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

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

July 14, 2015

Exemption No. 12032
Regulatory Docket No. FAA–2015–1206

Mr. Harold R. Brewer
President
Intuitive Research and Technology Corporation
5030 Bradford Drive, NW.
Building 2, Suite 205
Huntsville, AL 35805

Dear Mr. Brewer:

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

By letter dated May 8, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Intuitive Research and Technology Corporation (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct payload research and payload experimentation.

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 are the DJI S800, DJI S900, Tarot 680 PRO, DJI Phantom 2 Vision+.

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, Intuitive Research and Technology Corporation 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

[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.

perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, Intuitive Research and Technology Corporation 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 S800, DJI S900, Tarot 680 PRO, DJI Phantom 2 Vision+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 July 31, 2017, unless sooner superseded or rescinded.

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

Enclosures

INTUITIVE®
Research and Technology

Excellence Since 1999

May 8, 2015

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

To Whom It May Concern:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 C.F.R. Part 11, Intuitive Research and Technology Corporation ("*INTUITIVE*®") an integrator / operator of Unmanned Aircraft Systems ("UAS") for payload research and payload experimentation, hereby applies for an exemption from the Federal Aviation Regulations ("FAR") to allow commercial operation of UAS.

On or about September 25, 2014, the FAA granted exemptions to six UAS operators, including Astraeus Aerial (the "Astraeus Exemption"). As set forth in *INTUITIVE*'s Flight Operations and Procedures Manual (the "FOPM") and Motion Picture Televisions Operations Manual (both submitted separately under 14 CFR 11.35(b)), *INTUITIVE* will adhere to the terms of the Astraeus Exemption.

INTUITIVE's requested exemption would permit the operation of a small unmanned UAS under controlled and "sterile" conditions at a designated closed test site that is: (i) limited, (ii) predetermined, (iii) subject to controlled access, and (iv) provide greater safety in connection with aircraft operations compared to manned rotorcraft. As established by the exemptions already granted by the FAA, approval of *INTUITIVE*'s exemption would enhance safety and fulfill the Secretary of Transportation's (the FAA Administrator's) responsibilities to "...establish requirements for the safe operation of such aircraft in the national airspace system." (Section 333(c) of the Reform Act)

The attached information (Exhibit A and Intuitive Research and Technology Corporation Flight Operations Manual) will give a broader aspect of the request *INTUITIVE* is making. Please consider this a timely matter for execution.

Regards,

Harold R. Brewer
President

INTUITIVE RESEARCH AND TECHNOLOGY CORPORATION
5030 Bradford Drive, NW - Building 2, Suite 205 - Huntsville, Alabama 35805 *(256) 922-9300 - Fax (256) 922-1122*

INTUITIVE®
Research and Technology

Exhibit A

Re: UAS Exemption Request

Regulations from which the exemption is requested:

14 CFR 21
14 CFR 45.23(b)
14 CFR 61.113(a) and (b)
14 CFR 91.103
14 CFR 91.119
14 CFR 91.121
14 CFR 91.151(a)
14 CFR 91.405(a)
14 CFR 407(a)(1)
14 CFR 409(a)(2)
14 CFR 417(a) and (b)

UAS operated by *INTUITIVE* weigh less than 55 pounds, including the payload (i.e. camera, sensor, or experiment). They operate at speed of no more than 50 knots, can hover and simultaneously move vertically and horizontally. *INTUITIVE* will only operate its UAS in line of sight and will operate only within the sterile area described in the FOPM. Such operations will ensure that the UAS will "not create a hazard to users of the national airspace system or the public."

Given the small size of *INTUITIVE*'s UAS and the restricted sterile environment within which they will operate, *INTUITIVE*'s UAS operations adhere to the Reform Act's safety requirements. Additionally, due to the size of the UAS and the limited area in which they will operate, approval of this application presents no national security threats. Based on the substantial level of safety surrounding the proposed operations and the significant public benefit (enhanced safety), reduction in environmental impacts (reduced emissions and noise), the grant of the requested exemption is in the interest of the public. Accordingly, *INTUITIVE* respectfully requests that the FAA grant the requested exemption without delay.

Aircraft and Equivalent Level of Safety

The operating limitations proposed by *INTUITIVE* provide for at least an equivalent or higher level of safety because operations further enhance safety of payload research and payload experimentation using conventional rotorcraft.

- As set forth in the FOPM, the limitations include:
- The UAS will weigh less than 55 pounds.
- Flights will be operated within line of sight of a pilot and observer.
- Maximum flight time for each operational flight will be less than 20 minutes. Flights will be terminated at 25% battery power reserve (or batter limit 2 warning) should that occur prior to the 20 minute limit.

- Flights will be operated at an altitude of no more than 400 feet AGL.
- Minimum crew for each operation will consist of the UAS Pilot, the Visual Observer, and the Payload Operator.
- The UAS Pilot will be an FAA licensed airman with at least a private pilot's certificate and third class medical.
- A UAS pilot will be Pilot in Command (PIC).
- The UAS will only operate within a confined "Sterile Area" as defined in the FOPM.
- The FOPM requires the establishment of a "Security Perimeter" for the flight operations area.
- A briefing will be conducted for planned UAS operations prior to each day's flight. All personnel performing duties within the boundaries of the safety perimeter are required to attend.
- The operator will file a FAA Form 7711-1, or its equivalent, as modified in light of the requested exemption, with the appropriate Flight Standards District Office ("FSDO").
- The operator will obtain consent of all persons involved in the filming and ensure that only consenting persons will be allowed within 100 feet of the flight operation. This radius may be reduced to 30 feet based upon an equivalent level of safety determination, as required under the FOPM. With the advanced permission of the FSDO, operations at closer range can be approved.
- The operator will submit a written Plan of Activities to the FSDO three days before the proposed payload experiment as required in the FOPM.
- The Pilot and observer must be trained in UAS operations and have received current information on the particular UAS to be operated as required by the FOPM.
- The Observer and pilot will at all times be able to communicate by voice.
- Written and/or oral permission from the relevant property holders will be obtained.
- All required permissions and permits will be obtained from territorial, state, county, or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies.
- If the UAS loses communications or loses its GPS signal, the UAS will have the capability to return to a pre-determined location within the Security Perimeter and land.
- The UAS will have the capability to abort a flight in case of unpredicted obstacles or emergencies.

14 CFR §21, Subpart H: Private 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.

The UAS to be operated hereunder is less than 55 lbs. Fully loaded, carries neither a pilot nor passenger, carries no explosive materials or flammable liquid fuels and operates exclusively within a secured area as set out in the FOPM. Unlike other civil aircraft, operations under this exemption will be tightly controlled and monitored by both the operator, pursuant to the FOPM's requirements, and under the requirements and in compliance with local public safety requirements, to provide security for the area of operation as is now done with conventional experimentation. The FAA will have advanced notice of all operations. Application of these same criteria demonstrates that there is no credible threat to national security posed by the UAS, due to its size, speed of operation, location of operation, lack of explosive materials or flammable liquid fuels, and inability to carry a substantial external load.

14 CFR §45.23(b): Marking of the Aircraft

The regulation requires:

> When marks include only the Roman capital letter "N" and the registration number is displayed on limited, restricted, light-sport category aircraft or experimental or provisionally certified aircraft, the operator must also display on that aircraft near each entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches nor more than 6 inches high, the words "limited," "restricted," "light-sport," "experimental," or "provisional," as applicable.

Even though the UAS will have no airworthiness certificate, an exemption may be needed as the UAS will have no entrance to the cabin, cockpit or pilot station on which the word "Experimental" can be placed. Given the size of the UAV, two-inch lettering will be impossible. The words "Experimental" will be placed on the fuselage in compliance with 45.29(f).

The equivalent level of safety will be provided by having the UAV marked on its fuselage as required by 45.29(f) where the pilot, observer, and others working with the UAV will see the identification of the UAS as "Experimental." The FAA has issued the following exemptions to this regulation to Exemptions Nos. 10700, 8738, 10167, and 10167A.

14 CFR §61.113(a) and (b): Private Pilot Privileges and Limitations: Pilot in Command

Sections 61.113 (a) and (b) limit private pilots to non-commercial operations. Because the UAS will not carry a pilot or passenger, 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 a small UAS. Unlike a conventional manned aircraft, a UAS is remotely controlled by a ground-based operator. The operational area is controlled and restricted, and all flights are planned and coordinated in advance. The level of safety exceeds that provided by a single individual holding a commercial pilot's certificate operating a conventional aircraft. The risks associated with the use of a UAS are so diminished from the level of risk associated with commercial operations

contemplated by Part 61 allowing UAS use by a private pilot as the PIC exceeds the present level of safety sought by 14 CFR §61.113(a) and (b).

14 CFR §91.103: Preflight Action

Section 91.103 requires each pilot to preflight an aircraft before flight to ensure the safety of flight. As FAA approved rotorcraft flight manuals will not be used, an exemption is requested. However, an equivalent level of safety will be provided. The PIC will take all actions, including reviewing weather, flight battery requirements, landing and takeoff distances, and aircraft performance data before commencement of flight.

14 CFR §91.119(c): Minimum Safe Altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119 provides, in pertinent part, that:

"except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes: .....

(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."

INTUITIVE requests authority to operate at altitudes only up to 400 AGL an exemption is needed to allow such operations. The UAS will never operate higher than 400 AGL. It will, however, operate in a restricted area within a secure perimeter, where building and people will not be exposed to operations without their pre-obtained consent.

The equivalent level of safety will be achieved given the size, weight, and speed of the UAS as well as the location where it is operated. No flight will be taken without the permission of property owners or local officials. Because of the advanced notice to the property owners and participants in the flight activity, all affected individuals will be informed of the planned flight operations. Compared to flight operations for manned aircraft the lack of flammable fuel, any risk associated with the proposed UAS operations is far less than conventional aircraft operating at or below 500 AGL. In addition, the low-altitude operations of the UAS will ensure separation between the UAS and conventional aircraft.

14 CFR §91.121 Altimeter Settings

Section 91.121 requires each person operating an aircraft to maintain a 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." As a UAS may not have a barometric altimeter but instead a GPS altitude data, an exemption is needed. An equivalent level of safety will be achieved by the operator, pursuant to the FOPM and Safety Check list, confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

14 CFR §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…."

The battery powering the *INTUITIVE* UAS provided approximately 30 minutes of powered flight. In order to meet the 30-minute reserve requirement in 14 CFR §91.515 the UAS flight will be limited to seconds in length. Given the limitations of the UAS's proposed flight area and its proposed operations within a predetermined location, a longer time frame for the flight in daylight VFR condition is reasonable. Furthermore, operating the UAS in a tightly controlled area where only people, property owners, or official representatives who have signed waivers will be allowed, less than 20 minutes of reserve fuel does not endanger the type of risk that 91.151(a) was intended to address.

INTUITIVE believes that safety can be achieved by limiting flights to 20 minutes or 25% (or batter limit 2 warning) of battery power, whichever occurs first. This restriction would be more than adequate to return the UAS to its predetermined landing zone from anywhere in its limited operating area.

INTUITIVE is not seeking an exemption for night-time UAS operations.

14 CFR §91.405(a); 407(a)(1); 409(a)(2) 417(a) and (b): Maintenance Inspections

These regulations require that an aircraft operator or owner shall "have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter…," and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these sections and Part 43 only apply to aircraft with airworthiness certificate, these sections will not apply to *INTUITIVE* operations. Maintenance will be accomplished by the operator. An equivalent level of safety will be achieved because the UAS ware limited in size will carry a small payload and operate only in restricted areas for limited periods of time. If mechanical issues arise, the UAS can land immediately and will be operating from not higher than 400 feet AGL. As provided in the FOPM, the operator will ensure that the UAS is in working order prior to flight, perform any required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the UAS and best suited to maintain it in an airworthy condition.

Summary for Publication

Pursuant to 14 CFR Part 11, the following summary is provided for publication in the Federal Register, should it be determined that publication is needed:

INTUITIVE seeks an exemption from the following rules:

14 CFR §§ 21; 45.23(b); 61.113(a) and (b); 91.103; 91.119(c); 91.121; 91.151(a); 91.405(a); 91.407(a)(1); 91.409(a)(2); and 91.417(a) and (b) to operate a small unmanned vehicle (55 pounds or less) in payload research and payload experimentation operations.

As established by the UAS exemptions already granted by the FAA, allowing commercial operations of UAS in the film and agricultural industry will enhance safety by reducing risk. Conventional film and agricultural operations, using turbine aircraft, operate at low altitudes and present the risks associated with aircraft weighting more than 1,800 pounds and which carry a large amount of Jet A fuel. Such aircraft must fly to and from the payload experiment location. In contrast, a UAS weighting fewer than 55 pounds and powered by batteries eliminates virtually all of that risk given the small size and lack of combustible fuel. The UAS is carried, and not flown, to a payload experimentation location. In this regard, the UAS carries no passengers or crew, therefore, will not expose any individual to the risks associated with manned flights.

The operation of the UAS conducted in the strict conditions outlined in the FOPM will provide an equivalent level of safety supporting the grant of the exemption requested herein. The UAS operates at slow speeds, close to the ground, and in a sterile environment. As a result, they are far safer than conventional operations conducted with turbine helicopters flying near the ground and people.

Privacy

All flights will occur over private land or controlled access areas with the property owner's prior consent and knowledge. Payload experimentation will be only of people who have given their consent 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 2015 (size, weight, speed, operating capabilities, proximity to airports and populated areas and operation within visual line of sight and national security) provide more than adequate justification to grant *INTUITIVE* requested exemption, allowing for *INTUITIVE*'s UAS commercial operations for the payload research and payload experimentation pursuant to the FOPM included here within.

If you have any questions or need additional information, please contact the undersigned at 256-922-9300 x145 or at harold.brewer@irtc-hq.com.

The undersigned grants the information within Exhibit A to be true and accurate.

	Intuitive Research and Technology Corporation: Corporate POC	Intuitive Research and Technology Corporation: Technical POC
Signature:		
Name:	Harold R. Brewer	Alex Clark
Title:	President	Engineer
Date:	5-8-2015	5-8-2015