



## Request for Section 333 Exemption – Utilities

September 29, 2014

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September 29, 2014

The following letter constitutes an exemption Request under Section 333 of the FAA Modernization and Reform Act of 2012 for Aviation Unmanned to perform Utility inspections for Center Point Energy. The UAS systems that we will use and will be referenced in this document are the Vanguard Defense Industries ShadowHawk and the MLB Company Super Bat.

**Point of Contact:**

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1. Specific sections of 14 CFR from which we seek exemptions.

- a) §61.3(a)(1): Requirement for certificates, ratings, and authorizations
  - a. There are no ratings for UAS operators as of yet, so we would like to use our current FAA commercial certificates in lieu of the lack of UAS certificates.
- b) §61.13: Issuance of airman certificates, ratings, and authorizations
- c) §91.7: Civil aircraft airworthiness. No person may operate a civil aircraft unless it is an airworthy condition
  - a. There are no certifications for the airworthiness of UAS to date, so we are looking to rely on our field maintenance training and schedule to ensure our aircraft are in an airworthy condition before all flights.
- d) §91.113: Right of Way rules (see and avoid)
  - a. We will have observers out during flights, and to the maximum extent possible stay below 400' AGL and away from controlled airspace.
- e) §91.203(a)(1) & §91.203(a)(2): Civil Aircraft: Certifications Required
- f) §91.205(b): Powered civil aircraft with standard category U.S. airworthiness certificates: Instrument and equipment requirements
  - a. Specifically items (5) and (7) through (17). We do not plan to fly at night initially.
- g) §91.207: Emergency locator transmitters
- h) §91.125: ATC transponder and altitude reporting equipment and use
  - a. We do not currently have transponders on our aircraft but could install them if necessary.
- i) §91.319: Aircraft having experimental certificates: Operating limitations Specifically §91.319(e)

## 2. Extent of relief we seek and the reason we seek the relief

The request for these exemptions is for the use of our Unmanned Systems to provide utility companies with power line inspections in areas outside of Houston TX. These inspections would include right of way surveying, tower inspections for early detection of arcing, and post-disaster aerial support. We are working with Center Point Energy, one of Texas' largest utility corporations, to provide these services across their 5,000 square miles of energy lines west and north of Houston, TX (see Figure 1). Center Point is interested in the ability of UAS to investigate remote and/or inaccessible areas of power lines safely, as well as provide early identification of power interruptions and provide real time data to direct their personnel accurately in the event of a natural disaster.

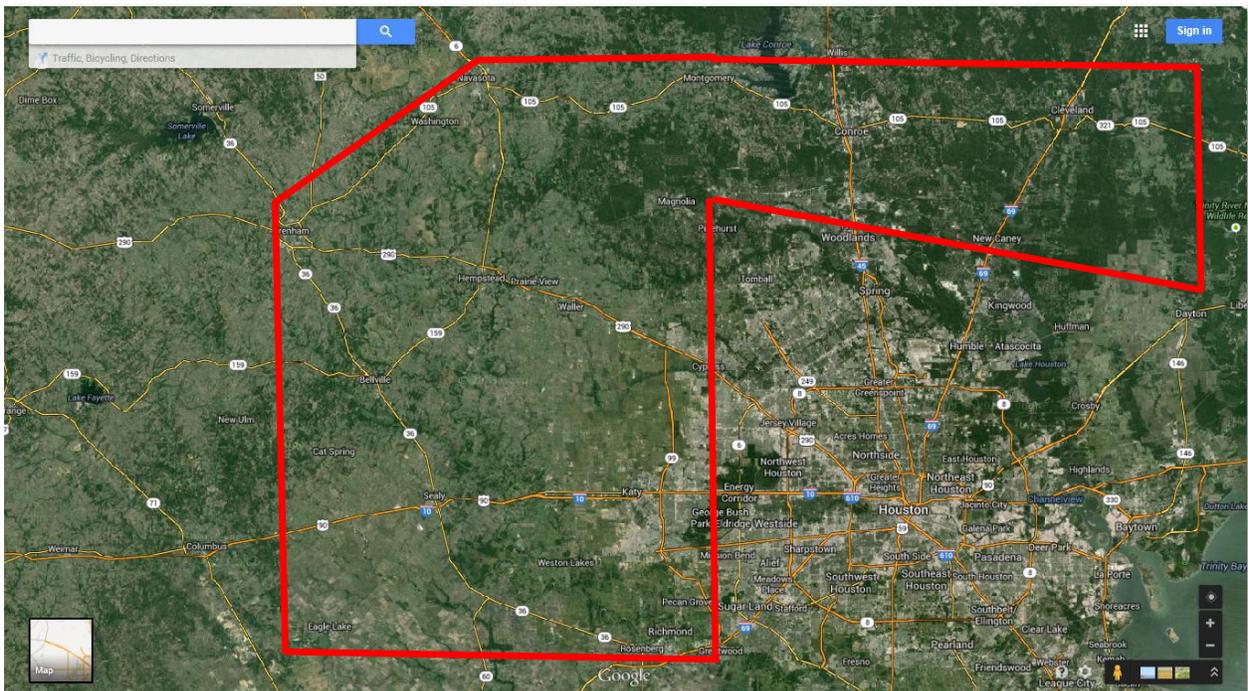


Figure 1: Requested area around Houston, TX

## 3. How our request would benefit the public as a whole

### *Routine Inspections*

With the routine inspection of power lines (distribution or transmission), our Corona cameras can identify arcing early which will allow Center Point Energy to repair the affected area before they become a problem. This early identification will help Center Point maintain constant service to their customers, and allow the residents of Houston and the surrounding areas to keep their houses powered. Center Point has identified a need for this early detection in order to ensure their customers do not experience power interruptions.

## *Emergency Response*

After Hurricane Ike in 2008, much of Houston and Galveston was without power for over 10 days. Center Point has learned many lessons from this event, one of which was that they didn't have accurate, real time information. They were sending thousands of personnel and trucks out to survey and repair areas that turned out to be not badly damaged, while other heavily damaged areas heavily were left undiscovered for days. In the event of another disaster such as this, or even one on a smaller scale, we would like to use our Unmanned Aircraft to assist Center Point with identifying the true problem areas which will allow them to focus their repair efforts accurately and significantly decrease the time to get power restored.

### 4. Reasons why the exemption would not adversely affect safety, or how the exemption would provide a level of safety at least equal to the existing rule

The majority of areas to be covered are remote, sparsely populated, and we thoroughly mission plan before each flight. We check current sectional charts for airspace restrictions, NOTAMS, TFR's, restricted airspace, and helicopter corridor charts. Our aircraft will be flown to the maximum extent possible below 400' AGL, outside of any controlled airspace and outside of 3 miles from any airport IAW §91.126(d), but at all times at a minimum safe altitude to allow for obstacle and terrain clearance. Should we need to fly closer than three miles from an airport we will establish and maintain radio communications with the controlling agency at any applicable airfields.

We have a robust safety observer program, and if required our aircraft can be monitored by Aviation Unmanned personnel who at a minimum possess FAA ground school certificates. Our safety observers have also undergone training and maintain constant two way radio communication with the PIC.

### 5. Summary to publish in the Federal Register

Aviation Unmanned seeks an exemption from regulations of 14 CFR to perform regular and emergency inspection services with Unmanned Aircraft on power lines. These inspections would take place in remote areas of South East Texas and the Louisiana Gulf Coast region.

### 6. Additional information, views, or arguments available to support our request

We have established standard operating procedures within our company to enable safe and effective use of our unmanned systems in any situation. Our operations and these standards are based on our extensive military flying experience in the MQ-1B and MQ-9 systems for nearly 18 years combined, and we comply with 14 CFR to the maximum extent possible. Furthermore, our operations are safe, efficient, and will ultimately show the public and FAA that operating UAS with the correct skillset is safe for commercial use.

### Certifications and Training

- Our pilots all hold current FAA Commercial Pilot certificates and a minimum of FAA Second Class medicals.
- Many of our pilots hold CFI, MEI, and ATP certificates as well as current military qualifications on unmanned aircraft.
- Our pilots have completed rigorous training for the systems we operate including academics, simulators, and flight training. These courses, developed by Aviation Unmanned in conjunction with manufacturers, provide our pilots the best training possible to operate our systems. This also includes emergency procedure training and evaluation, experience building with a qualified instructor, and initial/recurring flight evaluations.

### Currency and Proficiency

- Our pilots maintain currency and proficiency in accordance with a company specific Aircrew Proficiency Program. If crewmembers lapse on currency, they are not able to perform flying duties until completion of either (depending on how long they have been non-current): at least one flight with a qualified instructor or re-training and completion of a flight review by a qualified instructor.

### Flight Operations

- Each flight is operated under the crew concept, and there are always two fully qualified pilots in the crew. The Pilot in Command is responsible for flying the aircraft and ensuring the safety of flight operations, the Second in Command is responsible for operating the payload and providing input to the PIC. In the event of PIC incapacitation the SIC can step in and safely land the aircraft.
- We abide by a “sterile cockpit” rule anytime one of the following three criteria are met:
  - Presets or Landing checklists have started
  - Altitude is less than 150’ AGL or
  - Aircraft position is 0.25 nm or less from the ground control station.

### Regulations Adherence

- Our crews are required to adhere to 14 CFR §91.17 (Alcohol or Drugs) and 14 CFR §121.471 (Flight time limitations and rest requirements: All flight crewmembers)

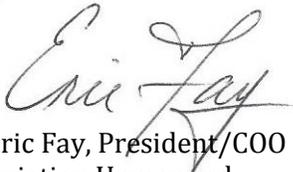
### Aircraft

- The systems we will use to perform these inspections are proven, reliable systems.
- Our aircraft have detailed Lost Comm plans that, in the event of a loss of communication, will bring the aircraft back at a specific altitude, position, and airspeed.
  - We can set them to automatically land in a cleared area or hover over the cleared area while we work to get the communications back.
  - We always set the Lost Comm plan routing to avoid populated areas and major roads

7. Reasons why you want to exercise the privileges of our exemption outside the United States

We do not currently intend on exercising these privileges out of the United States.

Please feel free to contact me if there are any questions or issues regarding this request.

A handwritten signature in black ink that reads "Eric Fay". The signature is written in a cursive style with a large, stylized "E" and "F".

Eric Fay, President/COO  
Aviation Unmanned