JDA **Aviation Technology Solutions**

Established 1994 - Aviation's independent and most trusted partner for safety and performance

4720 Montgomery Lane, Suite 950 • Bethesda MD 20814 • (301) 941-1460 • www.jdasolutions.aero

11/3/2014

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

Re: Exemption Request Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations from 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)

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 ("Reform Act") and 14 CFR Part 11, Solusia Air, LLC ("Petitioner"), a utility aerial service company that performs telecommunications and utility structure inspection, construction and maintenance services, hereby applies for an exemption from Federal Aviation Regulations ("FARs") identified below, to allow commercial operation of small unmanned aerial systems ("sUAS") so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.[1]

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

Exhibit A - Solusia Air Operations of the Aibotix Aibot X6 sUAS Safety Risk Management Document (SRMD);
Exhibit B - Solusia Air Standard Operating Procedures (SOP);
Exhibit C - Aibot X6-V2 Manual containing Flight and Maintenance Information;
Exhibit D - Solusia Air Safety Program; and

any other requirements established by the FAA pursuant to Section 333 of the Reform Act.[2]

For your 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-D, its Manuals, as a Confidential documents under 14 CFR § 11.35(b), as the Manuals contain confidential commercial and proprietary information that the Petitioner has not and will not share with others. 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.

I. Petitioner's Description

Petitioner is supported by Aibotix the manufacturer of the Aibot X6 a small Unmanned Aircraft System (sUAS) that is a lightweight, six bladed multi-rotor, vertical takeoff and landing (VTOL) sUAS specifically designed for safety and ease of operation.

The principals of Solusia Air have been in the business of telecommunications and utility structure inspection, construction and maintenance business for 16 years for the parent company Solusia. Through that experience, the principals have developed a strong safety culture.

To further enhance its aviation safety competence, the petitioner engaged JDA Aviation Technology Solutions (JDA) to provide aviation safety, certification and compliance expertise and to assist them implement a Safety Management Systems (SMS). As a precursor to the intended Solusia Air operation, a Safety Risk Assessment (SRA) was completed and recorded in Exhibit A the Safety Risk Management Document (SRMD). The SRMD assessed and mitigated potential risks of the Aibot X6 operations in precise confines of the tower structures that will be inspected. The SRMD will also serve as the baseline for the SMS and help ensure that the operations of the petitioner will comply with rigorous safety operation standards and procedures.

Currently, inspection, construction and maintenance of telecommunication and utility structures require employees to climb the structures or towers. Tower climbs involve the largest risk to personnel safety to Solusia Air personnel. On average since 2003, there have been 10 wireless telecom tower fatalities per year in the US. There have been nine fatalities to date in 2014. Solusia Air intends to utilize sUAS technology to reduce risks to their employees associated with tower climbs by first utilizing the Aibot X6 to pre-inspect to determine if a climb is necessary and second to identify hazards to be mitigated before climbing.

The petitioner intends the sUAS Pilot in Command (PIC) to have either a private pilot license (PPL) or an Unmanned Aircraft System (UAS) certificate (when it is available). They also intend to use a Safety Officer (SO) to act as an on-site observer for each mission. Both the PIC and the SO will hold Class II medicals and have unique training specific to Solusia Air Aibot X6 operations.

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:

Chris Moccia, CEO
Solusia Air, LLC
3355 Lenox Road, Suite 750

Atlanta, GA 30326
404.272.4905

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. 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:

(1) 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
(2) 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).[3]

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.

Solusia Air will solely utilize the Aibot X6 aircraft, maximum takeoff weight of 13.22 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 22 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 SO and will operate only within the sterile area defined by 100' radius surrounding the telecommunications or utility structure and under 400' AGL. The sterile area confines the aircraft to airspace that is not currently navigable by manned aircraft per 14 CFR

[3] 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.

91.119. Such operations will insure that the sUAS will “not create a hazard to users of the NAS or the public.”[4]

Given the small size of the Aibot X6 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 Aibot X6 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 Solusia Air 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.

III. 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 Solusia Air personnel are used to accomplish the same purpose.

Petitioner's sUAS is a six bladed multi-rotor, vertical takeoff and landing (VTOL) aircraft, weighting 13.22 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 22 KIAS and has the capability to hover, and move in the vertical and horizontal plane simultaneously.

Petitioner's Aibot X6 sUAS will operate in line-of-sight of the PIC and SO 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 Aibot X6 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.

IV. Description of Proposed Operations

The Exhibit B Standard Operating Procedures (SOP) describes the policies and procedures for Petitioner's proposed Aibot X6 sUAS operations. To assist the FAA in its safety assessment of Petitioner's proposed Aibot X6 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:

1. The Aibot X6 sUAS weighs less than 13.22 lbs.

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

3. Maximum total flight time for each operational flight will be 30 minutes. Flights will be terminated at 27% battery power reserve should that occur prior to the 30 minute limit.

4. Flights will be operated at an altitude of no more than 400 feet above ground level ("AGL").

5. Minimum crew for each operation will consist of the Aibot X6 sUAS PIC and an SO.

6. The PIC will be an FAA licensed airman with a private pilot's certificate or UAS certificate (when the FAA issues the criteria and procedures for a UAS license) and a second class medical certificate.

7. The Aibot X6 sUAS pilot will be the PIC. If a pilot certificate holder other than the Aibot X6 sUAS Pilot is present and possesses the necessary PIC qualifications, that person can also be designated as PIC.

8. The Aibot X6 sUAS will only operate within a confined by geo-fence to a sterile area defined by 100’ radius surrounding the telecommunications or utility structure and under 400’ AGL.

9. A pre-flight briefing, in accordance with the SOP (Exhibit B proprietary and confidential material) will be conducted in regard to the planned Aibot X6 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.

10. Notification of flight operations to the FAA will be consistent with the Certificate of Authorization (COA) requirements. Petitioner will notify air traffic control or airport management at non-towered airports prior to operating within 5 miles of an airport.

11. Solusia Air will obtain consent of the PIC and SO to be within 30 feet of the flight operation.

12. The PIC and SO will be trained in operation of Aibot X6 sUAS and will have received up-to-date maintenance and flight log information on the particular Aibot X6 sUAS to be operated, as required in Section 3 of the Solusia Air SOP.

13. The PIC and SO will at all times be able to communicate by voice and/or text.

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

15. 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.

16. If the Aibot X6 sUAS loses communications or loses its GPS signal, the Aibot X6 sUAS is equipped with advanced safety features that will allow the Aibot X6 sUAS to automatically return to the launch location within the geo-fence perimeter.

17. The Aibot X6 sUAS will have the capability to abort a flight in case of unpredicted obstacles or emergencies.

V. 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.

A. 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 Aibot X6 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 Aibot X6 sUAS to be operated hereunder is less than 13.22 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 SO pursuant to the Solusia Air 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 Solusia Air Aibotix Aibot X6 Operations SRMD.

Equivalent Level of Safety

In all cases, an analysis of these criteria demonstrates that the Aibot X6 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 Aibot X6 sUAS operations. The same criteria demonstrate that there is no credible threat to national security posed by the Aibot X6 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.

B. 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 Aibot X6 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.

C. 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 Aibot X6 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 Aibot X6 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.

D. 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 Aibot X6 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 manufacturers flight training specific to the Aibot X6. Because the Aibot X6 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 Aibot X6.

Unlike a conventional aircraft that carries the pilot and passengers, the Aibot X6 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 Solusia Air SOP.

The level of safety provided by the requirements included in the Solusia Air 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).

E. 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. Inasmuch 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 Aibot X6 sUAS has over 200 commercial operators around the world and a stellar safety record. Given the size of the sUAS, the requirements contained in the Exhibit B Solusia Air SOP, Exhibit C Aibot X6 Manual, the training requirements of the PIC and SO 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.

F. 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 Aibot X6 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 Aibot X6 Manual at the ground control point where the pilot flying the Aibot X6 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 Aibot X6 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.

G. 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. Inasmuch 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 Aibot X6 Manual comprehensive preflight checklist and Exhibit B Solusia Air 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.

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

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

> (a) 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 Aibot X6 sUAS, an equivalent level of safe training can still be performed without dual controls because no pilot or passengers are aboard the Aibot X6 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 Aibot X6 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).

I. 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 telecommunication and utility structure inspections, the Aibot X6 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 SO will be less than 100 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 13.22 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 Solusia Air SOP, the Aibot X6 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 Aibot X6 sUAS will not interfere with other aircraft that are subject to the minimum safe altitude regulations.

J. 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 Aibot X6 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 Solusia Air 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. Moreover, the PIC will use the GPS altitude indicator to constantly monitor the Aibot X6 sUAS's height, thus ensuring operation at safe altitudes.

K. 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:

(a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed-
(1) During the day, to fly after that for at least 30 minutes; or
(2) At night, to fly after that for at least 45 minutes.

The battery powering the Aibot X6 sUAS provides approximately 30 minutes of powered flight. An exemption from the 30 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 30 minutes or 27% of battery power, whichever happens first. This restriction would be more than adequate to return the Aibot X6 sUAS to its launch location from anywhere within its limited operating area. Operation of the Aibot X6 sUAS with less than 30 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 Aibot X6. 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

L. 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:

> (a) Except as provided in §91.715, no person may operate a civil aircraft unless it has within it the following:
>
> (1) An appropriate and current airworthiness certificate….
>
> (b) 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:
(1) The Aibot X6 load capacity and size does not allow it to carry certification and registration documents;
(2) The Aibot X6 does not have a cabin or cockpit entrance at which the documents could be displayed; and
(3) 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 Aibot X6 sUAS, at the ground control point where the pilot flying the Aibot X6 sUAS will have immediate access to them.

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

M. 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 Aibot X6 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 Aibot X6 V2 Manual. The operator will ensure that the Aibot X6 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 Aibot X6 sUAS can land immediately and will be operating no higher than 400 feet AGL. Moreover, the Aibot X6 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.

VI. 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 telecommunications survey and inspection methods, namely, tower climbs. The public's interest is furthered by reducing human exposure to death or serious injury associated with personnel performing telecommunications and utility structure or tower inspections and patrols.

- Petitioner's Aibot X6 sUAS is battery powered and creates no emissions. If Petitioner's Aibot X6 sUAS crashes, there is no fuel to ignite and explode. Any impact of Petitioner's lightweight Aibot X6 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 telecommunications and utility structure inspections. However, the obstructed environment with cables and power lines impede aerial surveys and inspections from conventional manned aircraft. The use of the Aibot X6 sUAS addresses these problems and is a powerful tool for performing a wide-range of telecommunication and utility structure inspection and patrol applications. The public as a whole will benefit from the safer and more cost-effective utility aerial services that Aibot X6 sUAS operations provide.

VII. Privacy

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

VIII. 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:

Solusia Air, 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 telecommunications and utility structure inspection industry will enhance safety by reducing risk to human life. Conventional operations in

this industry using personnel to climb telecommunication and utility structures present the risks associated with unknown hazards that often lead to accidents, incidents and fatalities.

In contrast, the Aibot X6 sUAS weighing fewer than 13.22 lbs. and powered by batteries eliminates virtually all of that risk, given the reduced mass and lack of combustible fuel carried on board. The Aibot X6 sUAS is transported, not flown, to the designated survey area and set up. The Aibot X6 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 Aibot X6 , weighing less than 13.22 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.

IX. Conclusion

The Aibot X6 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 Solusia Air LLC's Aibot X6 sUAS in the telecommunication and utility structure services industry in accordance with Exhibit A, B, C and D appended hereto.

If additional information is required, or if you have any questions regarding this Petition for Exemption, please contact Joe Del Balzo at JDA (301-941-1462; jdelbalzo@jdasolutions.aero) for technical questions and as to any legal issues, JE Murdock III (202-333-5986; sandy_murdock@yahoo.com) for any legal issues.

Solusia Air, 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 were hand delivered at the FAA Office of Rulmaking (ARM). If more copies are needed by FAA, requests made to Joseph Del Balzo will be honored

Respectfully Submitted,

Joseph Del Balzo
JDA Aviation Technology Solutions
Agent for Solusia Air

Chris Moccia
President & CEO
Solusia Air