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

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

July 27, 2015

Exemption No. 12160
Regulatory Docket No. FAA–2015–1690

Mr. Victor Diaz
Star Engineering Services LLC
P.O. Box 9057
Caguas, PR 00726

Dear Mr. Diaz:

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

By letter dated April 28, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Star Engineering Services LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial data collection.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Phantom 2 and DJI S1000+.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in

consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[1]. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Star Engineering Services 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.

[1] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

Conditions and Limitations

In this grant of exemption, Star Engineering Services 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 DJI Phantom 2 and DJI S1000+ when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Enclosures

April 28, 2015

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

Re: Exemption Request under Section 333 **-** Small UAS

Section 333, titled “Special Rules for Certain Unmanned Aircraft Systems”, provides a mechanism for seeking expedited FAA authorization of safe civil UAS operations in the NAS. Section 333(a) states that the FAA “shall determine if certain unmanned aircraft systems may operate safely in the national airspace system before completion of the (comprehensive) plan and rulemaking required by section 332(b)(1) of this Act or the guidance required by section 334 of this Act.” In Section 332(b)(1), The Petitioner “**STAR ENGINEERING SERVICES**” proposes the following exemptions and meets all requirements to permit FAA approval of commercial UAS operations.

The proposed exemption, if granted, would allow Petitioner to conduct commercial operations of small unmanned aircraft systems (“UAS”) meeting or exceeding all of the operational and safety requirements Congress has set forth in Section 333.

Petitioner is an aerial and technical photography company that plans to exploit the capabilities of Unmanned Aerial Systems to offer a multitude of services, including:

- Aerial surveying
- Agriculture
- Aerial filmmaking and photography
- Real Estate
- Construction site inspections and monitoring
- Educational and research operations

(a) The name and contact information of the applicant are:

Star Engineering Services LLC
PO Box 9057, Caguas PR 00726
Attn: Victor Diaz
Phone: (787) 222-5712
Email: victormdiazjr@me.com

(b) The I. II. III. IV. V. VI. VII. VIII. IX. X. XI.

specific section or sections of 14 CFR from which exemption is sought

14 CFR 21
14 CFR 36
14 CFR 45.23, 45.27
14 CFR 45.29
14 CFR 61.113
14 CFR 91.9
14 CFR 91.103
14 CFR 91.119
14 CFR 91.151
14 CFR 91.203
14 CFR 91.405, 91.407, 91.409, 91.417

(**c) The extent of relief sought is for the duration of the Grant of Exemption, unless otherwise specified.**

The reason to seek the relief is as follows:

I. 14 CFR 21

i. The petitioner requests relief from 14 CFR part 21. The UAV is a small rotorcraft weighing less than 25 pounds during operation. The UAV maximum speed is 25mph and the operating area will be limited to remote or impassable locations where vehicular traffic is non-existent or controlled. The PIC will maintain VFR Rules flying at no more than 400 feet and will operate the UAV during the day in line-of-sight so as not to create a hazard to users of the National Airspace System or the Public or pose a threat to national security.

II. 14 CFR 36

i. The Petitioner requests relief from any associated noise certification and testing requirements of part 36. As a note, according to the manufacturer's specifications, the UAV operates below 40db within 50 meters.

III. 14 CFR 45.23, 45.27

i. The UAV does not currently display marks consisting of the Roman capital letter "N" followed by the registration number of the aircraft in compliance with 14 CFR 45.23 and 14 CFR 45.27. The Petitioner will register the UAV with the FAA and ensure UAV is marked as appropriate before using the UAV in the NAS for commercial purposes.

IV. 14 CFR 45.29

i. The Petitioner request relief from the size requirements under this section due to the size limitations of the UAV. We propose to use marks as large as possible on the UAV as well as keep registration information with the PIC during operation.

V. 14 CFR 61.113

i. The Petitioner currently does not have commercial pilot licenses and requests relief from 14 CFR part 61.113 The flight is only incidental to the proposed business or employment; and the aircraft does not carry passengers or property for compensation or hire.

VI. 14 CFR 91.9

i. Relevant materials shall be kept in a location accessible to the PIC in compliance with the regulations.

VII. 14 CFR 91.103

i. In regards to 91.103(b), the UAV will not be operated within any Class B, C, or D airspace; but, the PIC will follow all other applicable pre-flight actions including reviewing weather, flight battery requirements, landings, and takeoff distances and aircraft performance data before initiation of flight.

VIII. 14 CFR 91.119(c)

i. The Petitioner requests relief from this section because PIC will ensure the UAV is operated in controlled environments outside of populated areas away from public and traffic; avoiding of areas which are depicted in "yellow" on VFR charts, as well as obtaining and assessing information regarding congested areas from the local Flight Standards District Office (FSDO) and avoiding areas of congestion. The UAV will not be operated within 500 feet of vehicles or objects in open areas. The Petitioner requests

that if barriers or structures are present that can sufficiently protect nonparticipating persons from the UAV or debris in the event of an accident, the PIC may operate closer than 500 feet to persons afforded such protection. The operator will ensure that nonparticipating persons remain under such protection.

IX. 14 CFR 91.151

i. The Petitioner requests exemption from this section due to the maximum flight time available from this UAV. The UAV total flight time is limited to 30 minutes and therefore the PIC would not be able to meet the minimum standards and still conduct the inspections. The UAS is equipped with a visual battery indicator that displays the battery levels at all time.

Additionally, the UAS has a visual alarm that indicates when the battery reaches a state of 20% battery life, or approximately 7 minutes of flight time. These indicators, coupled with pilot awareness and the emergency return-to- station setting will supply ample time to land the UAV safely in the event of low battery.

X. 14 CFR 91.203

i. The Petitioner requests relief from 14 CFR 91.203 as the appropriate airworthiness certificate does not exist for this UAS. Additionally, the certificate cannot be displayed in the aircraft due to the size and physical structure of the UAV.

XI. 14 CFR 91.405, 407, 409, 417

i. The Petitioner requests relief from 14 CFR 91.405, 407, 409, and 417 The above-cited regulations require, in general, aircraft owners and operators to inspect the aircraft "...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." These regulations apply to aircraft with an Airworthiness Certificate. Therefore, these sections are not applicable to this UAS. Operators will adhere to requirements located within the operations manual.

(d) The reasons why granting this request would be in the public interest; that is, how it would benefit the public as a whole

I. Personnel Safety

> i.Construction sites and land movements are areas of his risk for inspector and any foot traveler. With the help of UAS more complete site inspections can be performed without risking the life and safety of employees.

II. Access to remote or Unreachable areas

> i. Segments of Construction Sites, dams, farms, pipelines, and bridges may currently be or become unreachable, partially obscured, or impracticable for inspection by conventional means, such as physically walking the line, or utilizing

airplane or helicopters for inspections. Access to assets can also be partially or completely blocked by environmental singularities, such as vegetation growth, or blocked by mechanical means such as vehicle accidents, new construction, or road maintenance. The use of our UAV will ensure access to remote or impassable areas on an as-needed basis as well as during or after uncontrolled singular events.

III. Cost Effectiveness

i. Currently, multiple personnel consisting of agency officials, employees and/or contractors are often required to conduct field inspections on large projects over vast amounts of terrain in order to ensure public safety and meet regulatory requirements. Inspections can require a substantial amount of person-hours and persist for days or weeks at a time due to terrain and accessibility issues. Factoring in engineering, planning & scheduling, safety meetings, mileage, recovered man-hours, potential down time due to injury, potential worker's compensation savings, and the intangible consideration of keeping employees injury-free, the current system of inspecting these assets becomes cost-prohibitive. UAV inspections in select areas are timelier, safer and more efficient than the conventional methods for conducting these inspections. Our UAV inspections will free up otherwise occupied employees, and provide a more economic approach to the traditional inspection, thus lowering operational costs. Lower overhead for corporations could lead to end-user savings such as decreased utility bills.

(e) The reasons why granting the exemption would not adversely affect safety, or how the exemption would provide a level of safety at least equal to that provided by the rule from which the exemption is sought

I. The petitioner states that the unmanned aircraft (UA) to be operated under this request is less than 25 lbs. fully loaded, flies at a speed of no more than 20 knots, carries neither a pilot nor passenger, carries no explosive materials or flammable liquid fuels, and operates exclusively within a secured area as set out in the POH. The crafts are the S1000+ eight-rotor and Phantom 2 Quad-rotor manufactured by DJI. The VTOL crafts are an Octorotor-type design that has eight motors and the Quad-rotor with 4 motors, both systems include GPS system, full autonomous autopilot capabilities, telemetry and manual ground control.

In addition, each craft has integrated safety features built into the design of the UAS, as described in the POH, to ensure the safety of persons and property within and surrounding the limited operating area. In the event of a communication loss in manual control, the UAS switches to GPS control and return to its takeoff coordinates to perform a "FailSafe Landing" within the

Security Perimeter. It will also have the capability to abort a flight in the event of unpredicted obstacles or emergencies.

Petitioner's UAS's will be identified by serial numbers, registered in accordance with 14 C.F.R. Part 47, and have identification (N-Numbers) markings in accordance with 14 C.F.R. Part 45, Subpart C. Markings will be as large as practicable.

II. The aircraft will be operated with both a PIC and a ground-based Visual Observer (VO) in accordance with FAA Policy N 8900.227 Section 14, Operational Requirements for UAS. Operations will be conducted in remote or inaccessible regions with the permission of the land owner; and all required permits will be obtained from state and local government before operation. The UAV will not be operated within 500 feet of vehicles or objects in open areas, unless barriers or structures are present that can sufficiently protect nonparticipating persons from the UAV or debris in the event of an accident. The PIC will file a Notice to Airmen (NOTAM) providing location and a date/time for each operation and a VFR Flight Following, if necessary.

III. The aircraft will not be operated over urban or populated areas; at air shows or over an open-air assembly of people; over heavily trafficked roads; or within 5 nautical miles of an airport or heliport. Flight operations will be limited to day, visual meteorological conditions and the aircraft will remain within visual line of sight of the PIC at all times.

IV. This exemption will provide a greater level of safety to that provided by the rule from which the exemption is sought due to the current nature of conducting inspections in remote regions. Because UAS flights are not currently authorized for commercial use, methods for inspecting remote assets are limited to pedestrian or helicopter operations. Where helicopter operations are not feasible due to environmental or mechanical obstructions, and or Structural elements, utilizing the UAV will provide a safe alternative to the inherent dangers of walking through these regions to conduct the required inspections. The small size, extreme maneuverability and zoom capabilities on the camera allow for a safe, unimpeded inspection of critical infrastructure assets.

(f) Summary to publish in the Federal Register

I. The rule from which exemption is sought

i. Star Engineering Services LLC seeks exemption under §333 of the FAA Modernization and Reform Act of 2012 (Public Law 112-95) from 14 CFR 21; 14 CFR 36, 45.23; 45.27, 45.29; 61.113; 91.9(b) (2); 91.103(b); 119(c); 91.151(a); 91.203(a)&(b); 91.405(a); 91.407(a) (1); 91.409(a) (2); 91.417(a)&(b)

II. A brief description of the nature of the exemption sought

i. Star Engineering Services LLC requests an exemption under Section 333 of the FAA Modernization and Reform Act of 2012 for commercial flight of its UAS. Star Engineering Services provides aerial photography and inspection focused on Construction and Technical Applications. With approval of this petition, Star Engineering Services will utilize our UAS to perform inspections, progress reports, surveying, mapping and other related services focused on the construction industry. Proposed operations will be performed in full compliance with aviation safety regulations. As per 14 CFR §11.81, this petition for exemption is prepared and filed in accordance with regulation to request exemptions from the Federal Aviation Regulations pertaining to operation of a UAS so that operations can be commercially completed in accordance to all applicable FARs that would pertain to a small UAS.

(g) Any additional information, views or arguments available to support request

I. Argument

We here at Star Engineering Services are requesting this exemption because we strongly believe in the continuous improvement of safety measures that offer to protect our field personnel from the inherent dangers of the work environment, also we seek to improve and develop the investigation and data collection methods in the technical perspective of the construction processes. The use of Unmanned Aircraft Systems affords us a great opportunity to reach both of these goals. Through adopting and utilizing UAS technological advancements within these fields, we are unlocking the potential to create a safer workplace for our loved ones, ensure regulatory requirements are exceeded, and build inspection data with which we can improve and protect the infrastructure of these crucial industries. We look forward to working with the FAA in meeting and exceeding these goals in the near future.

II. Additional Information

Unmanned Aircraft Systems

Name: Star 1
Manufacturer: DJI
Model: S1000+
Weight: max 24lb
Battery Flight Time: 24mins
Video Transmitter : DJI LightBridge
Camera: Canon 5D

Name: Star 2
Manufacturer: DJI
Model: Phantom 2
Weight: max 9lb
Battery Flight Time: 27mins
Video Transmitter : 5.8 Ghz
Camera: GoPro3

Pre-flight Inspection, Maintenance

Before each flight the PIC will perform a series of pre-flight and takeoff checks as defined by the POH supplied. After each 60 minutes of airtime, the craft will undergo a thorough inspection of all aircraft components, including, but not limited to:

a. Actuators / Servos
b. Motors, wiring and connectors
c. Propellers, smooth, no chips
d. Electronic speed controller, wiring and connectors e. Batteries, wiring and connectors
f. Remote command and control
g. Ground control station

UAS Operating Parameters

The petitioner states that all flights will be operated within visual line of sight (VLOS) of pilot, in daytime VFR flight conditions and all operations will be conducted with the assistance of a second spotter/observer. Altitude is accurately measured by GPS. The

petitioner further states that an operator will ensure that only consenting production personnel will be allowed within 100 feet of the UA operation, and UAS will be kept at least 100' from any inhabited structure. Generally the petitioner's UAS will be operated in Construction Sites and unpopulated areas.

Petitioner's UAS will remain clear and yield the right of way to all manned operations and activities at all times (including, but not limited to, ultralight vehicles, parachute activities, parasailing activities, and hangliders). Petitioner will not conduct UAS operations within 5 nautical miles of the geographic center of a non-towered airport unless a letter of agreement with that airport's management is obtained and the operation is conducted in accordance with a Notice to Airmen ("NOTAM").

Pilot in Command (PIC)

The pilot in command will be Star Engineering Services CEO Victor M. Díaz. Mr. Díaz is an entrepreneur with a Bachelor of Electrical Engineering focused on Automatic Controls and Electronics and has accumulated more than 75 flight cycles and 35 hours of total time as a UA rotorcraft pilot. The PIC pursues to develop techniques and applications of UAS to optimize the construction industry processes and data collecting.

Regarding Petitioner's requested relief from 14 C.F.R. § 91.103(b)(1), Petitioner will comply with the other applicable procedures and requirements stated in § 91.103(a) and (b). Specifically, the PIC will take all actions including reviewing weather, flight battery requirements, aircraft performance data, and landing and takeoff distances before initiation of a flight. The PIC will also account for all relevant site-specific conditions in their preflight procedures. Risks presented by sun glare will be mitigated by the PIC's and VO's ability to see other air traffic and initiate a return-to-home sequence if needed.

Radio Frequencies

Radio frequencies used will be those allotted by the FCC for data transmission and vehicle control in unlicensed frequency bands. All devices used will comply with FCC usage and emissions regulations.

Safety and Benefits of the UAS

The petitioner will be using the UAS in a variety of applications that generally require expensive full-size manned aircraft to complete. Small, light, unmanned aerial vehicles offer myriad benefits over the use of full-sized manned aircraft for construction and surveying, electric power line inspection, oil/gas pipeline inspection, advanced agriculture, film and still photography, just to name a few. Replacing significantly larger

manned aircraft carrying crew and flammable fuel with small UAS carrying no passengers or crew creates a much greater margin of safety for the pilots and crew.

The Petitioner has Supplied the Following Additional Information:

Appendix

DJI S1000+ Pilot Operating Handbook (POH) and User Manual

DJI Phantom 2 User Manual

Conclusion

For the foregoing reasons, the exemptions requested herein are essential for the performance of this specific technical services and procedures and the Petitioner should be permitted to conduct small UAS operations in accordance with its manuals and all other operating parameters deemed necessary and appropriate by the FAA.