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

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

August 10, 2015

Exemption No. 12384
Regulatory Docket No. FAA–2015–1815

Mr. Eric Sandoval
Sandoval and Associates CEO
3180 Imjin Road
Marina, CA 93933

Dear Mr. Sandoval:

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

By letter dated May 12, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Sandoval and Associates (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 is a DJI F450.

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, Sandoval and Associates 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, Sandoval and Associates 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 F450 when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

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

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

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

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

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

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

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

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

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

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

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

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

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

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be

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

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

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

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

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

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

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

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

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification

(N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

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

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

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

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

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

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

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

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

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

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

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

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

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

Sincerely,

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

Enclosures

Eric Sandoval
S&A CEO

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The Honorable Anthony R. Foxx
Office of the Secretary
US Department of Transportation
1200 New Jersey Ave., SE
Washington, DC 20590

The Honorable Michael P. Huerta
Office of the Administrator
Federal Aviation Administration
800 Independence Avenue SW
Washington, DC 20591

May 12, 2015

RE: Sandoval sUAS Petition for Exemption Pursuant to FMRA Sec 333 and 14 CFR Part 11

Gentlemen:

Sandoval & Associates ('Sandoval') hereby petitions the FAA for regulatory relief pursuant to Section 333 of P.L. 112–95 and 14 C.F.R. Sec. 11.81 to conduct commercial flights using the DJI F450 sUAS for the following applications:

- Providing GIS and biological monitoring services through aerial data collection.
- Maintenance, management and mapping services with aerial mapping.

Sandoval, therefore, seeks a request for exemption from airworthiness and the following specific Title 14 C.F.R. provisions:

- 14 C.F.R. Part 21
- 14 C.F.R. 45.23
- 14 C.F.R. 61.113(a) & (b)
- 14 C.F.R. 61.133(a)
- 14 C.F.R. 91.7(a)
- 14 C.F.R. 91.9
- 14 C.F.R. 91.109(a)
- 14 C.F.R. 91.119

- 14 C.F.R. 91.121
- 14 C.F.R. 91.151(a)
- 14 C.F.R. 91.203
- 14 CFR 91.405 (a); 407 (a) (1); 409 (a) (2); 417(a) & (b)

The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in this petition, specifically Exemptions No. 11157, 11114, 11172; and we therefore request that our petition be granted without delay.

Sandoval has also provided supporting documentation to include, General Operations Manual ('Sandoval Manual') which is composed of (1) an operations manual, (2) flight manuals for each of the Sandoval models; (3) an Operator Training Manual, and (4) a Maintenance and Inspection Manual. Please note that the Sandoval Manual (including all of the above listed components) are clearly marked "Confidential" on each page and contain confidential commercial and proprietary information that Sandoval has not and will not share with others who are not subject to a "Nondisclosure Agreement" (NDA). Therefore, the Sandoval Manual (including all components) are not available to the public and contain operating conditions, procedures and other information that are protected from public release or disclosure under the Freedom of Information Act 5 USC Sec. 552 et seq.

1 Company Description

Sandoval, based out of California, is a team of experienced Geologists, Planners, Biologists and GIS Specialists that provide innovative and practical solutions for environmental and planning needs. Sandoval has worked on numerous projects over the past 15 years, providing Federal, State, and Local agencies the ability to analyze complex problems, streamline the permitting process and maximize the return of their Environmental & Geospatial information.

This section responds to the specific requirements of 14 CFR Sec 11.81.

Mailing address and other contact information such as a fax number, telephone number, or email address copy.

Sandoval & Associates
ATTN: Eric Sandoval
3180 Imjin Rd, Suite 104
Marina, CA 93933
Email: eric@saspatial.com

2 Relevant Statuatory Authority

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 (a). 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. §333(c).

The Federal Aviation 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 §40101 of the Act, that includes sUASs, from the requirement that all civil aircraft must have a current airworthiness certificate.

3 Qualification for Approval Under Section 333 of the Reform Act

The proposed operations in this petition for exemption qualify for expedited approval under Section 333 of the Reform Act. Each of the statutory criteria and other potentially relevant factors are satisfied. The requested exemption would permit Sandoval to perform commercial operations under controlled conditions in airspace that is 1) limited 2) predetermined 3) restricted, limited, or controlled as to access and 4) would provide safety enhancements to the already safe operations in these industries presently using conventional aircraft. 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.

Sandoval sUAS includes the DJI F450, weighing 55 lb. or less, including payload. This sUAS operates under normal conditions at a speed of no more than 87 knots and has the capability to operate in either 'Automatic' or 'Manual' mode as described in the Sandoval Manual. Generally, Sandoval sUAS operations will be below an altitude of 400 ft. AGL, within specific access-restricted areas, either within Class G airspace or with the permission of the ATC, using sUAS operated by Sandoval-qualified sUAS pilots, and within the visual line of sight of the operator and observer. Such operations will insure that the sUAS will "not create a hazard to users of the National Airspace System or the public" as per the FMRA 2012 Section 333. Given the size of the sUAS and the operating environment, this petition for exemption meets 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 and environment, approval of the application presents no national security issue.

Considering the clear direction in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, as amended, the equivalent level of safety surrounding the proposed opera-

tions, and the significant public benefit described herein, the grant of the requested exemptions is also in the public interest.

4 Description of Proposed Operations

Sandoval operations will provide a level of safety that is equivalent to current aviation standards. Sandoval's safety procedures, risk assessments, and flight operations standards are described in detail in the accompanying Sandoval Manual. In brief, the following procedures that apply during operations conducted under this exemption request, establish an equivalent level of safety (ELOS) as follows:

1. The sUAS will weigh less than 55 lb.
2. Flights will be operated within line of sight of a pilot and/or observer.
3. Flights will occur during daylight hours.
4. Flights will occur during Visual Flight Rules Meteorological Conditions (VMC).
5. Flights will generally be operated at an altitude of no more than 400 feet AGL and within Class G airspace. Operations in controlled B,C, or D airspace will be conducted in coordination with the proper FSDO and ATC with prior permission.
6. Flights will be terminated at 25% battery power reserve should that occur during the operation.
7. All Sandoval sUAS will be U.S. registered and display marks either in accordance with 14 C.F.R. Part 45, Subpart C or approved alternative markings.
8. Operations will be conducted in defined regions and over property authorized for this use by the landowner. All operations will remain within the geographic boundaries of the operating area. Most operations may be conducted within the limitations of the blanket COA authorization provided with 333 grants as of 3–23–2015.
9. All required permissions and permits will be obtained from territorial, state, county or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies.
10. The operator will obtain the consent of all persons involved and ensure that only consenting persons will be allowed within 100 feet of the flight operation, and this radius may be reduced to 30 feet based upon an equivalent level of safety determination.
11. A briefing will be conducted in regard to the planned sUAS operations prior to each day's activities. It will be mandatory that all personnel who will be performing duties within the boundaries of the safety perimeter be present for this briefing.
12. Minimum crew for each operation will consist of the sUAS Pilot, the Visual Observer, and/or the Camera Operator.
13. sUAS operations under this exemption will be conducted under the supervision of a designated pilot in command (PIC) who has final responsibility for the operation and in accordance with 14 C.F.R. 91.3. All sUAS operators must have completed training on the normal, abnormal, and emergency procedures in the Sandoval Manual and demonstrated proficiency with the sUAS being operated. The PIC must have passed at least a sport pilot certificate and hold a valid U.S. driver's license unless changed by future sUAS FAA Regulations..

14. sUAS Pilot will be Pilot in Command (PIC). If a pilot certificate holder other than the sUAS Pilot, who possess the necessary PIC qualifications, is also present (i.e. the Visual Observer), that person can also be designated as the PIC.

15. Observer and pilot will at all times be able to maintain verbal communication, either directly or through electronic means.

16. Operators and engineers will maintain the sUAS system in a condition for safe operation according to the Sandoval Manual and associated manufacturer's maintenance manuals, including pre-flight and post-flight inspections.

17. The PIC and observers will maintain situational awareness and perceive, process, and perform risk management prior to and during each operation as described in the Sandoval Manual. The PIC will terminate the operation in accordance with the Sandoval Manual if hazards that cannot be acceptably mitigated are observed.

18. sUAS will safely stop operating and either return home or auto-land at a safet location along the flight path if the control link is lost.

19. For each sUAS, the PIC will have the ability to force a controlled landing at any time.

In addition to the above, Sandoval has implemented a Safety Management System. The Sandoval Safety Manager is responsible for conducting safety audits, investigations, and inspections and is authorized to stop or prohibit any activity or operations which is considered unsafe. Full details are available in the Sandoval Manual.

5 Regulations From Which Exemption is Requested

5.1 Part 61, Certification: Pilots, Flight Instructors, and Ground Instructors

Extent of Relief

Part 61, all sections.

Reason for Relief

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 at least a sport pilot's license rather than a commercial pilot's license to operate these sUAS.

Equivalent Level of Safety

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 GOM. The level of safety provided by the requirements included in the GOM 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 sport pilot certificate as the PIC exceeds the present level of safety achieved by 14 C.F.R. 61.113 (a) & (b).

5.2 61.113 Private pilot privileges and limitations: Pilot in command.

Extent of Relief

Relief from requirement to possess a private or commercial pilot's license for aerial work such as aerial survey and mapping.

Reason for Relief

§61.113 (a) stipulates that a holder of a private pilot certificate may not act as a pilot in command of an aircraft for compensation or hire; (b) states that a private pilot may act as PIC if the flight is incidental to business and does not carry passengers or property. Furthermore, N–8900.227 "Unmanned Aircraft Systems (UAS) Operational Approval" paragraph 16(c)(2)(c) "Operations without a pilot certificate" states that a operations which conform to said paragraph may be performed by a PIC that does not possess a private pilots license but that has completed FAA private pilot ground instruction and passed the FAA Private Pilot written test. In addition, there is no means currently of obtaining a commercial rating for UAS. Thus, we require relief in order to perform aerial work.

Public Benefit

As described above, the public benefit includes exponential economic growth, enhanced safety, and improved precision agriculture capabilities.

Equivalent Level of Safety

Our operations fullfill all the requirements in N–8900.227 16(c)(2)(c) for operations without a private pilots license.

5.3 91.7 Civil aircraft airworthiness.

Extent of Relief

91.7, all provisions.

Reason for Relief

Should the exemption be granted allowing commercial operation of the sUAS without an airworthiness certificate, no standard will exist for airworthiness of the sUAS.

Equivalent Level of Safety

Given the size and weight of these aircraft and the requirements contained in the GOM, an equivalent level of safety will be achieved by insuring compliance with the sUAS user manuals prior to each flight.

5.4 91.119, Minimum safe altitudes: General.

Extent of Relief

Section 91.119 establishes safe altitudes for operation of civil aircraft. 91.119(c) limits aircraft flying over areas other than congested areas to an altitude of 500 feet above the surface, except over open

water or sparsely populated areas, and the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

Reason for Relief

To provide for these operations, the sUAS are normally operated at or below 400 feet AGL. In addition, due to the nature of the proposed operations, the PIC and the observer may at times be less than 500 feet away from structures during the operation.

Equivalent Level of Safety

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 required permission of the property owner or local officials. Because of the advance notice to the property owner and participants in the aerial activity, all affected individuals will be aware of the planned flight operations. Compared to flight operations with aircraft or rotorcraft weighing far more than the maximum 55lbs. described above and the lack of flammable fuel, any risk associated with these operations is far less than those presently conducted with conventional aircraft operating at or below 500 AGL in other industries. 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.

5.5 91.121 Altimeter Settings

Extent of Relief

§91.121

Reason for Relief

As the sUAS may not have a barometric altimeter, but instead a GPS altitude read out, an exemption may be needed.

Equivalent Level of Safety

An equivalent level of safety will be achieved by the operator, pursuant to the Manual and Safety Check list, confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

5.6 91.151, Fuel requirements for flight in VFR conditions.

Extent of Relief

§91.151, all provisions.

Reason for Relief

The provision requires fuel sufficient for one half hour flight beyond the destination. These sUAS, including today's longest endurance platforms, are unable to meet this requirement because of limited max flight times.

Equivalent Level of Safety

An equivalent level of safety can be achieved by limiting flights for the sUAS according to the safety limitations described in the GOM. This restriction would be more than adequate to return the sUAS to its planned landing zone from anywhere in its limited operating area.

5.7 91.405, 91.407, 91.409, 91.417 Inspection and Maintenance Programs

Extent of Relief

§§ 91.405, Maintenance required; 91.407, Operation after maintenance, preventive maintenance, rebuilding, or alteration; 91.409, Inspections; and 91.417, Maintenance records.

Reason for Relief

The part 91 provisions are not applicable to a sUAS of the described weight class. Furthermore, FAA certified mechanics for sUAS do not at this present time exist, so full compliance is not possible. The sUAS flown are modular and as such entire components including engines and propellers are minor replacements rather than major repairs. Finally, continuous minor alterations and payload reconfigurations of sUAS are designed and required for the operation of sUAS and do not negatively impact airworthiness.

Equivalent Level of Safety

Inspection and maintenance manuals are used to maintain the sUAS in airworthy condition. Each sUAS is maintained according to the manufacturer standard or higher by technicians proficient in the building, repair, and maintenance of the sUAS. Inspection and Maintenance manuals utilized contain all aircraft-relevant items as described in (43 Appendix D (Scope and Detail of Items). Maintenance records are maintained in SkyWard Operations Database Appendix B (Recording of Major Repairs and Major Alterations) and are therefore immediately auditable by regulators on demand. Finally, SkyWard manuals will be submitted to the local FSDO ASI or other appropriate FAA division directly.

6 Public Interest

Sandoval believes that the enhanced safety achieved using a sUAS with the specifications described in this petition and supporting documents and by 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 operations enabled by this exemption are in the public interest.

The outputs of safe, reliable, and regulatory compliant operations of sUAS provide economic benefits historically unparalleled since the invention of flight, benefitting stakeholders at every level, both public and private. Lawful, safe aerial robotics operations will create new high-tech employment that will stimulate city and state governments; improve industries, create new small and large

businesses; infuse new interest in STEM for children; and increase the safety of citizens through enhanced first-responder capabilities.

7 Privacy

All flights will occur over private, limited, or restricted-access areas with the property owner's prior consent and knowledge. Operations will be conducted by trained crew and all other individuals will either be a part of the operation or consent to be present at the time of operations.

8 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), 61.133(a); 91.7 (a); 91.9 (b) (2); 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 sUAS for commercial use.

9 Conclusion

Sandoval seeks this exemption to conduct commercial operations using sUAS within restricted-access areas in the NAS. Without this exemption, sUAS innovation will be suppressed, the public economic benefits derived from increased sUAS development will be denied, and the Congressional directive to accelerate the integration of UAS into the NAS will be impeded. The sUAS physical and operational characteristics are compliant with those described in the FMRA and FAA's guidance for Sec 333 exemptions. Sandoval respectfully requests that the FAA grant its petition for exemption from airworthiness.

Please do not hesitate to contact Andrew McCollough, the Regulatory Services POC, via email at exemption@skyward.io if you have any questions or concerns.

Very Respectfully Yours,

Eric Sandoval
S&A CEO