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

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

June 23, 2015

Exemption No. 11871
Regulatory Docket No. FAA–2015–0667

Mr. Alfred A. Gates, Ph.D., P.E.
Ms. Kathy Swift, President and CEO
Pinncal X LLC
16 West Cove Road
Moodus, CT 06469

Dear Mr. Gates and Ms. Swift:

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 November 20, 2014, you petitioned the Federal Aviation Administration (FAA) on behalf of Pinnacl X, LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct fire and rescuer operations, wild life management and structural inspection on high tension power lines, towers, buildings, bridges, light poles.

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 Pinnacl X Chameleon Pro.

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, Pinnacl X, LLC is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

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

Conditions and Limitations

In this grant of exemption, Pinnacl X, 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 Pinnacl X Chameleon Pro when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

This exemption terminates on June 30, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

November 20, 2014

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

Re: Exemption Request Under Section333 of the FAA Modernization and Reform Act of 2012 and 14 C.F.R. Part 11

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 ("Reform Act") and 14 CFR Part 11, Pinnacl X, LLC ("Petitioner"), a Connecticut based multicopter manufacturing and utility aerial service company that performs structural inspection on high tension power lines, towers, buildings, bridges, light poles and for fire and rescuer operations and wild life management, hereby seeks exception from the Federal Aviation Regulations ("FARS") to allow commercial operation of small unmanned aerial systems ("sUAS") so long as such operations are conducted within and under conditions outlined herein or as may be established by the FAA as required by Section 333[1].

The exemption is in accordance with protocols outlined in this petition for exemption, protocols defined in the following proprietary and confidential documents:

- Exhibit A: Pinnacl X Multirotor Design Safety Improvement
- Exhibit B: Chameleon Pro Operating Procedures
- Exhibit C: Chameleon Pro maintenance manual
- Exhibit D: Pinnacl X pilot and observer operating procedures
- Exhibit E: Pinnacl X UAS training program course materials
- Exhibit F: Pinnacl X Description of Chameleon Pro quadrotor system
- Exhibit G: Lost communications
- Exhibit H: Flight Restrictions
- Exhibit I: Publication, *Multirotor Unmanned Aircraft Systems (UAS) Advanced Design for High Tension Power Line Inspection*, Presented by Alfred A. Gates at the 2015 AHS Specialist Meeting on Unmanned Rotorcraft and Network-Centric Operations Program, January 20-22, Chandler Arizona
- Exhibit J: Report, *115 KV Power Line Electromagnetic Interference Field Testing Engineering and Safety Study*, by Alfred A. Gates, Department of Engineering CCSU, 4/16/2014

For you convenience, this petition is organized as follows:
1 The conditions proposed by the applicant are drawn from Order 8900.1 CHG 0, Volume 3
2 Petitioner submits Exhibits A-H and J, its Manuals as a Confidential documents under 14 CFR 11.35(b), as the Manuals contain confidential commercial and proprietary. The Manuals contain operating conditions and procedures that are not available to the public and are protected from release under the Freedom of information Act 5 U.S.C. 552 et. Seq.

1. Petitioner's Description

Petitioner is supported by the Chameleon Pro created by Pinnacl X. A small Unmanned Aircraft System (sUAS) that is light weight, four bladed multi-rotor, vertical takeoff and landing (VTOL) sUAS specifically designed for flight in confined areas with in close proximity of high tension power lines and structures. Tethered flight test were performed with the Chameleon Pro next to energized high tension power lines. The Chameleon Pro tethered flight tests were similar to the testing outlined in COA-139-ESC-2013. The tethered flight test results indicate that 115KV power line do not interfere with the Chameleon Pro's autopilot or electrical and power systems, video link, data link or manual flight control system. Exhibit J is the report provided in the COA-139-ESC-2013 application. The Chameleon Pro was designed based on the research conducted by Dr. Alfred Gates from Central Connecticut State University involving structural inspection of high tension power lines, see exhibit I and J. Also employees of Pinnacl X and Dr. Gates have been involved with sUAS research, fixed wing and multicopter since 2006.

To further enhance its aviation safety competence, the petitioner engaged AirOcean to provide additional guidance involving High tension power line and structural inspection using helicopters. AirOcean and Pinnacl X developed the safety check list, maintenance program and flight operations manuals in Exhibits A-E. AirOcean is a fixed based operator at Yalesville heliport. AirOcean routinely perform high tension power line inspection for the utility industry in New England. If granted Pinnacl X will be inspecting the same power lines and towers for structural fatigue and weather damage. Additionally AirOcean performs a variety of commercial operations that include low level fight for wild life monitoring, structural inspection and lifting operations.

Currently, inspection, of high tension power lines and structures require either a tower climbing crew and or high voltage, HV, bucket trucks and crew to perform the inspection. In all cases access to the structure requires a land vehicle. Tower climbs can be extremely dangerous and only 30% of the high tension line structures are accessible by HV bucket trucks. The reaming 70 % of the structures require roadway improvement. In many cases the roadway is through wetlands and travel to the structures can be environmentally harmful. The usage of sUAS will have a minimum environmental impact for inspection. Also the usage of a sUAS eliminates unnecessary structural climbs thereby increasing the safety of the line crew. Additional advantages of sUAS for inspection include the development video and photo data bases for structures. The data base will be a cost effective tool for preventative maintenance resulting in a reduction in power outages. The power line inspection procedures can be applied to other areas of structural inspection which include, towers and bridges, light poles and buildings.

The petitioner intends the sUAS Pilot in Command (PIC) to have passed the privet pilots exam within two years, have passed the Pinnacl X sUAS course and to be current with the Chameleon Pro in addition to the FAA requirements for the location of flight operations. The petitioner also intends the Observer to have received instruction on flight operations involving structural inspection and the Chameleon Pro. Both the PIC and Observer will hold a current Class II medical certificate.

Consistent with the requirements of 14 CFR 11.81(a), petitioner provides the following information in support of its petition for exemption:
The name and address of the petitioner is:
Alfred Gates, Ph.D., P.E.,
Pinnacl X, LLC
16 West Cove Rd.
Moodus CT, 06469

Relevant Statutory Authority

This petition for exemption is submitted to fulfill Congress' goal in passing Section 333(a) through (c) of the Reform Act. In the Reform Act, Congress directed the FAA "to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system" and, under Section 333 of that law, directed the Secretary of Transportation ("FAA Administrator") 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 shall determine, at a minimum:

which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, and operational capability, proximity to airports and populated areas; and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security; and
whether a certificate of waiver, certificate of authorization, or airworthiness certification under section 44704 of title 49, United States Code is required for the operation of unmanned aircraft systems identified under paragraph (1).

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" (Emphasis added).[1]

In addition, the FAA Administrator has general authority to grant exemptions from its safety regulations and minimum standards when the Administrator decides a requested exemption is in the public interest. See 49 U.S.C. § 44701(f) (authorizing the grant of exemptions from a requirement of regulations prescribed pursuant to section 44701(a)-(b) and sections 44702-44716). 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). See 14 CFR § 11.81; FAA, Petition for Exemptions.

Pinnacl X will solely utilize the Chameleon Pro aircraft, maximum takeoff weight of 7.9 pounds with payload (well below the upper limit of 55 or fewer lbs. including payload). This aircraft will operate, under normal conditions at a speed of no more than 23 Knots Indicated Air Speed (KIAS) and have the capability to hover, and move in the vertical and horizontal plane simultaneously. It will operate only in line of sight of the PIC and observer and will operate only within the sterile area approved by the FAA. The sterile area confines the aircraft to airspace that is not currently navigable by manned aircraft per 14 CFR 91.119. Such operations will insure that the sUAS will "not create a hazard to users of the NAS or the public."[4]

[1] Section 333 places the duty on the Administrator, *inter alia,* to craft conditions for the safe operation of the UAS, if it should be determined that the conditions set forth herein do not fulfill the statutory requirements for approval.

Given the small size of the Chameleon Pro and the restricted sterile environment within which it will operate, the petitioner falls squarely within the zone of safety (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 of the UASs and the restricted areas in which the relevant Chameleon Pro sUAS will operate, approval of the application presents no national security issue.

Given the clear direction in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, as amended; the strong equivalent level of safety surrounding the proposed operations and the significant public benefit of dramatically increased safety of aviation versus non-aviation inspection services associated with allowing sUAS technology to support Pinnacl operations, the grant of the requested exemptions is in the public interest. Accordingly, the petitioner respectfully requests that the FAA grant the requested exemption without delay.

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 criterial and other potentially 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) limited; (2) predetermined; (3) strictly controlled as to access, and; (4) would provide an increased level of safety beyond that existing when Pinnacl X personnel are used to accomplish the same purpose.

Petitioner's sUAS is a four bladed multi-rotor, vertical takeoff and landing (VTOL) aircraft, weighting 7.9 or fewer pounds including payload specifically designed for safety and maximum ease of operation. It operates, under normal conditions, at a speed of no more than 23 KIAS and has the capability to hover, and move in the vertical and horizontal plane simultaneously.

Petitioner's Chameleon Pro sUAS will operate in line-of-sight of the PIC and observer and will operate only within a sterile area surrounding objects that are current obstructions to navigable airspace for manned aircraft. Such operations will ensure that the Chameleon Pro sUAS will "not create a hazard to users of the National Airspace System or the public." Given the small size of the sUAS involved and the restricted sterile flight operation environment, this petition for exemption falls squarely within the zone of safety i.e., 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 of the UASs and the restricted areas in which the sUAS will operate, 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 operations, and the significant public benefit, including enhanced safety, reduction in environmental impacts, including reduced emissions associated with allowing UASs for the proposed operations, the grant of the requested exemptions is also in the public interest.

Accordingly, Petitioner respectfully requests that the FAA grant the requested exemption without delay.

Description of Proposed Operations

The Exhibit B Standard Operating Procedures (SOP) describes the policies and procedures for Petitioner's proposed Chameleon Pro sUAS operations. To assist the FAA in its safety assessment of Petitioner's proposed Chameleon Pro sUAS operations, below is a summary of operational limitations and conditions which will ensure an equivalent or higher level of safety to operations conducted under current regulatory guidelines:

The Chameleon Pro sUAS weighs less than 7.9 lbs.

Flights will be operated within line-of-sight of the PIC and Observer.

Maximum total flight time for each operational flight will be 20 minutes. Flights will be terminated at 25% battery power reserve should that occur prior to the 20 minute limit.

Flights will be operated at an altitude of no more than 400 feet above ground level ("AGL") or as specified by the FAA COA for the operating location.

Minimum crew for each operation will consist of the Chameleon Pro sUAS PIC and an Observer.

The PIC will, meet all FAA requirements, which could be an FAA licensed airman with a private pilot's certificate or have passed the privet pilots written exam within the past two year or UAS certificate (when the FAA issues the criteria and procedures for a UAS license) and a second class medical certificate. The required PIC qualifications will vary depending on the location of flight operations. Also the PICmust be current and have passed the written and flight exams required by Pinnacl X.

The Chameleon Pro sUAS pilot will be the PIC. If a pilot certificate holder other than the Chameleon Pro sUAS Pilot is present and possesses the necessary PIC qualifications, that person can also be designated as PIC.

The Chameleon Pro sUAS will only operate within a confined by geo-fence to a sterile area surrounding the structure and under 400’ AGL or altitude defined in the COA for the location of flight. In addition the Chameleon Pro sUAS will also be programed to automatically switch modes from GPS position hold to altitude hold in the event of a GPS signal loss or signal reduction since a geo-fence will also fail in the event of a GPS signal loss.

A pre-flight briefing, in accordance with the SOP (Exhibit B proprietary and confidential material) will be conducted in regard to the planned Chameleon Pro sUAS operations prior to each flight mission. It will be mandatory that all personnel who will be performing duties within the boundaries of the safety perimeter be present for the flight briefing.

Notification of flight operations to the FAA will be consistent with the Certificate of Authorization (COA) requirements. Petitioner will file a NOTAM 72 to 48 hours prior to the

flight operations. Petitioner will notify the airspace controlling authority and or airport management at non-towered airports prior to operating within 5 miles of an airport.

The PIC and Observer have ultimate authority of any fight operation and can cancel as needed.

The PIC and Observer will be trained in operation of Chameleon Pro sUAS and will have received up-to-date maintenance and flight log information on the particular Chameleon Pro sUAS to be operated, as required in Section 3 of the Pinnacl X SOP.

The PIC and Observer will at all times be able to communicate by voice.

Written and/or oral permission from the relevant property holders will be obtained.

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.

If the Chameleon Pro sUAS loses communications or loses its GPS signal, the Chameleon Pro sUAS is equipped with advanced safety features that will allow the Chameleon Pro sUAS to switch modes to a altitude hold mode, there by avoiding a flyaway situation.

The Chameleon Pro sUAS will have the capability to abort a flight in case of unpredicted obstacles or emergencies.

Petitioner Requests Exemption From the Following Regulations

The Federal Aviation Act expressly grants the FAA the authority to issue exemptions. By its terms, this statutory authority includes exempting civil aircraft, as the term is defined under §40101 of the Act, including sUAS, from its safety regulations and minimum standards when the Administrator decides a requested exemption is in the public interest.9

Petitioner seeks an exemption from several interrelated provisions of 14 CFR Parts 21, 45 and 91 for purposes of conducting aerial surveys and inspections using sUAS. Listed below are: (1) the specific sections of 14 CFR for which exemption is sought; and (2) the operating procedures and safeguards that Petitioner has established which will ensure a level of safety equal to or better than the rules from which exemption is sought.

Petitioner acknowledges that some of the below cited requests were addressed in FAA Order 11062 (Grant of Exemption to Astraeus Aerial, Docket FAA-2014- 0352) and for which no action was taken by the FAA. The FAA's analysis did, however, recite the petitioner's information as the basis for the no action; this Petition recites all of the previous sections for which exemptions were requested therein.

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

This petition seeks an exemption from 14 CFR Part 21, Subpart H, which establishes the procedural requirements for the issuance of airworthiness certificates as required by 14 CFR §91.203(a)(1). Given the size, weight, speed and limited, obstructed and unpopulated

operating area associated with the Chameleon Pro sUAS to be utilized by the Petitioner, an exemption from Part 21 Subpart H meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act.

The Federal Aviation Act (49 U.S.C.§ 44701(f)) and Section 333 of the Reform Act both authorize the FAA to exempt aircraft from the requirement for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the particular UAS.

The Chameleon Pro sUAS to be operated here under is less than 7.9 pounds fully loaded, carries neither a pilot nor passenger, carries no explosive materials or flammable liquid fuels, and operates exclusively within a sterile area adjacent to structures that are considered obstructions to manned aircraft. Unlike other civil aircraft, aircraft operations will be tightly controlled and monitored by the PIC and Observer pursuant to the Pinnacl X SOP requirements and in compliance with local public safety requirements. Site security for the area of operation is consistent with existing requirements for maintaining public safety. The operation has been reviewed by a panel of subject matter experts to identify risks and safety requirements to mitigate those risks per Exhibit A Pinnacl X Chameleon Pro Operations.

Equivalent Level of Safety

In all cases, an analysis of these criteria demonstrates that the Chameleon Pro sUAS operated without an airworthiness certificate, in the restricted environment and under the conditions proposed will be at least as safe, or safer, than a conventional rotorcraft operating with an airworthiness certificate issued under 14 CFR Part 21, Subpart H. without the restrictions and conditions of the proposed Chameleon Pro sUAS operations. The same criteria demonstrate that there is no credible threat to national security posed by the Chameleon Pro sUAS, due to its size, speed of operation, location of operation, lack of explosive materials or flammable liquid fuels and inability to carry a substantial external load.

14 C. F.R. Part 27: Airworthiness Standards: Normal Category Rotorcraft.

14 CFR Part 27 sets forth the procedural requirements for airworthiness certification of normal category rotorcraft. To the extent the Petitioner's Chameleon Pro sUAS would otherwise require certification under Part 27, as a rotorcraft, Petitioner requests an exemption from Part 27's airworthiness standards for the same reasons identified in the exemption request from item A. 14 CFR Part 21, Subpart H.

14 C. F.R. §§ 91.9(c), 45.23(b) and 45.27(a). Aircraft Marking and Identification Requirements:

This petition seeks an exemption from the aircraft marking and identification requirements of 14 CFR §§ 91.9(c), 45.23(b) and 45.27(a).

14 CFR § 91.9(c), Civil aircraft flight manual, marking, and placard requirements, provides that:

No person may operate a U.S.-registered civil aircraft unless that aircraft is identified in accordance with part 45 of this chapter.

14 CFR § 45.23(b), Markings of the Aircraft, states:

When marks include only the Roman capital letter "N" and the registration number is displayed on limited, restricted or light-sport category aircraft or experimental or provisionally certificated aircraft, the operator must also display on that aircraft near each entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches nor more than 6 inches high, the words "limited," "restricted," "light-sport," "experimental," or "provisional," as applicable.

14 CFR § 45.27(a), Rotorcraft, states:

Each operator of a rotorcraft must display on that rotorcraft horizontally on both surfaces of the cabin, fuselage, boom, or tail the marks required by §45.23.

Exemption from § 45.23(b) is warranted because the Chameleon Pro sUAS has no cabin, cockpit, or pilot station or entrance of any kind on which the word "Experimental" can be placed. Moreover, given the size of the Chameleon Pro sUAS, two-inch lettering would be impossible. The word "Experimental" will be placed on the fuselage in compliance with § 45.29(f).

Given the nature of the specific relief sought by this exemption request, Petitioner requires relief from the associated marking and identification requirements of § 45.27(a) and § 91.9(c), which would require compliance with § 45.23(b).

Equivalent Level of Safety

An equivalent level of safety for exemptions to the aircraft marking and identification requirements of §§ 91.9(c), 45.23(b) and 45.27(a), will be provided by having the sUAS marked on its fuselage as required by §45.29(f) where the pilot, observer, and others working with the sUAS will see the identification of the UAS as "Experimental." Additionally, Petitioner will ensure compliance with any requests of sUAS marking by the FAA.

The FAA has issued the following exemptions to the aircraft marking requirements of § 45.23(b): Exemptions Nos. 10700, 8738, 10167 and 10167A.

14 C. F.R. § 61.113 (a) & (b): Private Pilot Privileges and Limitations: Pilot in Command.

This petition seeks an exemption from the private pilot privileges and limitations of §61.113 (a) & (b), which states:

Private pilot privileges and limitations: Pilot in command.

(a) Except as provided in paragraphs (b) through (h) of this section, no person who holds a private pilot certificate may act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.

(b) A private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if:

(1) The flight is only incidental to that business or employment; and

(2) The aircraft does not carry passengers or property for compensation or hire. Private Pilot Privileges and Limitations: Pilot in Command.

Except as provided in paragraphs (b) through (h) of this section, no person who holds a private pilot certificate may act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.

A private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if:

The flight is only incidental to that business or employment; and the aircraft does not carry passengers or property for compensation or hire. Section 61.113(a) limits private pilots to being in command of non-commercial flights. Section 61.113(b) (1) provides an exception that allows a private pilot to command an aircraft without passengers or property, in connection with business or employment if “the flight is only incidental to that business or employment." That exception likely does not apply to the proposed operations under this petition for exemption, as the flights are not incidental to the proposed aerial surveys and inspections but rather essential to it. Accordingly, this petition seeks an exemption to § 61.113(a)'s commercial limitation and/or § 61.113(b) (1)'s requirement that the flight be incidental to the business to benefit from the exception.

Equivalent Level of Safety

As required by the SOP (Exhibit B), Petitioner's Chameleon Pro sUAS operators acting as PIC will hold a private pilot license or UAS pilot certificate (when the FAA issues the regulations for applying for a UAS pilot certificate) and flight training specific to flight around high tension power lines and structures developed by Pinnacl X . Because the Chameleon Pro sUAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety to § 61.113 (a) and (b), by requiring the PIC operating the sUAS to have a private pilot license or UAS certificate and flight training specific to the Chameleon Pro .

Unlike a conventional aircraft that carries the pilot and passengers, the Chameleon Pro sUAS is remotely controlled with no living being on board. Moreover, the area of operation is controlled and restricted, and all flights are planned and coordinated in advance as set forth in the Pinnacl X SOP.

The level of safety provided by the requirements included in the Pinnacl X SOP exceeds that provided by a single individual holding a commercial pilot's certificate operating a conventional aircraft in accordance with § 61.113 (a) & (b). The risks associated with the operation of small, lightweight UAS in an airspace adjacent to obstructions are diminished from the level of risk associated with commercial operations contemplated by Part 61 when drafted, that allowing the proposed operations in this petition for exemption with a PIC holding a private pilot license or UAS pilot certificate exceeds the present level of safety achieved by §61.113 (a) & (b).

14 C. F.R. § 91.7(a): Civil Aircraft Airworthiness.

This petition seeks an exemption from 14 CFR § 91.7(a), which requires that a civil aircraft be in an airworthy condition to be operated. In as much there will be no airworthiness certificate issued for the sUAS, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness.

Equivalent Level of Safety

The Chameleon Pro sUAS has been developed from the experimentation and flight testing within close proximity of energized high tension power lines, performed by Alfred A. Gates. His research was recently presented at the prestigiously 2015 International American Helicopter Society Specialist Meeting on Unmanned Rotorcraft and Network-Centric Operations Program, exhibit I. The flight testing included over 100 test flight under Central Connecticut State Universities COAs. Given the size of the sUAS, the requirements contained in the Exhibit B Pinnacl X SOP, Exhibit C Chameleon Pro Manual, the training requirements of the PIC and Observer and use of safety checklists prior to each flight, an equivalent level of safety will be provided.

The FAA has issued the following exemptions to this regulation: Exemption Order 11062.

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

This petition seeks an exemption from the flight manual requirements of 14 CFR § 91.9(b) (2), which states:

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

Given its size, configuration, and load capacity, the Chameleon Pro sUAS has no ability to carry such a manual on the aircraft, not only because there is no pilot on board, but because there is simply no room or capacity to carry such an item on the aircraft.

Equivalent Level of Safety

The safety related purpose of this manual requirement can be equally satisfied by maintaining the Exhibit C Chameleon Pro Manual at the ground control point where the pilot flying the Chameleon Pro sUAS will have immediate access to it. Accordingly, Petitioner requests an exemption from § 91.9(b) (2)'s flight manual requirements, on the condition that the Chameleon Pro sUAS flight manual be available at the control point during each operation.

The FAA has issued the following exemptions to this regulation: Exemption Order 11062.

14 C. F.R. § 91.103: Preflight Action.

This petition seeks an exemption from § 91.103, which requires a PIC to become familiar with specific information before each flight, including information contained in the FAA -approved Flight Manual on board the aircraft. In as much as an FAA approved flight manual will not be provided for the sUAS, an exemption will be needed.

Equivalent Level of Safety

An equivalent level of safety will be provided by following the Exhibit C Chameleon Pro Manual comprehensive preflight checklist and Exhibit B Pinnacl X Section 3 General Preflight Checklist. The PIC will take all actions, including reviewing weather and NOTAMs, flight battery requirements, landing and takeoff distances, and aircraft performance data, before initiation of flight.

14 C. F.R. § 91.109(a): Flight Instruction.

This petition seeks an exemption from 14 CFR § 91.109(a), which provides that:

No person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls…

sUASs and remotely piloted aircraft, by their design do not have fully functional dual controls. Instead, flight control is accomplished through the use of a control box that communicates with the sUAS via radio communications.

Equivalent Level of Safety

Given the size and speed of the Chameleon Pro sUAS, an equivalent level of safe training can still be performed without dual controls because no pilot or passengers are aboard the Chameleon Pro sUAS, the system is equipped with an automatic come home feature that can be triggered at any time to respond to unpredicted challenges and all persons will be a safe distance away should the Chameleon Pro sUAS experience any difficulties during flight instruction. Additionally, the aircraft's light weight and slow speeds with no pilot or passengers on board create less of a danger to the public than aircraft equipped with dual controls.

The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircraft and for flight instruction in experimental aircraft (See Exemption Nos. 5778K & 9862A) and other sUASs (See FAA Order 11062).

14 C. F.R. § 91.119: Minimum Safe Altitudes.

This petition seeks an exemption from the minimum safe altitude requirements of 14 CFR § 91.119. Section 91.119 prescribes the minimum safe altitudes under which aircraft may not operate, including 500 feet above the surface and away from any person, vessel, vehicle, or structure in non-congested areas. See 14 CFR § 91.119(c). Section § 91.119(d) (1) 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 inspections, the Chameleon Pro sUAS will normally need to be operated within a range of 100 feet laterally from the structure being inspected and under 400' AGL. Accordingly, due to the nature of the proposed operations, the PIC and the Observer will be less than 300 feet away from structures during the operation, and an exemption is therefore required.

Equivalent Level of Safety

Compared to flight operations with rotorcraft weighting far more than the maximum 7.9 lbs. proposed herein, and the lack of flammable fuel, any risk associated with these operations is far less than those presently presented with conventional aircraft. An equivalent level of safety will be achieved given the size, weight, speed of the UAS as well as the location where it is operated. As set forth in the Exhibit B Pinnacl X SOP, the Chameleon Pro sUAS will be operated in a geo-fenced sterile area, where buildings and people will not be exposed to operations without their pre-obtained consent. No flight will be taken without the permission of the property owner and/or local officials. Because of the advance notice to the property owner and participants, all affected individuals will be aware of the planned flight operations as set forth in the SOP. Furthermore, by operating at such lower altitudes adjacent to obstructions, the Chameleon Pro sUAS will not interfere with other aircraft that are subject to the minimum safe altitude regulations.

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

This petition 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 Chameleon Pro 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 General Preflight Checklist in Exhibit B Pinnacl X SOP. As prescribed in the SOP, the operator will confirm the altitude of the launch site shown on the GPS altitude indicator before flight. The flight plan will be programmed to maintain appropriate altitude above ground and under 400' AGL or as specified with in the COA for the location. Moreover, the PIC will use the GPS altitude indicator to constantly monitor the Chameleon Pro sUAS's height, thus ensuring operation at safe altitudes.

14 C. F.R. § 91.151(a): Fuel Requirements for Flight in V F R Conditions.

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

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-
During the day, to fly after that for at least 30 minutes; or
At night, to fly after that for at least 45 minutes.

The battery powering the Chameleon Pro sUAS provides approximately 20 minutes of powered flight. An exemption from the 20 minute reserve requirement in 14 CFR §91.151 is therefore required.

Equivalent Level of Safety

An equivalent level of safety can be achieved by limiting flights to 20 minutes or 25% of battery power, whichever happens first. This restriction would be more than adequate to return the Chameleon Pro sUAS to its launch location from anywhere within its limited operating area. Operation of the Chameleon Pro sUAS with less than 20 minutes of reserve fuel does not engender the type of risks that Section 91.151(a) was intended to alleviate given the size and speed of the Chameleon Pro . Moreover, operation will be limited to controlled areas where only people and property owners, or official representatives who have signed waivers will be allowed.

This request for exemption falls within the scope of prior exemptions. See e.g. Exemption Order 11062

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

This petition seeks an exemption from civil aircraft certification and registration requirements of 14 CFR § 91.203 (a) and (b). The regulation provides in pertinent part:

Except as provided in §91.715, no person may operate a civil aircraft unless it has within it the following:

An appropriate and current airworthiness certificate….

No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under §91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

In addition to the fact that Petitioner is seeking an exemption from the airworthiness certificate requirements, an exemption to this regulation is necessary because:
The Chameleon Pro load capacity and size does not allow it to carry certification and registration documents;
The Chameleon Pro does not have a cabin or cockpit entrance at which the documents could be displayed; and
There are no passengers or crew for whom the certificates need be displayed.

Equivalent Level of Safety

An equivalent level of safety will be achieved by keeping these documents, to the extent they are applicable to the Chameleon Pro sUAS, at the ground control point where the pilot flying the Chameleon Pro sUAS will have immediate access to them.

The FAA has issued numerous exemptions to this regulation. See, inter alia, Exemption Order 11062

14 C. F.R. §§ 91.405(a); 91.407(a) (1); 91.409(a) (2); 91.417 (a) & (b): Maintenance Inspections.

This petition seeks an exemption from the maintenance inspection requirements of 14 CFR §§ 91.405(a); 91.407(a) (1); 91.409(a) (2); 91.417 (a) & (b). Which state:

These regulations specify maintenance and inspection standards in reference to 14 CFR Part 43. See, e.g., 14 CFR § 91.405(a) (stating that each owner or operator of an aircraft "[s]hall have that 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 apply only to aircraft with an airworthiness certificate, which the Chameleon Pro 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 the Exhibit C Chameleon Pro Manual. The operator will ensure that the Chameleon Pro sUAS is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. The operator is 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 Chameleon Pro sUAS can land immediately. Moreover, the Chameleon Pro sUAS small size, carrying capacity, and the fact that flight operations will only take place in restricted areas for limited periods of time, create less risk than the same factors associated with conventional fixed-wing aircraft and rotorcraft performing the same operation.

Public Interest

Consistent with the requirements of 14 CFR §11.81(d), Petitioner offers the following reasons why granting this petition for exemption is in the public interest, i.e., how granting it would benefit the public as a whole.

Approval of exemptions allowing commercial operations of small and lightweight sUAS in the utility aerial services industry benefits the public as a whole in the following ways:

It helps fulfill Congress' goal in passing Section 333(a) through (c) of the Reform Act, namely, the FAA Administrator's assessment of whether certain UAS may operate safely in the National Airspace System before completion of the rulemaking required under Section 332 of the

Reform Act.

The operation significantly improves safety and reduces risk by alleviating human exposure to danger associated with current inspection methods, namely, tower climbs and helicopter flight. The public's interest is furthered by reducing human exposure to death or serious injury associated with personnel performing structure or tower inspections and patrols. In addition the use sUAS for inspection has a minimal impact on the environment. Also the use of sUAS for inspection will provide a video or photo data base for preventive maintenance thereby reducing the number of power outages in the utility industry.

Petitioner's Chameleon Pro sUAS is battery powered and creates no emissions. If Petitioner's Chameleon Pro sUAS crashes, there is no fuel to ignite and explode. Any impact of Petitioner's lightweight Chameleon Pro sUAS is, obviously, far less than potentially harmful emissions associated with cranes and lift equipment. The public's interest is furthered by minimizing ecological impact of an accident and by reducing human exposure to emissions.

Visual surveys are valuable tools for structure inspections. However, the obstructed environment with cables and power lines impede aerial surveys and inspections from conventional manned aircraft. The use of the Chameleon Pro sUAS addresses these problems and is a powerful tool for performing a wide-range of structure inspection and patrol applications. The public as a whole will benefit from the safer and more cost-effective utility aerial services that Chameleon Pro sUAS operations provide.

Privacy

All flights will occur over Petitioner's property or the customer's property with the customer's prior consent and knowledge.

Federal Register 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:

Pinnacl X, LLC seeks an exemption from the following rules:

14 CFR Part 21, Subpart H; 14 CFR § 91.203(a)(1);14 CFR Part 27: 14 CFR §§ 91.9(c), 45.23(b) and 45.27(a);14 CFR § 61.113 (a) & (b);14 CFR § 91.7(a); 91.9(b)(2); 91.103; 91.109(a); 91.119; 91.121; 91.151(a); 91.203 (a) & (b); 91.405(a); 91.407(a)(1); 91.409(a)(2); 91.417 (a) & (b)

Approval of exemptions allowing commercial operations of small and lightweight unmanned aircraft ("sUAS") in the structure inspection industry will enhance safety by reducing risk to human life. Conventional operations in this industry using personnel to climb structures present the risks associated with unknown hazards that often lead to accidents, incidents and fatalities.

In contrast, the Chameleon Pro sUAS weighing fewer than 7.9 lbs. and powered by batteries eliminates virtually all of that risk, given the reduced mass and lack of combustible fuel carried on board. The Chameleon Pro sUAS is transported, not flown, to the designated survey area

and set up. The Chameleon Pro sUAS carries no passengers or crew and provides the inspection services eliminating the requirement for personnel to climb the structure and, therefore does not expose personnel to the risks associated with unknown hazards.

The operation of sUASs like the Chameleon Pro, weighing less than 7.9 lbs., provides an equivalent level of safety and thus supports the grant of the exemptions requested herein, including exempting the applicant from the requirements of Part 21 and allowing commercial operations. The lightweight sUASs operate at slow speeds, close to the ground, and in a sterile environment adjacent to obstructions. As a result, they are far safer than conventional aerial survey and inspection operations conducted with fixed-wing aircraft or helicopters or manned tower climbs.

Conclusion

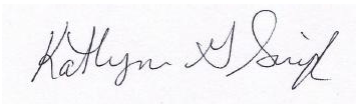
The Chameleon Pro as a result of its size, weight, speed, operational capability, distance from airports and populated areas and operation within a contained area adjacent to obstacles within visual line of sight do not create a hazard to users of the national airspace system or pose a threat to national security. Adequate justification exists for the grant of the requested exemptions allowing commercial operation of Pinnacl X LLC's Chameleon Pro sUAS in the utility structure services industry and telecommunication and in accordance with Exhibit A, B, C, D, E, F, G, H, I and J appended hereto.

If additional information is required, or if you have any questions regarding this Petition for Exemption, please contact Alfred A. Gates at Pinnacl X (860 301-2117); kswiftgates@aol.com) for technical questions for any legal issues.

Pinnacl X, LLC. Exemption Request
Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations
Exhibits A, B, C, D

Confidential commercial and proprietary information protected under 14 CFR § 11.35(b) and are protected from release under the Freedom of information Act 5 U.S.C. § 552 et.seq. The information contained in this exhibit has been submitted in the physical copies which mailed to the FAA Office of Rulemaking (ARM). If more copies are needed by FAA, requests made to Alfred A. Gates will be honored.

Respectfully Submitted,



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Pinnacl X

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