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

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

June 30, 2015

Exemption No. 11943
Regulatory Docket No. FAA–2015–1406

Mr. Kent Diebolt
Founding Partner
Vertical Access LLC
P.O. Box 4135
Ithaca, NY 14852

Dear Mr. Diebolt:

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 Vertical Access LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct inspections for aerial data capture.

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 Phantom 2.

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, Vertical Access 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

[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.

the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, Vertical Access 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 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

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC

Regulatory Docket No. _____

In the Matter of Petition for Exemption of:

Vertical Access LLC

For an Exemption from the requirements of the
Code of Federal Regulations Sections
Concerning Operation of an Unmanned Aircraft System

Pursuant to Section 333 of the
FAA Modernization and Reform Act of 2012

Submitted April 28, 2015 by:
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I. Petitioner's Description

Vertical Access LLC is a specialized, building facades and infrastructure consulting firm based in Ithaca, NY with branch offices in New York, NY, Washington, DC, Salt Lake City, UT, and Guilford, CT. For over 20 years, Vertical Access has delivered outstanding investigation and testing services while providing creative solutions to access challenges on all types of buildings and structures. In doing so, Vertical Access has nurtured a strong commitment to safety in regards to its employees and the general public.

Vertical Access wishes to continue its ever evolving, specialized services with an exemption, pursuant to Section 333 of the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012 (the Reform Act), from Federal Aviation Regulations (FARs) identified below, allowing commercial operations of small unmanned aircraft systems (UAS).

The petitioner's contact information is as follows:

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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 UAS 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.

Pursuant to 49 U.S.C. § 44701 (f), the FAA Administrator has authority to grant exemptions if the request is found to be in the public interest.

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 potential relevant factors are satisfied.

The proposed operations would permit the use of small and relatively inexpensive UAS under controlled conditions in airspace that is: (1) identified; (2) predetermined, and; (3) controlled as to access. The use of UAS would also provide a higher level of safety than exists when rope access technicians are asked to gain access, and is therefore, in the public interest.

The UAS to be used weighs less than three (3) pounds, including payload. Operation of the aircraft will be limited to use during ideal weather conditions (good visibility, no precipitation, and winds under 15 knots). The aircraft has the ability to hover and move in the horizontal and vertical planes simultaneously. The UAS will not be operated at speeds greater than 27 knots. The UAS will be operated within visual line of sight (VLOS) of the pilot in command (PIC) with the aid of a visual observer (VO).

IV. Training and Proposed Operations

A. Training

Vertical Access has established a training program for the PIC and VO. The PIC will be an FAA licensed airman with at least a private pilot certificate and a third-class medical certificate. The VO will assist the PIC in all UAS operations from the onset of training and hold considerable knowledge in the use and maintenance of UAS.

The PIC training will involve 25 hours of UAS flight training. This training will include 250 flight cycles (takeoffs and landings) and 10 of the 25 hours will involve the DJI Phantom 2 that will be used in Vertical Access' proposed UAS operations. All pilot training will be documented in the ***Vertical Access Pilot and Aircraft Logs***.

B. Proposed Operations

Proposed UAS operations by Vertical Access would be limited to certain projects whose location is suited for the safe use of the UAS. The use of the UAS will be evaluated prior to and specifically for each project's vicinity.

Vertical Access seeks to use UAS in its ever-evolving inspection services. The requested exemption would allow Vertical Access to provide inspection services to consumers interested in aerial data capture using a small, technologically advanced UAS for:

- Buildings
- Chimneys
- Bridges
- Dams
- Other infrastructure

The proposed operations will occur over private and/or controlled access property with the owner's prior consent. In the event operations will be conducted over public lands, a pre-determined area will be identified and all permissions will be acquired from official personnel and affected organizations. The area for operations will be pre-determined, limited, and controlled as to access.

All operations will follow parameters set forth in the ***Vertical Access Flight Operations Manual*** as follows:

- With an FAA granted exemption, Vertical Access will obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) for each UAS operation. In accordance with the COA, Vertical Access will request a Notice to Airmen (NOTAM) not more than 72 hours in advance, but no less than 48 hours prior to the operation.
- All UAS operations will involve a minimum of two (2) Vertical Access personnel, consisting of the PIC and VO.
- Flights will only occur in favorable weather conditions during daylight hours. Weather affecting operations include, but are not limited to, precipitation, wind above 15 knots, limited visibility due to fog or clouds, and lightning.
- All UAS flights will remain in visual line of sight (VLOS) at all times.
- When flights occur within 5 nautical miles of an airport reference point, Vertical Access will obtain a letter of agreement with the airport's management and conduct operations in accordance with a NOTAM, as required by the approved COA.
- UAS flights will be terminated at 30 minutes or when battery power is reduced to 25%, whichever comes first.
- The UAS will be programmed to not fly above 400 feet above ground level (AGL).

- When necessary, the UAS may also be programmed to not fly outside of a designated, controlled area.
- PIC will be an FAA licensed airman with a private pilot license and a third-class medical certificate.
- The UAS will weigh less than 3 pounds including payload.
- The UAS will not operate at speeds over 27 knots.
- The UAS has the capability to hover in place, and move in the horizontal and vertical planes simultaneously.
- The PIC will routinely reference ***the Vertical Access UAS Flight Checklist*** during operations to ensure the maintenance and airworthiness of the aircraft, and to ensure general safety during flight operations.
- Vertical Access will follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements.

C. Unmanned Aircraft System

Vertical Access' proposed UAS operations would use a Phantom 2 quadrocopter with a Zenmuse H3-3D camera gimbal, both manufactured by DJI. The Zenmuse H3-3D camera gimbal will hold a GoPro Hero 3 for capturing photographs and video. The total weight of the Phantom 2 including payload is 2 pounds, 14.138 ounces.

The aforementioned Phantom 2 utilizes the DJI Naza-M V2 flight control system. The aircraft has the capability to hover, and move in the vertical and horizontal plane simultaneously. The aircraft is equipped with a global positioning system (GPS), Inertial Measurement Unit (IMU), and Compass that work in unison to stabilize the aircraft and render safety features. The aircraft can be programmed to not fly above 400 feet AGL and to not fly outside of a pre-determined flight zone. These systems will also initiate the failsafe function. If the aircraft looses the signal from the transmitter, the GPS system will automatically initiate the failsafe mode and fly the aircraft back to a pre-determined location and land automatically.

V. Regulations from which Exemption is Requested

Vertical Access seeks exemption of the following FAR's

A. 14 CFR Part 21, Subpart H: Airworthiness Certificates and 14 CFR § 91.203(a)(1)
B. 14 CFR § 61.56 Flight review
C. 14 CFR § 61.113: Private pilot privileges and limitations: Pilot in command
D. 14 CFR § 91.7(a): Civil aircraft airworthiness
E. 14 CFR § 91.119(c): Minimum safe altitudes
F. 14 CFR § 91.121: Altimeter settings
G. 14 CFR § 91.151(a): Fuel requirements for flight in VFR conditions (day)
H. 14 CFR §§ 91.405(a): Maintenance required; 91.407(a)(1): Operation after maintenance, preventative maintenance, rebuilding, or alteration; 91.409(a): Inspections; 91.417 (a)(b): Maintenance records

A. 14 CFR Part 21; Subpart H: Airworthiness Certificates and 14 CFR §91.203(a)(1)

Vertical Access requests an exemption from 14 CFR Part 21, Subpart H, which establishes the procedures for attaining airworthiness certificates required by 14 CFR § 91.203(a)(1). The Reform Act allows the FAA to exempt aircraft from the requirement of an airworthiness certificate in consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the particular UAS.

Equivalent Level of Safety

The UAS to be operated is the DJI Phantom 2, weighs less than 3 pounds including payload, carries no pilot or passengers, carries no flammable liquid fuels, and operates within a pre-determined flight zone. Furthermore, the PIC and VO will determine the airworthiness of the Phantom 2 prior to each flight, by adhering to safety guidelines set forth in the ***Phantom 2 User Manual***, the ***Vertical Access Flight Operations Manual***, and the ***Vertical Access UAS Flight Checklist***.

B. 14 CFR § 61.56: Flight review

Vertical Access requests exemption from 14 CFR § 61.56, which subjects the pilot in command (PIC) to flight review requirements consisting of one (1) hour of flight time in an aircraft in which the PIC is rated on his or her pilot certificate and one (1) hour of ground training. The flight review requirements set forth in 14 CFR § 61.56 would have little relevance to the safe operation of the small UAS intended for use in Vertical Access' operations.

Equivalent Level of Safety

An equivalent level of safety will be achieved by following the training procedures in the ***Phantom 2 User Manual*** and the ***Vertical Access Flight Operations Manual.*** The ***Vertical Access Flight Operations Manual*** requires the PIC to be subject to test, or currency flights, in between and leading up to official operations to ensure skills and safety. Currency flights will occur on a monthly base, as needed, and consist of at least one (1) hour of flight with the DJI Phantom 2, including at least 10 take-offs and landings.

C. 14 CFR § 61.113: Private pilot privileges and limitations: Pilot in command

Vertical access requests an exemption from 14 CFR § 61.113, limiting private pilots to non-commercial operations. However, the UAS will not carry pilots, passengers, or any living thing and be restricted to a flight zone that is predetermined and controlled as to access. The risks associated with the UAS operations are far diminished from the risks associated with commercial operations envisioned by 14 CFR Part 61, when drafted.

Equivalent Level of Safety

Proposed UAS operations will obtain an equivalent level of safety, as the aircraft will carry no living thing on board. The level of safety provided by the requirements set forth in the ***Vertical Access Flight Operations Manual*** exceeds that provided by a single individual holding a commercial pilot certificate operating a conventional aircraft.

D. 14 CFR § 91.7(a) Civil aircraft airworthiness

Vertical Access requests an exemption from 14 CFR § 91.7(a), which requires that civil aircraft be in airworthy condition to be operated. Since the Phantom 2 has no airworthiness certificate, there is no regulatory standard for determining the airworthiness of the UAS.

Equivalent Level of Safety

In accordance with 14 CFR § 91.7(b), the PIC will determine whether the UAS is in a condition for safe flight by complying with procedures in the ***Phantom 2 User Manual***, the ***Vertical Access Flight Operations Manual***, and the ***Vertical Access UAS Flight Checklist***.

E. 14 CFR § 91.119(c) Minimum safe altitudes

Vertical Access requests an exemption from 14 CFR § 91.119(c), which establishes

minimum safe altitudes "over other than congested areas," in which an aircraft below 500 feet AGL may not operate closer than 500 feet to any person, vessel, vehicle, or structure. In order to provide the intended inspection services, the UAS will be operated below 500 feet AGL and closer than 500 feet to persons, vessels, vehicles, and structures.

Equivalent Level of Safety

Operation of the UAS is safer than traditional aircraft due to its small size, lightweight, lack of flammable fuel, and limited speed. Additionally, no flight will occur without the permission of the property owner or local officials. With advanced notice given, all property owners and affected persons will be aware of all UAS operations. The UAS will be operated in a restricted and controlled area. Under no circumstances will the UAS be operated so close to persons, vessels, vehicles, or structures as to present an undue hazard

F. 14 CFR § 91.121: Altimeter settings

Vertical Access requests an exemption from 14 CFR § 91.121, which states that when operating below 18,000 feet MSL, aircraft not equipped with a radio shall set an altimeter to the elevation of the departure airport or an appropriate altimeter setting available before departure. An exemption is required because the UAS is not equipped with a user-configurable barometric altimeter.

Equivalent Level of Safety

Complying with the pre-flight procedures in the ***Phantom 2 User Manual*** and verifying the GPS altitude before each flight will provide an equivalent level of safety. During flight, the Phantom 2 provides an Above Ground Level (AGL) reading in relation to its takeoff location. The altitude will be closely monitored during flight, keeping the UAS below 400 feet AGL, ensuring operations at safe altitudes. Furthermore, the UAS will remain within VLOS of the PIC and VO at all times.

G. 14 CFR § 91.151(a): Fuel requirements for flight in VFR conditions (day)

Vertical Access requests an exemption from 14 CFR § 91.151(a), which states than no person may begin a flight unless there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed to fly after that for at least 30 minutes. The battery powering the Phantom 2 provides approximately 25 minutes of total flight time. It is therefore impossible for the UAS to meet the requirement of this section.

Equivalent Level of Safety

Planning all flights with the intent to land after 30 minutes or at 25% battery power remaining, whichever comes first, will provide an equivalent level of safety. Additionally, unlike traditional aircraft, the UAS will always be within VLOS and have

no significant transit time to or from the landing area. Vertical Access will only operate the UAS in daytime VFR conditions within VLOS.

H. 14 CFR §§ 91.405(a) Maintenance required; 91.407(a)(1) Operation after maintenance, preventative maintenance, rebuilding, or alteration; 91.409(a) Inspections; 91.417(a) and (b) Maintenance records

Vertical Access requests an exemption from the maintenance and inspections requirements of 14 CFR § 91.405(a), 91.407(a)(1), 91.409(a), and 91.417(a) and (b). These regulations apply to maintenance of aircraft holding an airworthiness certificate, which the Phantom 2 does not have. Therefore an exemption is required.

Equivalent Level of Safety

An equivalent level of safety will be achieved by ensuring that the UAS is in working order prior to initiating flight, performing required maintenance, and keeping a log of any maintenance performed. All maintenance and inspections will be performed in accordance with the ***Phantom 2 User Manual*** and the ***Vertical Access Flight Operations Manual***.

VI. Public Interest

An exemption for Vertical Access to use UAS commercially would help to fulfill Congress' goal in assessing whether certain UAS may operate safely in the NAS.

The exemption is in the public interest as it offers a safer and more cost-effective option for inspecting buildings, chimneys, bridges, dams, and other infrastructure than other traditional methods.

The use of a small, relatively inexpensive, and lightweight UAS offers a safer alternative to industrial rope-access methods. Such methods put human climbers on these structures, exposing them to the inherent risks of working at extreme heights.

A small UAS is also a safer alternative method to the use of articulating boom cranes for under-bridge inspections. These methods subject human operators to the risk of falls from height, entrapment due to mechanical failures, and the dangers of moving traffic nearby. Furthermore, these methods require coordination to close traffic lanes, reducing traffic flow. Vehicles, including the boom truck and associated work vehicles, are parked in lanes directly adjacent to moving traffic putting public motorists and workers at increased risk.

Lastly, UAS operations would provide a higher level of safety than inspection services for buildings, chimneys, bridges, dams, and other infrastructure using manned aircraft. Such operations put pilots and crewmembers at risk. Lightweight and powered by batteries, the UAS provides a much safer option than that of a large and extremely heavy aircraft laden with highly explosive fuel.

VII. Privacy

As mentioned above, all flights will occur in an area that is pre-determined, limited, and controlled as to access. Privacy will not be an issue where flights occur over private property. In the event flights will occur over public lands, prior permission will be requested from all official personnel and organizations relevant to the pre-determined flight zone.

VIII. Publication Summary

The petitioner, Vertical Access LLC, seeks exemption from the following rules to commercially operate UAS in the National Airspace for inspections of: (1) buildings, (2) chimneys, (3) bridges, (4) dams, and (5) other infrastructure.

14 CFR Part 21, Subpart H: Airworthiness Certificates and 14 CFR § 91.203(a)(1)

14 CFR § 61.56 Flight review

14 CFR § 61.113: Private pilot privileges and limitations: Pilot in command

14 CFR § 91.7(a): Civil aircraft airworthiness

14 CFR § 91.119(c): Minimum safe altitudes

14 CFR § 91.121: Altimeter settings

14 CFR § 91.151(a)(1)(2): Fuel requirements for flight in VFR conditions (day)

14 CFR §§ 91.405(a): Maintenance required; 91.407(a)(1): Operation after maintenance, preventative maintenance, rebuilding, or alteration; 91.409(a): Inspections; 91.417 (a)(b): Maintenance records

X. Conclusion

Vertical Access LLC respectfully submits this request for expedited exemption under Section 333 of the Reform Act. Given the small size of the UAS, the willingness of Vertical Access to gain all necessary permissions, and the commencement of clear and well planned operations and maintenance programs, the commercial, UAS use by Vertical Access causes no threat to the general public or others using the National Airspace.

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