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

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

August 14, 2015

Exemption No. 12467
Regulatory Docket No. FAA–2015–2210

Mr. Kevin Cowey
Quality Drone and Mapping Services
221 South Home Avenue
Pittsburgh, PA 15202

Dear Mr. Cowey:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

By letter dated February 9, 2015, (posted to regulations on June 10, 2015) you petitioned the Federal Aviation Administration (FAA) on behalf of Quality Drone and Mapping Services (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial data collection.

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 DJI Inspire 1.

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, Quality Drone and Mapping Services 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.

[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, Quality Drone and Mapping Services is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the DJI Inspire 1when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents,

the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

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

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

    The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

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

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

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on August 31, 2017, unless sooner superseded or rescinded.

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

Enclosures

Quality Drone and Mapping Services
221 S Home Ave
Pittsburgh, PA 15202

February 9, 2015

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

To Whom It May Concern:
I, Kevin Cowey, on behalf of Quality Drone and Mapping Services, am writing pursuant to the FAA Modernization and Reform Act of 2012 and the procedures contained within 14 C.F.R. 11, to request that the aforementioned organization may operate a SUAS commercially in airspace regulated by the Federal Aviation Administration.

Drone Capabilities and Public Safety/Interest

The UAV/UAS/UA which Quality Drone and Mapping Services, Petitioner, will be operating is the DJI Inspire 1, referred hereafter as Inspire. The inherent safety features, sophistication, programmability, GPS navigation, return home capability, airport vicinity no—f|y feature and restricted altitude feature, as well as differentiating radio frequency (rf) for aircraft controller/receiver and for the camera make this a UAV particularly safe for the purposes of this petition. This is a hobby grade radio controlled UAV that has the capacity for software upgrades. It is light, less than 6.5 pounds including battery and camera. Incorporated into the programming of the Inspire is an automatic return home feature that automatically directs the craft back to point of take off should communication with the transmitter be lost. The Inspire has a maximum speed of 43 knots. It is designed to operate in less than 20 knot winds, but for safety, stability, and fear of financial loss, the Inspire will not be flown in winds exceeding 16 knots. Maximum flight time is 22 minutes. All flights will be limited to 15 minutes, as a safety precaution. Gross weight is 6.48 pounds. The craft has a gyro-stabilized gimbal and camera system as payload. The UAS will not be operated beyond 400 ft. AGL in order to maximize safe operations within NAS. The Inspire is also to remain 300 ft. from all persons, other than essential operational personnel, during flight operations and will not be operated past the speed of 35 knots. It will be operated within visual line of sight of PIC and visual observer at all times, in order to minimize risk to the NAS or persons and property on the ground. Operations will also require signage in the vicinity of the operational area in order to secure a safe operational space during flight. In the instance that a non-essential or unauthorized person enters the operational space, operations will be immediately terminated in order to minimize risk to persons on the ground (with priority given to those not involved in the Inspire operation). The Inspire has an additional communication link

between the camera and craft on a different rf for a smart phone connection. Allowing the operator or Pilot In Command (PIC) to monitor battery level, altitude (AGL), distance from PIC, camera imagery, and control camera angle.

The software for the Inspire allows the operator or PIC to set maximum altitude AGL for each flight, allowing customization of flights to no higher than 100 feet, 150 feet, or 250 feet AGL as an example. The 400 foot maximum AGL can be programmed into the UAV's DJI Pilot App to insure compliance with FAA standards. Adding to the safety capabilities of this UAV, this UAV is programmed to remain in position when controls are released, maintaining altitude and GPS location.

The Inspire has an altitude monitoring function that allows the operator more precise determination of height, direction of flight and distance from the operator PIC. The operator or PIC can monitor GPS lock status while UAV is in flight, with the ability to anticipate loss of GPS locking so the operator or PIC can land the UAV as a precaution.

The DJI Inspire 1's 2.4 ghz transmitter/controller/receiver rf for managing flight with a 5.8 ghz rf transmitter/receiver for video/photography functions eliminates the rf conflict experienced with other UAS models.

Drone Preflight, Maintenance and Safety of Flight

In order to promote the best interests in protecting persons and public property, a UAV checklist has been drafted in line with the manufacturers recommended operating procedures. Prior to each flight the PIC must execute the pre-flight checklist (as seen below) in accordance with the Inspire 1's User Manual Version V1.1.1 Dated April 4,2014, p. 37, and compliance with operational documents.

UAV Checklist

Preflight

- Arrive on site and make flight terrain and hazards assessment.
- Designate the landing site with cones and "drone in operation" signs.
- Install matched propellers to drone motors.
- Install propeller locks.
- Perform overall drone check.
- Damping absorbers are in good condition, not broken or worn.
- Anti-drop kits have been mounted correctly.
- Camera lens cap has been removed.
- Micro-SD card has been inserted if necessary.
- Gimbal is functioning as normal.
- Initialize drone system, battery packs, and camera gimbal.
- Verify battery status on transmitter.
  1. Transmitter at least 50% for takeoff operation.
- Verify drone battery status.
  1. Minimum drone battery is at least 75% for takeoff.
- Verify battery status on visual device.
  1. Minimum battery is at least 50% for takeoff operation.
- Sensors and compass page.
  1. IMU calibration, xyz and acceleration + - 0.1, z-1, + - 0.1, compass mod 1300-1600
- Verify live camera feed.
- Verify GPS lock on DJI Pilot Application.
- Set return to home point.
- Motors can start and are functioning as normal.

RF Spectrum and FCC Compliance

The DJI Inspire 1's 2.4 ghz transmitter/controller/receiver rf for managing flight with a 5.8 ghz rf transmitter/receiver for video/photography functions eliminates the rf conflict. The UAS system complies with all applicable FCC regulations.

PIC Qualifications and Responsibilities

The PIC shall hold at minimum a private pilot certificate and a third class airman certificate. The PIC shall have accumulated and logged, in a manner consistent with 14 CFR61.51(B), 25 hours of total time as a UAS rotor-craft pilot, including at least 10 hours logged as a UAS pilot with a multi-rotor UAS. The PIC shall also have accumulated and logged a minimum of 5 hours as a UAS pilot operating the same make and model of the UAS to be used for operations under the exemption. The visual observer(VO) must be able to maintain visual line of sight with no assistance beyond corrective lenses. It is the responsibility of the PIC to make the determination for a qualified visual observer and to be aware of VO limitations. Moreover, the VO will not be operating the UAS and therefore does not require a medical certificate.

Medical standards and Certification of PIC

The PIC will be required to hold a third class airman certificate. The visual observer(VO) must be able to maintain visual line of sight with no assistance beyond corrective lenses. It is the responsibility of the PIC to make the determination for a qualified visual observer and to be aware of VO limitations. Moreover, the VO will not be operating the UAS and therefore does not require a medical certificate.

UAS Operations and Assurance of Public Safety

The purpose of this UAS operation will be to create 3D and 2D imagery of construction and developmental worksites, industrial facilities, and commercial properties. The mapping information obtained through this imagery will help engineers, company owners, and developers to perform virtual measurements and assessments to make operations more efficient and allow for safer project assessment on the part of professional staff, with less time on site. The use of a UAS for such operations will eliminate the need for a manned aircraft to gather data as well as the high cost also associated with such an operation. All non-essential flight personnel will be asked to leave the UAS operational area and will be informed of the presence of UAS flight in progress. Both PIC and VO will maintain visual line of sight at all times. For additional safety in maintaining line of sight, the UAS is equipped with a return to home feature. Therefore, every effort will be made to ensure that no threat is posed to those on an active worksite. UAS operations will only be performed in reasonably safe environments that are strictly controlled, away from airports, actively populated areas, and passersby. Flight operations will be conducted within the clearly defined operational borders of the developmental worksite and commercial properties. In addition to the clearly defined premises, a pre-flight safety risk assessment will be conducted before every operation, to determine that the planned operation can be completed safely. Details of the pre-flight safety assessment can be found within page 3 of this document. Currently, the only way to obtain this type of specific imagery is through the use of manned aircraft such as a rotor-craft or fixed wing aircraft. By using a UAS for such operations, a higher level of safety can be achieved for three primary reasons:

- First, the potential loss of life is diminished because a UAS carries no person onboard and will only be operated in specific areas, away from mass populations.
- Second, there is no fuel on-board a UAS, and thus the potential for fire or explosion is greatly diminished.
- Third, the small size and extreme maneuverability allows for greater control on the behalf of the pilot in order to avoid and move away from hazards quickly and safely.

Drone Limitations and Operating Requirements

The maximum proposed operating speed of the Inspire will be 35 knots and the maximum altitude will be 400 ft. AGL. The UAS may not be operated less than 500 ft. below or less than 2000 ft. horizontally from a cloud or when the visibility is less than 3 miles from the PIC. These proposed limitations will provide a level of safety equal to VFR flight.

Area of Intended Operations

The intended operational areas will be construction and developmental worksites, industrial facilities, and commercial properties. Therefore, access to the general public is already restricted which helps to facilitate a safe area of operations. With respect to 14 CFR 91.119, we can comply with each section in the following ways, regarding this UAS waiver request:

- Section A- For the purpose these UAS operations, with respect to power unit failure, an emergency landing will be able to be completed without undue hazards to persons or property on the surface. No waiver is requested, full compliance can be achieved for these UAS operations.
- Section B- These UAS operations will not take place over congested areas of a city, town or settlement, or over any open air assembly of persons. No waiver is requested, full compliance can be achieved for these UAS operations.
- Section C- Quality Drone Services seeks a waiver to allow UAS operation closer than 500 feet in proximity of any persons, vessels, vehicle, or structure. We request that the variance allow Quality Drone Services to conduct operations closer than 500 feet to vehicles, vessels, and structures when the owner/controller of any such vehicles, vessels or structures grants permission for the operator and the PIC makes a safety assessment of the risk of operating closer to those objects and determines that it does not present an undo hazard. With respect to persons, we request variance to allow operations no closer than 300 feet from non-participating persons. We believe this will provide an equivalent level of safety as the existing standard due to the small size and extreme maneuverability of the UAS.

The UAS will be operated outside of 5 nautical miles of an airport reference point, as denoted on a published aeronautical chart, unless written permission is first obtained from any applicable airports, and the airport files a NOTAM describing flight duration and area of operation. Quality Drone Services does not intend to conduct UAS operations that have existing requirement to notify the FSDO.

Request for Exemptions

Quality Drone Services, is requesting waivers that qualify under the following Federal Aviation Regulations. Part 21, §§45.23(b), 61.113(a) and (b), 91.7(a), 91.9(b)(2), 91.103, 91.109, 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a) and (b) of Title 14, Code of Federal Regulations (14 CFR). Quality Drone Services would use these waivers for the use of unmanned aircraft systems (UAS) for the purpose of collection aerial data for various clients requesting services. Such data collecting would include videos, optical registration, and topography.

Part 21 describes the procedural requirements for issuing and changing design approvals, production approvals, airworthiness certificates, and airworthiness approvals in addition to rules governing applicants for, and holders of, any approval or certificate specified in paragraph procedural requirements for the approval of articles.

Section 45.23(b) states 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 station, in letters not less than 2 inches nor more than 6 inches high, the words "limited," "restricted," "light-sport," "experimental," or "provisional," as applicable.

Section 61.113 states 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 91.7(a) states that no person may operate a civil aircraft unless it is in an airworthy condition.

Section 91.9(b)(2) states that the operation of U.S.-registered civil aircraft is prohibited 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 91.103 states that each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight, to include:

(a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;

(b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:

(1) For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein; and

(2) For civil aircraft other than those specified in paragraph (b)(l) of this section, other

reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

Section 91.109 states 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 states 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 of2,000 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 91.121 states that each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "to the elevation of the departure airport or an appropriate altimeter setting available before departure.

Section 91.151(a) states that no person may begin 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.

Section 91.203 states that:

(a) prohibit any person from operating 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 § 4 7.31 (c).

(b) 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 91.405(a) requires 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)(l) prohibits 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) states that no person may operate an 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) and (b) states 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;

(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.

(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.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(l) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service

In conclusion, I would like to take this time to inform you that if there are any issues that deserve further attention to the section 333 proposal for exemptions to contact Quality Drone and Mapping Services personnel at your convenience. Thank you for your time and consideration for our proposal.

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