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

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

August 28, 2015

Exemption No. 12654
Regulatory Docket No. FAA–2015–1590

Mr. Brendan M. Schulman, Esq.
Kramer Levin Naftalis & Frankel LLP
Counsel for RPSearch Services, Inc.
1177 Avenue of the Americas
New York, NY 10036

Dear Mr. Schulman:

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 April 30, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of RPSearch Services, Inc. (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct search and rescue.

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 RP Flight Systems Spectra AP and 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, RPSearch Services, Inc. is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

[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, RPSearch Services, Inc. is hereafter referred to as the operator.

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

1. Operations authorized by this grant of exemption are limited to the RP Flight Systems Spectra AP and DJI Inspire 1 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 August 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Petition for Exemption	)
Pursuant to Pub. Law 112-95 § 333	)
and 14 CFR Part 11	)
concerning Unmanned Aircraft Systems	)
Used for Search and Rescue Purposes	)
and Certificate of Authorization Request	)

PETITION OF RPSEARCH SERVICES, INC. FOR REGULATORY EXEMPTION AND CERTIFICATE OF AUTHORIZATION REQUEST

Dated: April 30, 2015

Filed Electronically

Please address all communications with respect to this Petition to:

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I. Introduction: Search and Rescue

According to the FBI's National Crime Information Center, an average of 1,700 people are reported missing each day in the United States.[1] Many of them are at grave risk in dangerous situations: lost children, stranded hikers, marooned boaters, mentally ill, psychologically troubled or intoxicated individuals, or victims of abduction or other crimes. The sheer number of missing people, combined with the challenges of searching in the vast open areas of our country's geography, overwhelm community groups, families, emergency responders and taxpayer-funded resources. Missing persons have been, and will continue to be, effectively, efficiently, and safely located by aerial imagery of locations of interest, which provides invaluable information to searchers on the ground.

Petitioner RPSearch Services, Inc. ("RPSS") respectfully submits this Petition for Exemption from regulations the FAA considers applicable to the civil operation of unmanned aircraft systems, and that the FAA considered necessary for an operator to be exempted from, for operations concerning search and rescue.[2] The benefits of these operations to the public and to the nation are unquestionable, and safety is assured when they are conducted under the proposed procedures herein by an experienced and knowledgeable operator.

[1] *See NCIC Missing Person and Unidentified Person Statistics for 2013*, http://www.fbi.gov/about-us/cjis/ncic/ncic-missing-person-and-unidentified-person-statistics-for-2013 (last visited May 20, 2014).

[2] Petitioner takes no position with respect to which federal aviation regulations, if any, legally apply to the proposed operations.

II. The Identity and Interests of the Petitioner

Petitioner RPSearch Services, Inc. has been a pioneer in the implementation of protocols and operating procedures for the use of unmanned aircraft systems for search and rescue purposes. Its current designated pilot in command, Eugene Robinson, was the first person to successfully obtain a certificate of waiver or authorization (COA) on behalf of a public operator, (the Wimberly, Texas Fire Deparment), in 2008. Mr. Robinson has lectured across the country concerning the safe and responsible use of UAS during search and rescue operations, including appropriate coordination with incident commanders and local authorities. Mr. Robinson has also served as the designated pilot-in-command for the National Institute for Standards and Technology in its program to use UAS to study wildfires, flying over 70 successful missions without incident under that agency's public aircraft COA.

In September, 2014, the FAA also granted Mr. Robinson an emergency COA via NIST to use its UAS in the search for a missing person in Plano, TX. More recently, Mr. Robinson was granted an emergency COA through the Wimberly Fire Department to conduct a missing-person search operation using a UAS in Baytown, Texas for two missing teenagers. Mr. Robinson has trained law enforcement and first responders in UAS search and rescue procedures, and has successfully used UAS to locate and rescue missing persons, alive, in a foreign country. In short, petitioner is a responsible, successful, safety-conscious UAS operator who will conduct the proposed operations within the parameters set out in the operating procedures and the grant of exemption that is requested.

The name and address of the Petitioner is:

RPSearch Services, Inc.
290 Brunson Lane
Wimberly, TX 78676

Email: texhills@verizon.net

Petitoner requests that communications also be directed to its counsel:

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III. RPSearch's Request Would be in the Public Interest and Benefit the Public as a Whole

The benefit to the public interest of RPSearch's request is unquestionable. Thousands of people go missing each day, and the subsequent search that is conducted for those whose disappearance raise concerns overwhelms taxpayer and community resources. The use of manned aircraft is in many instances more expensive, and more dangerous, than the operations proposed herein. Thus, the operations are of enormous public benefit and, as set out herein, present at least an equivalent level of safety under 14 CFR part 11.

IV. The Unmanned Aircraft Systems

Petitioner intends to operate two models in connection with the operations proposed herein, at or below 400 feet above ground level. The following is a summary of the technical specifications and other considerations of each UAS. Additional documentation from each manufacturer is being submitted as together with this Petition.

Configuration 1

Spectra

Aircraft Type: Spectra AP flying wing
Manufacturer: RPFlightSystems, Inc.
Construction: EPS foam/ABS/composite
Aircraft Empty Weight: 3.3 lbs.
Aircraft RTF AUW: 4.5 – 5.5 lbs.
Propulsion: Electric single propellorr
Power : 5.4AH lithium polymer flight batteries
Onboard electronics: Manual control system RX, flight control system
Optics : (1) still imager, up to (2) video
Launch Type : Hand launch
Landing Type : Skid, net retrieval
Launch Speed : 15 mph
Cruise Speed : 25-34 mph (@ 75% power)
Cruise Speed : 25 mph (@ 50% power)
Landing Speed : 12 mph
Stall : 12 – 18mph (depending upon wing loading)
VNE : 75 mph
Duration : 1 hour (5.4Ah battery, 50% power)

Construction: The Spectra is constructed of foam (expanded polystyrene) wings with internal bracing. Center section may include carbon fiber skeleton and outer skin of vacuformed ABS.

Propulsion: Aircraft utilize brushless, three phase, AC motors. They utilize a switching electronic speed control to provide throttle management.

Hazard mitigation

The Spectra is designed to collect imagery utilizing a lightweight and relatively slow airframe. This reduces the potential for injury by reducing the mass that can be delivered in a small area. These UAS are considered “frangible” in that they will come apart on impact without concentrating force in any vector. They do not use internal combustion motors and do not carry any flammable liquids for operation. The aircraft utilizes a redundant communications fail safe so that that if either the command over-ride link or the telemetry fails, the UAS will abort the mission and return to the launch area.

Demonstrated Capabilities and Prior FAA Approvals

The Spectra was one of the first UAS to receive authorization via a Certificate of Authorization (COA) granted by the FAA for use by a public entity (Hays County, Texas Emergency Management Office), in 2008. See FAA COA 2007-AHQ-25-COA. The COA was renewed a total of two more times during its tenure with the EMO. See 2009-CSA-2-COA and 2010-CSA-28-COA.

Additionally, on behalf of the Emergency Service District #4 of Hays County, Petitioner's PIC assisted the Wimberly Fire department in applying for and receiving a COA for Spectra operations in December of 2014. *See* 2014-CSA-143-COA.

Radio Frequency Spectrum

The Spectra utilizes an FCC-approved command-and-control systems and telemetry downlink operating on the 900 MHz and 2.4 GHz bands.

Configuration 2

DJI Inspire 1

Aircraft Type: Multi-rotor, Inspire 1
Manufacturer: DJI
Construction: Carbon fiber, plastic, aluminum
Aircraft Empty Weight: 3.3 lbs.
Aircraft RTF AUW: 4.5 – 5.5 lbs.
Propulsion: Electric – four two blade propellers
Power : 5.4AH lithium polymer flight batteries
Onboard electronics: Manual control system RX, flight control system
Optics : (1) still imager, up to (1) video video, 2.4/5.8Ghz Lightbridge.
Launch Type : VTOL
Landing Type : VTOL
Launch Speed : 15 mph vertical

Speed Evelope : 15-35 mph
Cruise Speed : 0-25 mph
Landing Speed : 0 mph
Stall : N/A
VNE : N/A
Duration : 15 minutes (typical)

Propulsion

The Inapire 1 utilizes (4) four brushless, three phase, AC motors. These utilize a switching electronic speed control to provide throttle management.

Hazard mitigation

The Inspire 1 is designed to collect its imagery utilizing VTOL capabilities where a fixed wing airplane would have difficulties in either take off or landing. The Inspire 1 is equipped with a return to launch area (RTH) feature. The Inspire 1 does not use internal combustion motors for propulsion and does not carry any flammable liquids for operation. Risk is further mitigated by the Inspire 1's ability to stay aloft while moving slowly, or to hover in place, unlike a fixed-wing UA which must continue lateral motion during flight.

Prior FAA Approvals

The DJI Inspire 1 has been approved for use by the FAA in connection with an exemption for aerial photography for the motion picture and television industry. *See* Exemption Grant No. 11279 (April 1, 2015).

Radio Frequency Spectrum

The Inspire 1 utilizes FCC-approved command-and-control and video systems operating on the 5.8 GHz and 2.4 GHz bands.

V. Flight Safety Operations and Procedures

Petitioner proposes to operate each UAS for the purposes indicated herein pursuant to its Flight Safety Operations and Procedures ("FSOP"). The FSOP was developed over the course of nearly a decade, and is being submitted together with this Petition. The FSOP consists of procedures and standards relating to Personnel Qualifications, Flight Operations and Mission Profiles, Launch and Landing Zones, Preflight, Takeoff and Post-flight Checklists, In-flight Communications, and NIMS (National Incident Management System) / IC Interface, all developed

with an emphasis on the safety of UAS operations. The operation will be conducted by the pilot in command ("PIC") who will maintain visual contact with the UAS during its flight within visual line of sight, while the UAS captures images of the ground for analysis. The UAS will be operated at or below a speed of 35 miles per hour, in Class G airspace at least 5 miles from airports (unless otherwise specifically authorized by FAA). Other operational parameters and various measures taken to ensure public safety are set out in the FSOP.

VI. Summary of Exemptions Sought

RPSearch seeks exemption from the following regulations, to the extent the FAA deems them applicable to the operation of civil UAS for the indicated purposes:

14 CFR Part 21
14 CFR Part 36
14 CFR 45.23(b)
14 CFR 61.3
14 CFR 61.23(a) and (c)
14 CFR 61.101
14 CFR 61.113 (a) & (b)
14 CFR 61.315
14 CFR. 91.7 (a)
14 CFR 91.9 (b) (2)
14 CFR 91.103
14 CFR 91.105
14 CFR 91.109
14 CFR 91.119
14 CFR 91.121
14 CFR 91.151 (a)
14 CFR 91.203 (a) & (b)
14 CFR 91.405 (a)
14 CFR 91.407 (a) (1)
14 CFR 91.409 (a) (2); and
14 CPR 91.417 (a) & (b)

VII. The Specific Exemptions Sought and Reasons

A. 14 CFR Part 21 and 14 CFR Part 36

Petitioner seeks relief from 14 CFR part 21 concerning airworthiness certificates, as well as any associated noise testing requirements of part 36, with respect to the UAS identified in Section IV. As set out herein, the size, weight, speed, operational capability, visual line-of-sight operation, and intended operating area of these UAS meet the conditions of FMRA Section 333. Moreover, the proposed operations, conducted pursuant to the RPSS FSOP, present an equivalent level of safety or better. An exemption ought to be granted or, in the alternative, a finding made that relief from parts 21 and 36 are not necessary for Petitioner's intended operation. (*See, e.g.*, Grant of Exemption No. 11282, Docket. No. FAA-2014-0977 (April 6, 2015), finding that such an exemption is "not necessary.")

B. 14 CFR 45.23(b)

Petitioner seeks relief from 14 CFR 45.23(b) concerning aircraft markings, to the extent such relief is necessary. Given the size of the UAS, its operation within visual line of sight of the operator, and other factors, such an exemption is warranted. Petitioner will, if required, mark each UAS with the word "RESTRICTED" in lettering as large as practicable. However, Petitioner notes that because its UAS's will not be certificated under § 21.185, such marking is not actually required, and therefore Petitioner alternatively requests a finding confirming same.

C. 14 CFR 61.23(a) & (c), 14 CFR 61.101, 14 CFR 61.113 (a) & (b), and 14 CFR 61.315

Petitioner seeks relief from 14 CFR 61.101 concerning limitations on recreational pilot privileges, 14 CFR 61.113(a) and (b) concerning limitations on private pilot privileges, and 14 CFR 61.315 concerning limitations on sport pilot privileges, together with an exemption from 14 CFR 61.23(a) concerning medical certificates. The RPSS FSOP establishes a level of safety exceeded by that provided by a commercial pilot's certificate in the operation of a passenger aircraft. The UAS intended to be operated do not carry any person and therefore present an equivalent or better level of safety compared to manned aircraft operations. Although RPSS's current FSOP does not strictly require a pilot certificate, Petitioner's current designated pilot in command, Mr. Robinson, holds a private pilot's certificate, and Petitioner will accept as a condition of an exemption that the operator hold either a recreational, sport pilot or private pilot certificate. With respect to medical certification, 14 CFR 61.23(a), Petitioner proposes that the PIC hold either 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.

D. 14 CFR 91.7(a)

Petitioner seeks relief from 14 CFR 91.7(a) concerning civil aircraft airworthiness. Given the size of the UAS, its operation within visual line of sight of the operator, and other factors providing an equivalent level of safety, such an exemption is warranted. Moreover, because petitioner proposes that no airworthiness certificate be issued for the UASs to be operated under this exemption, § 91.7(a) is inapplicable. Therefore, in the alternative, Petitioner requests a determination that an exemption from § 91.7(a) is not necessary.

E. 14 CFR 91.9(b)(2)

Petitioner seeks relief from 14 CFR 91.91(b)(2) concerning flight manuals and placard requirements. Because all persons involved in the operation will be on the ground, not on board the UAS, such an exemption is clearly warranted. Moreover, the FAA determined in an August 8, 2014 legal interpretation that keeping such documentation at the control station, as Petitioner intends to, meets the requirements under these regulations and therefore an exemption is not necessary. *See* Memorandum from Mark. W. Bury to John Duncan, "Interpretation regarding whether certain required documents may be kept at an unmanned aircraft's control station" (August 8, 2014).[3]

F. 14 CFR 91.103

Petitioner seeks relief from 14 CFR 91.103 concerning preflight action, and particularly that portion of the regulation concerning FAA-approved flight manuals (which do not exist). Petitioners' pre-flight actions concerning UAS operations are set out in its FSOP, reflect that the pilot in command will "become familiar with all available information" concerning the proposed flight, and therefore present an equivalent or better level of safety. Given the size of the UAS, its operation within visual line of sight of the operator, and other factors, such an exemption is warranted. Alternatively, given that Petitioner will account for all relevant site-specific conditions in its preflight procedures, Petitioner asks for a finding that an exemption from § 91.103 is not necessary for the intended operation.

[3] A*vailable at* https://www.faa.gov/about/office_org/headquarters_offices/agc/pol_adjudication/agc200/interpretations/data/interps/2014/Duncan-AFS-1-2%20-%20%282014%29%20Legal%20Interpretation.pdf

G. 14 CFR 91.105

Petitioner seeks relief from 14 CFR 91.105 concerning "Flight crewmembers at stations" and seat belt/harness fastening. Because there is no crew on board the UAS, and persons involved in the operations will be present at the UAS ground station pursuant to the FSOP, Petitioner believes that such an exemption is warranted due to Petitioner's FSOP providing an equivalent level of safety, or alternatively that an exemption is not necessary for the operation. Although it does not appear that the FAA has addressed § 91.105 in various Section 333 UAS exemptions granted to date, we note that § 91.105 is listed in the FAA's Public Guidance document as a regulation from which an exemption may be required (Rev. 9/25/2014 at page 7).[4] Petitioner therefore requests either an exemption or an acknowledgement that an exemption is not necessary.

H. 14 CFR 91.109

Petitioner seeks relief from 14 CFR 91.109 concerning flight instruction and dual controls. Petitioner will evaluate the qualifications of its PICs based on their experience and capabilities with the UAS to be operated, as set out in the FSOP Section I ("Personnel Qualifications"). Moreover, as each PIC will have previously been qualified by the FAA as a certificated recreational, sport, or private pilot, the operations proposed herein may be conducted without an exemption from § 91.109 being required. Thus, Petitioner requests either an exemption or confirmation that none is required.

[4] *Available at* https://www.faa.gov/uas/legislative_programs/section_333/how_to_file_a_petition/media/section333_public_guidance.pdf).

I. 14 CFR 91.119

Petitioner seeks relief from 14 CFR 91.119 concerning minimum safe altitudes. Each UAS will be operated no higher than 400 feet above ground level, and, under the FSOP, safe alternative landing and "abort site" locations will be selected in advance of each flight, in compliance with 14 CFR 91.119(a) which permits operations "[a]nywhere."

With respect to the balance of § 91.119 concerning minimum altitudes, Petitioner proposes to conduct operations *at least* 50 feet from non-essential or non-participating persons, and prior to each operation the PIC will make a safety assessment of the risk of operating within the proximity of structures, vehicles and vessels. Petitioner believes that given the size, weight and speed of the UAS to be operated, these parameters in the FSOP present an equivalent level of safety compared to the 500 foot minimum safe altitude of a manned aircraft set out in § 91.119(c).

Petitioner is aware that in prior UAS exemption grants, the FAA has included as an operating condition a 500-foot minimum distance separation from uninvolved persons. Petitioner hereby requests the FAA either to raise the maximum operational altitude under RPSS's proposed exemption to 500 feet above ground level (from the typical 400 feet), or, *preferably*, to reduce the required distance separation from uninvolved persons to no greater than 400 feet, so that Petitioner's UAS, when in operation, may pass above persons in the operational area. (In Petitioner's experience, the requested minimum separation parameter of 50 feet provides a very high level of safety.) In consideration of the benefits of, and strong public interest in, the proposed operations, which are potentially life-saving, this request ought to be granted, and would not adversely affect safety.

J. 14 CFR 91.121

Petitioner seeks relief from 14 CFR 91.121 concerning altimeter settings. Petitioner's UAS will utilize a GPS altitude read-out, set to zero at the ground elevation of the departure location, thus indicating to the operator the operational altitude in feet above ground level. This approach will provide an equivalent level of safety.

K. 14 CFR 91.151

Petitioner seeks relief from 14 CFR 91.151 concerning fuel requirements. The Petitioner's Configuration 1 uses the Spectra UAS airplane equipped with 5.4 Ah lithium polymer flight batteries. Petitioner's flight duration under its FSOP is 30 minutes or less, which results in approximately 50% of the battery power remaining at landing. Petitioner's Configuration 2 uses the DJI Inspire 1 battery-powered multi-rotor-craft which has an automated readout of remaining battery power at the ground station and will automatically initiate a return to launch and landing when the battery is low. Petitioner will land the Inspire 1 when the battery is at or above 50% capacity. In both configurations, an equivalent level of safety is achieved, in particular because each UAS is operated within visual line of sight, can be landed within moments of a low-battery condition, and the UAS never has the need to travel any significant distance to an alternate airport or landing area.

L. 14 CFR 91.203(a) and (b)

Petitioner seeks relief from 14 CFR 91.203(a) and (b) concerning airworthiness certificates. Each of the UAS to be operated weighs under 6 pounds, and will be operated within visual line of sight, pursuant to the RPSS FSOP, by a knowledgeable certificated operator. An

exemption from airworthiness certification is warranted pursuant to Section 333 of FMRA in consideration of the weight, size, speed, and operational capabilities of the Petitioner's UAS.

M. 14 CFR 91.405(a)
14 CFR 91.407 (a) (1)
14 CFR 91.409 (a) (2); and
14 CPR 91.417 (a) & (b)

Petitioner seeks relief from 14 CFR 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417 (a) and (b), concerning maintenance inspections. Petitioner proposes to maintain each UAS in accordance with the manufacturer's suggested maintenance procedures, and to conduct preflight inspections in accordance with the FSOP for each operation. This approach provides an equivalent level of safety with respect to the operational condition of the UAS. Moreover, the UAS are not contemplated to have an airworthiness certificate, and therefore no exemption is needed with respect to maintenance requirements arising from airworthiness certificates.

N. Other Exemptions

Petitioner requests relief from any other federal aviation regulation that the FAA deems applicable to and preclusive of the proposed UAS search and rescue operations in the absence of such an exemption.

VIII. Request for Blanket COA

Petitioner hereby requests a blanket, nationwide Certificate of Waiver or Authorization for airspace use within Class G airspace, at or below 400 feet. The need for a blanket COA for Petitioner's proposed operation (or an exemption from the need to obtain one) is self-evident. Unlike other pre-planned small UAS operations (such as aerial cinematography, agriculture, or industrial inspection), search and rescue requires an operational response on little or

no notice, and minutes can literally make a difference between life and death. We understand that the typical holder of a Section 333 exemption waits approximately three weeks in order to receive a COA after the request is made, a timeframe that obviously is unworkable for search and rescue operations.

FMRA Section 333 directly contemplates that a certificate of waiver or authorization is not necessarily required for the operation of civil UAS. It provides that in making a Section 333 determination concerning operation of unmanned aircraft systems, "the Secretary shall determine . . . . *whether* a certificate of waiver, certificate of authorization, or airworthiness certification under section 44704 of title 49, United States Code, *is required* for the operation of unmanned aircraft systems." FMRA Section 333(b) (emphasis added). By using the word "whether," Congress specifically contemplated that a COA would not necessarily be required for any civil operation. Therefore, the FAA has the authority to either exempt Petitioner from the need to obtain a COA, or to issue to Petitioner a standing blanket COA that is suited for the contemplated search and rescue operations.

In the past year, Petitioner's PIC Eugene Robinson has twice had the experience of seeking an emergency COA from the FAA. Although the FAA's staff was prompt and courteous each time, the emergency COA took many hours to issue, resulting in the loss of more than an entire operational day. (UAS flights are conducted during daylight hours only, thus a delay of even an hour or two can cause the aerial search to be delayed 12 hours until dawn the next day).

As an illustration of the difficulties inherent in trying to obtain specific COA approval for each search and rescue operation on an expedited basis, Petitioner sets out herein the details of a recent experience involving its PIC Eugene Robinson. In February 2015, Mr.

Robinson was contacted in connection with a requested search for two missing teenagers in the Baytown, Texas area and the proposition that the UAS operated under COA by the Wimberly Fire Department be used to assist. Mr. Robinson contacted Dallas Flight Standards District Office at 2130 hrs Central Time on February 26 to request emergency COA approval via an amendment to the existing Wimberly Fire Department UAS COA. He was referred to FAA Operations Center in Washington, D.C. The representative at Operations Center, in turn, referred Mr. Robinson to the FAA UAS Intergration Office (UAIO). The representative at UAIO indicated that Air Traffic Organization and Flight Standards would need to be contacted for approval. At 2240 hrs Central Time, Mr. Robinson was told by the UAIO representative that nothing more could be done concerning approval until the next morning, thus precluding a planned roll-out for an operation at dawn.

At 0715 hrs on February 27, Ft. Worth FSDO contact Mr. Robinson and advised that documentation would be required from the fire department whose COA would be amended for the emergency. That documentation was provided to FAA 15 minutes later, at 0730 hrs. Mr. Robinson did not receive word back from UAIO until 1445 hrs that the emergency COA would be approved. Mr. Robinson then began the process of initiating a NOTAM, which involved various discussions with Houston TRACON, which discussions continued into the following morning, concluding at 0835 hrs.

The actual search operation using the UAS commenced at 1025 hrs Central Time on February 28. Thus, rather than a planned search start time at 0600 hrs on the morning of February 27, the operation was delayed over 28 hours, until mid-morning on *February 28*, due to the protracted COA approval process, and even though it was acknowledged by the FAA that the

situation was an emergency. This does not appear to be an atypical timeframe for the process. In a prior emergency COA approval concerning a missing-persons search conducted in Plano Texas in September 2014, it similarly took approximately 22 hours for the emergency COA to be issued after the request was made by Mr. Robinson. Petitioner respectfully submits that a standing COA granted for search and rescue operations is overwhelmingly in the public interest because it will enable life-saving operations to commence sooner, and reduce the administrative burden on the FAA itself.

The FAA has recently indicated that holders of UAS exemptions under Section 333 are now granted a "blanket" COA for any operation up to 200 feet AGL. *See* March 20, 2015 Memorandum from Elizabeth L. Ray to Terry Biggio, "Small Unmanned Aircraft Systems Operations in the National Airspace System." However, this streamlined (or so-called "blanket") COA apparently still requires the operator to issue a Notice to Airmen (NOTAM) "at least 24 hours prior to the proposed operation." *Id*. In many instances Petitioner expects to be called upon with less than 24 hours' notice. Petitioner requests that its blanket COA issued in connection with the requested exemption require only that Petitioner issue a NOTAM "as far in advance of operations as practicable," with no specific minimum notice provision.

Additionally, Petitioner's FSOP and equipment are optimized for search and rescue from an operational altitude of just below 400 feet AGL. The 200 feet AGL in the "blanket" COA is too low an altitude for these operations. Without a streamlined COA at an altitude higher than 200 feet, Petitioner will be waiting days (or weeks) for a civil COA just to be able to operate at a modestly higher altitude, rendering the exemption potentially unworkable. Petitioner requests a streamlined COA for the highest altitude the FAA will permit, ideally 400 feet AGL.

An equivalent level of safety is established for these blanket COA parameters because, currently, operations of this kind are permitted by FAA by recreational model aircraft operators without any COA or NOTAM requirements. Moreover, Petitioner's operations are subject to NIMS protocols and coordination with Incident Command and other first responders, who will be aware of air traffic in the area. Therefore, unlike commercial UAS operations undertaken for industrial purposes, added layers of safety exist. All of these factors support the issuance of a streamlined or "blanket" COA for Petitioner RPSearch Services in Class G airspace up to 400 feet above ground level, or a determination pursuant to FMRA Section 333(b) that a COA is not required for Petitioner's search and rescue operations.

IX. A Summary That Can Be Published In The Federal Register:

The following is a summary that may be included in the Federal Register, should the FAA determine that publication of such a summary is required:

> *Petitioner RPSearch Services, Inc. seeks an exemption pursuant to Pub. L. 95-112 Section 333 and part 11 for the operation of unmanned aircraft systems for purposes of search and rescue. The benefit to the public interest of such an exemption is unquestionable. Thousands of people go missing each day, and the subsequent search overwhelms taxpayer and community resources. The use of manned aircraft is in many instances more expensive, and more dangerous, than the operations proposed herein. Thus, the operations are of enormous public benefit.*
>
> *Petitioner's operations will be conducted at or below 400 feet above ground level, within the visual line of sight of the operator, who will be a certificated airman with a sport, recreational or private pilot's certificate, and pursuant to a detailed Flight Safety Operations and Procedures manual.*
>
> *Petitioner seeks exemption from 14 CFR Part 21, 14 CFR Part 36, 14 CFR 45.23(b), 14 CFR 61.3, 14 CFR 61.23(a) & (c), 14 CFR 61.101, 14 CFR 61.113 (a) & (b), 14 CFR 61.315, 14 CFR. 91.7 (a), 14 CFR 91.9 (b) (2), 14 CFR 91.103, 14 CFR 91.105, 14 CFR 91.109, 14 CFR 91.119, 14 CFR 91.121, 14 CFR 91.151 (a), 14 CFR 91.203 (a) & (b), 14 CFR 91.405 (a), 14 CFR 91.407 (a) (1), 14 CFR 91.409 (a) (2).; and 14 CPR 91.417 (a) & (b).*

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Respectfully submitted,

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Enclosures (filed electronically):

1. Flight Safety Operations and Procedures

2. Spectra technical specifications sheet

3. DJI Inspire 1 User Manual, Safety Guidelines, Maintenance Manual, and Battery Safety Information