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

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

June 5, 2015

Exemption No. 11742
Regulatory Docket No. FAA–2015–0890

Mr. Mike Leahy, P.E., P.S.M.
Pickett & Associates, Inc.
475 South First Avenue
Bartow, Florida 33830

Mr. Richard E. Doran
Mr. Steven M. Hogan
Attorneys for Pickett & Associates, Inc.
Ausley McMullen
123 South Calhoun Street
Tallahassee, FL 32301

Dear Messrs. Leahy, Doran and Hogan:

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 March 30, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Pickett & Associates, Inc. (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial surveying and mapping services.

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. However, the FAA received one comment opposing the petition. In granting this exemption, the FAA has

determined that the proposed operations can safely be conducted under the conditions and limitations of this exemption. As with exemptions issued to Aeryon Lab, Astraeus Aerial, Clayco, Inc., and VDOS Global, LLC, failure to comply with the document's conditions and limitations is grounds for immediate suspension or rescission of the exemption.

Airworthiness Certification

The UAS proposed by the petitioner are the Steadidrone QU4D−X 4 andDJI 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 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.

[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.

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, Pickett & Associates, 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.

Conditions and Limitations

In this grant of exemption, Pickett & Associates, 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 Steadidrone QU4D−X 4 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 June 30, 2017, unless sooner superseded or rescinded.

Sincerely,

John S. Duncan
Director, Flight Standards Service

Enclosures

AUSLEY MCMULLEN

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March 30, 2015

Via Electronic Submission and U.S. Mail
Docket Operations
U.S. Department of Transportation
West Building, Ground Floor
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

Re: Application for Exemption from Specified Aviation Regulations Under Section 333 of the FAA Modernization and Reform Act of 2012.
Applicant: Pickett & Associates, Inc.
Attn: Mike Leahy, P.E., P.S.M.
475 S. First Avenue
Bartow, Florida 33830
Telephone: (813) 404-1555
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Dear Sir or Madam:

Please accept this letter as the application of Pickett & Associates, Inc. for exemption from certain provisions of the Code of Federal Regulations. This exemption request is submitted under Section 333 of the FAA Modernization and Reform Act of 2012 ("FMRA").

Pickett & Associates, Inc. (the "Applicant") is a licensed surveying and mapping firm located in Bartow, Florida. The Applicant provides turnkey surveying, aerial remote sensing and mapping services for commercial, government, and agricultural operations. The Applicant has been operating manned aircraft imaging systems for over 20 years and has extensive experience throughout the United States and Caribbean. The Applicant's staff has trained on and operated unmanned systems for over five years. The Applicant submits this exemption request in order to offer meet the needs of its clients in an efficient and safe manner through the use of small unmanned aircraft systems Small Unmanned Aircraft Systems ("sUAS").

The Applicant requests exemption from the following regulations: 14 C.F.R. Part 21, Subpart H; 14 C.F.R. § 45.23(b); 14 C.F.R. § 61.113(a), (b); 14 C.F.R. § 91.7(a); 14 C.F.R. §

91.9(b)(2); 14 C.F.R. § 91.103; 14 C.F.R. § 91.109; 14 C.F.R. § 91.119(b), (c); 14 C.F.R. § 91.121; 14 C.F.R. § 91.151(a); 14 C.F.R. § 91.203(a), (b); 14 C.F.R. § 91.405(a); 14 C.F.R. § 91.407(a)(1); 14 C.F.R. § 91.409(a)(1)-(2); and 14 C.F.R. § 91.417(a), (b).

Summary of Applicant's Scope of Operation

The Applicant proposes to use the sUAS platform as an extension to our traditional aerial surveying and mapping services. Services will include inspections of electric transmission line corridors for utility companies, mapping for phosphate mining environmental remediation sites, agriculture crop lands imaging, stockpile inventory mapping as well as other surveying and mapping needs that can be best accomplished with low altitude remote sensing. These services will be referred to in this application as the "Proposed Operations." The Applicant's Proposed Operations will be performed largely in the rural Central Florida area.

Each operation will be initiated following a discrete COA application or under a "blanket" COA issued by the FAA.[1] The COAs governing the Applicant's operations will clearly define the area of each flight (the "Operations Areas"). These Operations Areas will be primarily rural and will be only minimally accessible to the public. Remote industrial areas such as the phosphate mining areas in Central Florida are ideal for aerial inspection using sUAS technology. By conducting these inspections in adherence to the FAA's regulations applicable to sUAS platforms, the Applicant intends to provide a professional example that can be used to benefit both manned and unmanned operations in the National Airspace System ("NAS").

The Applicant has developed a "UAS Flight Operations & Safety Guide" (the "Operations Guide") that sets forth the standards for performing the Proposed Operations. The Operations Guide provides a baseline to ensure that all operations are conducted safely within the NAS.[2]

[1] The FAA recently announced that it has adopted a policy of issuing "blanket" COAs at the same time exemption requests are approved. The Applicant will operate under the terms of a blanket COA should one be issued when this exemption request is granted.

[2] A copy of the Operations Guide is enclosed as Attachment 1. The Operations Guide is submitted as a Confidential Document under 14 C.F.R. § 11.35(b). The entire Operations Guide contains proprietary information that the Applicant has not and will not share with others. The Operations Guide contains operating conditions and procedures that are not available to the public and are protected from release under 5 U.S.C. section 552, et seq. A hard copy of the Operations Guide will be submitted under a separate cover letter referencing the docket number of this exemption request.

Relative to transmission line corridors, the purpose of the Applicant's Proposed Operations will be to enhance incident response times and improve the safety of transmission line inspections with a number of objectives. These objectives include, but are not limited to, the following: (1) Storm Response; (2) Transmission Line Inspection; (3) NERC Compliance;[3] (4) Vegetation Analysis; (5) Environmental Compliance. Relative to phosphate mining environmental remediation, the objective is to provide repeatable, low altitude imagery to monitor the progress of plant growth or other remediation objectives.

The Applicant will work in full cooperation with utility and mining companies and property owners to undertake the Proposed Operations. All operations will be performed by qualified, trained personnel that have current private pilot certificates. The Applicant's Pilots in Command ("PICs") will be specifically trained to operate the sUAS used in the Applicant's operations.

Aircraft and Equivalent Level of Safety

The Applicant's commercial operations will take place in Operations Areas defined by the Applicant's COA applications submitted prior to each commercial flight, or in adherence to the terms of a "blanket" COA issued by the FAA. The sUAS operations in these Operations Areas will pose little risk of injury or property damage.

The Applicant proposes to use the following sUAS platforms for its operations under this application:

1. Steadidrone QU4D-X [4]
2. DJI Inspire 1 [5]

[3] "NERC" is an acronym for the North American Electric Reliability Corporation. NERC establishes reliability standards for bulk power systems in North America.

[4] The SteadiDrone QU4D-X Operations Manual is enclosed as Attachment 2. The SteadiDrone QU4D-X will be operated with a Futaba FASSTest-2.4 GHz 14SG controller. The Instruction Manual for this controller is enclosed as Attachment 3. Steadidrone systems have been approved by the FAA for research COAs and have a demonstrated safety track record. Steadidrone systems have performed well for customers in the military, educational, and commercial markets in the United States, Canada, United Kingdom, Australia, and Germany.

[5] The User Manual for the DJI Inspire 1 is enclosed as Attachment 4. The Safety Guidelines for the DJI Inspire 1 is enclosed as Attachment 5. The Maintenance Manual for the DJI Inspire 1 is enclosed as Attachment 6.

These platforms all weigh less than 55 pounds, including energy sources and equipment. Manufacturer-provided manuals and guidelines are enclosed with this application (the "Manufacturer Instructions"). The The Manufacturer Instructions will be used in conjunction with the Applicant's Operations Guide to ensure that the sUAS are operated safely.

The Applicant will apply to register the sUAS platforms with the FAA prior to conducting operations. These registrations will be in accordance with the FAA's guidance to COA holders from the FAA UAS Integration Office dated November 5, 2014, as the same may be updated from time to time.

The Applicant agrees to be bound by the following limitations and conditions when conducting commercial operations under an FAA-issued exemption:

1. The sUAS will weigh less than 55 lbs including energy sources and equipment.
2. The sUAS will be flown at a speed less than a ground speed of 50 knots.
3. Flights will be operated at an altitude of no more than 400 feet AGL.
4. Flights will be operated within line of sight of the Pilot in Command (PIC) at all times.
5. All operations will utilize a visual observer (VO). The VO and PIC will be in communications at all times.
6. The Applicant's Operations Guide as approved, will be maintained and made available to the Administrator upon request.
7. Prior to each flight, the PIC will inspect the sUAS to ensure it is in a condition for safe flight.
8. Any sUAS that undergoes maintenance or alteration that affects the sUAS operation or flight characteristics will undergo a functional test flight in accordance with the Operations Guide.
9. We will follow the manufacturer's sUAS aircraft/component, maintenance, overhaul, replacement, inspection, and life limit requirements. The following will be included in the Operations Guide:
    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

j. Any other components as determined by the operator

10. 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 CFR 61.56 in an aircraft in which the PIC is rated on his/her pilot certificate.
11. Prior to operations for the purpose of transmission line inspection, 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 an sUAS rotorcraft pilot and at least 10 hours logged as an sUAS pilot with a similar sUAS type.
12. Prior to operations for the purpose of transmission line inspection, the PIC will have accumulated and logged, in a manner consistent with 14 CFR 61.51(b), a minimum of 5 hours as an sUAS pilot 3 take offs and 3 landings in the preceding 90 days.
13. Prior to any flight operations, the PIC and VO will successfully complete a qualification process as defined in the Operations Guide.
14. Prior to operations for the purpose of transmission line inspection, a flight demonstration, administered by an operator approved and qualified pilot will be successfully completed and documented.
15. The sUAS will not be operated directly over any person below an altitude that is hazardous to persons or property on the surface in the event of an sUAS failure or emergency.
16. Regarding the distance from participating persons, the Operations Guide has safety mitigations for authorized and consenting personnel.
17. If the sUAS loses communications or loses its GPS signal, the sUAS will return to a pre-determined location within the security perimeter and land or be recovered in accordance with the Operations Guide.
18. The sUAS will abort the flight in the event of unpredicted obstacles or emergencies in accordance with the Operations Guide.
19. Maximum total flight time for each operational flight will be 30 minutes. Flights will be terminated at 25% battery power reserve should that occur prior to the 30 minute limit.
20. The Applicant will obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under the grant of exemption. The COA will require the operator to request a Notice to Airman (NOTAM) not more than 72 hours in advance, but not less than 48 hours prior to the operation. In the event that a “blanket” COA issued by the FAA contains different requirements, those requirements will be adhered to by the Applicant in any Proposed Operation.

21. If required, the word “Experimental” will be placed on the fuselage in compliance with § 45.29 (f). The equivalent level of safety will be provided by having the sUAS marked on its fuselage as required by § 45.29(f) where the pilot, observer and others working with the sUAS will see the identification of the sUAS as “Experimental.” The FAA has issued the following exemptions to this regulation to Exemptions Nos. 10700, 8738, 10167 and 10167A. The FAA has also waived the marking requirement entirely in other Section 333 Exemption applications, such as Exemptions Nos. 11109 and 11110.
22. The Applicant will document and maintain a record of the sUAS maintenance, preventative maintenance, alterations, status of replacement/overhaul component parts, and the total time in service of the sUAS. These procedures are set forth in the Operations Guide.
23. Each sUAS operated under this exemption will comply with all manufacturer Safety Bulletins.
24. The Applicant will outline sUAS technician qualification criteria. These criteria are set forth in the Operations Guide.
25. The pre-flight inspection will account for all discrepancies, i.e. inoperable components, items, or equipment, not covered in the relevant pre-flight inspection sections of the Operations Guide.
26. The radio frequency spectrum used for operation and control of the sUAS will comply with the Federal Communications Commission (FCC) or other appropriate government oversight agency requirements.
27. At least 3 days before flight operations, we will submit a written Plan of Activities to the local FSDO with jurisdiction over the area to be flown. The Plan of Activities will include at least the following:
    a. Dates and times for all flights.
    b. Name and phone number of the operator for the sUAS flight conducted under the grant of this exemption.
    c. Name and phone number of the PIC for the sUAS flight conducted under the grant of this exemption.
    d. Make, model and serial or N-number of sUAS to be used.
    e. Name and certificate number of sUAS PIC.
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the flight.
    g. Signature of exemption holder or representative.
    h. A description of the flight activity, including maps or diagrams of the area where the flight will be conducted.

28. The documents required under 14 C.F.R. sections 91.9 and 91.203 will be available to the PIC at the ground control station of the sUAS any time the aircraft is operating.
29. The sUAS 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.).
30. sUAS operation will be conducted during daylight hours.
31. The sUAS will be operated by the PIC as he/she is stationary, i.e., not from any moving device or vehicle.
32. The sUAS 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.
33. The sUAS will not operate in Class B, C, or D airspace without written approval from the FAA. The sUAS 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.
34. 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 FAA's 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. 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.

Regulations From Which the Applicant Requests Exemption

The Applicant requests exemption from the following regulations:

14 C.F.R. Part 21, Subpart H
14 C.F.R. § 45.23(b)
14 C.F.R. § 61.113(a), (b)
14 C.F.R. § 91.7(a)
14 C.F.R. § 91.9(b)(2)
14 C.F.R. § 91.103
14 C.F.R. § 91.109
14 C.F.R. § 91.119(b), (c)
14 C.F.R. § 91.121

14 C.F.R. § 91.151(a)
14 C.F.R. § 91.203(a), (b)
14 C.F.R. § 91.405(a)
14 C.F.R. § 91.407(a)(1)
14 C.F.R. § 91.409(a)(1)-(2)
14 C.F.R. § 91.417(a), (b)

The sUAS platforms the Applicant seeks approval to use through this exemption request is a rotorcraft that weighs 55 or fewer pounds including payload.[6] They operate, under normal conditions at a speed of no more than 50 knots and have the capability to hover, and move in the vertical and horizontal plane simultaneously. They will operate only in line of sight and will operate only within the Operations Areas described in the COAs that govern each flight. These operations will ensure that the sUAS will "not create a hazard to users of the national airspace system or the public," as contemplated by Section 333(b) of FMRA.

Given the small size of the sUAS 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 sUAS to commence immediately. Also due to the size of the sUASs and the restricted areas in which the relevant sUAS will operate, approval of the application presents no national security issue. Given the clear direction in Section 333 of the FMRA, the authority contained in the Federal Aviation Act, as amended; the strong equivalent level of safety surrounding the proposed operations, and the significant public benefit, including enhanced safety, reduction in environmental impacts, including reduced emissions associated with allowing sUAS for transmission line inspections and environmental remediation studies over phosphate mines, it is in the public interest to grant the requested exemption. Accordingly, the applicant respectfully requests that the FAA grant the requested exemption without delay.

Narrative Regarding Requested Exemptions

14 C.F.R. Part 21, Subpart H: Airworthiness Certificates 14 C.F.R. § 91.203(a)(1)

The FAA has previously determined that no airworthiness certification is necessary for sUAS platforms. *See*, *e.g.*, Exemption No. 11110. The Applicant therefore believes that no exemption is necessary from Part 21, Subpart H.

[6] The Applicant's sUAS normally weighs approximately 30 pounds, depending on payload and battery weight.

To the extent that the FAA finds that Part 21 is applicable to the Applicant's proposed operations, the Applicant requests an exemption from it. Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness certificates as required by 14 C.F.R. § 91.203(a)(1). Given the size and limited operating area associated with the sUAS platforms to be utilized by the Applicant, an exemption from Part 21 Subpart H meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the FMRA. The Federal Aviation Act (49 U.S.C.§ 44701(f)) and Section 333 of the FMRA both authorize the FAA to exempt aircraft from the requirement for an airworthiness certificate upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the particular sUAS. In all cases, an analysis of these criteria demonstrates that the sUAS operated without an airworthiness certificate, in the restricted environment and under the conditions proposed will be at least as safe, or safer, than a conventional aircraft operating with an airworthiness certificate without the restrictions and conditions proposed.

The sUAS platforms to be operated under this exemption all weigh less than 55 pounds, fully loaded. The platforms carry no pilots or passengers, no explosive materials or flammable liquid fuels, and will operate exclusively within the Operations Areas defined in this application. Operations under this exemption will be tightly controlled and monitored by the operator. The FAA will have advance notice of all operations. These safety enhancements provide a greater degree of safety to the public and property owners than conventional operations conducted with airworthiness certificates issued under 14 C.F.R. Part 21, Subpart H. Application of these same criteria demonstrates that there is no credible threat to national security posed by the sUAS platforms due to their size, speed of operation, location of operation, lack of explosive materials or flammable liquid fuels, and inability to carry a substantial external load.

14 C.F.R. § 45.23(b). Marking of the Aircraft

The FAA has previously determined that an exemption from § 45.23(b) is not required for sUAS platforms that do not need to be certified under Part 21. *See, e.g.*, Exemption No. 11110. The Applicant therefore believes that no exemption is necessary from 14 C.F.R. § 45.23(b). To the extent that the FAA finds that § 45.23(b) is applicable to the Applicant's intended operations, the Applicant requests an exemption therefrom as follows.

The regulation requires:

> When marks include only the Roman capital letter "N" and the registration number is displayed on limited, restricted or light-sport category aircraft or experimental or provisionally certificated aircraft, the operator must also display on that aircraft near each

> entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches nor more than 6 inches high, the words "limited," "restricted," "light-sport," "experimental," or "provisional," as applicable.

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

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

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 sUAS 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 certificate rather than a commercial pilot's certificate to operate this sUAS. Unlike a conventional aircraft that carries the 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 Operations Guide. The level of safety provided by the requirements included in the Operations Guide 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 when 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 approved sUAS operations with a private pilot's certificate in other exemptions. *See*, *e.g.*, Exemption No. 11110.

14 C.F.R. § 91.7(a): Civil aircraft airworthiness

The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness. Given the size of the aircraft and the requirements contained in the Operations Guide for

maintenance and use of safety check lists prior to each flight, an equivalent level of safety will be provided. The Applicant will ensure that the sUAS is in an airworthy condition prior to each flight based on compliance with the specifications in the Operations Guide.

14 C.F.R. § 91.9(b)(2): Civil Aircraft Flight Manual in the Aircraft

Section 91.9(b)(2) provides:

> No person may operate a U.S.-registered civil aircraft …
>
> (2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, unless there is available in the aircraft a current approved airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

The sUAS platforms, given their size and configuration, have no ability or place to carry a flight manual. An equivalent level of safety will be maintained by keeping the flight manual at the ground control point where the pilot flying the sUAS will have immediate access to it. The FAA has issued the following exemptions to this regulation: Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 32827, and 10700. The FAA has previously determined that an exemption from this regulation is not necessary, as relevant materials may be kept in a location accessible to the PIC and not on the sUAS itself. *See* Exemption No. 11110.

14 C.F.R. § 91.103: Preflight action

This regulation requires each pilot in command to take certain actions before flight to insure the safety of flight. As FAA approved rotorcraft flight manuals will not be provided for the aircraft an exemption will be needed. An equivalent level of safety will be provided as set forth in the Operations Guide. The PIC will take all actions including reviewing weather, flight battery requirements, landing and takeoff distances and aircraft performance data before initiation of flight. The PIC will account for all relevant site-specific conditions in the preflight procedures. The FAA has granted exemption from this regulation to other sUAS operators. *See* Exemption No. 11109.

14 C.F.R. § 91.109: Flight instruction

Section 91.103 provides that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual

controls. By their design, sUAS and remotely piloted aircraft do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircraft and for flight instruction in experimental aircraft. *See* Exemption Nos. 5778K and 9862A. The equivalent level of safety provided by the fact that neither a pilot nor passengers will be carried in the aircraft and by the size and speed of the aircraft.

14 C.F.R. § 91.119: Minimum safe altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119(d) 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 an 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 Operations Guide, the sUAS will never operate at higher than 400 AGL.

The equivalent level of safety will be achieved given the size, weight, speed of the sUAS as well as the location where it is operated. No flight will be taken without the permission of the property owner or local officials. Because of the advance notice to the property owner and participants in the activity, all affected individuals will be aware of the planned flight operations as set forth in the Operations Guide. In addition, the low-altitude operations of the sUAS will ensure separation between these sUAS operations and the operations of conventional aircraft that must comply with Section 91.119.

14 C.F.R. § 91.121: Altimeter Settings

This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "…to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the sUAS may not have a barometric altimeter, but instead a GPS altitude read out, an exemption may be needed. An equivalent level of safety will be achieved by the operator, pursuant to the Operations Guide and Manufacturer Instructions, confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

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."

Given the limitations on the proposed Operations Areas, a longer time frame for VFR conditions is reasonable. Applicant believes that an exemption from 14 CFR § 91.151(a) falls within the scope of prior exemptions. *See* Exemption 10673 (allowing Lockheed Martin Corporation to operate without compliance with 14 C.F.R. § 91.151 (a)).

Operating the sUAS platforms in controlled Operations Areas does not engender the type of risks that Section 91.151(a) was intended to alleviate given the size and speed of the sUAS platforms. Similar exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673, and 10808.

14 C.F.R. § 91.203 (a) and (b): Carrying Civil Aircraft Certification and Registration

The FAA has previously determined that no airworthiness certification is necessary for sUAS platforms. *See*, *e.g.*, Exemption No. 11110. The Applicant therefore believes that no exemption is necessary from § 91.203. However, to the extent that the FAA finds that section 91.203 is applicable to the Applicant's operations, the Applicant requests an exemption therefrom.

The regulation provides in pertinent part:

> (a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following:
>
> (1) An appropriate and current airworthiness certificate. . . .
>
> (b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under §91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

The sUAS fully loaded weighs no more than 55 lbs and is operated without an onboard pilot. As such, there is no ability or place to carry certification and registration documents or to display them on the sUAS.

An equivalent level of safety will be achieved by keeping these documents at the ground control point where the pilot flying the sUAS will have immediate access to them, to the extent they are applicable to the sUAS. The FAA has issued numerous exemptions to this regulation. A representative sample of other exceptions includes Exemption Nos. 9565, 9665, 9789, 9789A, 9797, 9797A, 9816A, and 10700.

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 section 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 Manufacturer Instructions and Operations Guide. An equivalent level of safety will be achieved because these sUAS are very limited in size and will carry a small payload and operate only in defined Operations 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 Operations Guide, 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.

Federal Register Summary

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. §21, subpart H; 14 C.F.R 45.23(b);14 C.F.R. §§ 61.113(a) & (b);91.7 (a); 91.9 (b) (2);91.103(b);91.109; 91.119; 91.121; 91.151(a);91.203(a) and (b); 91.405(a); 91.407 (a) (1); 91.409 (a) (2); 91.409 (a) (2) and 91.417 (a) & (b) to operate a small

unmanned system weighing less than fifty-five pounds in the transmission line inspection and environmental remediation survey industries.

Approval of exemptions allowing commercial operations of sUASs in the transmission line inspection and environmental remediation survey industries will enhance safety by reducing risk. The operation of sUAS, weighing less than 55 lbs., conducted in the strict conditions outlined above, will provide an equivalent level of safety supporting the grant of the exemptions requested herein, including exempting the applicant from the requirements of Part 21 and allowing commercial operations. These lightweight aircraft operate at slow speeds, close to the ground, and in a sterile environment. As a result, sUAS are far safer than conventional operations conducted with turbine helicopters operating in close proximity to the ground and people.

Privacy Considerations

Flights will be conducted in rural transmission line corridors or on industrial mined lands in accordance with appropriate State and federal statutes regulating surveying and mapping activities. All imagery and data collected will be used solely for transmission line and supporting structure inspection as well as mining and environmental lands monitoring and remediation. The project areas are located in remote areas that presents no privacy issues of consequence.

Conclusion

Through this program, Pickett & Associates will establish an inspection program for transmission lines for safety and environmental services support as well as to develop safety procedures and best practices for such operations. The intent of these operations is to prove the capacity of sUAS within a limited geography. Operations will then be expanded to the overall transmission system as regulations permit.

We are requesting exemptions from the FARs so this operation can be commercially completed in accordance to all rules that would pertain to a small unmanned system. It is Pickett & Associates' hope that we will be able to provide a source of performance data from the safe and successful conduct of commercial sUAS operations to the United States government and the FAA.

Satisfaction of the criteria provided in Section 333 of the FMRA provide more than adequate justification for the grant of the requested exemptions allowing commercial operation of applicant's sUAS in the transmission line inspection and environmental remediation survey industries.

The Applicant requests that the FAA grant the exemption requested herein.

Respectfully Submitted,

/s/ Mike Leahy
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