitude of 400 feet above ground level (AGL) and will occur in Class G airspace. The petitioner states that all operations will occur during daylight hours and the FAA will have advance notice of all operations through the filing of notices-to-airmen (NOTAMs).

The petitioner asserts that all operations will avoid congested or populated areas. The petitioner further asserts all operations will be conducted over private, public and controlled access property. The petitioner notes that it will obtain permission from land owner/controller prior to the beginning of every flight when filming. All operations will occur under Visual Flight Rules Meteorological Conditions (VMC) only.

The petitioner asserts that the size of the aircraft, the lack of flammable fuel, and the fact that the aircraft is carried to the location and not flown there all establish the equivalent level of safety. The petitioner states that the UX5 construction with energy absorbent material provides at least an equivalent level of safety compared to operations being conducted with conventional

aircraft that would be orders-of-magnitude larger and would be carrying passengers, cargo, and flammable fuel.

With respect to the fuel requirements, the petitioner notes that, in order to meet the 30 minute reserve requirements in 14 CFR 91.151, UAS flights would have to be limited to approximately 20 minutes. The petitioner states that limiting UX5 flights to 20 minutes would greatly reduce their utility.

The petitioner argues that, given the limitations on the UA's proposed operations and the location of those proposed operations, a longer time frame for flight in daylight VFR conditions is reasonable. The petitioner believes that an equivalent level of safety can be achieved by maintaining 10 minutes of reserve fuel, which, allowing 40 minutes of flight time, would be more adequate to return the UAS to its planned landing zone from anywhere in its operating area.

Public Interest:
The petitioner states that approval of the exemption allowing commercial operations of the UX5 will enhance safety by reducing risk and providing environmental benefits and thus is in the public interest. Conventional aerial operations for motion picture or television operations, monitor rail line activities, commercial pipeline activities, to conduct it own research and to develop economic platforms for law enforcement, first responders and search and rescue in the southern half of New Jersey, using jet or piston-powered aircraft present risks associated with aircraft that weigh in the neighborhood of 5,000 to 7,000 pounds or more, carry large quantities of fuel, passengers, and, in some cases, cargo. Such aircraft must fly to and from the survey location.
In contrast, a UX5 weighs less than 6 pounds and is powered by batteries eliminating a portion of that risk given the reduced mass and lack of combustible fuel carried on board. Further, the

UX5 will perform operations for motion picture or television operations, monitor rail line activities, commercial pipeline activities, to conduct it own research and to develop economic platforms for law enforcement, first responders and search and rescue in the southern half of New Jersey location, not flown there; it will carry no passengers and thus will not expose any individuals to the risks associated with manned aircraft flights. Thus, the petitioner states it is in the public interest to grant this petition.

In the past NAAA has stated that the UX5 is designed to operate with pre-programmed GPS guidance and does not require human intervention and according to the application, the aircraft's mission area and routing cannot be changed after launch. NAAA further stated that if an unplanned event occurs, the operator inputs pre-programmed evasive maneuvers into the control unit and asserted that the pilot/operator of the UX5 may become less vigilant and complacent since he or she has no piloting duties to perform during normal flight operations.

Certificate of Waiver or Authorization (COA) to address airspace requirements and notification. Further detail is contained in the analysis of the UAS operating parameters below.
NAAA commented that the UA should have assigned numbers that can be read from a suitable distance to aid in identification when enforcement of flight regulations is required. The FAA partially agrees with NAAA. The UA operated under this exemption will be marked in accordance with 14 CFR part 45 or as otherwise authorized by the FAA. Further detail is contained in the analysis of the UAS below.

The Petitioners analysis is as follows:
Unmanned Aircraft System (UAS)

The petitioner is requesting relief from 14 CFR part 21. In accordance with the statutory criteria provided in Section 333 of P.L. 112-95 in reference to 49 USC § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, T

The petitioner concludes the UX5 aircraft and its operation was subject to a comprehensive safety risk assessment by the FAA in the past, and as part of that process, and it was determined that the UAS could be operated safely subject to certain operating limitations to ensure the safety of persons, property, and other aircraft in the NAS.

These operating limitations prescribed as part of the experimental airworthiness certification process that are appropriate and necessary to ensure safety will be included in the exemption conditions and limitations.

Manned aircraft conducting aerial surveying, monitoring and saftey operations can weigh 5,000 to 7,000 lbs. or more and are operated by an onboard pilot, in addition to other onboard crewmembers, as necessary.

The petitioner's UA will weigh less than 6 lbs. The pilot and crew will be remotely located from the aircraft. The limited weight and construction with impact absorbent materials significantly reduces the potential for harm to persons or damage to property in the event of an incident or accident. The risk to an onboard pilot and crew during an incident or accident is eliminated with the use of a UAS for the aerial surveying operation.

Manned aircraft are at risk of fuel spillage and fire in the event of an incident or accident. The UX5 carries no fuel and therefore the risk of fire following an incident or accident due to fuel spillage is eliminated.

The petitioner's UAS has the capability to operate safely after experiencing certain in-flight contingencies or failures and uses an auto-pilot system to maintain UAS stability and control. The UAS is also able to respond to a loss of GPS or a lost-link event with a pre-coordinated, predictable, automated flight maneuver. These safety features provide an equivalent level of safety compared to a manned aircraft holding a restricted airworthiness certificate performing a similar operation.

The petitioner's represents the Maintenance and Inspection Manual, Safety Checklist, and User Guide contain sufficient information for the preparation and care of UX5 equipment; the petitioner's extensive UX5 flight testing further validates these procedures before the first commercial flight.

Thank you for your consideration,

Scott Aschoff