



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

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

September 17, 2015

Exemption No. 12909
Regulatory Docket No. FAA-2015-1460

Mr. Thomas Ethen
President
NorthWest Aerial Perspectives
15414 West Bluegrass Road
Nine Mile Falls, WA 99026

Dear Mr. Thomas Ethen:

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 NorthWest Aerial Perspectives (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial photography, videography, surveying, and inspections.

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, SynDrone X8, and Gemini fixed-wing UAS.

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 collection¹. 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, NorthWest Aerial Perspectives 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, NorthWest Aerial Perspectives 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, SynDrone X8, and Gemini fixed-wing UAS 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.nts.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 September 30, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan

Director, Flight Standards Service

Enclosures

April 28, 2015

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**Petition of *Northwest Aerial Perspectives*
For Exemption Pursuant to Section 333
Of the FAA Modernization and Reform Act of 2012**

To Whom It May Concern:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 and 14 CFR Part 11, Northwest Aerial Perspectives (NWAP), hereby applies for an exemption from Federal Aviation Regulations (FARs) identified below, to allow commercial operations of small unmanned aerial systems (*i.e.*, sUAS).

This exemption is in accordance with protocols outlined in this petition for exemption, and any other requirements established by the FAA pursuant to Section 333 of the Reform Act.

This exemption would permit commercial operation by NWAP, which uses a DJI Phantom 2, a SynDrone X8 multirotor and a Gemini fixed wing sUAS to conduct:

- Aerial surveying
- Event Photography/Videography
- Agriculture purposes
- Real Estate Photography
- Aerial Filmmaking and Photography
- Construction Site Inspections and Monitoring, and
- News Gathering and First Responders.

NWAP's operation under the exemption will be subject to strict operating requirements and conditions to ensure an equivalent level of safety to currently authorized operations using manned aircraft and under conditions as may be modified by the FAA as required by Section 333.

NWAP's sUAS will be operated under controlled VFR conditions at low altitudes. They will operate the sUAS's with pilots who have comprehensive UAV / UAS / Drone flight training for competency and new FAA 333 and Part 107 commercial compliance requirements. Finally, when required, the FAA ATC will approve the airspace in which the sUAS will operate in advance.

NorthWest Aerial Perspectives respectfully submits this request for an exemption because it operates sUAS's. The FAA can have confidence that the operations will be conducted at an equivalent level of safety or greater. Approval of this exemption would thereby enhance safety and fulfill the Secretary of Transportation's (the FAA Administrator's) responsibilities under Section

333(c) of the Reform Act to “establish requirements for the safe operation of such aircraft systems in the national airspace system.”

For your convenience, NWAP has organized this Exemption request as follows:

- I. Petitioner's Description
- II. Relevant Statutory Authority
- III. Qualifications for Approval Under Section 333 of the Reform Act
- IV. Description of Proposed Operations
- V. Regulations From Which Exemption is Requested
- VI. Public Interest
- VII. Privacy
- VIII. Federal Registry Summary
- IX. Conclusion

I. Petitioner's Description:

NorthWest Aerial Perspectives, headquartered in Nine Mile Falls, WA, is a company that provides sUAS support to news and event videography, real estate and construction site photography, film and movie production, precision agricultural purposes, education, and demonstration flights in a compliant and safe environment. NWAP plans on providing a wide range of services as the sUAS market expands.

NWAP's goal is to operate in an accident-free environment by:

- Demonstrating a commitment by management and all employees to operate in a compliant manner.
- Identifying hazard and risk while eliminating or controlling all these risks.
- Using steps to intervene and report when unsafe work practices appear to exist.
- Training all employees involved in flight operations to operate at the highest standard level.

The contact information for Petitioner is as follows:

NorthWest Aerial Perspectives,
15414 W Bluegrass Rd
Nine Mile Falls, WA 99026

Owners:

Thomas Ethen

Dave Plouffe

Office: (509) 733-2928

Email: teimages@sbcglobal.net

II. Relevant Statutory Authority:

This petition for exemption is submitted to fulfill Congress' goal in passing Section 333(a) through (c) of the Reform Act. Congress has directed the FAA "to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system." Pursuant to Section 333 of the Reform Act, the FAA Administrator is to consider whether certain unmanned aircraft systems may operate safely in the National Airspace ("NAS") before completion of the formal UAS rulemaking, based on the following considerations:

- 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 the visual line of sight of the operator.

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".

Additionally, the FAA Administrator has general authority to grant exemptions from its safety regulations and minimum standards, and has done so on numerous occasions, when the Administrator decides a requested exemption is in the public interest. A party requesting an exemption must explain the reasons why the exemption: (1) would benefit the public as a whole, and (2) would not adversely affect safety (or how it would provide a level of safety at least equal to the existing rules).

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, from the requirement that all civil aircraft must have a current airworthiness certificate and those regulations requiring commercial pilots to operate aircraft in commercial service:

The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any of sections.

III. Qualifications 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 relevant factors are satisfied.

The proposed operations would permit NWAP the use of small UAS under controlled conditions in airspace that is: (1) predetermined; (2) controlled as to access; and that (3) provides an increased level of safety beyond that existing when fixed or rotor wing aircraft are used to accomplish the same purpose.

NWAP uses sUASs that are multirotor, weighing less than 30 pounds including payload. They operate, under normal conditions, at speeds not to exceed 100 mph and have the capability to fly, hover, and move in the vertical and horizontal plane. NWAP's sUASs will operate in line of sight, during daylight hours, and will only operate within a sterile area. NWAP will operate at or below 500 feet AGL and will file a NOTAM for each flight operated in controlled airspace. All required permissions and permits would be obtained from territorial, state, county or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies prior to operating a sUAS.

Given the small size of the sUAS's involved and the restricted sterile environment within which they will operate, NWAP's exemption falls within the zone of safety and demonstrates an equivalent level of safety, in which Congress desired the FAA to permit commercial UAS operations by exemption pending completion of formal rulemaking. Also, due to the size of the sUAS's and the confined area in which the sUAS's will operate, approval of the application presents no hazard in the NAS.

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 operations, and the significant public benefit, the grant of the requested exemptions is also in the public interest.

IV. Description of Proposed Operations

To assist the FAA in its safety assessment of NWAP's proposed sUAS operations, below is a summary of operational limitations and conditions that will ensure an equivalent or higher level of safety to operations conducted under current regulatory guidelines:

1. The sUAS will weigh less than 30 pounds.
2. Flights will be operated within line of sight of the PIC and observer.
3. Maximum total flight time for each operational flight will be limited to the amount of time the sUAS can be flown and still maintain a reserve battery power of no less than 25%.
4. Flights will be operated at an altitude of no more than 500 feet AGL.
5. Flights will be operated at a lateral distance of least 100 feet from any inhabited structures, buildings, vehicles, vessels, people not associated with the operation or who have not signed a waiver in advance of the operation.
6. Minimum crew for each operation will consist of the sUAS Pilot in Command and a Visual Observer.
7. The sUAS Pilot in Command will hold at least a sport pilot or recreational pilot certificate and a valid U.S. drivers license.
8. NWAP will designate a Pilot in Command (PIC) for each mission.
9. The sUAS will operate only within a confined "Sterile Area".
10. Prior to the operations at a particular location, a site inspection will have been conducted. On the day of the mission the management person with operational control and the PIC will concur on dispatching of the mission.
11. A briefing will be conducted in regard to the planned sUAS operations prior to each day's missions. It will be mandatory that all personnel who will be performing duties within the boundaries of the sterile area be present for this briefing.
12. NWAP crew will use the checklist and callouts required in the Operations Manual.
13. All sUAS's will be maintained in accordance with inspection program specified in the manufacturer's guidelines.
14. In the event of an accident involving an NWAP sUAS, they will cease operations and report the accident to the NTSB and AFS-80.
15. Pilot in Command and Visual Observer will at all times be able to communicate by voice.
16. Pilot in Command, Visual Observer, Camera Operator, and Operational Personnel will have been trained and tested in accordance to FAA, NTSB, and AFS-80 best practices.
17. All required permissions and permits would be obtained from territorial, state, county or city jurisdictions, including local law enforcement, fire or other appropriate governmental agencies.
18. NWAP management will submit a written "Plan of Activities" to the local Flight Standards District Office (FSDO) having jurisdiction over the area of proposed filming three days in advance of operations during film or movie productions.
19. If the sUAS loses communications signal, the sUAS will have the capability to return to a pre-determined location within the Sterile Area and land.
20. Contingency plans will be in place to safely terminate flight if there is a loss of communication between the pilot and the observer.
21. The sUAS PIC has the capability to abort a flight in case of unpredicted obstacles or emergencies.
22. NWAP, by following FAA, NTSB, and AFS-80 best practices, will assure no individuals' privacy is violated.

23. Procedures have been established in NWAP's Operations Manual to contact ATC prior to operating in airspace other than G.

V. Regulations From Which Exemption is Requested

Statutory Authority 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), Congress made it clear that Section 333 provides a mechanism for "expedited operation authorization" if several factors are met. Petitioner meets all requirements to permit FAA approval of commercial UAS operations.

The Petitioner Requests Relief From the Following:

A. 14 CFR § 91.103: Preflight Action

NWAP requests an exemption from the preflight actions requirements of 14 CFR 91.113 that prescribes the preflight actions under which aircraft may operate:

Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight.

- a. Flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;
- b. For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:
 - i. For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein; and
 - ii. For civil aircraft other than those specified in paragraph (b)(1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

NWAP will not operate sUAS's under IFR conditions or when the ceilings are below 1000 feet and the visibility is below 3 statute miles. NWAP's sUAS's do not have a published approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data.

Equivalent Level of Safety

In adherence to FAA, NTSB, and AFS-80 best practices, the PIC along with the person having operational control must follow regulations to assure that the weather will be adequate to complete the mission in VFR condition.

B. 14 CFR 91.113: Right-of-Way Rules

NWAP requests an exemption from 14 CFR 91.113 Right-of-way rules, requiring vigilance by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

NorthWest Aerial Perspectives operates small pilotless UAS's and cannot comply with these rules as they have been written.

Equivalent Level of Safety

NWAP operates sUAS's at or below an altitude of 500 feet AGL, well below the normal operating altitude of other aircraft. NWAP management requires that the Pilot in Command with experience

oversee each mission and has knowledge of the see-and-avoid rules. A Visual Observer will assist the PIC in looking for aircraft entering the operations area. It's the responsibility of the PIC to cease operations and land the UAS immediately whenever an aircraft comes into the vicinity creating a potential threat. Operations will not recommence until the threat is clear.

C. 14 CFR. § 91.119: Minimum Safe Altitudes

NWAP requests an exemption from the minimum safe altitude requirements of 14 CFR 91.119 that prescribes the minimum safe altitudes under which aircraft may operate:

- Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.
- Over other than congested areas at an altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

Section 91.119 (d) allows for a helicopter to operate at less than those minimum altitudes when it can be operated "without hazard to persons or property on the surface," provided that "each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA."

To provide the intended operations, the sUAS is normally operated below 500 feet AGL. Additionally, due to the nature of the proposed operations, the sUAS will maintain a lateral distance of at least 100 feet from inhabited structures, buildings, vehicles, and vessels, and from people not associated with the operation.

Equivalent Level of Safety

Compared to normal aircraft, NWAP's multi-rotor and fixed wing aircraft weigh a maximum of 30 pounds, and given the lack of flammable fuel, any risk associated with these operations is far less than those that presently exist with conventional aircraft. An 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. As set forth in the FAA, NTSB, and AFS-80 best practices, the sUAS will be operated in a sterile area, where buildings and people will not be exposed to operations without their pre-obtained consent. Because of the advance notice to the property owners and participants, all affected individuals will be well aware of the planned flight operations prior to commencement of operations.

Furthermore, by operating at such lower altitudes, the sUAS will not interfere with aircraft that are subject to the minimum safe altitude regulations. Finally, the successful safety record of the Phantom 2, Syndrone X8 and Gemini sUAS's demonstrates that the sUAS can be safely used at these lower altitudes and closer operating environments.

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

NWAP seeks an exemption from 14 CFR 91.121, which requires a person operating an aircraft to maintain cruising altitude or flight level by reference to an altimeter that is set to the elevation of the departure airport or barometric pressure. An exemption is required because the sUAS does not have a barometric altimeter, but rather a GPS altitude read out.

Equivalent Level of Safety

An equivalent level of safety will be achieved by following the procedures set forth in the FAA, NTSB, and AFS-80 best practices. NWAP will confirm the altitude of the launch site shown on the GPS altitude indicator before flight. Moreover, the PIC will use the GPS altitude indicator to constantly monitor the sUAS's height, thus ensuring operation at safe altitudes.

E. 14 CFR 91.151(a): Fuel Requirements for Flight in VFR Conditions

NWAP requests an exemption from 14 CFR § 91.151(a)'s fuel requirements for flight in VFR conditions. Section 91.151 states:

- a. No person may begin 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 –
 - i. During the day, to fly after that for at least 25 minutes; or
 - ii. At night, to fly after that for at least 45 minutes.

The batteries powering NWAP's Phantom 2 and Syndrone X8 provide approximately 25-35 minutes of powered flight while the Gemini's provide 2 to 3 hours of powered flight. To meet the 30 minutes reserve requirement in 14 CFR 91.151, X8 sUAS flights could not be conducted. Given the limitations on the sUAS's proposed flight area and the location of its proposed operations within a predetermined area, a safety margin based on a reserve amount of battery life is needed. NWAP will not be conducting any sUAS flights at night.

Equivalent Level of Safety

An equivalent level of safety will be achieved because the operations will be conducted on-site without significant transit time by the sUAS. All flights will be planned to terminate with no less than 25% reserve battery power still available. This restriction would be more than adequate to return the sUAS safely to its planned landing zone from anywhere in its confined area of operation even in the event of an unexpected occurrence. Operation of the sUAS with less than 30 minutes of reserve fuel does not include the type of risks that Section 91.151(a) was intended to alleviate given the size and speed of the small UAS, and the proximity of the flight operation to the landing zone. Moreover, operation will be limited to controlled areas where only people and property owners, or official representatives who have signed waivers will be allowed.

F. 14 CFR § 91.405(a), 91.407(a)(1), 91.409(a)(2); 91.417(a) and (b): Maintenance Inspections

NWAP also seeks an exemption from the maintenance inspection requirements contained in 14 CFR 91.405(a), 91.407(a) (1), 91.409(a) (2), 91.417(a) and (b). These regulations specify maintenance and inspection standards in reference to 14 CFR Part 43. 14 CFR 91.405(a) (stating that each owner or operator of an aircraft "shall have the aircraft inspected as prescribed in subpart E of this part and shall between required inspections ...have discrepancies repaired as prescribed in part 43 of this chapter"). An exemption to these regulations is needed because Part 43 and these sections only apply to aircraft with an airworthiness certificate, which the sUAS will not have.

Equivalent Level of Safety

An equivalent level of safety will be achieved because maintenance and inspections will be performed in accordance with FAA, NTSB, and AFS-80 best practices. 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. 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.

If mechanical issues arise, the sUAS's size and carrying capacity, and the fact that flight operations will only take place in restricted areas for limited periods of time during daylight hours, creates less risk than that associated with conventional rotorcraft or fixed wing aircraft performing the same operation.

VI. PUBLIC INTEREST

Granting NorthWest Aerial Perspectives an exemption furthers the public interest in and around the states of Washington, Oregon, Idaho and Montana. National policy set by Congress favors early integration of sUAS into the national airspace in controlled, safe working environments such

as those propose in this petition. The one vision of NWAP is to help facilitate safe integration of sUAS's into mainstream USA in the following areas:

- **Aerial Surveying**
 - As with construction imaging, aerial imaging flights will be used to capture aerial photos for the purpose of creating orthomosaics (image maps). The image maps will be used to compute volume, create 3D models, DSM's, DTM's, profile and contour lines.
- **Movies and Event Photography**
 - Whether the shot requires unique views and expansive panning or altitude with radical views, the sUAS is designed to hold up under demanding conditions. Because of the autopilot feature with pre-designed mission management and R/C control interrupt, the pilot and camera operator can easily create the ultimate shot with HD video or HD still photos. When working close in on a closed set the hazards to the actors are substantially reduced due to the size of the sUAS.
- **Precision Agriculture**
 - This technology, which uses a variety of spectral data, has potential for several agricultural uses, including: early-generation crop breeding line evaluations, quick and wide-scale scouting of croplands for crop conditions and weed densities, grassland conditions and production evaluation, detection of noxious weeds and detection of blue green algae blooms in ponds and reservoirs. In addition, the technology allow the monitoring of water use and will allow the land owner to directly control the quantity of water use.
- **News Gathering**
 - Similar to movies and event photography, each news assignment may require a completely different shot or view of a scene. With budgets for traditional helicopter use being greatly reduced, the sUAS is the perfect solution to allow for easy news gathering for a fraction of the cost. The sUAS can and will be operated in a sterile area away from the public, while the traditional helicopter must hover over persons and property increasing the danger to individuals.
- **Construction and First Responders**
 - Low level oblique photos and video from several angles are far more effective than ground based imagery for displaying the characteristics of large, complex properties with several buildings and large trees. The applicants in the past have chartered 2-seat full-sized helicopters for this purpose, which has proven more costly than many potential clients have been able to afford. The benefits of reduced cost and improved quality of presentation from the UA will be valuable to and benefit many buyers and sellers of real property. Additionally, we request that we be allowed to use our system to benefit first responders nearby who might require assistance, including fire fighters, the police, the sheriff, et al., while remaining subject to all limitations cited in this application.
- **Real Estate**
 - The sUAS can be used in all areas of real estate, including commercial, residential and industrial properties. Using a sUAS, real estate professionals can create promotional videos, photos and unique shots that normal camera aspects cannot capture. NWAP's easy-to-use video and photo platforms enable properties to stand out, providing dazzling views that are typically shown via expensive computer animation or costly helicopter rentals. Imagine shooting a view from a high-rise condo in stunning high definition that shows your potential customer the actual

view from the residence. The remote platform is great for new planning, zoning and large developments. Simple and easy-to-use video and photos allow for multiple height pictures and elevation views.

VII. Privacy

NorthWest Aerial Perspectives is deeply committed to protecting public privacy. NWAP knows that many individuals have concerns about privacy from the operations of sUAS's. NWAP has created a privacy notice that informs residents, commercial property owners, churches, schools, and governmental organizations of our intent to conduct commercial drone operations in proximity to their property.

VIII. Federal Registry Summary

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

NorthWest Aerial Perspectives, seeks an exemption from the following rules:

14 C.F.R. Part 21
14 C.F.R. 45.23 (b)
14 C.F.R. 61.113(a) and (b)
14 C.F.R. 91.7 (a)
14 C.F.R. 91.9 (b) (2)
14 C.F.R. 91.109
14 C.F.R. 91.119
14 C.F.R. 91.121Page 3
14 C.F.R. 91.151(a)
14 C.F.R. 91.203 (a) & (b)
14 C.F.R. 91.205 (b)
14 C.F.R. 91.215
14 C.F.R. (91.401 - 91.417)

Approval of this exemption request allows NWAP to conduct commercial operations with small and lightweight unmanned aerial systems. NWAP's singular vision is to enhance safety of sUAS operations in the NAS while reducing risk to the general public and property owners.

The SynDrone, the Phantom 2 and Gemini sUAS, each weighing less than 30 pounds and powered by batteries, eliminates virtually all of that risk given the reduced mass and absence of combustible fuel carried on board. The sUAS is transported to the designated mission area and set up there. The sUAS will carry no passengers or crew and, therefore, will not expose them to the risks associated with manned aircraft flights.

The operation of this small UAS will provide an equivalent level of safety supporting the grant of the exemptions requested herein, including exempting the applicant from the requirements of several regulations and allowing commercial operations. These lightweight sUAS's operate at slow speeds, close to the ground, and in a sterile environment. As a result, they are far safer than conventional aerial survey and inspection operations conducted with fixed wing aircraft or helicopters.

If additional information is required, or if you have any questions regarding this Petition for Exemption, please contact the undersigned at:

IX. Conclusion

The petitioner is requesting this exemption for the purposes of aerial surveying, precision agriculture, real estate photography, aerial filmmaking and photography, construction site inspections and monitoring, news gathering and other flight operations. The reason for such a general and broad based request is that the petitioner wishes to utilize a business strategy of horizontal integration and maximize economies of scope in order to capitalize on opportunities as they may arise in the future without the long turnaround time associated with additional exemptions. The petitioner's business model is based on the idea of offering ad hoc small UAS services to individuals or companies who wish to employ these services as a safe, effective, and legal option to enhance their business or hobby. The petitioner's own market research shows pent up demand for these services currently exists in the real estate market, construction, movie-making, and other markets are just beginning to emerge. The petitioner has identified Universities and other agencies that could benefit from the operation requested in this application. A quick internet search will show that many are currently operating similar UAS in exactly this fashion without, it is assumed, FAA authorization. The petitioner has refrained from engaging in commercial use of the UAS. The primary purpose of seeking this exemption is to obtain the capability to offer those services while remaining in compliance. The petitioner has 20 years of experience in the radio control model aircraft hobby

With Best Regards,

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