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

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

April 2, 2015

Exemption No. 11268
Regulatory Docket No. FAA−2014−0942

Mr. Jonathan B. Hill
Counsel for HUVRData, LLC
Cooley, LLC
1299 Pennsylvania Avenue, NW Suite 700
Washington, DC 20004

Dear Mr. Hill:

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.

**The Basis for Our Decision**

By letter dated November 7, 2014, you petitioned the Federal Aviation Administration (FAA) on behalf of HUVRData, LLC (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial imaging for 1) wind farm survey; 2) solar farm survey; 3) inspection of industrial infrastructure including electrical towers, flare stacks and pipelines; and 4) precision agriculture.

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 an AscTec (Ascending Technologies) Falcon 8.

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 relief from 14 CFR part 21, C*ertification 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. 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, HUVRData, LLC is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

**Conditions and Limitations**

In this grant of exemption, HUVRData, LLC 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 AscTec (Ascending Technologies) Falcon 8 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 Colombia, 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 April 30, 2017, unless sooner superseded or rescinded.

Sincerely,

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

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November 7, 2014

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

Re: Exemption Request Pursuant to Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations from 14 C.F.R. 61.113(a) & (b); 91.119(c); 91.151(a); 91.405(a); 91.407(a)(1); 91.409(a)(2);91.417(a) & (b).

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 C.F.R. Part 11, HUVRData LLC, ("HUVRData") operator of Small Unmanned Aircraft Systems ("sUASs") equipped to conduct aerial photography for 1) wind farm survey; 2) solar farm survey; and 3) inspection of industrial infrastructure including electrical towers, flare stacks and pipelines; 4) precision agricultural work (hereinafter "the Purpose"), hereby applies for an exemption from the listed Federal Aviation Regulations ("FARs") to allow commercial operation of its sUASs, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA in an exemption granted under either Section 333 or Section 49 U.S.C. § 44701(f).

HUVRData has set forth conditions herein that are in all cases consistent with or exceed the equivalent level of safety set forth in Exemption 11062 and the related exemptions issued to operators for scripted closed set filming for the motion picture and television industry.

As described more fully below, the requested exemption would permit the operation of small, unmanned and relatively inexpensive sUAS under controlled conditions in airspace that is 1) limited, 2) predetermined, 3) controlled as to access, and 4) would provide safety enhancements to the already safe operations in the fields in which it will operate, presently using conventional aircraft or humans climbing high and dangerous structures. Approval of this exemption would thereby enhance safety and fulfill the Secretary of Transportation's (the FAA Administrator's) responsibilities to "…establish requirements for the safe operation of such aircraft systems in the national airspace system." Section 333(c) of the Reform Act.

The name and address of the applicant is:

HUVRData, LLC
3736 Bee Cave Road, Suite 1-251
Austin, Texas 78746
Attn: Robert Baughmam

Ph: 512-633-6448

Regulations from which the exemption is requested:

14 C.F.R. 61.113(a) & (b)
14 C.F.R. 91.119
14 C.F.R. 91.151(a)
14 C.F.R. 91.405(a)
14 C.F.R. 407(a)(1)
14 C.F.R. 409(a)(2)
14 C.F.R. 417(a) & (b)

This exemption application is expressly submitted to fulfill Congress' goal in passing Section 333(a) through (c) of the Reform Act. This law directs the Secretary of Transportation to consider whether certain unmanned aircraft systems may operate safely in the national airspace system (NAS) before completion of the rulemaking required under Section 332 of the Reform Act. In making this determination, the Secretary is required to determine which types of UASs do not create a hazard to users of the NAS or the public or pose a threat to national security in light of the following:

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

Reform Act § 333(b). Lastly, if the Secretary determines that such vehicles "may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft in the national airspace system." *Id. at* § 333(c) (emphasis added).[1]

The Federal Aviation Act, in addition to the authority granted by Section 333 of Reform Act, expressly grants the FAA the authority to issue exemptions. This statutory authority by its terms includes exempting civil aircraft, as the term is defined under Section 40101 of the Act, which includes sUASs, from the requirement that all civil aircraft must have a current airworthiness certificate.

The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of Section 333 or any Sections 44702-44716 of the Transportation Act if the Administrator finds the exemption in the public interest. 49 U.S.C. § 44701(f). *See also* 49 U.S.C. § 44711(a); 49 U.S.C. § 44704; 14 C.F.R. § 91.203(a)(1). This authority to grant exemptions reaches such issues as authorization of commercial operation of aircraft without a pilot's license.

[1] Applicant interprets this provision to place the duty on the Administrator to not only process applications for exemptions under section 333, but for the Administrator to craft conditions for the safe operation of the UAS, if it should be determined that the conditions set forth herein do not fulfill the statutory requirements for approval.

HUVRData is a data analytics company that will provide aerial imaging and analysis for wind farm surveys, solar surveys, industrial inspection of oil and gas, electrical and pipeline systems and precision agriculture. HUVRData's sUASs are rotorcraft (eight rotors), weighing 25 or fewer lbs. including payload. They operate, under normal conditions at a speed of no more than 35 knots and have the capability to hover and move in the vertical and horizontal plane simultaneously. They will operate at altitudes of no more than 400 feet AGL, as further explained, and only in line of sight. They will operate only within the areas that have been pre-approved by the land owners and their customers as set forth in HUVRData UAS Operations Manual, attached as Exhibit 1 (hereinafter "the Manual"). Also attached and made a part hereof is HUVRData UAS Aircraft Flight Manual (Exhibit 2) and Manufactures Manual (Exhibit 3). [2] Operations in compliance with these manuals will insure that the sUAS will "not create a hazard to users of the national airspace system or the public"[3] and that the aircraft will operate in compliance with the conditions set forth in this application. The Manual sets forth in sections 4 and 7 the steps that will be taken to provide a secure area of operation for each flight.

Given the small size of the sUASs involved and the restricted environment within which they will operate, the applicant falls squarely within that zone of safety (an equivalent level of safety) in which Congress envisioned that the FAA must, by exemption, allow commercial operations of UASs to commence immediately. Also due to the size of the sUASs, the restricted areas in which the relevant sUASs will operate, and the fact that aircraft will be flown by pilots holding at least a FAA private pilot license, approval of the application presents no national security issue. Given the clear direction in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, as amended, the strong equivalent level of safety surrounding the proposed operations, and the significant public benefits, including enhanced safety, reduction in environmental impacts, reduced emissions associated with allowing battery powered sUASs for these functions instead of turbine or gas power aircraft/rotorcraft, and operations with pilots having at least a private pilot license, the grant of the requested exemptions is in the public interest. This exemption request exceeds the equivalent level of safety found in Exemption 11062 as all conditions of that exemption are met or exceeded as set forth herein. Accordingly, the applicant respectfully requests that the FAA grant the requested exemption without delay.

AIRCRAFT AND EQUIVALENT LEVEL OF SAFETY

The applicant proposes that the exemption requested herein apply to civil aircraft that have the characteristics and that operate with the limitations listed herein. These limitations provide for at least an equivalent or even higher level of safety to operations under the current regulatory structure because the proposed operations represent a safety enhancement to the

[2] Applicant submits these Manuals marked as "CONFIDENTIAL," as they contain proprietary business information that is not released to the public and is protected under the Freedom of Information Act 5 U.S.C. § 553, et seq.
[3] Reform Act, Section 333(b).

operations conducted with conventional aircraft or with humans climbing up and around structures[4].

These limitations and conditions to which HUVRData agrees to be bound when conducting commercial operations under an FAA issued exemption include:

1. The UAS must weigh less than 25lbs., including energy source(s) and equipment. Operations will be limited to the aircraft described in the proprietary Manual.

2. The UAS may not be flown at a speed exceeding a ground speed of 35 knots.

3. Flights must be operated at an altitude of no more than 400 feet above ground level (AGL) except as set forth in section 8.1.1.8.1 of the Manual. Operator will obtain advanced approval from the FAA prior to any operation involving a structure higher than 400AGL. Operator will at all times operate no more than 50 feet above such a structure. All altitudes reported to ATC must be in feet AGL.

4. The UAS 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 medical certificate.

5. All operations must utilize a visual observer (VO). 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.

6. The operator will be bound by and follow the Manual as approved by the FAA. Any additional requirements identified in the final conditions for this Exemption will be added to the Manual. The Manual will be maintained and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in the final exemption and the procedures outlined in the Manual, the conditions and limitations of the Exemption will take precedence and will be followed. Otherwise, the operator will follow the procedures as outlined in its Manual.

7. The operator will update or revise its Manual. It will be the operator's responsibility to track such revisions and present updated and revised documents to the Administrator upon request. The operator will also present updated and revised documents if it petitions for extension or amendment. If the operator determines that any update or revision would affect the basis for which the FAA granted this exemption, then the operator will petition for amendment to their exemption. The operator will contact the FAA's UAS Integration Office (AFS-80) with questions that may arise regarding updates or revisions to the Manual.

8. Prior to each flight, the PIC will inspect the UAS to ensure it is in a condition for safe flight. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft will

[4] These conditions are drawn from Exemption 11062 through 11067 and 11080.

not operate until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight. The Ground Control Station, if utilized, will be included in the preflight inspection. All maintenance and alterations will be properly documented in the aircraft records.

9. 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 in accordance with the Manual. The PIC who conducts the functional test flight must make an entry in the UAS aircraft records of the flight. The requirements and procedures for a functional test flight and aircraft record entry must be added to the Manual.

10. The operator will follow the manufacturer's UAS aircraft/component, maintenance, overhaul, replacement, inspection, and life limit requirements. When unavailable, aircraft maintenance/component/overhaul, replacement, and inspection/maintenance requirements will be established and identified in the Manual. At a minimum, the following must be included in the Manual:

    a. Actuators / Servos
    b. Transmission (single rotor)
    c. Powerplant (motors)
    d. Propellers
    e. Electronic speed controller
    f. Batteries
    g. Mechanical dynamic components (single rotor)
    h. Remote command and control
    i. Ground control station (if used)
    j. Any other components as determined by the operator

11. The PIC will possess at least a private pilot certificate and at least a current third-class medical certificate. The PIC will also meet the flight review requirements specified in 14 C.F.R. § 61.56 in an aircraft in which the PIC is rated on his/her pilot certificate.

12. Prior to operations conducted for the Purpose, the PIC will have accumulated and logged, in a manner consistent with 14 C.F.R. § 61.51(b), a minimum of 200 flight cycles and 25 hours of total time as a UAS rotorcraft pilot and at least ten hours logged as a UAS pilot with a similar UAS type (single blade or multirotor). Prior documented flight experience that was obtained in compliance with applicable regulations will be used to satisfy this requirement. Training, proficiency, and experience-building flights may also be conducted under this grant of exemption to accomplish the required flight cycles and flight time. During training, proficiency, and experience-building flights, all persons not essential for flight operations will be considered non-participants, and the PIC will operate the UA with appropriate distance from non-participants in accordance with 14 C.F.R. § 91.119.

13. Prior to any flight operations authorized by a grant of exemption, the PIC and VO will have successfully completed a qualification process, as outlined in the Manual. The test will be

developed and implemented by a qualified person designated at the sole discretion of the operator. A record of completion of this qualification process will be documented and made available to the Administrator upon request.

14. Prior to operations conducted for the Purpose, a flight demonstration, administered by an operator-approved and -qualified pilot will be successfully completed and documented. This documentation will be available for review upon request by the Administrator. Because the knowledge and airmanship test qualifications will be developed by the operator, and there are no established practical test standards that support a jurisdictional FAA Flight Standards District Office (FSDO) evaluation and approval of company designated examiners, the Operator will conduct these tests in accordance with the Manual.

15. The UAS will not be operated directly over any person, except authorized and consenting personnel necessary for the Purpose, below an altitude that is hazardous to persons or property on the surface in the event of a UAS failure or emergency.

16. Regarding the distance from participating persons, the Manual establishes safety mitigations for authorized and consenting personnel. At all times, those persons must be essential to the Purpose.

17. Regarding distance from non-participating persons, the operator will ensure that no persons are allowed within 500 feet of the area except those consenting to be involved and necessary for the Purpose.

18. If the UAS loses communications or loses its Global Positioning System (GPS) signal, the UAS will be programmed to return to a pre-determined location within the security perimeter and land or be recovered in accordance with the Manual.

19. The UAS will abort the flight in the event of unpredicted obstacles or emergencies in accordance with the Manual.

20. Each UAS operation will be completed within 30 minutes flight time or with 25% battery power remaining, whichever occurs first.

21. The operator will obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under an exemption. The operator will request a Notice to Airman (NOTAM) not more than 72 hours in advance, but not less than 48 hours prior to the operation.

22. All aircraft operated in accordance with this exemption will be identified by serial number, registered in accordance with 14 C.F.R. Part 47, and have identification (N- Number) markings in accordance with 14 C.F.R. Part 45, subpt. C. Markings will be as large as practicable.

23. The operator will develop procedures to document and maintain a record of the UAS maintenance, preventative maintenance, alterations, status of replacement/overhaul component parts, and the total time in service of the UAS. These procedures will be added to the Manual.

24. Each UAS operated under this exemption will comply with all manufacturer Safety Bulletins.

25. Before conducting operations, the radio frequency spectrum used for operation and control of the UA will comply with the Federal Communications Commission (FCC) or other appropriate government oversight agency requirements.

26. The documents required under 14 C.F.R. §§ 91.9 and 91.203 will be available to the PIC at the ground control station of the UAS any time the aircraft is operating. These documents will be made available to the Administrator or any law enforcement official upon request.

27. The UAS will remain clear and yield the right of way to all other manned operations and activities at all times (including, but not limited to, ultralight vehicles, parachute activities, parasailing activities, hang gliders, etc.).

28. UAS operations will not be conducted during night, as defined in 14 C.F.R. § 1.1. All operations will be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) will not be undertaken.

29. The UAS will not be operated by the PIC from any moving device or vehicle.

30. The UA will 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.

31. The UA will not operate in Class B, C, or D airspace without written approval from the FAA. The UA will not operate within 5 nautical miles of the geographic center of a non- towered airport as denoted on a current FAA-published aeronautical chart unless a letter of agreement with that airport's management is obtained, and the operation is conducted in accordance with a NOTAM as required by the operator's COA. The letter of agreement with the airport management will be made available to the Administrator upon request.

32. Any 1) incident, 2) accident, or 3) flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA will be reported to the Federal Aviation Administration's (FAA) UAS Integration Office (AFS-80) within 24 hours. Accidents will be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov. Further flight operations will not be conducted until the incident, accident, or transgression is reviewed by AFS-80 and authorization to resume operations is provided.

Specific Uses

HuvrData proposed use of its UAS provided equivalent or augmented levels of safety for each of the uses proposed herein:

Wind Farms Use of UAS eliminates the human safety risk of manually inspecting the wind turbines, which is predominately accomplished through the use of ropes, and also reduces the downtime of wind turbines under inspection, thereby increasing the efficiency of Clean Power Generation. Each turbine is flown individually, there will be no flights between each turbine, and the sUAS is carried by truck to the next turbine.

Solar Use of UAS eliminates the need for low altitude flyovers with commercial helicopters and fixed wing aircraft, both of which carry passengers and large amounts of flammable fuels. These large aircraft are flown to the sight whereas the sUAS will be transported via ground transportation to the sight, thus limiting the exposure associated with flying to and from the inspection site. The use of sUASs will increase the efficiency of the solar farm, driving down the cost of solar generated power.

Industrial Inspection Use of UAS eliminates the need for low altitude flyovers with commercial helicopters for flare stack and industrial inspections, including power line towers and pipe lines. The present system exposes not only those in the immediate area to be inspected to risk, but those who are along the path of flight associated with the arrival and departure of conventional aircraft at the inspection site since those aircraft must be flown to and from the site. These conventional aircraft also weigh on order of magnitude more than the sUAS and carry flammable fuels that are not carried by the sUAS. The use of sUASs will increase the efficiency of the industrial plant operation, driving down the cost of the operation.

Precision Agriculture Use of UAS eliminates the need for low altitude flyovers with commercial helicopters or fixed wind aircraft for agricultural inspection. The present system exposes not only those in the immediate area to be inspected to risk, but those who are along the path of flight associated with the arrival and departure of the conventional aircraft at the inspection site since those aircraft must be flown to and from the site. These conventional aircraft also weigh on order of magnitude more than the sUAS and carry flammable fuels that are not carried by the UAS. Precision Agriculture reduces the spreading of unnecessary fertilizer, which is harmful to water ways and the environment; it also improves farmers' yields and, therefore, reduces the cost to the public of the crops inspected by UAS. The use of sUAS will also improve the effective use of irrigation, reducing over watering in those areas of the country where water is very scarce.

Exhibits 1 and 2 set forth the Mission Description and the Sterile Area/Airspace Control for the Purpose as described herein. Exhibit 1 at 6 thru 7 and 11 thru 12; Exhibit 2 at 20-24.

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

Sections 61.113(a) & (b) limit private pilots to non-commercial operations**.** Because the UAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the PIC operating the aircraft to have a private pilot's license rather than a commercial pilot's license to operate this small sUAS. Unlike a conventional aircraft that carries a pilot and passengers, the sUAS is remotely controlled with no living thing on board. The area of operation is controlled and restricted, and all flights are planned and coordinated in advance as set forth in the Manual. The level of safety provided by the requirements included in the Manual exceeds that provided by a single individual holding a commercial pilot's certificate operating a conventional aircraft. The risks associated with the operation of the sUAS are so diminished from the level of risk associated with commercial operations contemplated by Part 61 at the time it was drafted, that allowing operations of the sUAS as requested with a private pilot as the PIC exceeds the present level of safety achieved by 14 C.F.R. § 61.113(a) & (b). The FAA has granted exemptions for private pilots to conduct similar operations in Exemptions 11062 through 11067 and 11080.

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

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119(c) allows helicopters to be operated at less than the minimums prescribed, provided the person operating the helicopter complies with any route or altitudes prescribed for helicopters by the FAA. As this exemption is for a sUAS that is similar to a helicopter, and the exemption requests authority to operate at altitudes up to 400 AGL, an exemption may be needed to allow such operations. As set forth herein, except for the limited conditions stated in the Manual and in condition #4, page 3, the UAS will never operate at higher than 400 AGL.

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 the property owner, facility owner, and local officials. Because of the advance notice to the property owner and participants, all affected individuals will be aware of the planned flight operations as set forth in the Manual. Compared to flight operations with aircraft or rotorcraft weighing far more than the maximum 25lbs. proposed herein and the lack of flammable fuel, any risk associated with these operations is far less than those presently presented by conventional aircraft operating at or below 500 AGL in the aerial photography industry. In addition, the low-altitude operations of the sUAS will ensure separation between these small-UAS operations and the operations of conventional aircraft that must comply with Section 91.119. The FAA has granted exemptions to conduct similar operations in Exemptions 11062 through 11067 and 11080.

**14 C.F.R. § 91.151(a): Fuel Requirements for Flight in VFR Conditions**

Section 91.151(a) prohibits an individual from beginning "a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel

to fly to the first point of intended landing, and, assuming normal cruising speed – 1) During the day, to fly after that for at least 30 minutes; or 2) At night, to fly after that for at least 45 minutes."

The battery powering the sUAS provides approximately 40 minutes of powered flight. To meet the 30-minute reserve requirement in 14 C.F.R. § 91.151, sUAS flights would be limited to approximately 10 minutes in length. Given the limitations on the sUAS's proposed flight area and the location of its proposed operations within a predetermined area, a longer time frame for flight in daylight or night VFR conditions is reasonable.

Applicant believes that an exemption from 14 C.F.R. § 91.151(a) falls within the scope of prior exemptions. *See* Exemption 10673 (allowing Lockheed Martin Corporation to operate without compliance with FAR 91.151(a)). Operating the small UAS, in a tightly controlled area where only people and property owners or official representatives who have signed waivers will be allowed, with less than 30 minutes of reserve fuel, does not engender the type of risks that Section 91.151(a) was intended to alleviate given the size and speed of the small UAS.

Applicant believes that an equivalent level of safety can be achieved by limiting flights to 30 minutes or 25% of battery power whichever happens first. This restriction would be more than adequate to return the sUAS to its planned landing zone from anywhere in its limited operating area.

Similar exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673, 10808 and Exemptions 11062 through 11067 and 11080.

**14 C.F.R. § 91.405 (a); 407(a)(1); 409(a)(2); 417(a) & (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 apply only to aircraft with an airworthiness certificate, these sections will not apply to the applicant. Maintenance will be accomplished by the operator pursuant to the Manuals, Exhibits 1 through 3. An equivalent level of safety will be achieved because these small UASs are very limited in size and will carry a small payload and operate only in areas for limited periods of time. If mechanical issues arise, the sUAS can land immediately and will be operating from no higher than 400 feet AGL. As provided in the Manuals, the operator will ensure that the sUAS is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety. The FAA has granted exemptions for similar operations in Exemptions 11062 through 11067 and 11080.

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

Applicant seeks an exemption from the following rules:

14 C.F.R. §§ 61.113(a) & (b); 91.119(c); 91.151(a); 91.405(a); 91.407(a) (1); 91.409(a)(2); and 91.417(a) & (b) to operate commercially a small unmanned vehicle (55 lbs. or less) in 1) wind farm survey; 2) solar farm survey; 3) inspection of industrial infrastructure including electrical towers, flare stacks and pipelines; and 4) precision agricultural work.

Approval of exemptions allowing commercial operations of sUASs for aerial imaging for 1) wind farm survey; 2) solar farm survey; 3) inspection of industrial infrastructure including electrical towers, flare stacks and pipelines; and 4) precision agricultural work will enhance safety by reducing risk. Conventional operations, using jet or piston powered aircraft, operate at extremely low altitudes just feet from the subject being filmed and in extreme proximity to people and structures, and present the risks associated with vehicles that weigh in the neighborhood of 6,000 lbs., carrying large amounts of jet A or other fuel (140 gallons for jet helicopters). Such aircraft must fly to and from the project location. In contrast, a sUAS weighing fewer than 25 lbs. and powered by batteries eliminates virtually all of that risk given the reduced mass and lack of combustible fuel carried on board. The sUAS is carried to the target area and not flown. The sUAS will carry no passengers or crew and, therefore, will not expose them to the risks associated with manned aircraft flights.

The operation of small UASs, weighing fewer than 25 lbs., conducted in accordance with the strict conditions outlined above, will provide an equivalent level of safety supporting the grant of the exemptions requested herein. These lightweight aircraft operate at slow speeds, close to the ground, and in areas that are under the control of the customer for the inspections and, as a result, are far safer than conventional operations conducted with turbine helicopters operating in close proximity to the ground and people or, alternatively, the use of people to climb the structures to conduct the inspection.

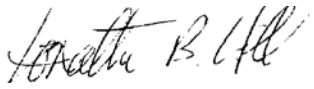
**Privacy**

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge. Inspection will be of inanimate objects in areas where the owners and/or operator will have consented to observation/ filming or otherwise have agreed to be in the area where inspection will take place.

Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012—size, weight, speed, operating capabilities, proximity to airports and populated areas, operation within visual line of sight, and national security—provide more than adequate justification for the

grant of the requested exemptions allowing commercial operation of applicant's UAS for the Purposes outlined herein and are consistent with and exceed the level of safety established in the exemptions already granted, including Exemptions 11062 through 11067 and 11080.

Sincerely,



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