UNITED STATES OF AMERICA

DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

WASHINGTON, DC.

Regulatory Docket No. _____

IN THE MATTER OF THE PETITION FOR EXEMPTION OF:

VENTUS WIND LLC,

FOR AN EXEMPTION SEEKING RELIEF FROM THE REQUIREMENTS OF TITLE 14 OF THE CODE OF FEDERAL REGULATIONS (14 CFR) PART 21 SECTIONS; §§ 45.23(b), 61.113(a) and (b), 91.7(a), 91.9(b)(2), 91.103, 91.109, 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a) and (b).

CONCERNING OPERATION OF AN UNMANNED AIRCRAFT SYSTEM

PURSUANT TO SECTION 333 OF THE

FAA MODERNIZATION AND REFORM ACT OF 2012

Submitted on January 20, 2015

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GLOSSARY OF ABBREVIATIONS

AGL	Above Ground Level
ATC	Air Traffic Control
COA	Certificate of Authorization
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
NAS	National Airspace System
Section 333	FAA Modernization and Reform Act of 2012, Section 333
SMS	Safety Management System
UAV	Unmanned Aircraft System
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VTOL	Vertical Take Off and Landing

SUMMARY

Ventus Wind LLC., seeks exemption from the requirements of 14 C.F.R. §§ 45.23(b), 61.113(a) and (b), 91.7(a), 91.9(b) (2), 91.103, 91.109, 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 1.407(a)(1), 91.409(a)(2), and 91.417(a) and (b)., as well as the restricted category airworthiness certification standards specified in 14 C.F.R. § 21.185, including the requirement to have a certificate of airworthiness as contemplated by 14 C.F.R. Part 21.

This exemption will permit Ventus Wind, LLC. to operate its various Unmanned Aircraft Vehicles ("UAV") at or above wind power generation facilities, onshore oil & gas facilities, onshore pipelines and other remote/uninhabited locations, while keeping the documents required by the regulations at the ground control station and immediately accessible to the pilot in command. Furthermore, the exemption will relieve Ventus, LLC. from the airworthiness certificate standards and the requirement to have a certificate of airworthiness issued for its UAV. This exemption will also permit any required markings concerning the operational status of its UAV to be displayed on the main section of the unmanned aircraft.

INTRODUCTION AND INTERESTS OF THE PETITIONER

Ventus, LLC. (Hereinafter referred to as "Ventus") is a 5 year old wind power plant inspection firm with a long and well-recognized history in 3rd party inspections, Operations & Maintenance, Expert Witness Services and Root Cause Analysis of failures in the power generation and composites industry. Ventus has an extensive history of utilizing multi-rotor Vertical Take Off and Landing Unmanned Aerial Vehicles, (VTOL) (UAV's), for the purpose of making highly accurate aerial inspections of wind turbine rotor blades and onshore pipelines for a range of clients and various similar applications.

Since 2009, Ventus has been operating a variety of VTOL aircraft for wind power plant aerial inspections and will continue to acquire additional UAV's all under 55 lbs in weight. As set forth in this Petition, Ventus seeks to operate its UAV's for the special purpose of aerial inspections of its legacy power generation customers and to expand to support the growth of new customers in the onshore and offshore regions of the United States. Ventus plans to do this with a continued focus on safety and the highest standards of quality, maintenance and reliability.

BACKGROUND

Unmanned Aircraft Vehicle: DJI PHANTOM II UAV

Ventus seeks an exemption to operate its existing DJI PHANTOM II UAV, for compensation or hire within the national airspace system ("NAS").

The DJI PHANTOM II UAV is comprised of a VTOL unmanned aircraft and a transportable ground station. The DJI PHANTOM II UAV has a maximum gross weight of approximately one (1) pound and the following technical and operational specifications:

Weight (Battery & Propellers included)-1030g

Hover Accuracy (Ready to Fly)-Vertical: 0.8m; Horizontal: 2.5m

Max Yaw Angular Velocity-200°/s

Max Tilt Angle-35°

Max Ascent / Descent Speed-Ascent: 6m/s; Descent: 2m/s

Max Flight Speed-15m/s

Diagonal Length-350mm

Power Consumption-5.6W

Flight Time-25mins

Take-off Weight-≤1300g

Operating Temperature--10°C ~ 50°C

Supported Battery-DJI Intelligent Battery

Type-3S LiPo

Capacity-5200mAh, 11.1V

Charging Environment Range-0℃ to 40℃

Discharging Environment Range--20℃ to 50℃

Operating Frequency-2.4GHz ISM

Communication Distance (open area)-1000m

Receiver Sensitivity (1%PER)--97dBm

Working Current/Voltage-100 mA@6V

Battery-4 AA Batteries

The DJI PHANTOM II unmanned aircraft is equipped with four (4) propellers driven by

Four (4) Lithium Polymer battery powered electric motors.

FIGURE 1: VENTUS's DJI PHANTOM II with GoPro Hero 3 Camera System

[1] Ventus will submit an Aircraft Registration Application for each UAV upon the grant of the exemptions sought by this Petition.

Unmanned Aircraft Vehicle: Inspire 1 UAV

Ventus seeks an exemption to operate its existing Inspire 1, UAV, for compensation or hire within the national airspace system ("NAS").

The Inspire 1 UAV is comprised of a VTOL unmanned aircraft and a transportable ground station. The Inspire 1 UAV has a maximum gross weight of approximately six and one half (6.5) pounds and the following technical and operational specifications:

Aircraft Model	T600
Weight (Battery Included)	2935 g
Hovering Accuracy (GPS mode)	Vertical: 0.5 m
	Horizontal: 2.5 m
Max Angular Velocity	Pitch: 300°/s
	Yaw: 150°/s
Max Tilt Angle	35°
Max Ascent Speed	5 m/s
Max Descent Speed	4 m/s
Max Speed	22 m/s (ATTI mode, no wind)
Max Flight Altitude	4500 m
Max Wind Speed Resistance	10 m/s
Max Flight Time	Approximately 18 minutes
Motor Model	DJI 3510
Propeller Model	DJI 1345
Indoor Hovering	Enabled by default
Operating Temperature Range	-10° to 40° C
Diagonal Distance	559 to 581 mm
Dimensions	438 x 451 x 301 mm

FIGURE 2: VENTUS'S INSPIRE 1 WITH BUILT IN VIDEO/CAMERA SYSTEM

2 Ventus will submit an Aircraft Registration Application for each UAV upon the grant of the exemptions sought by this Petition.

Unmanned Aircraft Vehicle: S1000 UAV

Ventus seeks an exemption to operate its existing S1000, UAV, for compensation or hire within the national airspace system ("NAS").

The S1000 UAV is comprised of a VTOL unmanned aircraft and a transportable ground station. The S1000 UAV has a maximum gross weight of approximately nine and one half (9.5) pounds and the following technical and operational specifications:

Diagonal Wheelbase:	1045mm
Frame Arm Length:	386mm
Frame Arm Weight:	325g (Including Motor, ESC, Propeller)
Center Frame Diameter:	337.5mm
Center Frame Weight:	1330g (with Landing Gear Mounting Base, Servos)
Landing Gear Size:	460mm (Length) ×511mm (Width) ×305mm (Height), (Top width: 155 mm)
Motor: Stator Size:	41×14mm
KV:	400rpm/V
Max Power:	500W
Weight:	158g (with Cooling Fan)
Working Current:	40A
Working Voltage:	6S LiPo
Signal Frequency:	30Hz ~ 450Hz
Drive PWM Frequency:	8KHz
Weight:	35g (with Radiators)
Foldable Propeller:	(1552/1552R)
Propeller Size:	15×5.2inch

Weight:	13g
Takeoff Weight:	6.0Kg ~ 11.0Kg
Total Weight:	4.2Kg
Power Battery:	LiPo (6S、10000mAh~20000mAh、15C(Min))
Max Power Consumption:	4000W
Hover Power Consumption:	1500W (@9.5Kg Takeoff Weight)
Hover Time:	15min (@15000mAh & 9.5Kg Takeoff Weight)

Working Environment Temperature: -10 ℃ ~ +40 ℃

For A2 flight controller:

Basic:	Roll 120%, Pitch 120%, Yaw 120%
Attitude:	Roll 170%, Pitch 170%, Vertical 120%

For WooKong-M flight controller:

Basic:	Roll 180%, Pitch 180%, Yaw 120%
Attitude:	Roll 180%, Pitch 180%, Vertical 120%

FIGURE 3: VENTUS'S S1000 WITH ADDED VIDEO/CAMERA SYSTEM

Proven Operational History of: DJI PHANTOM II, S1000 and Inspire 1 UAV in the NAS

The DJI PHANTOM II, S1000 and Inspire 1 UAV's are currently operating safely within the NAS. Ventus has been operating UAV's under 55lbs for the past 5 years without any recorded incident, accident or failure.

BASIS FOR PETITION

Petitioner, Ventus Wind, LLC., pursuant to the provisions of the Federal Aviation Regulations (14 C.F.R. § 11.61) and the FAA Modernization and Reform Act of 2012, Section 333, Special Rules for Certain Unmanned Aircraft Systems, hereby petitions the Administrator for an exemption from the requirements of 14 C.F.R. §§ 45.23(b), 61.113(a) and (b), 91.7(a), 91.9(b) (2), 91.103, 91.109, 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 1.407(a)(1), 91.409(a)(2), and 91.417(a) and (b)., as well as the restricted category airworthiness certification standards specified in 14 C.F.R. § 21.185, including the requirement to have a certificate of airworthiness as contemplated by 14 C.F.R. Part 21.

In accordance with 14 C.F.R. § 11.81, Ventus provides the following information in support of its petition for exemption:

A) Name and Address Of The Petitioner.

The name and address of the Petitioner is:

Ventus Wind, LLC.

Mailing Address: 7202 Greystone, Frisco, Texas 75034

General Office: 2488 North Pearl Street, Dallas, TX 75201

The point of contact for this Petition and specific contact information is as follows:

Marco F. Zvanik.

Ventus Wind LLC.

Mailing Address: 7202 Greystone Lane, Frisco, Texas 75034

Tel: (214) 908-9444

Email: mzvanik@ventuswind.com

The Specific Sections of 14 C.F.R. From Which Ventus Seeks Exemption.

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

Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness certificates as required by FAR §91.203 (a) (1). Given the size and limited operating area associated with the aircraft to be utilized by Ventus, 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 UAV. In all cases, an analysis of these criteria demonstrates that the UAV 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 aircraft (fixed wing or rotorcraft) operating with an airworthiness certificate without the restrictions and conditions proposed.

All of the UAV's to be operated hereunder are less than 55 lbs. fully loaded, carry neither a pilot nor passenger, carry no explosive materials or flammable liquid fuels, and operate exclusively within a secured area as set out in the Ventus Operations Manual. Unlike other civil aircraft, operations under this exemption will be tightly controlled and monitored by both the operator, pursuant to the Manual's requirements, and under the requirements and in compliance with local public safety requirements, to provide security for the area of operation as is now done with conventional inspections. The FAA will have advance notice of all operations. These safety enhancements, which already apply to civil aircraft operated in connection with power generation inspections, provide a greater degree of safety to the public and property owners then conventional operations conducted with airworthiness certificates issued under 14 C.F.R. Part 21, Subpart H. Lastly, application of these same criteria demonstrates that there is no credible threat to national security posed by the UAV's, due to their size, speed of operation, location of operation, lack of explosive materials or flammable liquid fuels, and inability to carry a substantial external load.

2. 14 C.F.R. § 45.23 (b). Marking of the Aircraft

The regulation requires: 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.

Even though the UAV will have no airworthiness certificate, an exemption may be needed as the UAV will have no entrance to the cabin, cockpit or pilot station on which the words "limited," "restricted," "light-sport," "experimental," or "provisional," can be placed. Given the size of the UAV, two-inch lettering will be impossible. The word "experimental," may be placed on one of the rotor arms of each UAV, in compliance with §45.29 (f). The equivalent level of safety will be provided by having the UAVs marked on their rotor arm as required by §45.29 (f) where the pilot, observer and others working with the UAV will see the identification of the UAV as "experimental,".

The FAA has issued the following exemptions to this regulation to Exemptions Nos. 10700, 8738, 10167 and 10167A.

3. 14 C.F.R. § 61.113 (a) & (b): Private Pilot Privileges and Limitations: Pilot in Command.

Sections 61.113 (a) & (b) limit private pilots to non-commercial operations. Because the UAVs will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the PIC operating the aircraft to have a private pilot's license rather than a commercial pilot's license to operate these small UAVs. Unlike a conventional aircraft that carries the pilot and passengers, Ventus' UAVs are remotely controlled with no living thing on board. The area of operation is controlled and restricted, and all flights are planned and coordinated in advance as set forth in the Ventus Operations Manual VSI-005 Rev. 2 (Manual). The level of safety provided by the requirements included in the Manual exceeds that provided by a single individual holding a commercial pilot's certificate operating a conventional aircraft. The risks associated with the operation of the UAVs are so diminished from the level of risk associated with commercial operations contemplated by Part 61 when

drafted, that allowing operations of these UAVs as requested with a private pilot as the PIC exceeds the present level of safety achieved by 14 C.F.R. §61.113 (a) & (b).

4. **14 C.F.R. §91.7(a): Civil aircraft airworthiness.**

The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness. Given the size of the aircraft and the requirements contained in the Manual for maintenance and use of safety check lists prior to each flight, as set forth in Sections J, L and Q, an equivalent level of safety will be provided.

5. **14 C.F.R. § 91.9 (b) (2): Civil Aircraft Flight Manual in the Aircraft.**

Section 91.9 (b) (2) provides:

> 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.

The UAVs, given their size and configuration have no ability or place to carry such a flight manual on the aircraft, not only because there is no pilot on board, but because there is no room or capacity to carry such an item on the aircraft.

The equivalent level of safety will be maintained by keeping the flight manual at the ground control point where the pilot flying the UAV will have immediate access to it. The FAA has issued the following exemptions to this regulation: Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 32827, and 10700.

6. 14 C.F.R. § 91.103: Preflight action

This regulation requires each pilot in command to take certain actions before flight to insure the safety of flight. As FAA approved rotorcraft flight manuals will not be provided for the aircraft an exemption will be needed. An equivalent level of safety will be provided as set forth in the Manual. The PIC will take all actions including reviewing weather, flight battery requirements, landing and takeoff distances and aircraft performance data before initiation of flight.

7. 14 C.F.R. §91.109: Flight instruction:

Section 91.103 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.

UAVs and remotely piloted aircraft, by their design do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. 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. The equivalent level of safety provided by the fact that neither a pilot nor passengers will be carried in the aircraft and by the size and speed of the aircraft.

8. 14 C.F.R. §91.119: Minimum safe altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119(d) allows helicopters to be operated at less than the minimums prescribed, provided the person operating the helicopter complies with any route or altitudes prescribed for helicopters by the FAA. As this exemption is for a UAV that is a multi-rotor VTOL and the exemption requests authority to operate at altitudes up to 400 ft. AGL, or not more than 200 ft. above an elevated platform from which operations are planned, an exemption may be needed to allow such operations. As set forth herein, except for the limited conditions stated in the Manual, the UAV will never operate at higher than 400 ft. AGL. It will however be operated in a restricted area with security perimeter, where buildings and people will not be exposed to operations without their pre-obtained consent.

The equivalent level of safety will be achieved given the size, weight, speed of the UAVs as well as the location where they will be operated. No flight will be taken without the permission of the property owner or local officials. Because of the advance notice to the property owner and participants in the filming activity, all affected individuals will be aware of the planned flight operations as set forth in the Manual. Compared to flight operations with aircraft or rotorcraft weighting far more than the maximum 55 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 operating at or below 400 ft. AGL in the power generation industry. In addition, the low-altitude operations of the UAVs will ensure separation between these small UAV operations and the operations of conventional aircraft that must comply with Section 91.119.

9. 14 C.F.R. §91.121 Altimeter Settings

This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "…to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the UAV may not have a barometric altimeter, but instead a GPS altitude read out, an exemption may be needed. An equivalent level of safety will be achieved by the operator, pursuant to the Manual and Safety Check list, confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

10. 14 C.F.R. § 91.151(a): Fuel Requirements for Flight in VFR Conditions

Section 91.151 (a) prohibits an individual from beginning "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 batteries powering all of Ventus' UAV's provide approximately 35 minutes of powered flight. To meet the 30 minute reserve requirement in 14 CFR §91.151, UAV flights would be limited to approximately five (5) minutes in length. Given that this limitation would prohibit the flight of the UAV's a longer time frame for flight in daylight or night VFR conditions is reasonable.

Ventus believes that an exemption from 14 CFR §91.151(a) falls within the scope of prior exemptions. See Exemption 10673 (allowing Lockheed Martin Corporation to operate without compliance with FAR 91.151 (a)). Operating the small UAV, in a tightly controlled area where only people and property owners or official representatives who have signed waivers will be allowed, 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 small UAV.

Additionally, limiting UAV flights to 5 minutes would greatly reduce the utility for which the exemption will be granted.

Ventus believes that an equivalent level of safety can be achieved by limiting flights to 25% of battery power. This restriction would be more than adequate to return the UAV's to their planned landing zone from anywhere in their limited operating area.

Similar exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673, and 10808.

11. 14 C.F.R. §91.203 (a) and (b): Carrying Civil Aircraft Certification and Registration

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.

All of Ventus' UAV's fully loaded weigh no more than 55 lbs and are operated without an onboard pilot. As such, there is no ability or place to carry certification and registration documents or to display them on the UAV's.

An equivalent level of safety will be achieved by keeping these documents at the ground control point where the pilot flying the UAV will have immediate access to them, to the extent they are applicable to the UAV. The FAA has issued numerous exemptions to this regulation. A

representative sample of other exceptions includes Exemption Nos. 9565, 9665, 9789, 9789A, 9797, 9797A, 9816A, and 10700.

12. 14 C.F.R. §91.405 (a); 407 (a) (1); 409 (a) (2); 417(a) & (b): Maintenance Inspections

These regulations require that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter...," and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to Ventus. Maintenance will be accomplished by Ventus pursuant to the flight manual and operating handbook as referenced in the Manual.(See Sections L and Q) An equivalent level of safety will be achieved because these small UAVs are very limited in size and will carry a small payload and operate only in restricted areas for limited periods of time. If mechanical issues arise the UAV can land immediately and will be operating from no higher than 400 feet AGL. As provided in the Manual, Ventus will ensure that every UAV is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

13. **The Extent Of Relief Ventus Seeks And The Reason Ventus Seeks Relief From 14 C.F.R. § 21.185.**

Ventus seeks relief from the airworthiness certificate requirements of the Federal Aviation Regulations and proposes to commercially operate the DJI PHANTOM II and Inspire 1 UAV, without an airworthiness certificate, for the special purpose of conducting aerial inspection services for its customers, pursuant to specific operating limitations and a Safety Management System ("SMS"). Ventus seeks relief from the airworthiness certificate requirements of 14 C.F.R. § 21.185 to the extent that the DJI PHANTOM II and Inspire 1 UAV, which have not yet been type certificated by the FAA, may be operated as if they were a restricted category aircraft for a single, defined, special purpose operation (i.e., aerial inspection).

Pursuant to the FAA Modernization and Reform Act of 2012, Section 333 ("Section 333"), Ventus seeks relief from the airworthiness certificate requirements of the FAR because operation of the DJI PHANTOM II and Inspire 1 UAV will not create a hazard to users of the NAS, or the public, or otherwise pose a threat to national security. Section 333 sets forth the requirements for considering whether a UAV will create a hazard to users of the NAS or the public or pose a threat to national security. Further, Section 333 provides the authority for such UAV to operate without airworthiness certification.
Specifically, Section 333 states the following, in part:

> (b) Assessment of Unmanned Aircraft Systems.--In making the determination under subsection (a), the Secretary shall determine, at a minimum--
>
> (1) which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, 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 (1set forth below, numerous factors, including the proven safe operational history of the DJI PHANTOM II, S1000 and Inspire 1 UAV in the NAS, as well as the specific parameters of Ventus' intended operation pursuant to this exemption, demonstrate that the DJI PHANTOM II, S1000 and Inspire 1 UAV have in the past, and will continue in the future, to operate safely in the NAS without creating a hazard to other aircraft or people on the ground. Accordingly, the FAA may approve operation of the DJI PHANTOM II, S1000 and Inspire 1 UAV, without an airworthiness certificate, by setting forth specific operating limitations to ensure a level of safety equivalent to what would be provided by airworthiness certification.

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

Ventus seeks an exemption from the following rules:
14 C.F.R. §21, subpart H; 14 C.F.R 45.23(b); §§ 61.113(a) & (b); 91.7(a); 91.9 (b) (2); 91.103 (b);91.109; 91.119; 91.121; 91.151 (a); 91.203(a) and (b); 91.405(a); 91.407 (a) (1); 91.409 (a) (2); 91.409 (a) (2), 91.417 (a) & (b), as well as the restricted category airworthiness certification standards specified in 14 C.F.R. § 21.185 to operate commercially unmanned vehicle (55lbs or less) for aerial inspections.

Approval of exemptions allowing commercial operations of UAVs in the power generation inspection industry will enhance safety by reducing risk. Conventional power generation inspections, using persons dangling from ropes at altitudes of 300 to 450 feet are potential cause for falls, death or injury. In contrast, a Ventus UAV weighing fewer than 55 lbs. and powered by batteries eliminates virtually all human risk to serious falls given that the PIC is on the ground.

Every Ventus UAV is carried to the inspection site and not flown. The UAV's will carry no passengers or crew and, therefore, will not expose them to the risks associated with manned aircraft flights. The operation of small UAVs, weighting less than 55 lbs., conducted in the strict conditions outlined above, will provide an improved level of safety supporting the grant of the exemptions requested herein, including exempting the Ventus from the requirements of Part 21 and allowing commercial operations. These lightweight aircraft operate at slow speeds, close to the ground, and in a sterile environment and, as a result, are far safer than conventional operations conducted by humans dangling from ropes.

Reasons Why Granting Ventus's Request Would Be In The Public Interest

Granting the present Petition will further the public interest by allowing Ventus to safely, efficiently, and economically perform aerial inspection services of power generation facilities, onshore oil and gas platforms, pipelines and land developers Additionally, use of the Ventus

UAV's will increase worker safety by reducing human exposure to rope access work at extreme heights, increase the frequency of power generation inspections being performed thereby increase power plant safety and provide significant benefits to the reduction in costs associated with the maintenance of power generation facilities. Notably, the benefits of the proposed operation of the Ventus UAV will be realized without implicating any privacy issues.

Figures 4 & 5: Photos of Current Rope Access Inspection Techniques

Privacy:

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge. Aerial inspections will be of power generation equipment, production facilities or buildings in remote or uninhabited areas.

Set forth below are pictures of aerial inspections conducted in the day environment, as performed today using humans on ropes. The grant of this exemption request will provide improved safety in day operations.

Flight Operations:

Flight Operations pursuant to the exemption sought would be limited to areas that are not in the proximity of airports or over populated areas. Ventus proposes to only conduct aerial inspection flight operations over private land, in rural areas of the United States that are not near populated areas, airports, helipads, or state roads.

Specifically, Ventus' proposed areas of aerial inspections include rural areas that are:

1. Not populated areas as depicted on VFR Sectional Aeronautical Charts;
2. Not within five (5) miles of any airport or helipad;
3. Not within one hundred (100) meters of state roads having more than two lanes; and
4. Not within fifty (50) meters of state roads having two lanes or less.

Ventus has been operating all of its UAV's by regulations such as the ICAO (International Civil Aviation Organization) and the FAA's own national airspace regulations. In order to increase flight safety and prevent accidental flights in restricted areas, all of Ventus' UAV's will be operated utilizing Category "A" No Fly Zone restrictions.

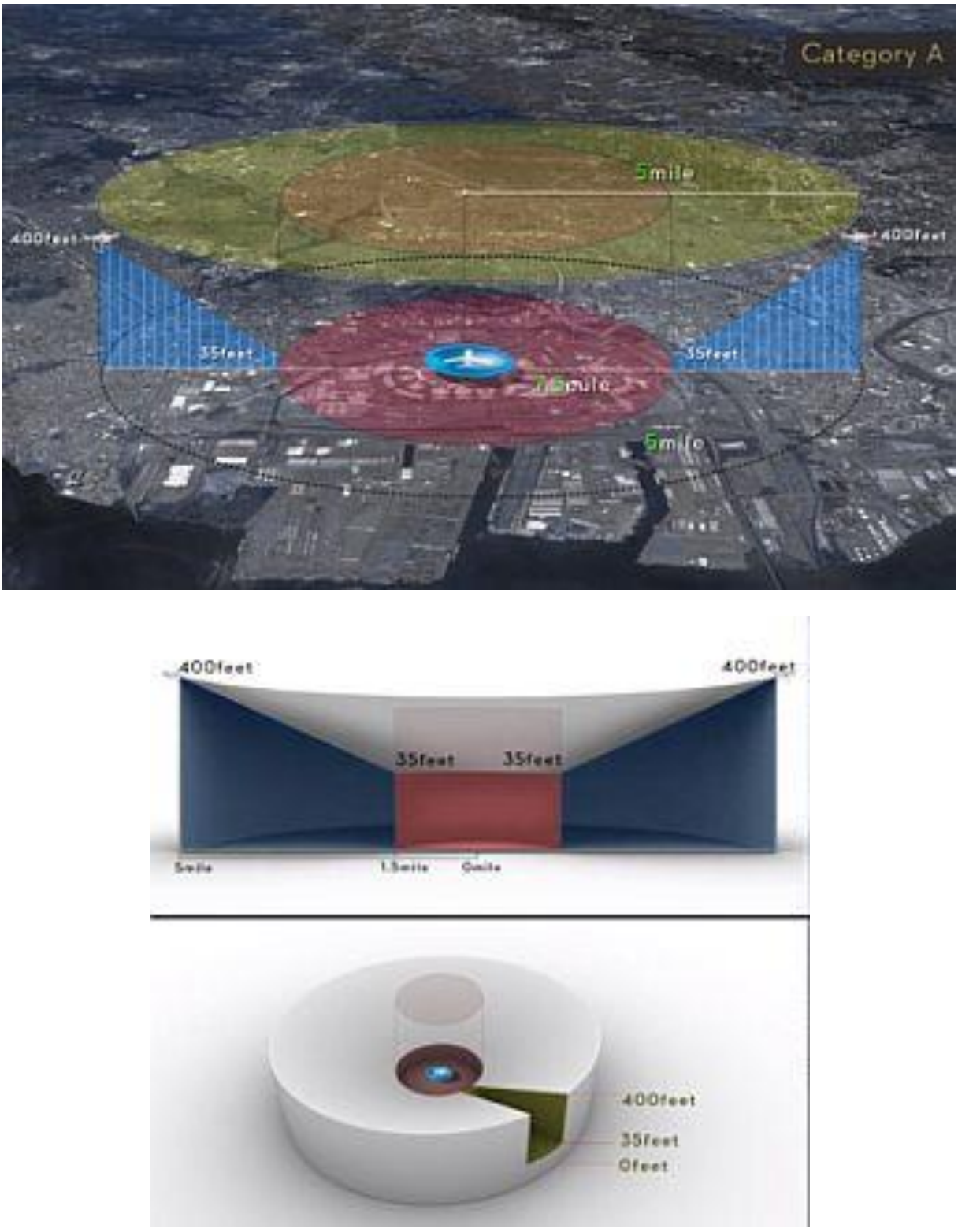


Figure 4: Example of Category "A" No Fly Zone for Ventus

A buffer or exclusion zone for flight operations will also be implemented around state roads. Since the roads are represented geometrically as lines, the buffers result as a one hundred (100m) corridor around state roads with more than two lanes, and fifty (50) meters around state roads with two lanes or less. In summary, Ventus seeks to operate its UAV's only over rural areas, while maintaining safe distances from any populated areas, airports, helipads, or roadways.

Operation Of Ventus' UAV's Will Be Conducted Pursuant To "VSI-005 UAS Operations Manual (For UAS's under 55 lbs)."

Ventus' Operations Manual VSI-005 will control operation UAV's and will significantly contribute to maintaining the level of safety contemplated by the airworthiness certificate requirements from which Ventus now seeks relief. Pursuant to the Operations Manual and 14 C.F.R. § 43.13, entitled Performance Rules (general), each person performing maintenance, alteration, or preventive maintenance on any of Ventus' UAV's, motors, propellers, hardware, guidance systems or appliances shall use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness prepared by its manufacturer, or other methods, techniques, and practices acceptable to the Administrator. Each person shall use the tools, equipment, and test apparatus necessary to assure completion of the work in accordance with accepted industry practices.

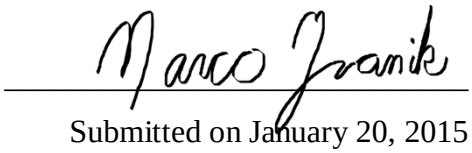
A copy of the Operations Manual, which is proprietary information to Ventus, is attached hereto as Exhibit B, and is to be held in a separate file pursuant to 14 C.F.R. § 11.35(b).3

Flight Operations Of Ventus' UAV's Are Limited To Line Of Sight Of The PIC WithA Safety Observer.

Ventus will only utilize PIC's with a valid Recreational or Private Pilot rating certificate issued by the FAA for operation of all UAV's and a Class II Medical Certificate. Additionally, all pilots will be assisted by a safety observer. The pilot in command and safety observer must meet the requirements as set forth by the Operations Manual adopted by Ventus for flight operations of the UAV's.

CONLUSION:

Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012--size, weight, speed, operating capabilities, proximity to airports and populated areas and operation within visual line of sight and national security – provide more than adequate justification for the grant of the requested exemptions allowing commercial operation of applicant's UAS in the power generation industry pursuant to the Manual appended hereto.



Submitted on January 20, 2015
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