

**SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION:
QUESTIONS FOR THE RECORD**

**HEARING ON
UNMANNED AIRCRAFT SYSTEMS: KEY CONSIDERATIONS REGARDING SAFETY, INNOVATION,
ECONOMIC IMPACT, AND PRIVACY
TUESDAY, MARCH 24, 2015**

**Questions for Ms. Margaret Gilligan, Associate Administrator for Aviation Safety, Federal
Aviation Administration**

From Chairman Thune

- 1. I am pleased that FAA was recently able to publish the proposed rule addressing small UAS. Even with the limitation for line of sight operations, it is a positive step forward, and I look forward to opportunities that rule, when finalized, will unlock. As noted, the current framework limits the opportunities to only line of sight operations, though, so it begs the question: what steps would the agency need to approve case-by-case beyond line of sight exemptions if the Section 333 exemption authority from the 2012 FAA Bill were expanded to beyond line of sight operations?**

Answer. Beyond line of sight (BLOS) UAS operations present an additional layer of complexity, not only in terms of operational risk, but also in terms of air traffic interface and the requirement of the pilot in command to “see” and avoid other aircraft. Currently, BLOS public (governmental) UAS operations are authorized in the national airspace system on a case-by-case basis, and only after a number of risk mitigation procedures are implemented, including procedures to address the requirement for the pilot in command to see and avoid other aircraft. Even if Section 333 operations were permitted to operate BLOS, the requirement to see and avoid other aircraft would still exist.

The Agency’s approach to UAS integration considers safety first, and as such, must be incremental. The Administrator recently announced the Pathfinder Program. The FAA is partnering with three leading U.S. companies who have committed extensive resources to perform research that will help us determine if and how we can safely expand unmanned aircraft operations in the United States. BNSF Railroad will explore the challenges of using these vehicles to inspect their rail infrastructure beyond visual line-of-sight in isolated areas. CNN will be researching how visual line-of-sight operations might be used for newsgathering in urban areas. PrecisionHawk, a manufacturer, will be surveying crops in rural areas using unmanned aircraft flying outside of the pilot’s direct vision.

2. What can Congress do now to help the FAA and other stakeholders facilitate the integration of UAS in a safe and secure manner?

Answer. We expect that as integration moves forward, there will be additional demands on our resources. We thank Congress for recognizing the importance and requirements of UAS integration and for its support through an increased budget supporting research and development.

From Senator Wicker

1. Unmanned Aerial System (UAS) Center of Excellence. Can you provide a timeline for the process and ultimate announcement for the COE on Unmanned Aerial Systems?

Answer. On May 8, the FAA announced it has selected Mississippi State University as the FAA's Center of Excellence (COE) for Unmanned Aircraft Systems (UAS). The COE will focus on research, education, and training in areas critical to safe and successful integration of UAS into the nation's airspace.

In addition to Mississippi State University, other team members include: Drexel University; Embry Riddle Aeronautical University; Kansas State University; Montana State University; New Mexico State University; North Carolina State University; Oregon State University; University of Alabama, Huntsville; University of Alaska, Fairbanks; University of Kansas, University of North Dakota; and Wichita State University.

2. UAS Waivers. On October 14, 2014, electric utility Southern Company asked for an exemption from the FAA to develop unmanned aerial systems to help restore power and identify downed electricity lines following hurricanes and tornados. Exemption requests for movie making, real estate surveys, and R&D into package deliveries have been approved but the Southern Company request continues to be delayed. Can you explain the priorities being set by the FAA for these exemptions?

Answer. Southern Electric Company's 333 Exemption was granted on March 26, 2015.

The agency recently implemented improvements to streamline the exemption review process by increasing the use of summary grants. Petitions that are similar to exemptions the agency has previously granted can be processed through the summary grant. Novel requests require additional review. Additionally, the FAA is granting a "blanket" Certificate of Waiver or Authorization (COA) with each exemption and has modified the pilot certification and medical certificate requirements from the earlier exemptions.

3. How does the FAA plan on managing the airspace below 500 feet?

Answer. The FAA uses a risk-based approach when considering airspace management. For example, on March 23, 2015 we established an interim policy to expedite issuance of appropriate airspace authorizations for certain commercial unmanned aircraft (UAS) operators who obtain Section 333 exemptions. The new policy does not evaluate every UAS operation individually but considers operational limitations that will allow one

COA for all operations at and below 200 feet. We will consider increases to the existing 200 foot limit through a risk-based approach. This will allow us to analyze future operations that will allow us to safely integrate small UAS into the NAS.

Under the new policy, the FAA will grant a COA for flights at or below 200 feet to any UAS operator with a Section 333 exemption for aircraft that weigh less than 55 pounds, operate during daytime Visual Flight Rules (VFR) conditions, operate within visual line of sight (VLOS) of the pilots, and stay certain distances away from airports or heliports. Additional details may be found at <http://www.faa.gov/news/updates/?newsId=82245>

4. What research has the FAA conducted on small UAVs? Where is the data being collected and analyzed?

Answer. The FAA has ongoing research focused on two key areas that must be addressed to enable routine integrated UAS operations, including small UAS operations. These two areas are “Detect and Avoid” and “Command and Control.” The FAA’s UAS research and development requirements are set by the FAA’s UAS Integration Office and are executed on behalf of the FAA by the NextGen organization, both at FAA Headquarters and the FAA’s Technical Center in Atlantic City, NJ.

From Senator Heller

In December 2013 (well over a year ago now) the FAA identified the six designated UAS test sites as mandated by Congress. Since that time, it is my understanding that each of these six test sites have received at least one Certificate of Authorization (COA) to test UAVs – effectively meaning they are “considered” open and available for testing. However, it is also my understanding that there are numerous test site COA applications still in the FAA queue for review and approval. Additionally, it is my understanding there are COA applications from other entities that are not FAA designated test sites and private companies applying for Section 333 exemptions in order to fly “for profit”.

1. How many COAs and Section 333 exemption requests are currently in FAA’s review and approval process queue?

Answer. As of May 8, 2015, there are 229 non-Test Site COAs requests in queue. We have received 1280 Petitions for Exemption under Section 333 and have processed 353 of those requests. The UAS Test Sites have 54 active COA’s and 34 in process.

2. How long, on average, does it take for COAs and for Section 333 exemptions to be reviewed and approved?

Answer. The FAA recently revised its approach for Section 333 exemptions, speeding up the approval process for many UAS operators. The FAA is able to issue summary grants when it finds that it has already granted a previous exemption similar to the new request. Summary grants are more efficient because they don’t need to repeat the analysis performed for the original exemption on which they are based. This streamlined approach now allows the FAA to issue between 40-50 Section 333 exemptions a week.

As part of this streamlined approach, the FAA grants a COA for flights at or below 200 feet when it issues the Section 333 exemption. This applies to aircraft that weigh less than 55 pounds, operate during daytime Visual Flight Rules (VFR) conditions, operate within visual line of sight (VLOS) of the pilots, and stay certain distances away from airports or heliports. Operators wishing to operate above 200 feet would need to request an additional COA. The target goal for COA processing is 60 days, and we routinely beat that goal with processing timeframes in the low to mid 50-day range.

- 3. Since the designated test sites were specifically created to assist the FAA achieve its congressionally mandated mission directive of safely integrating UAS into the National Airspace System (NAS), are the COA applications of designated test sites given any type of review and approval preference?**

Answer. The Test Site COAs must undergo the same evaluations as other COA applications, and there are limited resources within the FAA that complete this safety function. Generally, Test Site COAs are not prioritized over other COA applications, but they do have a higher level of visibility, which enables issues to be identified and resolved more quickly.

- 4. Is the FAA working with the six designated test sites to give them COAs with broader authority “blanket geographic COAs” that allow the test sites to have greater flexibility to achieve testing objectives?**

Answer. As of March 24, 2015, two of the six test sites had applied for and received broad area COAs and a third Test Site has several broad area COA applications in process.

- 5. Is the FAA considering working with the test sites to create a “train the trainer” program that allows the test sites to approve testing activities at a local level?**

Answer. The FAA issued an Order for Designated Airworthiness Representatives (DAR) for UAS Certification at UAS Test Sites on September 17, 2014.

This order sets policy and provides training requirements limited to the issuance of special airworthiness certificates in the experimental category at UAS Test Sites. Experimental certificates are issued to aircraft that do not possess traditional airworthiness certificates, for specific operations including crew training or showing compliance with regulations. As of April 24, 2015, only one Test Site has applied for and been designated a DAR.

- 6. The Governor of Nevada has sent a letter to the FAA encouraging them to allow the designated test sites to have authority to operate under the parameters recently published in the Notice of Proposed Rule Making (NPRM) so as to provide the FAA with empirical data to prove up the proposed regulations. Has the FAA considered this option? Is the FAA willing to support this approach?**

Answer. This topic was discussed at a recent Technical Interchange Meeting between the FAA and the Test Sites (March 30-April 1). The FAA requested the Test Sites provide a proposal on this concept of operations and specifically requested suggestions and

proposals for how current statutory requirements, such as the requirement for a certificated pilot for commercial operations, could be addressed. As of April 24, 2015, we have not received this proposal. We have committed to the Test Sites to expedite the review process once the proposal is received.