

THREE YEARS AFTER LION AIR 610: FAA IMPLEMENTATION OF THE 2020 AIRCRAFT CERTIFICATION, SAFETY, AND ACCOUNTABILITY ACT

(117-29)

REMOTE HEARING
BEFORE THE
SUBCOMMITTEE ON
AVIATION
OF THE
COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES
ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

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OCTOBER 15, 2021

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Aviation
FROM: Staff, Subcommittee on Aviation
RE: Subcommittee Hearing on *Three Years After Lion Air 610: FAA Implementation of the 2020 Aircraft Certification, Safety, and Accountability Act*

PURPOSE

The Subcommittee on Aviation will meet on Thursday, October 21, 2021, at 10:00 a.m. EDT in 2167 Rayburn House Office Building to hold an oversight hearing titled, *Three Years After Lion Air 610: FAA Implementation of the 2020 Aircraft Certification, Safety, and Accountability Act*. The hearing will examine ongoing work within the Federal Aviation Administration (FAA) to implement provisions of the bipartisan Aircraft Certification, Safety, and Accountability Act.¹ For the Majority, the Act was the culmination of an 18-month investigation by Committee Majority staff²—the longest in the Committee’s history. For both the Majority and the Minority, the Act addresses both the specific recommendations of the various non-partisan, expert safety reviews as well as the many factors that contributed to the tragic Boeing 737 MAX accidents (discussed below). FAA Administrator Steve Dickson is the only witness.

BACKGROUND

Two air disasters in 2018 and 2019 involving a new derivative of the Boeing 737, the Boeing 737 MAX, revealed numerous shortcomings in the FAA’s process for certifying the safety of new airplane designs, including derivatives of 50-year-old airframes such as the 737.³ In response to these two crashes, which resulted in the deaths of 346 passengers and crew, the FAA grounded the 737 MAX for a year and eight months, the longest grounding of a U.S.-built airliner in history. Numerous expert safety reviews and investigations discovered some limitations and failures of the FAA’s certification process, acts and omissions by Boeing, and areas to be ad-

¹ Pub. L. No. 116–260, div. V (2020).

² Staff of the U.S. House Cmte. on Transp. and Infra., *The Design, Development, and Certification of the Boeing 737 MAX: Final Committee Report* (Sept. 2020), at <https://transportation.house.gov/imo/media/doc/2020.09.15%20FINAL%20737%20MAX%20Report%20for%20Public%20Release.pdf>.

³ See Dep’t of Transp. Office of Insp. Gen., *Weaknesses in FAA’s Certification and Delegation Processes Hindered Its Oversight of the 737 MAX 8*, Rpt. No. AV2021020 (Feb. 21, 2021) (hereinafter “IG Report”).

dressed in pilot training.⁴ Therefore, Congress enacted the Aircraft Certification, Safety, and Accountability Act in December 2020 to improve these processes and prevent similar deficiencies in the future.

I. THE CRASHES AND FAA RESPONSE

On October 29, 2021, more than 100 families in Indonesia and around the world will mark the third anniversary of the first 737 MAX crash: that of Lion Air flight 610. The airplane operating flight 610, a two-month-old 737 MAX 8, crashed into the Java Sea 11 minutes after takeoff from Jakarta bound for Pangkal Pinang, Indonesia, killing all 189 passengers and crew.⁵

The second crash occurred slightly more than four months later, on March 10, 2019, when Ethiopian Airlines flight 302 crashed six minutes after takeoff from Addis Ababa, Ethiopia, on a morning flight to Nairobi, Kenya.⁶ All 157 passengers and crew (including eight Americans) were killed on impact.

Within weeks of the Lion Air crash, based on a preliminary readout from the flight data recorder recovered from the wreckage, investigators had a sense of what might have been a major contributing factor in the accident. A small vane called an “alpha vane,” slightly smaller than a test tube, protrudes from each side of the airplane’s nose and measures the angle between the airplane’s flight path and the oncoming air, which is known as the “angle of attack.” The alpha vane on the left side of the Lion Air airplane’s nose had somehow been misaligned and registered an abnormally high nose-up pitch attitude, triggering operation of a new system called the maneuvering characteristics augmentation system (MCAS), which was designed to push the airplane’s nose down in such circumstances.⁷

On November 7, 2018, shortly after the Lion Air accident, the FAA issued an emergency airworthiness directive to 737 MAX operators. The directive did not mention MCAS by name; instead, it advised air carriers that an erroneous angle-of-attack reading could cause “a potential for repeated nose-down trim commands” and ultimately “could cause the flight crew to have difficulty controlling the airplane, and lead to excessive nose-down attitude, significant altitude loss, and possible impact with terrain.”⁸ The directive instructed that crews who detect “uncommanded horizontal stabilizer trim movement” should follow a pre-existing memory item procedure for the broader scenario of a “runaway stabilizer.”⁹ But the Ethiopian Airlines accident demonstrated that further action was necessary. The day after the accident, civil aviation regulators worldwide began prohibiting the operation of Boeing 737 MAX airplanes in their jurisdictions. The FAA grounded the airplane on March

⁴ Boeing 737 MAX reviews and investigation reports include: Joint Authorities Technical Review, “Boeing’s 737 MAX Flight Control System, Observations, Findings and Recommendations Report” (October 11, 2019); National Transportation Safety Board Safety Recommendation Report, “Assumptions Used in the Safety Assessment Process and the Effects of Multiple Alerts and Indications on Pilot Performance” (ASR-19-01; September 19, 2019); U.S. Department of Transportation Special Committee to review the Federal Aviation Administration’s Aircraft Certification Process Report (January 16, 2020); and Safety Oversight and Certification Aviation Rulemaking Committee (SOC-ARC) Recommendation Report to the Federal Aviation Administration (December 2018).

⁵ Rep. of Indonesia, Nat’l Transp. Safety Cmte., *Preliminary Aircraft Accident Investigation Report: PT Lion Mentari Airlines, Boeing 737-8 (MAX); PK-LQP*, Rpt. No. KNKT.18.10.35.04, available at <https://avherald.com/files/2018%20-%20035%20-%20PK-LQP%20Preliminary%20Report.pdf>.

⁶ Federal Democratic Republic of Ethiopia, Ministry of Transp., Aircraft Accident Investigation Bureau, *Aircraft Accident Investigation Preliminary Report: Ethiopian Airlines Group, B737-8 (MAX) Registered ET-AVJ*, Rpt. No. AI-01/19 (April 4, 2019), at <http://www.ecaa.gov.et/Home/wp-content/uploads/2019/07/Preliminary-Report-B737-800MAX-ET-AVJ.pdf> (hereinafter “ET302 preliminary report”).

⁷ See, e.g., Nat’l Transp. Safety Bd., *Safety Recommendation Report: Assumptions Used in the Safety Assessment Process and the Effects of Multiple Alerts and Indications on Pilot Performance* (Sept. 19, 2019), at 3–4, available at <https://www.ntsb.gov/investigations/AccidentReports/Reports/ASR1901.pdf> (hereinafter “NTSB Safety Recommendation Report”) (“During the preliminary design stage of the 737 MAX, Boeing testing and analysis revealed that the addition of the LEAP-1B engine and associated nacelle changes produced an ANU [airplane nose-up] pitching moment when the airplane was operating at high AOA and mid Mach numbers. After studying various options for addressing this issue, Boeing implemented aerodynamic changes as well as a stability augmentation function, MCAS, as an extension of the existing speed trim system to improve aircraft handling characteristics and decrease pitch-up tendency at elevated AOA.”)

⁸ Fed. Aviation Admin., Emergency Airworthiness Directive No. 2018-23-51 (Nov. 7, 2018), at [http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgad.nsf/0/83ec7f95f3e5bfbfd8625833e0070a070/\\$FILE/2018-23-51_Emergency.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgad.nsf/0/83ec7f95f3e5bfbfd8625833e0070a070/$FILE/2018-23-51_Emergency.pdf).

⁹ *Id.*

13, 2019, three days after the crash, after a link between the two accidents was established.¹⁰

The 737 MAX returned to service starting in December 2020, when the FAA approved a substantial number of design changes to ensure erroneous MCAS activation would not occur and that, if it did, the crew would be able to maintain control of the airplane.¹¹ This recertification followed more than a year of extensive aircraft design reviews by the FAA, NASA, the Air Force, the Volpe Center, foreign aviation safety regulators, and others.

II. THE CERTIFICATION PROCESS

All aircraft and aviation products are subject to FAA certification prior to their sale and use in the United States. The FAA is responsible for regulating aviation safety, which includes approving the design and manufacture of new aircraft and aviation products before they enter the National Airspace System.¹²

A. Organization Designation Authorization

Since even before the establishment of FAA's predecessor agency in 1958, the federal government has delegated some safety certification responsibilities to technical experts in the industry. As airplanes, engines, and their constituent systems became increasingly complex, Congress authorized the FAA to leverage the product-specific knowledge among appropriately qualified employees of manufacturers to determine a new product's compliance with the applicable provisions of the Federal Aviation Regulations. A designee may receive authority to examine, inspect, and test aircraft and persons for the purpose of issuing certificates.¹³

The organization designation authorization (ODA) program allows the FAA to leverage limited resources to focus on the areas of highest risk. The program was envisioned to allow qualified individuals or organizations to certify, on behalf of the FAA, that well-understood, non-critical, or low-risk designs comply with applicable Federal requirements, thereby freeing up some of FAA's resources to focus on and remain directly involved in the review and approval of higher-risk items, such as safety-critical or "novel or unusual" designs.¹⁴ Regardless of delegation decisions, the FAA bears ultimate responsibility for ensuring new aircraft designs are safe and comply with design requirements.

B. Certification of the 737 MAX

Since the original 737 aircraft was certified in 1967, the FAA has approved numerous new models of the aircraft, all through amendments to the original 737's type certificate. With regard to the FAA certification of the 737 MAX, the process to issue an amended type certificate, from initial application to final certification, took five years, with the final amended type certificate issued in March 2017, according to the FAA.¹⁵ The process included 297 certification flight tests, including tests of the MCAS functions. Although the system should have been considered safety-critical, as the FAA acknowledged before the Subcommittee in 2019, the FAA years earlier had delegated certification of MCAS to Boeing as part of a larger delegation of certification of the flight control system pursuant to Boeing's ODA.¹⁶ In 2015, the FAA delegated some key safety assessments of the flight control system, which contained MCAS, back to Boeing based on the risk rating of "major" (under this rating, flight crews are the redundancy for a system failure).¹⁷

In a review of the process for certifying the 737 MAX, the Department of Transportation inspector general ultimately found that

limitations in FAA's guidance and processes that impacted certification and led to a significant misunderstanding of [MCAS] First, FAA's certification guidance does not adequately address integrating new technologies

¹⁰Fed. Aviation Admin., Emergency Order of Prohibition to Operators of Boeing Company Model 737-8 and Boeing Company Model 737-9 Airplanes (March 13, 2019).

¹¹*Airworthiness Directive, The Boeing Company Airplanes*, 85 Fed. Reg. 74560 (Nov. 4, 2020).

¹²See 49 U.S.C. §§ 44702, 44704; GAO, *Aviation Manufacturing: Status of FAA's Efforts to Improve Certification and Regulatory Consistency* (July 31, 2014), GAO-14-829T, at 1.

¹³GAO-14-829T at 4.

¹⁴See FAA, *Airworthiness Certification*, https://www.faa.gov/aircraft/air_cert/airworthiness_certification/; U.S. House Cmte. on Transp. and Infra., "Status of the Boeing 737 MAX," Testimony of Daniel Elwell, FAA Acting Administrator (May 15, 2019), at 28-29 (hereinafter "Elwell Testimony").

¹⁵See Boeing Commercial Airplanes, "Boeing 737 MAX 8 Earns FAA Certification" (March 9, 2017), at <https://boeing.mediaroom.com/2017-03-09-Boeing-737-MAX-8-Earns-FAA-Certification>.

¹⁶Dept of Transp. Insp. Gen. staff briefing for Committee staff on work to date investigating FAA's certification of the 737 MAX and MCAS (October 7, 2019).

¹⁷*Id.*

into existing aircraft models. Second, FAA did not have a complete understanding of Boeing's safety assessments performed on MCAS until after the first accident. Communication gaps further hindered the effectiveness of the certification process. In addition, management and oversight weaknesses limit FAA's ability to assess and mitigate risks with the Boeing ODA.¹⁸

The latter risks included the risk that Boeing employees would place undue pressure on their colleagues who work as ODA unit members on the FAA's behalf.¹⁹ In fact, the inspector general reported that, in a 2016 survey of ODA unit members, 40 percent of respondents said they had experienced undue pressure from other Boeing employees.²⁰

MCAS was a feature of the 737 MAX because Boeing determined that the system was necessary to ensure that the 737 MAX would exhibit the same control characteristics as the 737NG during certain maneuvers in flight.²¹ MCAS may have also created new training requirements for pilots, but Boeing's chief technical pilot for the 737 MAX program asked the FAA to remove references to MCAS from the flight crew operating manual on the premise that the system would not operate under normal flight conditions and later boasted that he had lied to regulators.²² On October 14, 2021, a federal grand jury returned an indictment against that Boeing employee for six counts of fraud stemming from his communications with two U.S. 737 MAX customers about the 737 MAX flight control system.²³

In addition, to preserve commonality between the 737 MAX and its prior model, Boeing received 11 exceptions from FAA design regulations promulgated after the 1967 type certificate was issued. For example, Boeing obtained an exception from the FAA that relieved Boeing of the requirement that the 737 MAX must be equipped with a caution, alert, and advisory system that "[p]rovide[s] timely attention-getting cues through at least two different senses by a combination of aural, visual, or tactile indications" and that "[p]revent[s] the presentation of an alert that is inappropriate or unnecessary."²⁴ Instead, the 737 MAX largely uses legacy cautions, warnings, alerts, and advisories grandfathered from the previous 737 generation.²⁵ That design makes it more likely for pilots to become task-saturated or fail to timely diagnose safety-critical failures in time to recover the aircraft during rare but extreme failure scenarios like those that confronted the pilots of Lion Air flight 610 and Ethiopian Airlines flight 302.²⁶

III. SUMMARY OF INVESTIGATIONS

In the wake of the crash of Ethiopian Airlines flight 302, the Committee launched an investigation at the direction of Chair DeFazio and Chair Larsen into the certification of the 737 MAX and related issues.²⁷ As part of the 18-month-long investigation, the Committee held five public hearings; wrote nearly two dozen oversight letters; obtained an estimated 600,000 pages of documents from Boeing, the FAA, and others; received information and insight from former and current employees; and interviewed dozens of current and former Boeing and FAA employees.²⁸ In September 2020, the Committee issued a Majority staff report detailing its investigative findings.²⁹

In addition, there were many other investigations and reviews, including the National Transportation Safety Board safety recommendations report in 2019; a review

¹⁸ IG Report, *supra* note 3.

¹⁹ *Id.* at 35–36.

²⁰ *Id.* at 35.

²¹ See, e.g., NTSB Safety Recommendation Report, *supra* note 7, at 8.

²² David Gelles and Natalie Kitroeff, "Boeing Pilot Complained of 'Egregious' Issue with 737 Max in 2016," *NEW YORK TIMES* (Oct. 18, 2019), at <https://www.nytimes.com/2019/10/18/business/boeing-flight-simulator-text-message.html>.

²³ Indictment, *U.S. v. Mark A. Forkner*, No. 4–21CR–268–0 (N.D. Texas Oct. 14, 2021).

²⁴ 14 C.F.R. § 25.1322(c), (d); see Dominic Gates, "Boeing pushed FAA to relax 737 MAX certification requirements for crew alerts," *SEATTLE TIMES* (Oct. 2, 2019), at <https://www.seattletimes.com/business/boeing-aerospace/boeing-pushed-faa-to-relax-737-max-certification-requirements-for-crew-alerts/>.

²⁵ The Boeing 737 Technical Site, "737–MAX Flightdeck," at <http://www.b737.org.uk/flightdeck737max.htm>.

²⁶ See, e.g., NTSB Safety Recommendation Report, *supra* note 7.

²⁷ *Chairs DeFazio, Larsen Respond to Grounding of Boeing Aircraft*, Press Release (Mar. 13, 2019), available at <https://transportation.house.gov/news/press-releases/chairs-defazio-larsen-respond-to-grounding-of-boeing-aircraft>.

²⁸ See *The Design, Development & Certification of the Boeing 737 MAX*, Majority Staff of the Committee on Transportation and Infrastructure Final Committee Report Prepared for Chair DeFazio and Chair Larsen (Sept. 2020), p. 6, available at <https://transportation.house.gov/imo/media/doc/2020.09.15%20FINAL%20737%20MAX%20Report%20for%20Public%20Release.pdf>.

²⁹ *Id.*

by a U.S.-led international panel, the Joint Authorities Technical Review; a separate review by a panel of current and former U.S. aviation leaders, convened as the Special Committee to Review FAA’s Aircraft Certification Process; a review of the technical changes to the airplane by a team of aviation industry experts from FAA, NASA, the Air Force, and the Volpe Center, convened as the B737 MAX Technical Advisory Board; and reviews by the U.S. Department of Transportation Office of Inspector General. These investigations and reviews underscored the need for the 2020 Aircraft Certification, Safety, and Accountability Act.

IV. NOTEWORTHY PROVISIONS OF THE SAFETY LEGISLATION

According to the numerous safety expert reviews and investigations, unfortunately the FAA’s certification process failed to detect or properly account for the possibility that a single alpha vane failure—which normally would not result in a crash—could set in motion a series of events, including erroneous MCAS activation, that would create a situation from which the pilots could not recover. Accordingly, the bipartisan safety law includes 35 provisions that collectively address the shortcomings and limitations of the process and require regulatory action on the FAA’s part; imposes civil penalties upon manufacturers for providing the FAA or airlines with incomplete or misleading information on important systems; requires FAA approval of new ODA unit members to prevent conflicts of interest and to ensure their competence; requires the FAA to address international pilot training standards, the safety benefits of flight deck automation, and the concurrent need for strong manual flying skills; and penalizes the exertion of undue pressure on those unit members, among other things.

The following are the most significant of such provisions.

A. Safety Management Systems

Mandate	Deadline	Status
Directs the FAA to require aircraft and other aerospace industry manufacturers to adopt safety management systems, which allow them to identify, manage, and eliminate safety risks through a variety of mechanisms and internal processes, consistent with international standards and practices.	Jan. 26, 2021	IN PROGRESS: FAA expects issuance of proposed rule in September 2022.

B. Expert Review of Boeing’s Safety Culture

Mandate	Deadline	Status
Convenes an independent expert review panel to review The Boeing Company’s exercise of its ODA privileges, the company’s safety culture, and capability to perform FAA-delegated functions.	Jan. 26, 2021	IN PROGRESS: FAA has taken internal steps to prepare, but the panel won’t be convened before 2022. The charter is expected in fall 2021.

C. More Experts for Certification Activities

Mandate	Deadline	Status
<ul style="list-style-type: none"> Authorizes \$27 million in annual appropriations for the FAA to recruit and retain engineers, safety inspectors, human factors specialists, software and cybersecurity experts, and other qualified technical experts who perform duties related to the certification of aircraft, engines, and other components. 	N/A	

Mandate	Deadline	Status
<ul style="list-style-type: none"> Also directs the FAA to conduct a review of its workforce responsible for aircraft certification to determine whether the agency has the necessary expertise and capability to certify new technologies and materials. 	Jan. 26, 2021	IN PROGRESS: FAA began the review in February 2021. The review is ongoing.

D. Requirement for Disclosure of Safety-Critical Information to the FAA and Airlines

Mandate	Deadline	Status
Requires manufacturers to disclose to the FAA, and to airlines and pilots via airplane flight manuals and flight crew operating manuals, all safety-critical information related to an aircraft, including information regarding systems that manipulate flight controls without direct pilot input and whose failure or erroneous activation would present a risk with an outcome rated hazardous or catastrophic. Imposes up to a \$1 million civil penalty for a violation of the disclosure requirements.	Effective at enactment	IN PROGRESS: FAA is preparing three policy documents for FAA employees and aerospace manufacturers outlining the agency's enforcement of this provision. Completion expected in 2022.

E. Limitation on Delegation

Mandate	Deadline	Status
Prohibits the FAA from delegating to a manufacturer the authority to certify on behalf of the agency that a critical system design feature, including a "novel or unusual design feature," complies with the Federal Aviation Regulations until the FAA Administrator has validated any underlying assumptions related to human factors.	Effective at enactment	IN PROGRESS: FAA has taken a number of internal steps and will issue the final FAA policy documents in 2023.

F. Reform of the ODA System to Add Accountability and Prevent Undue Pressure on ODA Unit Members

Mandate	Deadline	Status
<ul style="list-style-type: none"> • Requires the FAA Administrator, beginning on January 1, 2022, to approve each new individual selected by an ODA holder engaged in the design of an aircraft, aircraft engine, propeller, or appliance before they become an authorized representative (or “ODA unit member”) to act on the FAA’s behalf in validating compliance of aircraft systems and designs with FAA requirements. Requires new ODA unit members to meet qualifications issued by the FAA Administrator, and that at a minimum, such individuals must possess the requisite knowledge and technical skills and be of good moral character. Allows for conditional designations of ODA unit members and requires the FAA to approve or reject those designations within 30 days. Reinforces the FAA Administrator’s authority to rescind an approval for an individual to serve as an ODA unit member at any time, for any reason. • Directs the FAA to review each current Boeing ODA unit member to ensure each individual meets the agency’s minimum qualifications. • Imposes a civil penalty for any supervisor of an ODA holder that manufactures transport category airplanes who interferes with (e.g., harasses, berates, or threatens) an ODA unit member’s performance of authorized functions on behalf of the FAA and requires all ODA unit members to promptly report any cases of interference experienced or witnessed at a company. • Directs the FAA to perform periodic audits of each manufacturing ODA unit and its procedures at least once every seven years. • Directs the FAA to assign aviation safety advisors to ODA unit members at certain aircraft and engine manufacturers to ensure unit members are knowledgeable of FAA policies and to monitor their performance. • Prohibits the FAA and ODA holders from prohibiting ODA unit members from communicating with FAA personnel and vice-versa. 	<p>Jan. 1, 2022</p>	<p>IN PROGRESS: FAA expects to issue final policy documents for manufacturer and FAA employees in February 2022.</p>

G. Voluntary Safety Reporting Program

Mandate	Deadline	Status
Directs the FAA, in collaboration with labor groups, to implement a confidential voluntary safety reporting program for FAA engineers, safety inspectors, systems safety specialists, and others to report safety issues to FAA management.	Dec. 27, 2021	COMPLETE

H. Consideration of How One Failure Causes Others

Mandate	Deadline	Status
Directs the FAA to require an applicant for an amended type certificate for a transport airplane, such as Boeing in the case of the 737 MAX, to perform a system safety assessment (SSA) with respect to each proposed design change the FAA determines is significant, and to review each SSA for sufficiency and adequate consideration of the airplane-level effects of failures, including pilot responses to those failures.	Dec. 27, 2022	IN PROGRESS: FAA is working to develop an implementation plan and expects to issue a notice of proposed rulemaking in 2022.

I. New Global Standards for Evaluating Changes to Existing Airplane Designs

Mandate	Deadline	Status
Directs the FAA to exercise leadership in the creation of international policies and standards relating to the issuance of amended type certificates for new airplane design, and requires the FAA to conduct a rulemaking to revise and improve the process for issuing amended type certificates.	Dec. 27, 2023	IN PROGRESS: FAA has engaged with other civil regulators and is leading a working group on pilots' reliance on automation as part of broader engagement at the International Civil Aviation Organization. Policy and regulatory documents expected in 2024.

J. Whistleblower Protections

Mandate	Deadline	Status
Adds aviation manufacturing employees to existing laws protecting airline employees from whistleblower retaliation for reporting safety issues or violations.	Effective at enactment	COMPLETE: FAA is monitoring and addressing claims of retaliation against whistleblowers.

K. Domestic and International Pilot Training

Mandate	Deadline	Status
<ul style="list-style-type: none"> • Expands the FAA's role in reviewing and approving pilot training requirements for commercial aircraft, by initiating several reviews examining human factors, increased aircraft automation, pilot skills, crew resource management, and FAA pilot certification standards. • Authorizes \$5 million in annual appropriations for expanded FAA programs to assist foreign aviation authorities to improve international aviation safety. 	<p>Jan. 26, 2021, to initiate an expert safety review of assumptions regarding pilot training.</p>	<p>IN PROGRESS: Expert panel's final report with recommendations to improve pilot training requirements expected in 2022.</p>

WITNESS

The Honorable Steve Dickson, Administrator, Federal Aviation Administration

THREE YEARS AFTER LION AIR 610: FAA IMPLEMENTATION OF THE 2020 AIRCRAFT CERTIFICATION, SAFETY, AND ACCOUNTABILITY ACT

THURSDAY, OCTOBER 21, 2021

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON AVIATION,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:02 a.m., in room 2167 Rayburn House Office Building and via Zoom, Hon. Rick Larsen (Chairman of the subcommittee) presiding.

Members present in person: Mr. Larsen, Ms. Davids of Kansas, Mr. Kahele, Mr. Stanton, Mr. Graves of Louisiana, Mr. Graves of Missouri, Mr. Perry, Mr. Mast, Mr. Stauber, Mr. Burchett, Dr. Van Drew, and Ms. Mace,

Members present remotely: Mr. DeFazio, Mr. Carson, Ms. Williams of Georgia, Mr. Johnson of Georgia, Ms. Titus, Mr. Payne, Mr. DeSaulnier, Mr. Lynch, Mr. Allred, Mr. Lamb, Ms. Norton, Mr. Fitzpatrick, Mr. Balderson, Ms. Van Duyne, Mr. Gimenez, and Mrs. Steel.

Mr. LARSEN. Good morning. I call the meeting of the House Subcommittee on Aviation to order.

I ask unanimous consent that the chair be authorized to declare a recess at any time during today's hearing. Without objection, so ordered.

I also ask unanimous consent that Members not on the subcommittee be permitted to sit with the subcommittee at today's hearing and ask questions. Without objection, so ordered.

As a reminder, please keep your microphones muted unless speaking. Should I hear any inadvertent background noise, I will request the Member by name to mute your microphone, please. And as a reminder, to insert a document into the record, please have your staff email it to DocumentsT&I@mail.house.gov.

And just as a further reminder for Members in the hearing room, if you are speaking, you do not need to wear a mask. Otherwise, please wear a mask. I think that is actually a committee rule, but we have had pretty good cooperation here and look forward to further cooperation.

Good morning and welcome to today's Aviation Subcommittee hearing titled, "Three Years After Lion Air 610: FAA Implementation of the 2020 Aircraft Certification, Safety, and Accountability Act."

Nearly 3 years ago, on October 29, 2018, Lion Air flight 610 crashed into the Java Sea. Less than 6 months later, on March 10, 2019, Ethiopian Airlines flight 302 crashed near Addis Ababa.

These two tragedies ended the lives of 346 people. Victims included parents, children, teachers, friends, and humanitarians who deserved to arrive safely at their destination but never did.

For nearly 2 years, victims' families tirelessly lent their support to necessary reforms to the Federal Aviation Administration certification process to reduce the likelihood that other families would experience such devastating loss.

I want to acknowledge and thank the victims' families for your presence here today in the hearing room and for your tireless advocacy. You and your loved ones remain at the forefront of this committee's oversight of the implementation of this important bill.

I also want to acknowledge the hard-working women and men who go to work each day at the Boeing plants in Everett and Renton who are proud of the product that they design, assemble, and build. They were and are distraught that the same product contributed to the deaths of so many and the grief of so many others.

This hearing and this legislation are, though, not just about one aircraft. They are about making air travel safer for everybody, restoring confidence in the aviation industry, and ensuring U.S. aviation remains the global standard in terms of safety.

In an historic effort, the House Transportation and Infrastructure Committee conducted a nearly 2-year investigation into the design, development, and certification of the Boeing 737 MAX aircraft. The committee's thorough investigation uncovered flawed management decisions and inadequate organizational structures at Boeing and the FAA that were necessary to confront.

And last December, the Aircraft Certification, Safety, and Accountability Act was signed into law to restore the integrity of the FAA's aircraft certification process and to make flight safer.

This bipartisan legislation is built upon the lessons learned from the committee's investigation and the recommendations of the independent Technical Advisory Board, Joint Authorities Technical Review, and other key entities.

Among its provisions, the new law improves aviation safety culture by requiring aircraft and aerospace manufacturers to adopt safety management systems; enhances transparency and accountability by requiring the disclosure of certain safety-critical information related to an aircraft to the FAA; addresses undue pressure on employees acting on behalf of the FAA, for example, extending airline whistleblower protections to U.S. aviation manufacturing employees; and requires sufficient evaluation of human factors in the certification process to ensure flightcrews can do their job safely and effectively.

As with any comprehensive legislation designed to reform a complicated system like the certification of aircraft, implementation should not be expected to occur overnight. However, the legislation lays out specific timelines for actions by the FAA to take place.

FAA has provided updates on some of these actions but has not yet provided specific details on progress for many of the requirements.

So, today's hearing is an opportunity for the subcommittee to hear from the FAA on the status of these reforms, how the agency plans to implement them, and to identify any potential causes for delay.

Today's witness is Steve Dickson, the FAA Administrator. I am pleased to welcome him today, and he has served in this role since August of 2019.

Administrator Dickson, the past few years have been a tumultuous time in the agency's history. And I appreciate you and your team's commitment to the implementation of the Aircraft Certification, Safety, and Accountability Act and your personal involvement in the review of the 737 MAX.

So, while I am encouraged by the agency's progress, though, clearly there is much more work to do. The U.S. is the leader in global aviation, and the FAA's actions in the U.S. have profound implications for passenger air travel around the world. It is vital this subcommittee carry out its responsibility to oversee the FAA's implementation of the critical reforms enacted under the Aircraft Certification, Safety, and Accountability Act.

I look forward to today's discussion on how best to support the FAA's ongoing work to ensure the safety of the traveling public.

With that, I will now turn to Ranking Member Representative Graves of Louisiana for an opening statement.

[Mr. Larsen's prepared statement follows:]

**Prepared Statement of Hon. Rick Larsen, a Representative in Congress
from the State of Washington, and Chair, Subcommittee on Aviation**

Good morning and welcome to today's Aviation Subcommittee hearing titled "Three Years After Lion Air 610: FAA Implementation of the 2020 Aircraft Certification, Safety, and Accountability Act."

Nearly three years ago, on October 29, 2018, Lion Air Flight 610 crashed into the Java Sea.

Less than six months later, on March 10, 2019, Ethiopian Airlines Flight 302 crashed near Addis Ababa.

These two tragedies ended the lives of 346 people.

Victims included parents, children, teachers, friends and humanitarians who deserved to arrive safely at their destinations, but never did.

For nearly two years, victims' families tirelessly lent their support to necessary reforms to the Federal Aviation Administration's (FAA) certification process to reduce the likelihood other families would experience such devastating loss.

I want to acknowledge and thank the victims' families for your presence and your tireless advocacy.

You and your loved ones remain at the forefront as this Committee oversees implementation of aircraft certification reform.

I also want to acknowledge the hard-working women and men who go to work each day at the Boeing plant in Everett and are proud of the product they design, assemble and build.

They are distraught this same product contributed to the deaths of so many and the grief of so many others.

This hearing and this legislation are not about just one aircraft.

They are about making air travel safer, restoring confidence in the aviation industry and ensuring U.S. aviation remains the global gold standard in terms of safety.

In an historic effort, the House Transportation and Infrastructure Committee conducted a nearly two-year investigation into the design, development and certification of the Boeing 737 MAX aircraft. The Committee's thorough investigation uncovered flawed management decisions and inadequate organizational structures at Boeing and FAA that were necessary to confront.

Last December, the Aircraft Certification, Safety, and Accountability Act was signed into law to restore the integrity of the FAA's aircraft certification process and make flight safer.

This bipartisan legislation is built upon the lessons learned from the Committee's investigation and the recommendations of the independent Technical Advisory Board, Joint Authorities Technical Review and other key entities.

Among its provisions, the new law will:

- Improve aviation safety culture, by requiring aircraft and aerospace manufacturers to adopt safety management systems;
- Enhance transparency and accountability, by requiring the disclosure of certain safety-critical information related to an aircraft to the FAA;
- Address undue pressure on employees acting on behalf of the FAA, for example, extending airline whistleblower protections to U.S. aviation manufacturing employees; and
- Require sufficient evaluation of human factors in the certification process to ensure flight crews can do their jobs safely and efficiently.

As with any comprehensive legislation designed to reform a complicated system like the certification of aircraft, implementation should not be expected to occur overnight.

However, the legislation lays out specific timelines for actions by FAA to take place.

FAA has provided updates on some of these actions but has not yet specific details on progress for many of the requirements.

Today's hearing is an opportunity for this Subcommittee to hear from the FAA on the status of these reforms, how the agency plans to implement them, and identify any potential causes for delay.

I am pleased to welcome today's witness, FAA Administrator Steve Dickson, who has served in this role since August of 2019.

Administrator Dickson, the past few years have been a tumultuous time in the agency's history.

I appreciate your and your team's commitment to the implementation of the Aircraft Certification, Safety, and Accountability Act and your personal involvement in the review of the 737 MAX.

While I am encouraged by the agency's progress, clearly there is much more work to do.

The United States is the leader in global aviation, and the FAA's actions in the U.S. have profound implications for passenger air travel around the world.

It is vital this subcommittee carry out its responsibility to oversee the FAA's implementation of the critical reforms enacted under the Aircraft Certification, Safety, and Accountability Act.

I look forward to today's discussion on how to best support the FAA's ongoing work to ensure the safety of the traveling public.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Chairman.

First of all, I want to thank you for holding this hearing.

Secondly, and importantly, I want to join you in thanking the families for their relentless efforts to ensure that we never forget what happened in our pursuit of perfection.

Mr. Chairman, this hearing is an opportunity for us to talk about what has happened since the awful crashes of the 737 MAX. It is an opportunity for us to talk about progress that has been made on the 2018 authorization bill and the progress that has been made on the Aircraft Certification, Safety, and Accountability Act that we worked together on.

Mr. Chairman, this is all about assessing the accidents and determining the lessons learned. This is about making reforms, both administratively and in law. And this is about us holding folks accountable.

And in that first one, as you well know, there have been dozens of assessments, reports, and technical groups that have been pulled together, including the National Transportation Safety Board, to extract every lesson learned that could possibly be extracted.

It is about ensuring that the FAA, using their administrative authorities, that they step up and make changes to their policies in an effort to ensure that we do not allow anything like what happened with the MAX to occur again. It is ensuring that those that perhaps did break the law, that they are held accountable.

And I want to highlight that there was an indictment just last week, showing that this was not entirely an administrative failure, that there were folks who actually broke the law and they are being held accountable.

And, Mr. Chairman, it is important for us to continue working together to not establish, but to maintain the gold standard that the FAA has in terms of global aviation safety and maintain, not establish, but maintain the fact that traveling by air is still the safest means of transportation.

Mr. Chairman, I noted earlier that we did the 2018 authorization bill, and that bill still has dozens of provisions that are yet to be implemented. The Aircraft Certification, Safety, and Accountability Act that we worked on last year, that still has 35 provisions that must be implemented.

Mr. Chairman, it is critical that we today learn from the FAA what steps have been taken in the implementation of the 2018 act and the implementation of the act that we worked on in December of last year.

It is important that we learn from the FAA, we hear from the FAA how all of the steps that occurred with the MAX will never occur again as a result of some of the reforms that have been made both internally and made through the law changes that we implemented in December of 2020.

I look forward to hearing from Administrator Dickson. I think that we still have some significant work to do over the coming months. And we must continue to strive for perfection.

So, Mr. Chairman, with that, I yield back.

[Mr. Graves of Louisiana's prepared statement follows:]

Prepared Statement of Hon. Garret Graves, a Representative in Congress from the State of Louisiana, and Ranking Member, Subcommittee on Aviation

Thank you, Mr. Chairman, first I want to thank you for holding this hearing and secondly, and importantly, I want to join you in thanking the families for their relentless efforts to ensure that we never forget what happened in our pursuit of perfection. This hearing is an opportunity for us to talk about what has happened since the awful crashes of the 737 Max. It's an opportunity for us to talk about what progress has been made on the 2018 authorization bill and the progress that has been made on Aircraft Certification, Safety, and Accountability Act ("Aircraft Certification Act") that we worked together on.

Mr. Chairman, this is all about assessing the accidents and determining the lessons learned. This is about making reforms, both administratively and in the law, and this is about us holding folks accountable. In that first one, as you well know, there have been dozens of assessments, reports, and technical groups that have been pulled together including the National Transportation Safety Board to extract every lesson learned that could possibly be extracted. It's about ensuring that the FAA, using their administrative authorities, that they step up and make changes to their policies and in an effort to ensure that we do not allow anything like what happened with the Max to ever occur again. It's ensuring that those that perhaps did break the law that they are held accountable, and I want to highlight that there was an indictment just last week showing that this was not an entirely an administrative

failure—that there were folks who actually broke the law and they are being held accountable.

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I look forward to hearing from Administrator Dickson.

I still think we have some significant work to do over the coming months and we must continue to strive for perfection.

Mr. Chairman, with that, I yield back.

Mr. LARSEN. I thank the Representative.

I will now turn to the chair of the full committee, Representative DeFazio from Oregon, who is online, I believe, on Zoom.

Mr. DEFAZIO. Yes. Thank you, Mr. Chairman.

I am a little limited. I just had back surgery. So, I am here at the office.

The most damning thing that came out of our extraordinary investigation—and I thank all the staff who did unbelievable work on the most indepth, most serious investigation ever done by this committee, one of the two or three oldest in Congress—was that FAA and Boeing were compliant.

Now, how can you be compliant when 346 innocent people died in crashes because of a system which was developed by engineers?

In 2013, they decided, well, no one outside Boeing should know about the system. Ultimately, the system was wiped out of the pilot's manual until after the first crash. And, beyond that, the system had been significantly modified. And essentially this was concealed from the public, from the pilots, and from the FAA.

That can never, ever happen again. And we have seen to it in the legislation we passed, which we want to see fully and quickly implemented, that any novel, new things on the plane, anything that can take control without pilot command, will be fully disclosed and known and examined to be certain that it is safe.

Now, yeah, there has been one indictment. One indictment. This started at the top in Boeing. It started in the executive suite. It is in the boardroom. "We got to rush this plane out the door to compete with Airbus or we are going to lose sales." Big chart. Countdown clock. They put pressure all the way down the line.

As Rick said, we have in the Seattle area the best engineers and aircraft mechanics and workers in the world. Unfortunately, Boeing, to save money, decided, "Gee, let's go down to the South where we don't have to have unions." And they have been having some pretty extraordinary quality problems down there.

There weren't quality problems, except for rushing the line, in Renton, and we heard about those from one of the production managers.

And the fact is that they also concealed that a Boeing test pilot, fully conversant and knowledgeable of the system, knowing it was going to trigger, could not recover the plane within 12 seconds, meaning you are going to go in. That was concealed.

And the fact that one person has been indicted, Boeing is slapped with a fine that is insignificant in terms of their revenues, I am concerned that we haven't seen a major change in the culture there. And that is why we are mandating.

Can you imagine, a company the size of Boeing didn't have a safety management system in place? That is pretty extraordinary. I know little, tiny manufacturers that had such systems in place that make things nowhere near as critical as airplanes.

That is one of the things in our bill that must be implemented as soon as possible. I see the timelines drag out 1, 2 years. I get pretty tired of this process, particularly when lives are at stake, potentially at stake.

And I want to hear today what we are going to do to expedite the most critical parts of the legislation we passed, fully bipartisan, through the House, through the Senate. It is a mandate from Congress that the culture at FAA is going to change, the scrutiny is going to change, we are giving you additional engineers and expertise to help keep up with these companies. But it has to change.

And the fact that, as Rick also mentioned, we have things that were supposed to be self-executing, pretty damn clear in the law. The flight attendants' duty time, I am glad it burped out of FAA.

It seems every time we hold a hearing—I think I am going to start holding a lot more—out comes something we have been waiting for. So, we finally got the flight attendants' duty time. Only, let's see, it was November 4, 2018, self-executing law.

Your attorneys over there need a little poke for them to look at explicit things written by Congress that say this goes into law, it is self-executing, you don't screw around with it for 3 years. You don't send it to OMB. You just do it.

And it didn't happen. And now we are at, "Oh, we got an NPRM out, proposed rulemaking." And that will take another how long?

Meanwhile flight attendants are incredibly stressed with the conditions in the air now. We have gone through that. We have held hearings on that, what is going on, on the planes. They are overworked. They are tired. And we don't have that rule in place yet.

A number of the airlines have already complied. Guess what? It didn't hurt their service. It didn't cost them anything. It just meant that some of the people who managed schedules had to create new computer programs. It shouldn't take 3 years.

And secondary barriers, we now know after January 6 that there are probably more domestic terrorists in this country than there are foreign terrorists in this country. And yet I see the flight attendants standing bravely there by the flight deck door. When I flew last week, the pilot or copilot, I don't know which he was, he came out and chatted for 20 minutes with the flight attendant standing there like this, while she was looking over her shoulder and talking to him.

You are telling me a couple of people can't rush that flight deck when that door opens? And yet here we are, we are languishing even further behind on secondary barriers.

I hope this isn't back to the good old days of tombstone mentality at FAA: We will move on secondary barriers when some domestic terrorists take over a plane and something really horrible happens.

So, I just want to hear today from the Administrator how we are going to start being less of a turgid bureaucracy and do what you are supposed to do, serve the public, protect the public.

When I started, when we got in this investigation and I found out that regulated entities were now called customers—customers? They are not your customers. They are not customers. They are people who you oversee and regulate.

I changed that law after a tragic crash way back in the 1990s. I took out the promotional authority from the FAA more than 20 years ago. It has crept back in. It has got to get kicked out the door.

I am looking forward to the testimony. Thank you, Mr. Chair.

[Mr. DeFazio's prepared statement follows:]

Prepared Statement of Hon. Peter A. DeFazio, a Representative in Congress from the State of Oregon, and Chair, Committee on Transportation and Infrastructure

Thank you, Chair Larsen, for calling today's hearing on the FAA's implementation of the Aircraft Certification, Safety, and Accountability Act, an important set of reforms that we enacted last year in response to two air disasters that revealed serious lapses in our aviation safety system.

Those two crashes of Boeing 737 MAX airplanes in 2018 and 2019, which claimed the lives of 346 sons and daughters, fathers and mothers, brothers and sisters, were not only senseless tragedies but also a national embarrassment.

The crashes, that of Lion Air 610 and Ethiopian Airlines 302, were the culmination of a series of failures, negligent acts and omissions, and allegedly criminal acts within The Boeing Company, as well as dangerous inadequacies in the FAA's process for certifying new airplanes. It is clear that Boeing needed thorough regulation and strict oversight, but its regulator could not provide enough of either, despite the efforts of numerous dedicated civil servants.

The litany of mistakes resulted in the certification of a passenger airliner with a fatal flaw: a system called the maneuvering characteristics augmentation system, or MCAS, that activated erroneously and pushed the two accident airplanes into unrecoverable dives. Not even a Boeing test pilot, in a simulator, could recover the plane when MCAS erroneously activated—much less standard airline pilots who were unaware the system even existed.

The committee's 18-month-long investigation, as well as other evaluations by two panels of aviation safety experts in the United States and our own National Transportation Safety Board; investigations by national safety authorities in Ethiopia and Indonesia; and even press reports established that:

- MCAS, as a safety-critical system, didn't receive the attention from FAA engineers and pilots that it should have received;
- Boeing should not have received authority from the FAA to conclude independently that erroneous MCAS activation would not result in a crash, and the FAA should have assumed responsibility for thoroughly evaluating MCAS;
- At least one Boeing employee in a position of responsibility on the 737 MAX program lied to airlines and the FAA about MCAS and was indicted last week on six counts of fraud;
- Both Boeing and the FAA failed to fully appreciate that an erroneous reading from a small, fragile, needle-like instrument protruding from the side of the forward fuselage, called an AOA sensor, could cause MCAS to send the airplane into an unrecoverable dive; and
- Many other incredible lapses with Boeing's safety culture and the FAA's inability to detect and correct those problems before they jeopardized public safety.

The bill we enacted last winter addresses these issues comprehensively.

Based on an update and documents provided to committee staff, I am encouraged that the FAA is making progress in implementing these reforms, and I commend Administrator Dickson for his attention to the urgent need for their swift implemen-

tation. I hope he will continue to place particular emphasis on this work, because Boeing's next aircraft—the 777X—is already in flight tests.

Moreover, Boeing is reportedly considering development of the 737 MAX's successor despite the fact that the 787 program has been beset by manufacturing errors, a months-long cessation of deliveries, and FAA fines against Boeing for Boeing employees harassing and placing undue pressure on their colleagues who are in charge of ensuring compliance with safety requirements. So, Administrator Dickson, I hope you will continue implementing this legislation with urgency because its necessity is clear.

That said, I must register my disapproval of the FAA's delay in implementing two explicit mandates from the 2018 FAA reauthorization, which have languished in the bureaucratic process despite a clear safety imperative for both.

The first is the requirement that flight attendants receive at least 10 hours of rest between duty periods. The bill's language left no room for discretion: The FAA was to issue a final rule by November 4, 2018, in accordance with the parameters we laid out in that mandate. Nearly three years later, we've yet to see a final rule.

The second is the requirement for the installation of secondary flight deck barriers on all newly manufactured airliners. The deadline passed two years ago, on October 5, 2019. Still, no order or final rule.

Administrator Dickson, I acknowledge that these mandates were enacted before your tenure began at the FAA. But the delay in complying with the letter of the law is completely unacceptable. I want an update from you on the status of these safety-critical regulations, and I want your commitment to doing whatever is necessary within your authority to meet the will of Congress in the shortest possible time.

I again thank Chair Larsen for calling this hearing, and I look forward to hearing from Administrator Dickson. I yield back.

Mr. LARSEN. Thank you, Mr. Chair.

I now recognize the ranking member of the full committee, the Representative from Missouri, Mr. Graves, for as much time as he may consume.

Mr. GRAVES OF MISSOURI. Thank you, Chairman Larsen.

I want to thank Administrator Dickson for being here today to testify or at least testify online.

And I want to commend you for a job well done under some very difficult circumstances over the past several years. Both industry and labor groups have praised your leadership on a number of issues, everything from aviation safety to dealing with disruptive passengers. And we have seen that praise. And, again, I want to say thank you.

I am looking forward to hearing how the FAA is doing when it comes to implementing the bipartisan certification reform law that did pass last Congress. The development and drafting of that law is a model of how we can work together and how bipartisan cooperation can yield positive results for the American people.

The law directs the FAA to implement the many nonpartisan expert recommendations developed in the wake of the Boeing 737 MAX accidents. It also includes several provisions that I championed relating to pilot training and improving manual flying skills, which is a very important priority in improving aviation safety.

Less than a year has passed since the law's enactment, but the urgency of the changes required demands that Congress do keep a close eye on the FAA's progress.

And this hearing is also a good opportunity to hear from you on other FAA initiatives and policies, activities. There are a number of concerning issues that are related to general aviation safety that I am going to be looking for some answers on.

Specifically, I would like for you to address the FAA's recent changes to the longstanding flight training guidance that has created a lot of confusion and a lot of concern out there in the pilot community. These changes have a very negative impact on safety, and they create an unnecessary paperwork burden on both instructors and on the FAA, for that matter.

So, I hope that you will take a little bit of time today to address these pressing safety issues.

And while we are on the topic of pilots, I want to again make very clear my very strong opposition to the sweeping, indiscriminate vaccine mandate that this administration is pushing on commercial airlines.

After Congress joined together in a bipartisan way to provide \$30 billion to help save aviation jobs during the pandemic and keep these vital workers on the job, it is insulting that these same workers are being told, if they don't get a vaccine, then they are going to be fired.

We had no problem asking pilots and flight attendants and other frontline aviation employees to continue working through the pandemic when there was no vaccine, and indeed we have seen studies, including one by the Department of Defense, that has shown that the airplane environment presents a very low risk of COVID transmission.

But, despite this, we are now seeing heavy-handed tactics of this administration to coerce businesses into implementing an indiscriminate vaccine mandate while there is already a shortage of workers to fill these aviation jobs in the first place.

In fact, prior to the pandemic, we were already staring down a very serious aviation worker and pilot shortage. So, with returning demand, I don't expect that this problem is just magically going to go away.

We should not be treating pilots and other airline workers any differently than we did in 2020. We want them to be safe. But this mandate is not about safety. It is about politics, plain and simple.

So, with that, I want to thank you, Administrator, for being with us today. And I look forward to your testimony.

And, with that, I yield back. Thank you, Mr. Chairman.

[Mr. Graves of Missouri's prepared statement follows:]

Prepared Statement of Hon. Sam Graves, a Representative in Congress from the State of Missouri, and Ranking Member, Committee on Transportation and Infrastructure

Thank you, Chair Larsen, and thank you to Administrator Dickson for being here today.

I want to commend you for a job well done under difficult circumstances over the past several years.

Both industry and labor groups have praised your leadership on a number of issues, everything from aviation safety to dealing with disruptive passengers. We've seen that praise and again I say thank you.

I am looking forward to hearing how the FAA is doing when it comes to implementing the bipartisan certification reform law that passed last Congress.

The development and drafting of that law is a model of how we can work together and how bipartisan cooperation can yield positive results for the American people.

The law directs the FAA to implement the many non-partisan expert recommendations developed in the wake of the Boeing 737 MAX accidents.

It also includes several provisions I championed relating to pilot training and improving manual flying skills—an important priority in improving aviation safety.

Less than a year has passed since the law's enactment, but the urgency of the changes required demand that Congress keep a close eye on the FAA's progress.

This hearing is also a good opportunity to hear from you on other FAA initiatives and policies.

There are a number of concerning issues related to general aviation safety that I am going to be looking for some answers on.

Specifically, I would like you to address the FAA's recent changes to longstanding flight training guidance that has created a lot of confusion and a lot of concern in the pilot community.

These changes could have a negative impact on safety and create an unnecessary paperwork burden on both instructors and the FAA. So, I hope you will take some time today to address these pressing safety issues.

And while we're on the topic of pilots, I want to again make very clear my strong opposition to the sweeping, indiscriminate vaccine mandates that this Administration is pushing on commercial airlines.

After Congress joined together in a bipartisan way to provide \$30 billion dollars to help save aviation jobs during the pandemic and keep these vital workers on the job, it is insulting that these same workers are being told that if they don't get the vaccine they are going to be fired.

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In fact, prior to the pandemic we were staring down a very serious aviation worker and pilot shortage.

So, with returning demand I do not expect that the problem has magically gone away.

We should not be treating our pilots and other airline workers any differently than we did in 2020. We want them to be safe. But this mandate is not about their safety it's about politics. It's plain and simple.

With that, I want to thank you for being here today, Administrator Dickson, and I look forward to your testimony. I yield back.

Mr. LARSEN. Thank you, Mr. Graves.

So, now I want to turn to the FAA Administrator, Steve Dickson.

I let the FAA know that you could have up to 10 minutes since you are the only one testifying today. I understand you won't take that, but I don't want you to feel constrained by the 5-minute timeline. So, you can get your comments in for us before we head to questions.

So, with that, I will recognize Administrator Dickson for his opening testimony.

Administrator.

**TESTIMONY OF HON. STEPHEN M. DICKSON, ADMINISTRATOR,
FEDERAL AVIATION ADMINISTRATION**

Mr. DICKSON. Thank you, Chair Larsen.

And good morning, Chair DeFazio, Chair Larsen, Ranking Member Graves and Ranking Member Garret Graves, and members of the subcommittee.

Thank you for the opportunity to discuss the FAA's approach to aviation safety oversight, as well as our efforts to strengthen the aircraft certification process.

Safety is a journey, not a destination. And we are constantly evolving as a regulator and as an air navigation services provider

to deliver the safest and most efficient aerospace system in the world.

Now, one of the first things that I did as FAA Administrator was make it clear that we are the regulator, and I reset the relationship with Boeing. I said that we would continue to exert a high level of scrutiny, and that continues to this day.

I have made it clear that we are raising the bar on safety externally and internally. We are asking ourselves the hard questions, and we are asking them of those that we regulate. We will not accept the status quo.

Now, we are committed to improving the robustness of the certification process, including our oversight of the functions that we delegate to aircraft designers and manufacturers. And to that end, we embrace reform, and we are focused across the agency on continuous improvement.

I will discuss a number of initiatives that we have underway and the work that we have completed to address this goal, as well as to implement the requirements of the Aircraft Certification, Safety, and Accountability Act.

But first I want to take a moment to repeat my commitment and my thanks to the families of the victims of the Ethiopian Airlines and Lion Air accidents, and to this committee, that we at the FAA are constantly working to ensure that the lessons learned from these accidents are resulting in a higher margin of safety for the aviation system around the world.

In the nearly 3 years since these tragedies, we have made tangible and lasting safety improvements to the global aviation system, in part from the input and direction that we have received from the Congress and this committee. And as was noted earlier, there is much more to be done.

The act has more than 100 unique requirements that we are implementing to make aircraft certification and safety oversight more holistic, systematic, transparent, and effective. I can say with confidence that we are doing more for certification oversight, and we are doing it more systematically, since this time last year.

For one, we are delegating fewer responsibilities to manufacturers, and we are demanding more transparency from them. We continue to value their technical expertise as we prioritize our oversight to focus on safety-critical areas.

The FAA is also revising guidance and criteria used for determining significant changes so that proposed changes to an aircraft are evaluated from a whole aircraft system perspective, including the human interface elements.

We are promoting the use of safety management systems, or SMS, where safety issues are actively looked for and identified and then the root cause is addressed.

And as part of this rulemaking, we will also evaluate potential SMS requirements for repair stations, certificate holders that conduct common carriage operations under part 135, and certain air tour operators under part 91.

Now, we are also making progress with industry participation in voluntary SMS programs. Currently, four design and manufacturing organizations have voluntarily adopted SMS with six others

in the pipeline. Boeing itself also established a voluntary SMS program as part of the settlement agreement.

What we learned from all these programs will directly benefit our rules and policies.

Now, the FAA has initiated a rulemaking to standardize regulations and guidance for conducting system safety assessments on transport category airplanes.

The FAA is taking a fresh look at the human factors assumptions that we have been using for the design and certification of transport category aircraft, including pilot response times.

We are actively expanding our portfolio of data collection and analytics tools so that we can more effectively share safety data within the FAA and also among industry stakeholders and international partners.

Data is key to the early identification of potential hazards and safety problems. And per the act, we have a new contract with the Transportation Research Board that will help us discover emerging safety trends in aviation.

Since aviation is a global system, the FAA is also working closely with the International Civil Aviation Organization and other international stakeholders to influence and adjust the maintenance and pilot training requirements for U.S. products that operate under other civil aviation authorities.

Chair DeFazio, Chair Larsen, Ranking Member Graves and Graves, and each member of the committee, as you can see, the FAA is fully committed to a thorough and complete implementation of the Aircraft Certification, Safety, and Accountability Act. We approach all of this work with tremendous humility, and we do not take safety for granted.

However, we are not just doing this work because you have directed us to do it. We are doing it because it is the right thing to do for aviation safety. This is what the public expects, and it is the standard that we have set for ourselves. We will accept nothing less.

Thank you again for your support and your direction. And now I am happy to answer your questions.

[Mr. Dickson's prepared statement follows:]

Prepared Statement of Hon. Stephen M. Dickson, Administrator, Federal Aviation Administration

Good morning Chair Larsen, Ranking Member Graves, and Members of the subcommittee:

Thank you for the opportunity to be here with you today to discuss the Federal Aviation Administration's (FAA) approach to aviation safety oversight and our activities to implement changes to strengthen the aircraft certification process. Certifying aviation products is a critical aspect of the FAA's safety mission. We are committed to improving the certification process, including our oversight of functions delegated to aircraft designers and manufacturers. We have undertaken a number of initiatives to address this goal, as well as to comprehensively implement the requirements of the bipartisan Aircraft Certification, Safety, and Accountability Act ("Act").

Before we begin to discuss the specifics of certification reform implementation, on behalf of the United States Department of Transportation and everyone at the FAA, I would like to recognize, as we have before, the families of the victims of the Lion Air and Ethiopian Airlines accidents and extend our deepest sympathies and condolences to them. It has been nearly 3 years since the Lion Air accident, and we have

made significant progress on addressing the findings and recommendations that resulted from the numerous investigations and independent reviews of both accidents involving the Boeing 737 MAX. We will continue to prioritize our work to improve aviation safety to make sure this never happens again.

As mentioned, our efforts to implement certification reform are well underway. I want to thank Congress for enacting this landmark aviation safety legislation and for this committee's continued leadership on aviation safety matters. The Act has more than one hundred unique requirements that we are implementing in a holistic, systematic, transparent, and efficient manner to improve aircraft certification and safety oversight. The FAA is working diligently to implement the requirements while also ensuring that we are approaching our efforts as systemically and effectively as possible. Specific agency actions taken to implement the requirements of the Act are discussed more fully below; however, I also wish to note that, in general, our approach to aircraft certification and safety oversight has changed. The FAA's relationship with manufacturers is evolving. We are prioritizing oversight of manufacturers and working to focus that oversight on safety critical areas. We are delegating fewer responsibilities and demanding more transparency from them, and evaluating key assumptions prior to delegating functions in certain areas. While we continue to value their technical expertise, we are also committed to enforcing the highest safety standards for the manufacturers that we regulate. Our work to fully implement the Act is still in the early stages, and we are carrying it out with the urgency that it requires. The discussion below provides an overview of some of our accomplishments to date.

- *Safety Management Systems.* To ensure a holistic and proactive assessment and mitigation of hazards, and to support further improvement in safety performance, we continue to work with industry to increase transparency, strengthen risk management practices, and improve feedback channels between industry and the FAA. We believe that enhancing and promoting the use of safety management systems (SMS)—where safety issues are actively looked for and identified, and then the root cause is addressed—is integral to achieving this objective, and we have taken a number of steps toward increasing the use of SMS in the design and manufacturing environment. As required by the Act, we have initiated a rulemaking that contemplates requiring aircraft manufacturers that hold both a type certificate and a production certificate to adopt SMS, consistent with international standards and practices.¹ As part of this rulemaking, we will also evaluate potential SMS requirements for repair stations, certificate holders that conduct common carriage operations under part 135, and certain air tour operators under part 91.² We also created guidance for the development of voluntary SMS programs and are working closely with industry to encourage participation in voluntary SMS programs to further enhance safety across the entire aviation system. Currently, four design and manufacturing organizations have voluntarily adopted SMS with six others in progress. Boeing also established an SMS under the FAA's Voluntary SMS program as part of the settlement agreement. The voluntary programs have enabled the FAA to gain valuable experience on oversight of SMS for design and manufacturing organizations, and the lessons learned will help inform FAA's SMS rulemaking and policy development.
- *System Safety and Human Factors.* We are working on several initiatives to ensure system safety assessments and human factors assumptions are incorporated into the FAA's aviation safety policy and oversight. We have initiated a rulemaking to standardize regulations and guidance for conducting system safety assessments on transport category airplanes.³ In addition, the expert safety review panel that we established pursuant to the Act is meeting regularly to review the assumptions relied upon in aircraft design and certification of transport category aircraft—including assumptions regarding pilot response times. We are also developing new guidance for industry on the submission of safety critical information. There are several interrelated provisions regarding human factors and human systems integration. To address these, we have taken a number of steps to strengthen the foundation of aviation human factors safety research and to bolster the technical expertise within the Aviation Safety

¹ RIN 2120-AL60, Safety Management System (SMS) for Parts 21, 91, 135 and 145 issued. <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202104&RIN=2120-AL60>

² The FAA is developing a final rule to require the use of SMS at airports certificated under Part 139. RIN 2120-AJ38, Airport Safety Management System. <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202104&RIN=2120-AJ38>

³ RIN 2120-AJ99, System Safety Assessments for transport category airplanes issued. <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202104&RIN=2120-AJ99>

(AVS) organization. This includes developing a human factors education and training program, doubling the number of human factors staff within AVS, and realigning the hiring of technical advisors with the necessary technical expertise involved in critical safety decisions.

- *Global Collaboration.* To further international harmonization and collaboration with respect to aircraft type certification and continued operational safety, the FAA established the Changed Product Rule International Authority Working Group and held the first meeting in July 2021. This working group will develop recommendations for international policy and guidance to ensure proposed changes to an aircraft are evaluated from an integrated whole aircraft system perspective. The FAA is working closely with the International Civil Aviation Organization and other international stakeholders to influence and adjust the maintenance and pilot training requirements for U.S. products operating under the oversight of another civil aviation authority. In addition, FAA representatives have presented at and attended several webinars, work group meetings, and seminars, including a presentation at the 2021 Zhuhai International Flight Training and Safety seminar on topics of competency based pilot training and automation dependency. The FAA plans to continue this global engagement into the future, including seeking new opportunities to collaborate with civil aviation authorities and other international stakeholders to foster improvements in international safety standards and practices for aircraft design and certification, pilot training, and operational safety management. Additionally, to fulfill the requirement to ensure that pilot operational evaluations for aircraft type certifications utilize pilots from air carriers that are expected to operate such aircraft, the FAA has already begun to incorporate air carrier pilots into such evaluations.
- *Data.* We are actively expanding our oversight capabilities by advancing data collection and analytics tools to share safety data within the FAA and between industry stakeholders and international partners. These efforts include technological enhancements to the Aviation Safety Information Analysis and Sharing system to integrate new data sources and methods for safety analysis, which will improve data quality and accessibility to support risk-based decision-making. In addition, the FAA's new contract with the Transportation Research Board, established pursuant to the Act in June 2021, will aid the agency's effort to conduct annual analysis and reporting on current and emerging safety trends in aviation. As the aviation landscape continues to evolve, it will be increasingly necessary to bolster the FAA's use of safety data and collaboration with industry to identify potential hazards and safety problems and to solve these problems before they give rise to an accident or incident.
- *Integration of Certification and Oversight.* The Act requires the FAA to convene an interdisciplinary integrated project team upon the agency's receipt of every application for a new type certificate for a transport category airplane. The FAA previously commissioned the Integrated Program Management team comprised of subject matter experts from Flight Standards and the Aircraft Certification Service to assess current practices and policies and make recommendations for improving FAA oversight through the integration of design and operations. The best practices identified from this process are being applied to ongoing certification projects, and we intend to enhance the current procedures to incorporate additional requirements contained in the Act. The FAA is also revising our current Technical Advisory Board (TAB) process to use the TAB in all new and amended type certification projects. We anticipate implementing this policy next spring. The Act also directs FAA to establish an executive council to oversee the FAA Compliance Program. This program provides a framework for how the agency returns a regulated entity to compliance through comprehensive safety data sharing between the FAA and regulated entities. Pursuant to the Act's requirements, we established the FAA Compliance Program Executive Council to monitor the operation and effectiveness of the Compliance Program, and held the first meeting in August 2021. We also updated the Compliance Program order to reflect the implementation of the Executive Council and the Compliance Program Steering Committee.⁴
- *Culture of Safety and Excellence.* The FAA is committed to fostering a just safety culture, while providing transparency to improve safety, operational excellence, and efficiency. These efforts include promoting voluntary safety reporting, increasing workforce competencies, and attracting talented staff. In April 2021,

⁴Federal Aviation Administration, *Federal Aviation Administration Compliance Program, Order 8000.373B*, April 22, 2021, at http://www.faa.gov/documentLibrary/media/Order/FAA_Order_8000.373B.pdf.

we implemented the Voluntary Safety Reporting Program (VSRP) to provide a mechanism for employees to voluntarily report potential hazards and safety concerns without fear of reprisal or other repercussions.⁵ Preliminary data on VSRP usage indicates that employees are comfortable using the system and they are regularly using it to raise safety concerns. An added bonus of VSRP is that it promotes collaboration between employees and management for proactively addressing safety concerns and developing corrective action recommendations. To assess the effectiveness of these efforts and to meet the requirements of the Act, we will conduct annual internal safety culture assessments that include surveys of AVS employees in order to evaluate the safety culture and the implementation of VSRP programs.

- *Accountability.* A critical part of fostering a just safety culture is ensuring that we hold our people to the highest safety standards. In response to requirements in the Act, we have taken a critical look at our own internal oversight processes and taken steps to enhance accountability. This includes re-designating the Office of Investigations to the new Office of Investigations and Professional Responsibility and establishing investigative processes that are based on best practices identified from similar offices at other federal agencies and from the FAA's experience, expertise, and other sources. Although our work is not yet done, we believe that incorporating these best practices will improve the effectiveness, efficiency, and transparency of the FAA's investigative process.
- *Delegation.* The Act requires the FAA to institute extensive and meaningful changes to the Organization Designation Authorization (ODA) program and our oversight of that program. To address these legislative requirements, we expect to implement significant changes to our policies and procedures for delegating certification authority to private entities. These changes include policy requiring FAA approval of individual ODA unit members for certain ODA types, and policy aimed at preventing interference with ODA unit members in performance of their duties. We are also standing up an expert panel to conduct a review of ODAs for transport category airplanes and make recommendations to the FAA based on that review. Additionally, as required under the FAA Reauthorization Act of 2018, we previously established the ODA Office to provide oversight and to ensure consistency of the FAA's audit functions under the ODA program. In April 2021, the FAA realigned the ODA Office to report directly to the Associate Administrator for Aviation Safety. This reporting structure reflects the FAA's priority to oversee, standardize, and ensure consistency in the ODA system, as well as to facilitate many of the ODA reform requirements contained in the Act. To that end, the ODA Office anticipates adding more employees in Fiscal Year 2022, and hiring has already begun. The additional staff will allow the office to perform more outreach, identify best practices, and implement measures to maintain consistent oversight.
- *Certification and Continued Operational Safety Processes.* Ensuring the safety of aviation products through certification is an important function of the FAA, and we are continuously taking steps to enhance the type certification process. This includes revising guidance and criteria used for determining significant changes to best ensure that proposed changes to an aircraft are evaluated from a whole aircraft-level perspective, including human interface elements. We have also commissioned external reviews to evaluate our Transport Airplane Risk Assessment Model and type certification process. To address the Act's requirements to establish an appeal and issue resolution processes for certification decisions, we are developing an implementing order.
- *Innovation.* Aviation is incredibly dynamic, and it is imperative for the FAA to take steps to accelerate and expand the deployment of new technologies in order to reduce barriers and actively promote innovation that enhances the safety and efficiency of the National Airspace System. We recently established and staffed the Center for Emerging Concepts and Innovation to support certification of new aircraft and technologies by providing pre-application engagement with companies to identify a preliminary path to compliance. We are also taking steps to foster enhanced coordination across the FAA on emerging products and concepts.

Chair Larsen, Ranking Member Graves, I want to assure you, and each member of the Subcommittee, that the FAA is fully committed to thorough and complete implementation of the Aircraft Certification, Safety, and Accountability Act. As we continue this process, we remain committed to our transparent and accountable ap-

⁵ Federal Aviation Administration, *Aviation Safety Voluntary Safety Reporting Program*, Order 800.375, February 02, 2021, at http://www.faa.gov/documentLibrary/media/Order/VS_8000.375.pdf.

proach, which includes regular briefings on our progress with staff of the committees of jurisdiction, labor partners, industry stakeholders, and more. We will continue to assess our entire certification and oversight framework in light of past experience, industry growth, technological advancements, and innovation as we carry out our responsibilities for public safety. We approach all of this work with humility and do not take safety for granted. We are confident that we are making substantial and meaningful progress, and will continue to keep Congress apprised throughout this work.

Mr. LARSEN. Thank you, Administrator Dickson.

I will now turn to Member questions and first recognize myself for 5 minutes.

Administrator, for some of the rulemaking, the FAA has been taking a policy guidance document approach as opposed to a rule-making process.

As rulemaking and regulatory actions are more institutionalized, is there consideration to making policy guidance documents into rules and regulations?

Should this committee be concerned, in other words, about the flexibility of policy guidance documents and whether they are going to be around in the future versus taking a rulemaking process that will institutionalize the direction?

Mr. DICKSON. Well, thank you for the question, Chair Larsen.

The reason that we are using policy memos and other methods here is that in some cases it allows us to make changes in a more expedient manner and allows us to implement the provisions of the certification reform bill in a timely fashion in accordance with the timelines that are prescribed.

I will use section 107 as an example. There are several requirements in that section about the appointment and oversight of ODA unit members, which we know is extremely important, and it requires FAA approval for their appointment and also the appointment of FAA advisers for those unit members.

In order to have these policies in place as required in January of 2022, we issued a policy memo on unit member appointment and a policy memo on FAA advisers. But the next revision of the ODA order will then roll these policy memos into that document, but that takes a longer amount of time to run through the formal clearance process.

So, the use of the policy memos and other activities, voluntary SMS is another example, is, as either rulemaking or the development of orders occurs, that takes time. But we have ways to accomplish the substance of what the Congress directed and what we need to do, frankly, as a result of all the reviews and investigations that have been accomplished over the last couple of years.

Mr. LARSEN. Can you quickly explain then how the FAA plans to enforce those policy memos versus being able to enforce a rule or regulation?

Mr. DICKSON. Well, again, the policy memos pertain to our internal processes. So, they have full force and effect within the agency. Those are not full rulemaking.

So, we will enforce those. But we want to, as you said, we want to make sure they are fully institutionalized and that they are in place for years and decades to come. And that is why we will incorporate them into our orders as we go forward.

Mr. LARSEN. One of the discussions and issues we dealt with during the bill creation was type certificates. I think formerly it was called the new product rule. I think I made a note to myself to call it a stale type certificate.

The 737 type cert was nearly 50 years old when the FAA amended it to add the 737 MAX 8, but the bill requires you-all to consider whether there is a point at which FAA needs to declare their type cert is too old to amend for a new derivative and to require the manufacturer to apply for a new type certificate.

Have you begun that assessment yet? If you have, when will you complete it? If you haven't, when will you begin?

Mr. DICKSON. Well, the short answer, Chair Larsen, is yes.

As you know, we needed recommendations and congressional direction to do several things. One of them was an independent study and some recommendations on type certification reform, and also issue new rules and guidance as necessary to execute on amended type certificate.

This all falls under the broad umbrella of what we call the Changed Product Rule, and that is harmonized with the other states of design internationally.

So, there is not only an FAA work that needs to be done. But as we do that, it has to be done in coordination with international authorities to make sure that certifying and validating authorities are having the same approach around the world.

So, with respect to the study, we have already tasked MITRE to complete the study. And in the meantime, we are conducting internal review of the applicable rules and also working with our international partners.

We have chartered, and actually the Changed Product Rule International Authority Working Group began to meet this summer, had their first meeting in July, and they are meeting on a regular basis.

That team's work to date has focused on identifying gaps and lessons learned to formulate specific recommendations for improvement. They will give us their report and recommendations by the middle of next year, and then we will have consistency around the international community on that.

Mr. LARSEN. Thank you.

I now turn to Mr. Graves of Louisiana for 5 minutes.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Chairman.

Administrator Dickson, I appreciate you giving us an update on the implementation of the certification bill.

I want to make note. I said earlier that we have a number of outstanding mandates that are required under the 2018 authorization act. The 2016 extension had some outstanding issues that have not been addressed.

It is confusing to me to see how the FAA has chosen some, I guess, discretionary projects to move forward on, like airport SMS rulemaking or reorganization of the UAS Integration Office, rather than prioritizing some of the mandates in the law from 2016, 2018, or the December 2020 act.

Can I get your commitment today that the FAA will no longer view some of the mandates in law as suggestions and you will

prioritize the implementation of those over some of these discretionary projects?

Mr. DICKSON. Ranking Member Graves, I want to make it very clear to you and the leadership of the committee and all the members of the committee and the Congress that the FAA is absolutely committed and I am personally committed to accomplishing everything that the Congress has required us to do.

Most of the issues where we seek extended timeframes have to do with full notice and comment rulemaking, and there have been a few examples already raised on that this morning.

In terms of the overall 5-year reauthorization, we have currently accomplished as of this morning 191 out of 300 of those mandates. So, we are running at about 63 percent about 3 years in.

About one-quarter of those remaining are the rulemakings, which have extended timelines in many cases, depending on the complexity of the issue.

But I absolutely respect the role of Congress, and we take that direction extremely seriously. I push my team very hard on this. In fact, when I arrived at the agency, some of the first questions that I asked about was why some of these things are taking so long.

Mr. GRAVES OF LOUISIANA. Administrator, I have got a few other questions. If I can just get a commitment from you that the law is going to be prioritized over these discretionary projects, that would be great.

Mr. DICKSON. We will always prioritize the mandates that we have from Congress, yes.

Mr. GRAVES OF LOUISIANA. Thank you, Administrator.

Administrator, earlier this year, full committee Ranking Member Sam Graves and I sent you a letter regarding some concerning comments out of EASA. Specifically, Director General Ky said that they were, quote, "moving away from the established practice of relying on the FAA for certification of U.S. aircraft."

As you know, and as indicated in our letter, this does violate some of the bilateral agreements. In the response that you sent us, you indicated that you would be monitoring some of the EASA activities to determine if there were any violations of that agreement.

I just wanted to ask quickly if you had seen anything out of EASA that appears to violate BASA, the bilateral agreement we have with the Europeans.

Mr. DICKSON. The short answer is I have not seen any violations of the bilateral agreement. It continues to be foundational to the relationship that we have.

And that was reinforced this summer. We had a summit on aviation safety with the European Commission, and both of us recommitted to the importance of the Bilateral Aviation Safety Agreement.

We also meet on a regular basis at the executive director level with them, and we have a delegation over there meeting with them to make sure that we work through the issues.

I think it is important also to emphasize that there are somewhat different administrative and review processes between the two authorities. And so that is why we will see sometimes delays

on one side or the other as we make decisions and validate each other's processes.

Mr. GRAVES OF LOUISIANA. Thank you, Administrator. I just urge you please to remain vigilant there. I think this is an important issue.

Changing gears a little bit, in the FAA's 2022 budget proposal, there are several actions related to the reorganization of the FAA's Office of Investigations into the Office of Investigations and Professional Responsibility, or OPR. The only action in the certification bill that FAA is directed to do is to rename the office.

Can you assure the committee that the actions that you are taking are consistent with the law that existed before the certification bill became, which, again, it clearly defines the authorities? Could you respond, please?

Mr. DICKSON. Yes. We will act consistent with our authorities, and we will work with the Congress very closely as we move forward to implement this section.

Mr. GRAVES OF LOUISIANA. Thank you.

And I am out of time. So, I just want to quickly state for the record that it was not Congress' intent to transfer primary investigative authority for whistleblower retaliation to the Office of Audit and Investigations, or AAE. Instead, as the law clearly states, AAE may investigate allegations of whistleblower retaliation only if another office, like OPR, the inspector general, or the Office of Special Counsel, refers it to them.

In the interest of time, I am going to yield back and convert this into a question for the record. But I did want to make that clear in the record of the hearing.

I yield back.

Mr. LARSEN. So noted.

The Chair now recognizes the chair of the full committee, Mr. DeFazio of Oregon.

Mr. DeFazio.

Mr. DEFazio. Thank you, Mr. Chairman. I appreciate the opportunity.

Mr. Administrator, I am just curious: What happens if you ignore your lawyers? Who is going to sue you?

We said flight attendants was going to be done by November 5, 2018. And here we are in a notice of proposed rulemaking which finally has emerged from the bowels of the agency 3 years later.

You ignored the specific mandate of Congress at the behest of your lawyers. I can't reconcile that.

Mr. DICKSON. Well, Chair DeFazio, I do not ignore the mandate of Congress, as I said a moment ago. I take it extremely seriously. And I want to tell you very candidly that I share your frustration.

But we have a process that we have to follow. It has to be legally defensible. And we have not been relieved of the requirements of the Administrative Procedure Act.

And there are a lot of things that I would like to have move forward. The flight attendant rest is more straightforward than secondary barriers.

But I share your frustration. And I want you to know that I am absolutely committed to continue to push my team and to move for-

ward as quickly as we possibly can to get these provisions into our regulations.

Mr. DEFAZIO. Well, then maybe Congress needs to look at the Administrative Procedure Act and put in exceptions for health and safety that can be taken by Administrators of the various agencies. So, thanks.

The 2019–2020 survey of the Aviation Safety Office. I was happy to hear you say the word earlier “regulator.” I assume we have dropped the customer stuff. But those were very disturbing findings. It said that 49 percent disagreed with the statement that the FAA makes data-driven decisions about safety, regardless of external pressure.

Some quotes.

“They [industry] just keep going up the chain until they get the answers they want,” which we saw with the MAX. They would go to management even having lost two appeals in the Seattle office.

“Don’t rock the boat’ with Boeing.”

“It feels like we are showing up to a knife fight with Nerf weapons. It is a challenge to be an equal match with Boeing in the meetings/conversations.”

Has that all dramatically changed, hopefully?

Mr. DICKSON. Well, again, I want—

Mr. DEFAZIO. I know that predates you. But I am just saying, do you, like, get out there, meet with your employees, say, “How is it going? Are you feeling pressure? How are you dealing with Boeing?”

We have had subsequent problems with Boeing on the 87 and further problems on the 37, et cetera. So, I just want to know that that is really history.

Mr. DICKSON. Chair DeFazio, I would say that cultural issues always require attention. And my people, you talked about the dedicated career professionals at the FAA, I could not be more proud of them. And as recently as yesterday, I communicated that I have their back when it comes to safety and when it comes to making the safety decisions that they need to make.

I am hearing through various means that the employees feel supported and empowered in ways that they have not in a long time. But I don’t take that at face value. So, we have to have institutional mechanisms.

One of them that we put in place is the Voluntary Safety Reporting Program, because in my experience we have to have a mechanism where we work with our labor partners, with our employees, and also our leaders within the agency to make sure that issues are able to surface within the organization, and that people feel empowered, and that they are willing to bring things forward.

So, this survey, as I said in my opening statement, we have to ask ourselves the tough questions. And these were the tough questions. We might not like all of the answers. But that gives us the information that we need so that we can go in and put the appropriate changes into place, and that is exactly what we are doing.

Mr. DEFAZIO. OK. Thank you. I am pleased to hear that, and I am happy. It wasn’t the line employees who were the problem.

I remember one instance, can’t remember exactly what it was, that 11 of them said no. Then it was appealed by Boeing, and the

panel said no. And then finally they found a manager higher up the food chain in Seattle who said, oh, yeah, sure, fine, go right ahead.

So, I just want to know. And I would also like to see consequences for people who blew off the technical advice and blew off their other employees who were trying to do the right thing in the future if that ever happens again. Hopefully your new reporting system will cull out anybody who is a problem in that.

On the Changed Product Rule, you talked about the dateline. But the final implementation, it says here, is 2024, because it says development policy and training 2023 and aligned implementation in 2024.

Does that mean that we can't do it before then?

Mr. DICKSON. Well, there will certainly be—in terms of fully institutionalizing it so that it is sustainable practice around the world with all the aviation authorities, I think that is a realistic timeframe. But that doesn't mean that we won't have decision criteria and things that we are doing in the meantime.

And as I said, we have got MITRE doing a study for us and bringing us some recommendations. We are seeking out and having discussions with other authorities around the world.

And we are also evaluating internally what the criteria need to be, whether it is time limited or a number of versions or whatever, to balance what Chair Larsen talked about with when an original type certificate was issued, but also to make sure that we can bring in beneficial product improvements that are safety improvements into existing aircraft. We want to be able to do both.

Mr. DEFAZIO. That is great. But, I mean, part of the problem was the design constraints of that antique airframe. And that is just a concern that we have to continue to monitor.

And then finally, just on behalf of the families—and I regret I am not in the hearing room. But, like I said, I am a little bit restricted at the moment. I know that they just wrote to you questioning continuing ODA to Boeing, given their ongoing problems in their other plants on the east coast. And I don't know what has been going on up in Seattle lately.

I would hope that you will give all due consideration to that and review the most recent problems with Boeing and see how we are going to root those out.

Mr. DICKSON. Yes. Thank you for pointing that out.

We have limited the delegated authority that Boeing has. And as you know, we have restricted, withheld Boeing's ability to issue airworthiness certificates for the MAX. We have also limited delegated functions for critical design features on the 777-9 and the 737-10 certification projects.

And, again, I would just point to the fact that, when I came onboard as FAA Administrator almost 2½ years ago now, the first thing I did was reset the relationship with Boeing. That happened within the first couple of months, once I saw what was going on. And I have made it clear to them continually that we will continue to exercise a high level of scrutiny.

As you have noted, as the Congress has noted, and I think it has been our experience over decades, delegation, if it is done the right

way, if it is done appropriately, it is a very powerful tool that enhances safety. It allows us to leverage engineering expertise.

But clearly in this case it did not function properly, and that is what we are focused on, is to put systems and processes in place to make sure that no one individual or no one failure can exploit the system.

Mr. DEFAZIO. OK. Well, thank you. I am liking what I am hearing. Keep it up.

Thank you, Mr. Chairman.

Mr. LARSEN. Thank you, Mr. Chair.

I now recognize Mr. Graves of Missouri, the ranking member of the full committee.

Mr. GRAVES OF MISSOURI. Thank you, Mr. Chairman.

And, again, thank you, Administrator Dickson.

I do want to focus on, go back to pilot training. And obviously and in light of the MAX 8 accidents, one of the real priorities for me—and I talked at length about this—was addressing international pilot training standards and the overreliance we are getting, we are moving towards, when it comes to automation in the cockpit and moving away from manual flying skills or just being able to fly the aircraft if a problem manifests itself.

And I am just curious if the FAA is ensuring that its engagement with the international community is actually going to result in any positive changes. Are you seeing that? Is the international community being receptive to that? And I think you share those same concerns with me, and I would just like you to address it real quick.

Mr. DICKSON. Well, it is a great question, Ranking Member Graves.

We have longstanding efforts through multiple forums to improve international safety standards, through ICAO, multilaterally and bilaterally, and I am always working with my counterparts around the world on these issues. We want to make sure that we drive specific [inaudible] improvements.

I think you are aware of the Pilot Licensing and Training Panel. The FAA is actually leading the Automation Working Group there. We have our chief scientists on human factors and also one of our foremost pilot training experts who is leading that work.

Also, some of the things that we have done within the U.S., and I will point to upset prevention and recovery training. We are working to incorporate that into ICAO standards and also promote it and work with civil aviation authorities around the world to assist pilots in preventing an upset, but if one does occur, making sure that they have the skills to be able to recover from it.

And then finally we have an advisory circular on flightpath management that has been several years in the making. It includes guidance on manual flying skills, managing automation, and active pilot monitoring. And that will be out for public comment here within the next few weeks. And then we will work to promulgate those principles internationally as well.

Mr. GRAVES OF MISSOURI. I look forward to that. That is perfect. That is exactly what I was looking for.

And I want to shift directions right now back to what I mentioned earlier in my opening, too, when it comes to the new rule interpretation, when it comes to flight training and standard and

limited and experimental category aircraft and the confusion that is causing amongst the instructor community, the pilot community. I mean, it is really creating a problem for us.

And I just want to ask if the FAA is addressing that. We are looking at legislation within NDAA to address it. But it would be a whole lot more help if the FAA would address it internally.

Mr. DICKSON. Well, again, thank you for the question.

I think, as you know, I addressed this head on up at Oshkosh AirVenture this year. In fact, we refer to Letter of Deviation Authority, or LODA, as a four-letter word because I know that it has created some confusion and some frustration out there.

So, to get through this we have created a process where, far from being bureaucratic, we have actually created a very quick turn-around process on these approvals. The time to process the deviation request is less than a day.

This actually wasn't a change in legal interpretation. I know that there are feelings to the contrary. But through the course of a court case, what came to our attention is that our guidance and the underlying regulation which is controlling were inconsistent. And so, we had to update that guidance.

We are going to update the rules to address the inconsistency permanently, but we want to have an interim process in place that facilitates and allows the trainings that you are talking about to continue uninterrupted.

So, we will continue to work with you, I promise, on this issue. I want to make sure, though, that we are really talking about something that is very narrowly focused. And again, we want to make sure that this doesn't go into other areas where I think we are actually in very good shape.

Mr. GRAVES OF MISSOURI. OK. And one last question: When it comes to the vaccine mandate, was the FAA able to convey to the administration just how much of a problem this could create when it comes to manpower shortages and pilot shortages? And the simple question I ask is, did the administration even ask the FAA for any guidance on this?

Mr. DICKSON. Well, again, obviously, the purpose, we want people to get vaccinated as a country, and we want to get COVID-19 behind us. That is the point. And the CDC is the public health authority. That aspect is certainly not within the FAA's purview.

But I will tell you that my focus is on aviation safety and on making sure that the aviation system can operate, and that those jobs are out there, not only during the pandemic, but that we live to fight another day, if you will, and have the most dynamic and diverse and thriving aviation system going forward.

And so, that is what we are really focused on is making sure that we minimize disruptions and making sure that we maximize predictability by keeping the air traffic system operating and making sure that the airlines and all operators of the system can continue to operate in a seamless way.

Mr. GRAVES OF MISSOURI. Thank you, Mr. Chairman.

Mr. LARSEN. Thank you. I now recognize Members for 5 minutes. The first additional Member to be recognized is Representative Carson of Indiana. Representative Carson.

Mr. CARSON. Thank you, Chairman. Mr. Chairman, I have two letters that I would like to enter into the hearing record, one from our congressional colleagues, and one from the families of Ethiopian Airlines flight 302.

Mr. LARSEN. Without objection.
[The information follows:]

Letter of October 8, 2021, from Hon. Brian K. Fitzpatrick, Member of Congress, et al., to Hon. Stephen M. Dickson, Administrator, Federal Aviation Administration, Submitted for the Record by Hon. André Carson

OCTOBER 8, 2021.

The Honorable STEPHEN DICKSON,
Administrator,
Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591.

DEAR ADMINISTRATOR DICKSON:

We write to you today to express our concern regarding the FAA's ongoing delay in issuing a final rule requiring the installation of secondary flight deck barriers on new commercial aircraft. The threat of a flight deck breach is still very real and must be addressed. We are working to get H.R. 911 passed into law which would mandate secondary barriers on all existing aircraft. Unfortunately, we are yet to see an implementation date for secondary barriers for new aircraft due to never-ending delays.

The last FAA Reauthorization Act (Public Law 115–254) was signed into law on October 5, 2018. After 3 years, countless delays, and bureaucratic excuses there is still not a clear date when secondary barriers will be required on new aircraft. While most other new provisions have already been fully implemented, we are yet to see one of the most important bipartisan safety components of the law go into effect.

Secondary barriers are critical to the safety of commercial aircraft. On September 23 the House Committee on Transportation and Infrastructure held a hearing on the surge of air rage incidents. Every witness from across the aviation industry acknowledged the safety implications of these incidents. The threat of a passenger or passengers attempting to breach the flight deck is still very real. In June of this year, there were 2 domestic incidents of passengers attempting to breach the flight deck. If a pilot had needed to use the lavatory just prior to those incidents the results could have been catastrophic. Secondary barriers only cost a few thousand dollars per aircraft; a small sum to prevent another 9/11 style attack. While we understand that FAA has its rulemaking procedure, we feel that 3 years ought to be more than enough time.

Could you provide a written update on the remaining steps and provide us with a realistic timeframe for when a final rule could be issued? We look forward to your timely response.

Sincerely,

BRIAN FITZPATRICK,
Member of Congress.
DONALD M. PAYNE, JR.,
Member of Congress.
ANDRÉ CARSON,
Member of Congress.
JOSH GOTTHEIMER,
Member of Congress.
JOHN GARAMENDI,
Member of Congress.
ELEANOR HOLMES NORTON,
Member of Congress.
CHRISTOPHER H. SMITH,
Member of Congress.

GLENN "GT" THOMPSON,
Member of Congress.
MARIANNETTE MILLER-MEEKS, M.D.,
Member of Congress.
JEFF VAN DREW,
Member of Congress.
JARED HUFFMAN,
Member of Congress.
DON BACON,
Member of Congress.
CHARLIE CRIST,
Member of Congress.

Letter of October 19, 2021, from Families of Ethiopian Airlines Flight 302 Crash Victims, to Department of Transportation and Federal Aviation Administration Officials, Submitted for the Record by Hon. André Carson

[Editor's note: This letter contains 16 pages of signatures. The hearing transcript resumes on page 42.]

OCTOBER 19, 2021.

The Honorable PETE BUTTIGIEG,
Secretary,
Department of Transportation, 1200 New Jersey Ave SE, Washington, DC 20590.

STEPHEN M. DICKSON, Administrator,
BRADLEY MIMS, Deputy Administrator,
Federal Aviation Administration,
800 Independence Avenue SW, Washington, DC 20591.

Re: ET302 victim's families request for ODA Termination

DEAR SECRETARY BUTTIGIEG, ADMINISTRATOR DICKSON AND DEPUTY ADMINISTRATOR MIMS:

The undersigned families of the Ethiopian Airlines flight 302 crash request that the Federal Aviation Administration terminate Boeing's Organization Designation Authority (ODA). It has become clear that Boeing is not a company that can be trusted with the public safety responsibilities conferred by the ODA. Just as the European Aviation Safety Agency (EASA) suspended GE Aviation's Design Organisational Approval in Czech last March due to problems, FAA should do the same for Boeing unless and until trust, competence and freedom from interference is solidly demonstrated.

Section 7-2(c) of the Order 8100.15B, Organization Designation Authorization Procedures, states that an ODA can be terminated due to misconduct, lack of care or judgment or failure to implement needed corrective action.

Boeing cannot be trusted to perform authorized safety functions because it has engaged in the following misconduct which requires FAA action to terminate its ODA:

1. deceiving the FAA about the nature and the power of the maneuvering characteristics augmentation system (MCAS) added to the Boeing 737 MAX 8 (MAX) by way of misleading statements, half-truths and omissions as admitted in its January 21, 2021 deferred prosecution agreement;
2. deceiving the FAA about whether simulator training was required for pilots to fly the MAX;
3. creating an ODA culture that applies undue pressure to engineering personnel so they are not able to exercise independent judgment free from organizational conflicts of interest;
4. wrongly approving the original 737 MAX design when it failed to comply with several 14 CFR Part 25 regulations and required Airworthiness Directives (ADs) for the resulting unsafe conditions;
5. failing to notify FAA that not all MAX aircraft were equipped with a functional AOA disagree alert;
6. failing to manage the ODA in a competent manner that would detect and correct employee and/or management misrepresentations and dishonesty that compromises safety while benefitting Boeing's profit goals;
7. failing to conduct realistic system safety assessments on critical systems;
8. failing to insulate the ODA from Boeing's profit motives;
9. crafting arbitrary and unscientific assumptions, such as pilot response times, to avoid implementing safety measures;
10. failing to conduct proper system safety assessments after the Lion Air crash to determine problems, check incorrect assumptions, and fix the problems;
11. failing to recognize catastrophic failure due to novel design in flight controls and implementing a failsafe mechanism per FAR requirements;
12. falsely stating that the Boeing board safety committee was fully briefed and engaged after the Lion Air crash when that body did not meet and failed to discuss or take any action to correct the flaws in the MAX;
13. failing to spend resources to quickly fix the MAX after the Lion Air crash and instead raising dividend's by 20% and authorizing a \$20 billion stock repurchase program for shareholders;
14. doubling down on the safety of the MAX, rather than fixing the MAX, by issuing post-Lion Air crash press releases stating:
 - "We are confident in the safety of the 737 MAX" (11/21/18);
 - "As our customers and their passengers continue to fly the 737 MAX to hundreds of destinations around the world every day, they have our assurance

that the 737 MAX is as safe as any airplane that has ever flown the skies.”
(11/27/18)

- 15. selling and delivering more defective MAX aircraft to more airlines after the Lion Air crash without fixing the problems.

The FAA, the Department of Justice, the House Committee on Transportation and Infrastructure and a Delaware judge have all affirmatively found that Boeing lied and concealed problems relating to the MAX. Other Boeing commercial problems have also raised concerns, including the 787 (on board fires) and the 777 (quality and certification issues).

In 2013, a report from NATCA recommended that the Boeing Safety Office be structured along the lines of the more traditional Gulfstream office in Atlanta. That recommendation was ignored. Part of the justification was that there was not sufficient labor resources available in the Seattle office, even though subsequently it was found that the number of projects handled by the office was stable.

Another report in 2017 prophetically stated this problem clearly:

“The ODA organization makes certification decisions, not the AR. This leads to a potential decision making process influenced by a “Group Think” mentality. There is no personal accountability or monetary motivation for ARs to contradict Company management positions that do not support expenditures to upgrade noncompliant designs or do testing needed to demonstrate compliance. ARs are reluctant to take contradictory positions or bring up issues within the ODA for fear of retaliation. In several cases ARs have refused to answer compliance related questions when in meetings with the FAA and ODA management. This reflects their fear of retaliation if they express a view that contradicts the company position.” (Pre-Decisional Involvement (PDI) report, addressing Aircraft Certification Transformation, February 6, 2017)

The ODA system in general, and Boeing’s use of ODA in particular, invites undue influence and interference rather than resists it.

For these reasons, FAA should terminate Boeing’s ODA so that FAA performs the safety functions under standard certification procedures.

Sincerely,

Victim	Signatory
Matt Vecere	Megan Hoover, I am a friend of the victim.
Samya Stumo	Liza Grandia, friend of the family
Danielle Moore	Owen Campbell, I am the friend of Danielle Moore
Micah John Messent	Amber Tansky, Sister of victim
Max Edkins	Emily Harris, I am the friend of the victim
Matt Vecere	Matthew Baiamonte, Friend
Stéphanie Lacroix	Dominique Lacroix, Sister
Stephanie Lacroix	Michael Moscarello, I am a cousin of the victim.
Micah Messent	Glenda Wray, Friend
Graziella de Luis Ponce	Isabel de Luis, I am the niece of the victim.
Samya Rose Stumo	Ahmed Ali, I am a friend of the victim
Matt Vecere, Samya Stumo	Michael Stumo, father
Melvin Riffel, Bennett Riffel	Carol Shrout, Family friend
Angela Rehorn	Glenn Tibbett, Family friend
Melvin Riffle	Nicholas Reissr, Family friend
Melvin Riffle, Bennett Riffle	Jim McCoy, Very close family friend of the victims
Angela Rehorn	Melissa Tibbett, Neighbour of the victim
Jess Hyba	jeff curry, I am a friend of the victim
Melvin Riffel, Bennett Riffel	Molly Abraham, Aunt
Danielle Moore	Idit Papular, I am a family friend of the victim
Danielle Moore	Kimberly, Family friend of the victim.
Samya Stumo	Kristine Wahlers, I am a friend of the victim’s family.
Melvin Riffel, Bennett Riffel	Carly Bollinger, Cousins
Melvin Riffel, Bennett Riffel	Marilyn Koutnik, I am a friend of the victims
Danielle Moore	Jodie Layne, Friend
Angela Rehorn	Julie Kramer, Friend of victim’s mother
Danielle Moore	William Hedges, Danielle knew me as Grandpa
Camille Geoffroy	Pascale Perez, Mother’s friend
Matthew Vecere	Grace Traa, Friend of the victim
Micah Messant	Nelsen Spickard, Cousin

Victim	Signatory
Bennett Riffle	Sydney Malain, Friend
Samya Stumo	Chrys Hutchings, friend of Samya's parents
Jackson Musoni	Huguette Debets, Father of my children
Micah Messent	Amy Chow, Friend
Samya Stumo	Lydia Littlefield, friend
Stephanie Lacroix	Kim Bazinet, Family friend
Samya Rose Stumo	Lou McNeil, Friend
Melvin Riffel, Bennett Riffel	Susan Riffel, I am the mother of these victims.
Bennett Riffel, Melvin Riffel	Ike Riffel, Father
Danielle Moore	Laura Reid, I am the Godmother of the amazing, talented, lovely Danielle Moore
Melvin Riffel, Bennett Riffel	Anne Robertson, I am the cousin of these victims.
Matt Vecere	Sander Banta, Friend
Samya Rose Stumo	Sharon Krogman, I am the cousin of the victim.
Sam Pegram	Natalie Eacersall, Friend of a relative.
Stephanie Lacroix	Cassidy Howell, Friend
Angela Rehorn	Curt McCullough, Family friend
Samya Stumo	Barbara Dean, Friend
Danielle Moore	Chúk Odenigbo, Friend
Melvin Riffel, Bennett Riffel	Susan Janes, I am a family friend of the victims' family
Samya Stumo	Raffik Lopes, I am the cousin of the victim.
Samya Rose Stumo	Lois Fuller, Friend of the victim's family
Melvin and Bennett Riffel	Tammy Fisher, Cousin
Angela Rehorn	Annette Vincent, I am the aunt of the victim.
Melvin Riffel, Bennett Riffel	Brittney Riffel, Spouse and Sister-in-Law
Samya Rose Stumo	Robert Holmlund, Great Uncle
Matt Vecere	Jenna DiGenni, Friend
Oliver Vick	Ben Coakley, Friend
Melvin Riffel	Katherine Zahner, Friend
Paolo Dieci	Elena Dieci, I am the niece of the victim.
Marie Philipp	Julia Rubio Gamero, Best friend of the victim
Danielle Moore	Cynthia Abenir, Niece
Max Thabiso Edkins	Julian Kubel, I am the friend of the victim
Bennet Riffel	Sandra Niemann, Family friend
Paolo Dieci	Estella Dieci, Niece
Marie Christin Philipp	Doris Fuchs, I am the aunt
Wolfgang Eigner	Bettina Eigner, I am the mother of the victim
Danielle Moore	Janet Hedges, Aunt
Marie Christin Philipp	Heike Baumann, I am the aunt of the victim
Samya Stumo	Grantt Lopes, Cousin
Melvin Riffel	Pao Tane, Friend
Bennett Riffel	Deborah Najera, Family Friend
Melvin Riffel	Deborah Najera, Family Friend
Josefin Augusta Ekermann	Madelen Maria Ekermann, Mother
Stéphanie Lacroix	Susan Lamarche, I am the maternal aunt of the victim.
Samya Rose Stumo	Melisse Bouziane, I am a cousin of the victim
Samya Rose Stumo	Paulina Polanco, I am the friend of the victim.
Sam Pegram	Melanie Cremona, Friend
Mel Riffel, Bennett Riffel	May Saeteurn, Friend of victim
Clémence Boutant	Pernille Kjaer Porte, I am the friend of the victim.
Hussein Swaleh M'tetu	Feisal Swaleh, Son of the victim
Anne Feigl	Anna Caroline Feigl, Sister in Law
Sam Pegram	William Pegram, Grandfather
Melvin Riffel, Bennett Riffel	Diana Officer, I am the friend of the victims
Camille Geoffroy	Aude Breton, Friend
Derick Kivia Lwugi	Glady's Kivia, Wife
Camille Geoffroy	Dominique caumes, Niece
Stephanie Lacroix	Lizzie Muyawa Dube, Very very good friend. How I miss her daily

Victim	Signatory
Sautner Christoph	Johannes Pernkopf, Friend
Angela Rehhorn	Phyllis Robertson, Friend
Samya Stumo	Cheryl Engel, Very close friend
Xavier Fricaudet	Vincent Edith, Friend
Jonathan Seex	Noah Seex Svalin, I am Jonathan's nephew.
Anne-Katrin Feigl	Lars-Peter Feigl, Sister
Camille Geoffroy	Thérèse Rouget, Aunt of the victim
Camille Geoffroy	Dominique Verdugo, I am a friend of the victim's family
Gatchi de Luis	Jihane Sfeir, Friend
Jonathan Seex	Pär Schroeder, Brother in law
Marcelino Rassul Tayob	Mario Rassul, Brother
Marcelino Rassul Tayob	Elisangela Rassul, Uncle
Danielle Moore	Kathy E. Martorino, Friend of the family
Virginia Chimenti	Angela Maria Farioli, I am the friend of the victim
Danielle Moore	Carol Moore, Aunt
Wolfgang Eigner, Christoph Sautner, Armin Schietz.	Kerstin Bashir, We grow up, studied and worked together
Jonathan Seex	Joanna Seex, I am the sister of Jonathan.
Micah John Messent	Joy Camp, Aunt
Ollie Vick	Keri Powell, Friend
Marcelino Rassul Tayob	Emmanuel Rassul, Uncle
Micah John Messent	David Camp, Uncle
Jonathan Björn Seex	Britt-Marie Seex, I am the mother of the victim.
Clémence Boutant	Mathieu Chaumeil, Friend
Samya Stumo	Helen Fodnaess, I am a friend of the victim.
MARIA PILAR BUZZETTI	ALA MOHRHOFF, FAMILY FRIEND
Sam Pegram	Vslerie, Grandmother
Marcelino Rassul Tayob	Hugo Leal, I am the friend
Xavier Fricaudet	Nadine Raimondo, I am one of the parents' friends
Micheal Ryan	Tiarnan, brother
Abiodun Bashua	Mariam Bashua, Daughter
Abiodun Bashua	Hyro Bashua, Grandson
Anne-Katrin Feigl	Hans-Joachim Feigl, I am the father of the victim
Marie Philipp	Julia Simonsberger, friend
Anne-Katrin Feigl	Sieglinde Rink-Feigl, I am the mother of the victim
Camille Geoffroy	Abel Orain, I am a cousin of the victim
Camille Geoffroy	Eric Deschoenmaeker, Former employer
Clémence-Isaure Boutant, Willm, Sam Pegram.	Emma O'Leary, I am a colleague and friend of the victims
Clémence Boutant	Lucie Viver, Friend
Graziella de Luis	Martínez Gregorio, I m a friend of the victim
Samya Rose Stumo	Kristina Louise Hetherington, I am a friend and colleague of the vic- tim.
Clémence-Isaure, BOUTANT-WILLM	Jean-Louis MICHEL, Friend
Gachi De Luis	Patricia Rooke Crossley, I am a friend and colleague of victim
Marie Philipp	Susanne Radtke, I am the friend of the victim.
Gachi de Luis	Tom Afton, Friend
Alexandra Wachtmeister	Anna Wachtmeister, Cousins
Anne Katrin Feigl	Catherine Hubert, Friend
Camille Geoffroy	Henri Virol, I am the friend of the victim
Anne Katrin Feigl	Jack Davies, Friend
Graziella De Luis	Anita Guerra, I am a friend of the victim
Gachi de Luis	Françoise Point, I am a friend of the victim
Gachi de Luis	Gilda Calleja, Close friend
Maria Pilar Buzzetti	Dalma Reka BERES, Colleague
Mick Ryan	Fergus Gleeson, Friend
Josefine Ekermann	Susan Saado, Friend
Camille Geoffroy	Marie-Claire Ribeiro, I am a friend of Véronique Geoffroy, Camille's aunt.

Victim	Signatory
Josefin Ekermann	Alejandro Conde Geli, Exboyfriend
Matthew Vecere	Jason McClain, I am the cousin of the victim.
Anne Katrine Fiegl	Marcello GOLETTI, friend and colleague
Stef Lacroix, Karoline Aadland	Lauren Webber, Roommates
Eric Prieur	Sandra Prieur, He was my brother
Christoph Sautner	Marlies Wohlmuth, Friend
Camille Geoffroy	Juliette Rouëssé, friend
Max Thabiso Edkins	Anne Lyons, Friend
Clémence Boutant	Isabelle Charré, Friend
Max Tabiso Edkins	Dennis Bailey, Uncle
Maxc Thabiso Edkins	Gillian Mary Bailey-Edkins, Auntie
Josefin Ekermann	Lia Hen, My best friend
Graciela De Luis Ponce	Rosita Castro Dominguez, Friend
Graciela Luis	Alejandra Safa Barraza, Friend
Kadija Cathy Hamani	Hamani, Colleague
Michael Ryan	James Spinelli, Friend
Camille Geoffroy	Jerome Bichot, Family friend
Camille Geoffroy	Olivier Peyre, I am a friend of a cousin of the victim.
Clémence Boutant-Willm	Pascale Vulliez, I am the friend of the victim
Michael Ryan	Giulia Serrelli, Friend
Sara Gebre Michael	Ababu Yetbarek, Husband
Samya Stumo	Cássio Lopes, I am the cousin of the victim.
Samya Stumo	Penny Owen, Friend of Family
Samya Stumo	Bradley R Krogman, Cousin
Marie Philipp	Angelika Begerow, I am the friend of the victim
Danielle Moore	Stacey Troster, Family Friend
Samya Rose Stumo	Christina Donnelly, Friend of the victim
Graziella De Luis	Stefanie Santa, Friend of the victim
Sam Pegram	James Killen, Friend of the victim
Xavier Fricaudet	Yvette Le Gall, I am the mother in law of Xavier Fricaudet's brother
Clémence-Isaure Boutant-Willm	Violaine Willm, Sister
Gachi de Luis	Jorge Tagle, Friend
Samya Stumo	Josh Webb, I am a friend of the victim
Samya Stumo	Allyson Steele, Friends of a friend
Gachi de Luis	Claire Farrimond, Friend
Samya Stumo	Jilian O'Neill, Friend
Joanne Toole	Michael Rodgers, I am a cousin of the victim
Amma Tesfamariam	Solomon Tezera, Husband
Sintayhu Shafi	Yewubnesh Asnake, cousin
Camille Geoffroy	Guenièvre Darbord, Friend
Graziella de Luis y Ponce	Becky Padera, I am a friend of the victim
Sintayhu Shafi	Yewubnesh Asnake, cousin
Samya Stumo	Lara Mittaud, Friend
Paolo Dieci	Elizabeth McCarthy, I am Paolo's sister in law
Max Edkins	Teboho Edkins, I am the Brother of the victim.
Oliver Vick	Tasha Slaise, Olly was a dear friend and our son's beloved godfather
Olly Vick	kirsty norton, I am the friend of the victim
Danielle Moore	Pierre Royer, Uncle
Mel Riffel, Bennett Riffel	Megan Golden, Cousin
Danielle Moore	David Lawless, Partner
Micah Messent	Heather Wilson, I am Micah Messent's aunt.
Stephanie Lacroix, Angela Rehorn, Danielle Moore, Micah Messant.	Victoria Woodhouse, Friend and colleague
Danielle Moore	Gabrielle Mills, Friend
Samya Stumo	Jill Frankel, Friend
Matthew Vecere	Tracey Young, Friend
Angela Rehorn	Bryce and Linda Vincent, Aunt and Uncle
Stephanie Lacroix	Micheline Geoffroy, Friend of the family

Victim	Signatory
Danielle Moore	Elizabeth Nagel, I am the friend of the victim
Daniel Moore	Asma Azhar, Friend
Matt Vecere	Jeff and Nancy Vecere, Matt was our nephew
Melvin Riffel, Bennett Riffel	Ryan Bennett, I am the cousin of the victims.
Samya Rose Stumo	Paige Kimble, friend in solidarity with the Stumo/Milleron family
Micah Messent	Diane Gershman, I am Micah's aunt
Danielle Moore	Siobhan Takala, I am a friend of the victim.
Samya Stumo	Ludwika Dec, Family friend
Denielle Moore	Marciana Alfaro, Niece
Virginia Chiementi	Mateo Mancheno, Friend
Samya Stumo	Judith Saathoff, Samya is the granddaughter of my cousin
Graciella de Luis Ponce	Maria Regina Ponce Laviada, first cousin
Samya Stumo	Sarina Ricketts, Friend
Samya Rose Stumo	Brian Hubbard, I am a friend of the victim's family.
Samya Stumo	Ari Cardillo, Childhood friend of victim
Danielle Moore	Tim Cruickshank, Roommate
Joanna Toole	Joan Spruce, I am the aunt of the victim.
Angela Rehorn	G. Smith, Friend of the family
Samya Stumo	Osamah Khalil, Friend of the Family
Danielle Moore	Alexandra Bonham, Friend
Samya Stumo	Christina Santala, Friend of the victim's mother
Micah Messent, Danielle Moore	Lucy Wilkie, I am a friend of the 2 victims
Micheal Ryan	Cristin Ryan, Sister
Mel Riffel	Chante Hettinger, Friend
Camille Geoffroy	Luigi Flora, Camille's mother's partner
Micah Messent	Mike Gershman, First cousin
Camille Geoffroy	Nicolas Merle, friend of the victim
Samya Rose Stumo	Deborah Conner, She was my husband's cousin
Ghislaine De Claremont	Melissa Mairesse, Daughter of the victim
Danielle Moore	Richard Sweetman, I am a family friend.
Melvin Riffel, Bennett Riffel	Katie Niccum, Cousin
Sebastiano Tusa	Alessandra Iovine, I am the friend of the victim's niece
Samya Rose Stumo	Carolyn Souaid, I am a cousin of the victim.
Danielle Moore	Karen Bourne, I am the friend of the mother of the victim
Stéphanie Lacroix	Philippe Leroux, I am a friend of the victim
Stéphanie Lacroix	Lucie Miron-Leroux, I am a friend of the victim.
Micah Messent	Laurie Spickard, Cousin
Melvin Riffel, Bennett Riffel	Joe LoGiudice, Step son-in-laws
Samya Stumo	Amy Alpert, Friend of the family
Alexandra Wachtmeister	Carl Nordlander, I am an uncle of the victim.
Derick Lwugi	Angel Kivia, I am the daughter of Derick Lwugi.
Matthew Vecere	Linda Ha, Partner
Samya Rose Stumo	Tom Leatherman, I am a friend of the victim
Lexi Deighton	Lexi Deighton, A friend
Xavier Fricaudet	Solange Lamy, Friend
Olly Vick	Simon Tilbury, Close friend
Josefin Ekermann	V Leigh, Friend
Oliver Vick, Jessica Hyba	Rebecca Vick, I am sister to one victim, friend and 'sister-in-law' to the other
Micah Messent	Caroline Rutledge, Friend
Angela Rehorn	S Mark Vincent, Uncle
Melvin Riffel, Bennett Riffel	Alexandria Kealey, I am friend of victims mother.
Angela Rehorn	Ryan Rehorn, Brother of Angela
Xavier Fricaudet	Marine Capron, I am the sister in law of the victim.
Samya Stumo	Lloyd Barood, friend of family
Danielle Moore	Courtney Schreiter, Friend
Camille GEOFFROY	Catherine BERTHET, I am the mother of the victim
Melvin Riffel	Larissa felch, Melvin riffel was my brother in law

Victim	Signatory
Jessica Hyba	Gregory Kovacs, Brother
Jessica Hyba	Allan Kovacs, step father
Melvin Riffel, Bennet Riffel	HEIDI PRICE, My sons best friends
Jessica Hyba	Karol Kovacs, Mother
Angela Rehorn	Petra MacKay, Cousin
Samya Stumo	Nina Anderson, friend of parents
Max Thabiso Edkins	Marianne Gysae-Edkins, I am the mother
Andrea Carol Anderson	Andrea Anderson, I am the grandmother of the partner of Micah's brother.
Micah Messent	Natalie Gates, friend
Hoda Bandeh-Ahmadi	Hoda Bandeh-Ahmadi, Friend/colleague of Samya Stumo.
Danielle Courtney Moore	Betty Moore, I am the paternal Grandmother of the victim
Samya Rose Stumo	Karen Carreras-Hubbard, Friend
Samya Stumo	Ann Perry, family friend
Max Edkins	Inga Coleman, Cousin
Stéphanie Lacroix	Joanne Belanger, Aunt
Alexandra Wachtmeister	Wilhelm Wachtmeister, Father of Alexandra
Graziella De Luis	Sofia Diaz, I am the niece of the victim.
Joanna Toole	Natalie Fullick, Friend
Samya Stumo	Lisa Markowitz, I am a friend of the victim.
Danielle Moore	Gualberto Abenir Jr, Niece
Danielle Moore	Gualberto Abenir Jr, Niece
Gachi de Luis	Maya de Luis, She was my aunt
Clémence-Isaure BOUTANT	Vincent WILLM, I am the brother of the victim
Stephanie Lacroix	Connie Labreche, Cousin of the victims father
Baleker, Sintayehu Shafi	Konjit Baleker, I'm the sister of the victim
Oliver Vick	James Vick, Father
Matt Vecere	Colleen Menz, Aunt
Olivert Vick	Cheryl Vick, I am the mother of the victim
Graciela de Luis	Alejandro suarez larrinaga, Nephew of victim
Oliver Vick	Cheryl Vick. (Previously misspelt), I am the Mother of the victim
Oliver Vick	Cheryl Vick, I am the Mother of the victim
Samya Rose Stumo	Noor Jdid, I am the friend of the victim
Graziela de Luiz	Margaret de Vanssay, Close friend
De Luis	Christian Klacko, Friend
Danielle Moore	Lindsay Butt, I am a friend of the victim
N/A	Arlene Tolopko, I am the friend of the victim
Samya Stumo	Patricia Frank, Second cousin
Mick Ryan, Pilar Buzzetti, Zhen	Rodolfo, Friend and work colleague.
Zhen Huang.	
Oliver Vick	Charles bennett, Friend
Marie Philipp	Helmut Schmidt, I am the friend of the victim.
Marie Philipp	Monika Schmidt, I am the friend of the victim.
Joanna Toole	Nicky McNaughton, Best friend
Micah Messent	Erica Greenup, best friend
Micah Messent	Frank Messent, I'm his older brother
Graziela de Luis	Javier, Brother of victim Graziella de Luis
Clemence boutant WILLM	eddy willm, my cousin
Samya Stumo	Leila Baroodly, friend
Melvin Riffel	Christina Felch, Mother in law to the victim.
Stéphanie Lacroix	Emma Belanger, Cousin
Micheál Ryan	Christine Ryan, I am the mother of the victim
Stéphanie Lacroix	Alain Lacroix, I am Stéphanie's father.
Micheál Ryan	Siobhan Brassil, Sister
Danielle Moore	Chris Moore, Father
Melvin Riffel	Clara LoGiudice, Son in law
Melvin Riffel, Bennett Riffel	Zach Niccum, I am a friend/family of the victims.
Melvin Riffel	Kaylynn Campbell, Family member of his widow

Victim	Signatory
Samya Stumo	Cheryl Williams, My daughter friend of victim
Angela Rehorn	Tara Reid, Friend of the victim
Samya Rose Stumo	Philip Palmquist, I am the cousin of the victim
Stéphanie Lacroix	Sylvie Lamarche Lacroix, I am the mother of Stéphanie Lacroix
Danielle Moore	Lita Venezuela, Friend of the victim
Stephanie Lacroix	Alanna Clark, Cousin
Stephanie Lacroix	Nathalie Robillard, Cousin
Stéphanie Lacroix	Carole Girard, Friend
Stephanie Lacroix	Line Robillard, Aunt to victim
Stephanie Lacroix	J Caron, Cousin
Micah Messent	Suzanne Camp, I am Micah Messent's mother
Stephanie Lacroix	Faith Neale, Friend of victim
Stéphanie Lacroix	Michael Moscarello, I am the maternal cousin of the victim.
Stéphanie Lacroix	Buczowski, I am a friend of the victim.
Stephanie Lacroix	Stephane Belanger, I am the uncle of the victim
Stephanie Lacroix	Lucie Lambert, Friend of family
Stephanie Lacroix	Christopher Lamarche, Cousin
Stephanie Lacroix	Helene Lacroix, I am the grand-mother of the victim
Micah Messent	Deborah Fitzsimmons, Auntie
Stephanie Lacroix	Brigitte Castonguay, Friend
Stephanie Lacroix	Doris Blouin Harrison, Friend
Samya Stumo	Torleif Stumo, I am the brother of Samya.
Stéphanie Lacroix	Cameron Caron, I am cousin of the victim
Stephanie Lacroix	Jennifer Finnis, Friend
Micah John Messent	John Joseph Messent, Father of victim
Danielle Moore	Clariss Moore, I am the mother of Danielle Moore
Danielle Moore	Rodilla Abenir, I am the grandmother of Danielle Moore
Danielle Moore	Fanny Abenir, I am the aunt of Danielle Moore
Samya Stumo	Matthew Kreta, Childhood Friend
Stephanie Lacroix	Anne Vien, Friend
Chunming Wang	SiyueWang, I am the daughter of the victim
Stephanie Lacroix	Micheline Gervais, Friend of family
Steph Lacroix	Shannon lafrance, Friend
Micah Messent	Kidston Short, I am Micah's girlfriend
Micah Messent	Nancy MacPherson, Sister-in-law
Graziella De Luis	Attilia Fracchia, I was a close friend of the victim
Xavier Fricaudet	Bernard Vinot, a dear friend
Stéphanie Lacroix	Linda Falardeau, Friend's daughter
Joanna Toole	Mark Toole, Uncle
Stéphanie Lacroix	Caleb, Friend of the victim.
Sam Pegram, Sarah Auffret	Rhiannon Griffiths, I was a housemate of the victims at different times
Melvin Riffel, Bennett Riffel	Charlotte Wood, Friend of the victims
Melvin Riffel, Bennett Riffel	Charlotte Wood, I am the friend of the victims
Mel Riffel	Ashley Jorgenson, I am a friend of Mel
Stephanie Lacroix	Michel Robillard, I am the uncle of the victim
Stephanie Lacroix	Mariane Piché, Friend of victim's parents (Alain and Sylvie Lacroix)
N/A	Eric Pagoda, Friend of a friend
Stephanie Lacroix	Joanne Quinn, I am a friend
Stephanie Lacroix	Kris Picard, I am a friend of the victim
Stéphanie Lacroix	Diane Caron, Cousin
Stephanie Lacroix	Johanne Lamarche, cousin
Stephanie Lacroix	Barb Hogan, Colleague and friend
Stéphanie Lacroix	Pierrette Lachance, I am a friend of the victim.
Danielle Moore	Jesslene Jawanda, I am the friend of the victim
Danielle Moore	Gualberto Abenir Jr, Neice
Clémence-Isaure Boutant-Willm	Élisabeth Willm, I am the mother of Clémence-Isaure.
Stephanie Lacroix	Jocelyne Dubien, My cousins daughter

Victim	Signatory
Danielle Moore	Julie McDonald, Friend
Stephanie Lacroix	Gabrielle Gauthier, Former work friend
Samya Stumo	Rami akhrass, Friend of family
Danielle Moore	Kelly Ambrose, Friend
Danielle Moore	Kathy Martorino, Moore Family friend
Danielle Moore	Albert ajemian, Friend
Danielle Moore	Lori Kinch, Friend of victim's family
Danielle Moore	Laura Ward, I am a cousin of the victimDanielle Moore
Danielle Moore	Joanne Cerdan, Family friend
Danielle Moore	Cameron Ure, Friend
Danielle Moore	Dagni Ziedins, Friend of the victims family
Stéphanie Lacroix	Line Fogal, Friend
Danielle Moore	Colleen Duffey, Family friend
Danielle Moore	Da Chen, I am the friend of the victim
Tamirat Mulu	Fasika Mulu, Brother
Danielle Moore	Richard Hedges, I am the uncle of the victim.
Stephanie Lacroix	Jenny Sutton, Friend
Stephanie LaCroix	Sarah Forrest, I am the friend of the victim.
Xavier FRICAUDET	Roseline FRICAUDET, I an the mother of the victim
Stephanie Lacroix	Suzanne Labelle, I am an aunt to the victim
Danielle Moore	Rob Del Mundo, Friend
Danielle Moore	chuchi mangubat, niece
Samuel Pegram	Seamus Harland, Friend
Anne Katrin Feigl	Juan Carlos Llorens Rojas, I am te friend of the victim
Micah Messent	Ross Camp, Uncle
Stephanie Lacroix	Hélène chartier, Friend
Camille Geoffroy	Valerie Serres, friend
Danielle Moore	Cynthia Abenir, Niece
Dawn Tanner	Hunter Tanner French, I am the son of the victim.
Danielle Moore	Cynthia Abenir, Niece
Danielle Moore	Lyn Abenir, Niece
Matt Vecere	Caroline McClain, I am the cousin of the victim
Danielle Moore	Mark Uzer, Niece
Danielle Moore	John Uzer, Niece
Jonathan Seex	Nadege Dubois-Seex, I am the wife of the victim
Jonathan Seex	Alexandre seex, I am the son of the victim
Mick Ryan	Andy Jackson, Friend
Jonathan Seex	Antoine Seex, I am the son of the victim
Danielle Moore, Micah Messant	Leah Luciuk, Friend of victims
Jonathan Seex	Adeline seex, I am the daughter of the victim
Boutant wilm Clémence	Christine Falcand, A Friend of the victim
Stephanie Lacroix	Jennifer Doucet, Cousin
Danielle Moore, Paul N's wife, two children and his mother-in-law.	Victoria, I am the friend of the victim's parents
Mick Ryan	Rohit Kumar Pokharel, Colleague
Joanna Toole	Adrian Toole, I am Father
Mick Ryan	Clodagh Finn, Friend of the victim
Danielle Moore	Troy Sabaot, Goddaughter
Mick Ryan	S.M. Tanbir Uddin, I am the colleague of the victim.
Danielle Moore	Natasha Perera, Friend
Paolo Dieci	Luca Dieci, Brother
Paolo Dieci	Maria Luisa Mattioli, Wife
Paolo Dieci	Nella Dieci, Sister
Marie Philipp	Sophia Baumann, Cousin
Micah Messent	Emma Spickard, I am the cousin of the victim.
Danielle C Moore	Betty Moore, Grandmother of the victim
Mick Ryan	Michael Brassil, Brother-in-law
Stephanie Lacroix	Nicole Dumouchel, Friend

Victim	Signatory
Danielle Moore	Alexandra Dufort, I am a friend of the victim
Samya Rose Stumo	Geraldine Ieka, Friend
Samya Stumo	Alexander Tripp, Godfather to Samya
Stephanie Lacroix	Maya McDonald, I am a friend of the victim.
Danielle Moore	Kim Lawrence, Friend of the victim's family
Melvin Riffel, Bennett Riffel	Marlina Riffel, I am the Aunt of the victims
Mick Ryan	Stephen Cahill, Friend and co-worker
Samya Stumo	Sharrie Brooks, Cousin
Ekta Adhikari	Samir Nepal, Colleague
Mick Ryan	Finbarr Geaney, I am the friend of the victim.
Graziella de Luis	Jean Kwo, Sister-in-law
Matt Vecere	Joyce Courter, I am a friend of the victim.
Micah Messent	John Camp, Uncle
Alexandra Wachtmeister	Agneta Westman, Alexandra's aunt
Micah Messent	Jade Ballard, I am the eldest sister of the victim.
Mick Ryan	Roy Crabb, Friend and kindred Spirit
Micah Messent	Darryl Gershman, I am the uncle of the victim
Stéphanie Lacroix	Rebecca Young, I am a friend of the victim
Stephanie Lacroix	Monique, I am her aunt
Micah Messent	Cathy Camp, I am the Aunt of Micah Messent
Micah Camp	Keshia Chutter, I am the cousin of the victim
Mick Ryan	Jennifer McAuliffe, I am the cousin of the victims wife
Micah Messent	James Fitzsimmons, I am the uncle of the victim.
Mick Ryan	Stuart Zimble, I am a close friend
Michael Ryan	Declan O'Mahony, I am a friend of the victim.
Mick Ryan	Eadin O'Mahony, Friend
Stephanie Lacroix	Rosemary Quinn, Family friend
Samya Stumo	Caitlin Hotaling, I am the friend of the victim.
Stephanie Lacroix	Stephanie Kennedy, I used to go to school with the victim.
Mick Ryan	Orla Clinton, Friend and colleague
Mick Ryan	Helen O'Dowd, I am a Friend of the family of victim Mick Ryan
Samya Rose Stumo	Paul and Patricia Nimchek, We are friends of the victim and her family.
Stéphanie Lacroix	Christina Callingham, Friend
Stephanie Lacroix	Darla Bennison, Friend of Mother and Father and extended families of the victim.
Stephanie Lacroix	Darla Bennison, Friend of the Mother and Father and extended families of the Victim
Stephanie Lacroix	Marc caron, Uncle
Samya Stumo	Tom Connell, Family friend
Stephanie Lacroix	Mélanie Martin, Friend
Steph Lamarche	Rachelle Helin, I am a friend of victim's mother.
Mick Ryan	Ahmad bin Zakaria, He was my honorable chief
Danielle Moore	David Moore, I am the brother of the victim
Ekta Adhikari, Mick Ryan	Praneet Shrestha, Fiancee, Colleague
Marie Christin Philipp	Ellen Philipp, I am the mother of the victim
Marie Christin Philipp	Klaus Philipp, I am the father of the victim
Danielle Moore	Annabelle Cerdan, Niece and good friend
Melvin Riffel, Bennett Riffel	Elena Riffel, I am the Aunt of the victims
Anne-Katrin Feigl	Katharina, Close friend
Graziella de Luis	Mariana Cristellys, Friend
Michael Ryan	Conor O'Sullivan, I am a friend of the victim
Oliver Vick	Ilaria Gandossi, Father of my children
Danille Moore	Aurie Narvaez, Friend
Danielle Moore	Kathryn Brimson, Cousin
Danielle Moore	Sydney Brimson, 2nd Cousin
Joanna Toole	Dennis Spruce, Uncle
Marie Philipp	Christiane Ulrich, Family friend

Victim	Signatory
Samya Rose Stumo	Diane Holmlund, I am a second cousin of Samya
Michael Ryan	Mari Turashvili, Friend
Danielle Moore	Alexander Cake, Cousin
Micah Messent	Jacqueline Messent, Cousin
Stephanie Lacroix	Julie Balasalle, Friend and coworker
Mick Ryan	Catherine Clark, Friend and colleague of the victim
Anne-Katrin Feigel	Nicole Blu, I am a friend of the victim.
Daniella Moore	Wilson Lee, I am the friend of the victim
Mick Ryan	Lucie Jouanneau, friend
Samya Stumo	Theresa Williams, family friend
Peter deMarsh	Michèle Ashby, I am a friend of a victim's sister. And I fly!
Alexandra Wachtmeister	Nane Annan, I am a friend of the victim
Mick (Micheal) Ryan	Aodhnaid Connolly Lennon, Sister in Law
Amma Tesfamariam Woldeesenbet ...	Bruk Tesfamariam Woldeesenbet, Brother
Danielle Moore	Honor Hedges Royer, aunt
Danielle Moore	Lora Meseman, Mother-in-law
Isabella Beryl Achieng Jaboma	Allan Jaboma, She was my sister
Graziella De Luis	Maya AlChidiac, Dear friend
Samya Rose Stumo	Pilar Vera Palmés, I am the Chair of the Air Crash Families Federation International (ACVFFI)
Mick Ryan	Morgan Connolly, I am the father-in-law of Mick Ryan
Mick Ryan	Maire Connolly, I am the mother-in-law of the victim
Stéphanie Lacroix	Natalie, Dear family friend
Max Edkins	Til Kreuels, I am a friend of the victim.
Mick Ryan	Naiose Connolly Ryan, Wife of Victim
Danielle Moore	Kathy Martorino, Friend of Moore family
Samya Stumo	Nico Tripceвич, Family friend
Angela Rehorn	Catherine Vincent, I am the Aunt of the victim.
Angela Rehorn	John Vincent, I am the Uncle of the victim
Sintayehu Shafi Baleker	Liul Baleker, I am the brother of the victim
Michael Ryan	Robert Jackson, Friend
Mick Ryan	Sile Geaney, Family friend
Matt Vecere	Patricia Vecere McClain, Aunt of victim
Marie Christin Philipp	Laura Vendt, Friend
Samya Stumo	Jurgen Vsyck, I am a friend of the victim.
Danielle Moore	Glenn Gundermann, I am a friend of the victim's family.
Samya Rose Stumo	Marjorie Aelion, I am the friend of the victim.
Samya Stumo	Laila Mokhiber, Cousin
Danielle Moore	Olivia Allen, friend and colleague of the victim
Stephanie Lacroix	Joy Wahba, Friend
Daniel Moore, Micah Messent	Matthew Miller, I am a friend of Daniel and Micah
Abiodun Bashua	Alem Tebeje, Brother-in-law
Melvin Riffel	Korryll Lave, I am a friend of the victim.
Abiodun Bashua	Yetunde Bashua, He was my father
Stephanie Lacroix	Samantha Demers, I am a friend of the victim
Samya Stumo	Luis Arnal Delgado, Friend
Samya Stumo	Penny Owen, Family friend
Max Thabiso Edkins	Jennifer Anderson-Ochoa, I am a friend of the victim.
Samya Rose Stumo	Harriett Northcutt, A friend
Samya STUMO	Laudison Lopes, Cousin
Stephanie Lacroix	Lucille Martin, Friend of the family
Samya Rose Stumo	Gail Brinkmeier, friend of victim
Stephanie Lacroix	Lucille Martin, Friend of the victim
Stephanie Lacroix	Emilie Brule, I am the friend of the victim.
Melvin Riffel, Bennett Riffel	Mackenzie Claver, I am the best friend to the victims
Melvin Riffel, Bennett Riffel	John Fisher, I am married to a cousin of the victims.
Samya Stumo	Carrie Olson, Cousin
Matt Vecere	Matthew Baiamonte, Friend

Victim	Signatory
Samya Rose Stumo	Nadia Milleron, I am Samya's mother
Stephanie Lacroix	Lauri-Ann Loreto Neal, I am a friend of the victim's mother.
Mel Riffel	ED Duggan III, Friend
Carol Diehl	Carol Diehl, I am a friend of the family
Samya Rose Stumo	linda sawaya, friend of victim's family
Bennett Riffel, Melvin Riffel	Terri Sherman, Friend
Samya Stumo	Helen A Hellmers, Friend
Samya Rose Stumo	Pat Brooks, I am a friend of the victim's maternal Grandmother, Professor Laura Nader
Samya Stumo	Judy Metro, I am a friend of the family.
Samya Rose Stumo	David Teisler, She was daughter of my daughter's GodMother and a great friend
Samya Stumo	Suzanne Murray, Family friend
Samya Stumo	Mirna Mercado, I am a friend of Samya
Samya Stumo	Laura Flores, my niece
Samya Rose Stumo	Gabrielle Paese, I am the friend of the victim
Alexandra Wachtmeister	Anne-Margrete Wachtmeister, I am her mother
Micah Messant	Nelsen Spickard, Cousin
Stéphanie Lacroix	Michel Monette, Friend of the victim
Riffel	Tonia, Friend
Samya Stumo a d Bella	Hayley Freedman, Friend
Samya Rose Stumo	E Shaker, Cousin
Camille Geoffroy	Diane de Schoutheete, I am an aunt of Camille Geoffroy
Danielle Moore	Honor Hedges Royer, Aunt
Angela Rehhorn	Jeremy Harbinson, Friend
Samya Rose Stumo	Renée Betar, Friend of the victim
Samya stumo	Janet Domenitz, Friend
Micah Messant	Caroline Willis, I am a family friend.
Samya Stumo	James Holmlund, Samya is my grand niece
Samya Stumo	Anne Marie Papandrea, Family friend
Danielle Moore	Lita Venezuela, Friend if the victim
Angela Rehhorn	Mary Eleanor Vincent, I am the Aunt and Godmother of Angela
Angela Rehhorn	Kaitlin Thatcher, Friend
Angela Rehhorn	August Pokotylo, I am the Uncle and Godfather of the victim
Angela Rehhorn	Rowena Fonseka, Friend
N/A	Shira Drossos, N/A
Samya Stumo	Marilyn J Holmlund, Samya was the granddaughter of my cousin Mary Holmlund Stumo
Danielle Moore	Bryan Sison, I am the friend of the mother of the victim
Samya Stumo	Emily Crawford, I am a friend of the victim.
Samya Stumo	Karen Lundeen, Family friend
Mick Ryan	Giacomo Re, Friend and colleague at WFP
Camille Geoffroy	Veronique Geoffroy, Aunt
Samya Rose Stumo	Cari borja, Close Friend of grandmother
Marie Christin Pfilipp	Michael Baumann, I am the uncle of the victim
Samya Milleron	Nola Frick, Relative
Samya Stumo	Karen Hoyt, Friend of the victim
Marie Christin Philipp	Doris Fuchs, I am the aunt
Samya Rose Stumo	Mette Linnet, Friend
Wolfgang Eigner	Carmen Sigl, Friend
Max Edkins	Friederike Gysae-Schnurre, I am his aunt
Mariapilar Buzzetti	Davide Picistrelli, friend
Immaculate Otero	Victor Mwau, Close friend
Jonathan Seex	Maria Petersen, Cousin
Wolfgang Eigner, Armin Schietz, Christoph Sautner.	Jennifer Stefanits, Friend
Stefanie LaCroix	Lauren Webber, Malawi roommate
Sam Pegram	William Pegram, Grandfather

Victim	Signatory
Micheal Ryan	MP O'Brien, brother-in-law
Camille Geoffroy	Nicolas Tsioukis, I am the friend of the victim
Oliver Vick	Jonathan Haines, Cousin
Xavier Fricaudet	François Fricaudetxa, Father
Pilar Buzzetti	Angelo, Friend
Samya Stumo	Lucy MacGillis, Friend
Arnold	Chria, Friend
Paolo Dieci	Silvia Guglielmi, I am the niece of the victim.
Marie Christin Philipp	Doris Fuchs, I am the aunt
Mercy NDIVO, Jared Babu	Beatrice Kimuyu, I am mother and Mother in-law of the two victims
Ollie Vick, Jessica Hyba	Tim Bond, Friend
Max Thabiso Edkins	Andrea andersen, I am the cousin of the victim
Immaculate Achieng Odero	Eliakim, Sister
Xavier FRICAUDET	Olivier FRICAUDET, I'm the cousin of the victim
Sintayhu Shafi	Yewubnesh, cousin
Harina HAFITZ	Stéphanie COSTERG, I am the friend of the victim.
Xavier Fricaudet	René Hautier, ami
Josefin Ekermann	Norah Elena Ekermann, Sister
Joanne Toole	Tanya Hucklesby, Friends with her sister Karen
Graziela de Luis	Alejandro, Nephew
Marie Philipp	Hendrik Philipp, I am her brother
Michael Ryan	Dene Cairns, I am a friend of the victim
Olly Vick, Jessica Hyba	Harriet Tarnoy, Friends
Alexandra Wachtmeister	Fredrik Wachtmeister, Brother
Jonathan Seex	Pår, Brother in law
Graziella de Luis	Isabel de Luis, sister
Sam Pegram	Val Pegram, Grandmother
Sebastiano Tusa	Alberta Pongiglione, I am a friend of the victim
Marie Philipp	Laura Petrak, Best friend
Oliver Vick	Rifet Arapovic, I am the friend of the victim.
Anne-Katrin Feigl	Gabriele Haldenwang, I am a friend of the family of the victim
Pilar Buzzetti	Richard Culley, I am the friend of the victim
Immaculate Odero	Sally, Sister-in-law
Oliver Vick	James Vick, I am the father of the victim
Oliver Vick	Cheryl Vick, I am the Mother of the victim
Immaculate Odero	Christabel Were, Friend
Sam Pegram	Scott Hetherington, I am the friend of the victim.
Michael Ryan	Darragh Mcdonagh, Friend
Jessica Hyba	George Ghikas, Friend
Oliver Vick	George Ghikas, Friend
Anne Feigl	Anna Caroline Feigl, Sister in law
Anne-Katrin Feigl	Katharina Peters, Close friend
Immaculate Achieng Odero	Denis Adhoch, Husband
Xavier Fricaudet	Rossi Hadzhieva, I am a friend of the victim
Samya Stumo	Diane Sykes, Family friend
Max Thabiso Edkins	Donald Edkins, I am the father of Max Thabiso Edkins.
Danielle Moore	Bobbie alfaró, Cousin
Samya Rose Stumo	Joan, I am a friend of the victim
Samya Stumo	Carol Conner, Family Friend
Samya Stumo	Matthew Caemmerer, Friend
Angela Rehborn	Lorna Nickerson, Family friend
Paolo Dieci	Estella Dieci, Niece
Marie Philipp	Julia Schmidt, Friend of family
Jonathan Seex	Linda Poidnakk, Friend
Danielle Moore, Micah Messent	Mo Phung, Close friends.
Jonathan Seex	Gunilla Larsson, Jonathan was the son of a very good friend and I had known him since he was a baby. It still hurts that this beautiful person is no longer because of greed and negligence!

Victim	Signatory
Danielle Moore	Jacqueline Miller, I am the friend of the victim.
Joanna Toole	Paul Heydon, Friend of a Friend of the victim
Samya Stumo	Linda Miller, Friend
Jonathan Seex	Nadja Chekhov, I'm the friend of the victim's mother
Stephanie Lacroix	Julie Lacourse, I am a friend of the victim.
Melvin and Bennett Riffel	Cheryl hess, Cousin
Jonathan Seex	Johan Hartzell, Wife's cousin
Immaculate Achieng' otero	Princess Piro, I am a very close family & childhood friend & neighbor
Samya Stumo	Arlene Tolopko, I am a friend of the victim.
Camille Geoffroy	Valerie serres, friend
Sebastiano Tusa	Sofia Ambrogio, I am the niece of the victim
Danielle Moore	Gualberto Abenir Jr, Niece
Clemence Boutant	Ian HENSTOCK, Friend / former colleagues
Samya Rose Stumo	Kristen Brookes, friend of the family
Michael Ryan	Helen Maree, I am a family member of the victim
Angela Elizabeth Maria Rehorn	Roland Rehorn, Father of victim
Sebastiano Tusa	Carlo Tusa, He was my cousin.
Matthew Vecere	Richard McMullin, I am a friend of the victim.
Jean-Michel Suzanne Barranger	Laetitia Tavernier, I am the daughter
Jean Michel Suzanne Barranger	Marc Tavernier, I am son-in-law
Stephanie Lacroix	Murray Howe, friend of Family
Eric Prieur	Prieur claire, My brother
Danielle Moore	Kathleen Randall, Cousin
Samya Stumo	Deveney williams, Friend
Samya Stumo	Amy Alpert, Family friend
Cedric Galia Asiavugwa	Alex Kubasu, I am the friend of the victim
Samya Rose Stumo	Sheryl Lechner, family friend
Bennett Riffel, Melvin Riffel	Lorraine Micke-Hayden, I am the cousin of the victims.
Oliver Vick	Kirsten Young, Friend
Samya Stumo	Jennifer Brown, I am a friend of the victim.
Johanna Toole	Elisa Canalini, I am a colleague of the victim
Samya Rose Stumo	Steven Souaid, I am a cousin of the victim
Samya Stumo	Robbyn Swan, Friend
Samya Stumo	Sandra K Holmlund, Great Niece
Angela Rehorn	Jacob Oberfrank, Partner
Clemence Boutant-Willm, Samuel Pendam.	Claire FABING, I am a colleague of the victims
Stephanie Lacroix	Michelle BeaudrySeguin, Close friend
Steph Lacroix	Jamie Lafrance, Friend/former roommate
Xavier FRICAUDET	NOUVION Marie, famille
Samya Rose Stumo	Thomas Leatherman, Friend and Colleague
Melvin Riffel	Melissa Duralia, I am the friend of a victim
Graziella de Luis y Ponce	Maria Tauber, Friend
Marie Philipp	Angelika Begerow, I am the friend of the victim
Jonathan Seex	Anne-Marie Petersen, Aunt
Camille Geoffroy	Sophie Le Bret, Family's friend
Michael Ryan	John Maree, Concerned engineer family friend
Anne-Katrin Feigl	Sam Eifling, I'm a friend of the victim
Samya Stumo	Michelle Wolfensperger, Cousin
MELVIN Riffel, BENNETT RIFFEL	Rebecca Richardson, I am a friend of Ike and Susan Riffel
Matt Vecere	Stephen Dintino, Friend
Dawn Tanner	Brian Kobiero, Spouse
Anne-Katrin Feigl	Regina M. Buono, Friend
Immaculate Achieng Otero	Emmy, Sister
Allan Chacha	Allan Chacha, Friend
Samya Stumo	Joseph Kreta, Childhood friends
Mick Ryan	Jack Connolly, Uncle Inlaw
Melvin and Bennett Riffel	Carl J. Koutnik MD, friend of family

Victim	Signatory
Immaculate Achieng Odero	Judith Otsieno, Friend
Mick Ryan	Lee Wassem, Family member
Mick Ryan	Deirdre Connolly, I am the wife of Jack Connolly—Mick's uncle in law
Suzanne Barranger, Jean Michel Barranger.	Barranger Sebastien, I am the son of the victim
Paolo Dieci	Harlan Downs-Tepper, I am the friend of the victim.
Juliah Mwashu	Florah Mwashu, Sister
Juliah Mwashu	Ivy Nduta, Mother
Juliah Mwashu	Joy Ayuma, Mother
Xavier Fricaudet	Virginie Fricaudet, I am the sister
Jonathan Seex	Karen McDougall, I am a childhood friend of the victim.
Melvin Riffel, Bennett Riffel	Susan Mears, Family Friend
Xavier Fricaudet	Jean-Luc Moreau, I am friend of the victim
Clémence Willm	Céline Grimault, I am a friend of the victim.
Mick Ryan	Alan Connolly, Relative
Stéphanie Lacroix	David Finniss, I am the friend of the victim.
Joanna Toole	Bridget Harris, Close family friend and best friend of my niece Katy Harris
Samya Stumo	Laura Zabriskie, I am a friend and parishioner of Samya.
Matt Vecere	Tomra Vecere, Sister
Matt Vecere	Charles Sinesi, Brother in law
Clémence-Isaure Willm Boutant	Emma Boutant, I am the step-daughter of the victim.
Danielle Moore	Colleen Duffey, Family friend
Samya Stumo	Evelyn Kreta, I was her friend and church school teacher.
Matt Vecere	Rachel Condon, Niece
Samya Stumo	Sylvia Lewis, I am a family friend.
Oliver Vick	Lucy Bowers-Wildblood, Friend, chosen family.
Oliver Vick	Lucy Bowers-Wildblood, Friend, chosen family.
Danielle Moore	Nick Cake, Cousin
Michael Ryan	Hayley Dowsing-Connolly, Family friend
Samya Stumo	Karen Hubbard, Friend
Samya Rose Stumo	Matilde Guillen, I am the host mother in Peru of the victim
Samya Rose Stumo	Gustavo Justo, I am the host father in Peru of the victim
Emmaculate odero	Susan, Friend
Immaculate odero	Ephie, Sister
Mick Ryan	Mai, Colleague and Friend
Xavier Fricaudet	Harm van Duin, Friend
Sam Pegram	Mark Pegram, Father
Ekta Adhikari, Maria Pilar Buzzetti, Virginia Chimenti, Harina Hafitz, Zhen-Zhen Huang, Michael Ryan, Djordje Vdovic.	Noel Griffin, Colleague and friend
Alexandra Wachtmeister	Anna Wachtmeister, Cousin
Immaculate Achieng Odero	Hermaton Nalyanya, A friend to the victim
Agnes Mary Wangari Gathumbi	Ian Kabaara, I am a friend of the children of the victim
Sam Pegram	Melanie Cremona, Friend
KARIM SAAFI	Mohamed Najeh Saafi, BROTHER
KARIM SAAFI	DRISS SAAFI, Uncle
KARIM SAAFI	ELYESS SAAFI, Uncle
Saafi Karim	Ingrid de Viennay, Je suis son ancienne belle soeur.
KARIM SAAFI	INESS SAAFI, Uncle
Max Edkins	Kathleen McCarthy, Friend
Angela	Shantel Rehborn, Sister
Angela Rehborn	Joan Vincent, Mother
Samya Stumo	Deirdre Hatch, I am a friend of the victim
Samya Stumo	David Hatch, I am a friend of the victim
Stephanie Lacroix	Glen Levacque, Cousin
Immaculate odero	Ephie odero, Sister

Victim	Signatory
Riffle Brothers	Ericka Allio, Family friend
CLEMENCE-ISAURE BOUTANT	Denis Boutant, I am the husband of the victim
Joanna Toole	Jerome Toole, I am the cousin of the victim.
Samya Stumo	Jenelle Pierce, Cousins daughter passed way in the plane.
Emmaculate Achieng Odera	Clifford Odera, I am the brother of the victim.
Samya Stumo	Georgia Usry, Close friend of the family
Jonathan Seex	Johanna, Friend
Samya Stumo	Susan Lockwood, I am a friend of the victim
Oliver Vick	David Haines, I am the victim's uncle.
Danielle Moore	Mark Uzer, Cousin
Danielle Moore	Mark Uzer, Cousin
Samya Stumo	Joni Cushing, Friend
Jessica Hyba	Susan Olszynko, Close friend
Michael Ryan	Lynn Dowsing-Connolly, He was my cousin's husband
Samya Rose Stumo	Fr. John Kreta, Spiritual father
Samya Rose Stumo	Erika Wainwright, I am the friend of Samya Stumo
Graciela De Luis Ponce	Noemí Laviada, Friend
Samya Stumo	Hollis Starks, friend of the victim
Jonathan Seex	Torben Rune, Friend of victim
ZHEN ZHEN HUANG	WEI XIONG, I am the husband of the victim
Graziella De Luis	Anita Guerra, I am a friend of the victim
Max Thabiso Edkins	Gillian Mary Edkins Bailey, I am the auntie
Mick Ryan	Thalia Maree, Cousin of Mick's wife Naoise
Maygenet Worku	Eyasu Teshome, Husband
Anne-Katrin Feigl	Michele Pasquale, I am the friend of the victim.
Sam Pegram	Tom Pegram, Brother
Camille Geofroy	Amelie Jourdier, I am the aunt
Mick Ryan	Séanna Connolly, Brother in law
Michael Ryan	ciamha hurst, i am a friend
Mick Ryan	Tina O'Flynn, I am a friend of the victim
Micheal Ryan	Silvia Rodriguez Barbado, A friend of the victim
Graziella de Luis y Ponce	Susan Draz, Friend
Michael Ryan	Eoin Daffy, Friend
Marie Christin Philipp	Wiebke Hörmeyer, I am a friend
Ines Michaela Gans	Bernd Gans, My daughter
Virginia Chimenti, Pilar Buzzetti, Harina Hafiz	Vincenzo Maggiore, Colleagues
Karoline Aadland	Knut Ingvar Aadland, I am the father of the victim
Samya Rose Stumo	James Carter, Friend of Friend
Samya Rose Stumo	Katherine Preston Cory, I am a friend of the victim.
Samya Stumo	Tierney Simpson Jutzi, Friend of a Friend
Carlo Spini, Gabriella Viciani	Andrea Spini, I am the son of the victims
Samya Stumo	Joseph Homs, Friend
Abiodun Bashua	mena tebeje, I am a wife of the victim
Clémence Wilm	Marine Rudant, friend
Samya Stumo	Carol McFadden, Friend of friend
Xavier Fricaudet	Yvette Le Gall, Xavier is the brother of my son in law
Stehanie Lacroix	Chantale and Real Boissonneault, daughter of our friends
Josefin Ekerman La Torre	Michael, Cousin
Samya Stumo	Alyssa O'Connor, Close Friend
Samya Rose Stumo	Andres Justo, I am the friendo ir the victim
Stephanie Lacroix	Sara Lefebvre, Classmate
Samya Rose Stumo	Lucia Justo, I am the friend of the victim
Samya Stumo	Maria Sofia Justo Guillen, I am the friend of the victim
Samya Stumo	April Cain, She was the close friend of a young friend of mine
Micah Messent	Isabella Morgan, Friend
Samya Stumo	Stuart Robinson, Friend
Sam Pegram	Deborah Pegram, I am Sams Mum

Victim	Signatory
Xavier FRICAUDET	Isabelle REBILLARD, I am a friend of the victim's family
Oliver Vick	Lucinda Pullinger, Long term friend
Melvin Riffel, Bennett Riffel	Mary Ann Tangney, Nephews
Michael Ryan	Pádraig McCarron, I am the friend of the victim
Harina Hafitz	Arnaud Sournia, Friend of the family of the victim
Virginia Chiementi	Mateo Mancheno, Friend of the victim
Micheal Ryan	Brian McDonagh, I am the friend of the victim.
Samya Stumo	Ben Webb, Close friend
Jonathan Seex	Björn ölund, Friend
Samya Rose Stumo	Lucia Guillen, I am the friend of the victim
Samya Rose Stumo	Sandra Sermini-curtiss, Friend of family
Matt Vecere	Warren McClain, I am the uncle of the victim
Mel Riffel, Bennet Riffel	Thomas Tangney, Uncle
Sergey Vyalikov	Alex Fikhman, I am the uncle-in-law of victim.
Marie Philipp	Derek Hagen, Friend
Camille Geoffroy	Laura Couillet, Friend
Samya Rose Stumo	Andrew Souaid, Cousin
GEORGE KABAU	PAUL KABAU, BROTHER
Max Edkins	Leonita Louw, Friend
Eric PRIEUR	Fabrice CRABIE, brother in law
Mick Ryan	Morgan F Connolly, Brother-in-law
Michael Ryan	Theresa Stack, Friend of the family
Sergey Vialikov	Dmitrii Vialikov, Brother
Sergey Vialikov	Nadya Vialikova, SON
Anne Karanja, Caroline Nduta Karanja, Ryan, Kellie and Rubby.	Dr. Karanja, Mother, sister, nephew and niece
Mick Ryan	Ian Connolly, Cousin in law
Mick Ryan	Sam Woolhead, My partner is a family friend
Karim SAAFI	Abdel-Jawad Jellad, Nephew
Jonathan Seex	Carola Schröder, I'm mother in law to his sister
Joanna Toole	John Paul Rodgers, Cousin
Jonathan Seex	Carola Schröder, I'm mother in law with his sister
Samya Stumo	Clarice Faber, Friend

Mr. CARSON. So, Administrator Dickson, you recently received a letter, sir, from me and my colleagues, Representative Fitzpatrick and Representative Payne, about FAA's failure to implement a requirement for secondary cockpit barriers that were enacted in 2018.

As the author of the 2018 provision, sir, it is beyond frustrating to see a known security risk ignored by the FAA. We worked with a number of stakeholders to effectively reach a compromise that was able to pass our committee with bipartisan support, pass the House and the Senate.

And instead of requiring secondary cockpit barriers on all aircraft, old and new, H.R. 911 would mandate, which I am proud to be a lead sponsor of. You know, our 2018 provision comprised by only requiring barriers on new airplanes. Yet today, there seems to be no progress whatsoever on implementing the requirements.

Mr. Administrator, please tell me why there hasn't been any progress to install secondary barriers? In our letter, we asked for some details in writing, and we have yet to receive that information. And when can we expect to receive this information?

Mr. DICKSON. Well, thank you for the question, Congressman. I will reiterate the same comments that I made to Chair DeFazio to

start, is that I want this to happen more quickly. And we are absolutely committed to implementing the requirement for secondary barriers on transport category aircraft.

We do have rulemaking, notice of public comment rulemaking that we have to do. Also, even though there had been a study a number of years ago conducted by RTCA, it did not define the necessary technical requirements for manufacturers to install these barriers.

So, last year, we conducted an Aviation Rulemaking Advisory Committee to get us that technical detail. We have that now, and we are using it to inform and incorporate into our rulemaking process.

So, I am happy to follow up with you personally on where we go from here. But, again, we are working very hard to get this out for a draft rule for public comment, get it through the Department and through the executive branch, so that we can put it into law, and we are going to do that absolutely as quickly as we can.

Mr. CARSON. Administrator, so why has progress been so slow? It is almost unprecedented.

Mr. DICKSON. Well, again, when you do any kind of rulemaking, you have to start with data and information. And that is what we had to go back and do. Once the decision was made that we had to go through notice and comment rulemaking, we have got to have the justification for the rule that will stand up through the entire Administrative Procedure Act process, and that is the due diligence that we are having to go through.

Mr. CARSON. All right. Well, we will be on standby. Thank you, sir.

Thank you, Chairman. I yield back.

Mr. LARSEN. Thank you, Representative Carson.

I recognize now Representative Mast of Florida for 5 minutes.

Mr. MAST. Thank you, Chairman.

Number one, I just have to address what has to be one of the most ignorant opening statements I have heard ever in this committee, our chairman essentially comparing Americans to Mohamed Atta, one of the 9/11 terrorists, saying that he expects Americans will be breaking through a cockpit door in order to crash an airplane. Pure ignorance.

I wonder if he would use that same brush to paint over those that destroyed Minneapolis or destroyed Portland or other cities across America, torched businesses, torched places like that. Absolutely ignorant. I would hope that he would apologize to all Americans for his opening statement, which I found to be just ignorant and disgusting.

I am going to use the remainder of my time to ask an open-ended question to you, Mr. Administrator, and I am going to ask for your creativity on this. I don't know if there is a place that FAA can play a role in this or not, but maybe you can find something for us since it seems that the Department of Homeland Security is unwilling to do anything to ground the flights and the spread of people entering America illegally across this country.

And so, my question to you, as the Administrator, can you think of anything creatively that could be done through the FAA to

ground these flights of illegal immigrants across the United States of America?

Mr. DICKSON. Well, thank you for the question, Congressman. We work very closely with other Federal agencies on security matters. Customs and Border Protection is probably the most prominent example, but, certainly, Department of Defense and others.

With respect to civil aircraft operation, any registered aircraft—my responsibility is the aviation safety of the national airspace and to make sure that fair access is granted to that. There is not a mechanism within the agency to look at the nature of those operations that you are referring to, but certainly, if there were information that came available to us about some sort of illegal charter or something like that, that is something that we would follow up on and make sure that the appropriate security authorities were brought in to investigate.

Mr. MAST. I appreciate your response. Could you be a little bit—just explain a bit more on what would constitute an illegal charter, in your mind?

Mr. DICKSON. Well, it would probably come to us from someone who brought it to our attention. It could be an employee. It could be one of our inspectors saw something amiss with a license or a private aircraft being used for commercial purposes. Those types of things would be things that would give us some evidence that we would begin to look into.

Mr. MAST. Does FAA take issue or find any problems with the issues going on with manifests as it relates to these flights? Obviously, individuals that cannot be identified very clearly makes it difficult, maybe impossible, to manifest those flights correctly as they are spread across the country. Is there any issue that FAA takes with that?

Mr. DICKSON. We don't have any visibility into manifests, as you are describing.

Mr. MAST. Very good. I appreciate your responses today, Mr. Administrator. Thank you.

I yield back.

Mr. LARSEN. The Chair recognizes Representative Davids of Kansas for 5 minutes.

Ms. DAVIDS. Thank you, Chairman.

And thank you for your time today, Administrator Dickson. First, I will just say I continue to keep the families of the folks who lost loved ones in the 737 MAX tragedies. And then I am going to focus my questions on the FAA implementation of the 2020 aircraft certification bill that we are talking about here today.

So, when Boeing discovered the angle-of-attack disagree alert was inoperable on more than 80 percent of the 737 MAX aircraft, Boeing decided three things: One, to wait nearly 3 years to fix the problem when it would have been less expensive to do so; two, to not notify the FAA that the alert wasn't working, it didn't notify its MAX customers or MAX pilots; and then three, which I think is even worse, it just kept building and selling more planes with the same defect.

Boeing didn't ultimately divulge the problem until after the Lion Air crash. Boeing tried to defend its actions, claiming the faulty alert wasn't a safety issue. However, FAA's then-Acting Adminis-

trator Dan Elwell told our committee in 2019 that the alert was required to be installed and functional on all MAX airplanes, because it was part of the plane's certified type design.

So, Mr. Dickson, I think it is clear that I find Boeing's handling of this matter pretty concerning. So, I want to ask you about what the FAA has done to address this, and to discourage Boeing or any other manufacturers from acting similarly in the future.

I know you have noted the reset of the relationship the FAA has with Boeing specifically, and you have noted things like the limited delegated authority. But I am curious specifically, what enforcement action, if any, has the FAA taken against Boeing for its defiance of the FAA's type design requirement and concealing the inoperability of the AOA disagree alert?

Mr. DICKSON. Well, thank you for the question. And I think it is important to understand, again, that one of the first things I did when I got to the agency was to make clear the arm's-length relationship, and the regulatory relationship and oversight that we have with Boeing. So that is where I would start. And not only Boeing, but all the entities that we regulate, whether it is manufacturing, airlines, or otherwise.

One of the important principles here is that we don't want any single points of failure. And what you are describing is a single point of failure. And we need to have layers of protection. We need to have more transparency. We need to have better coordination and collaboration among FAA officers. There were things inside the agency, and also, the relationship between the agency and Boeing that we are addressing and that we have addressed over the last couple of years.

As an example of that, in 2020, we accepted Boeing's voluntary safety management system program. And, again, the rulemaking on SMS for manufacturers is not complete, but this program comports with the national standards on safety management systems, and also, ICAO standards as well. And we do regular performance reviews. And this mechanism brings forward information and data from Boeing. So they are in a position where, instead of concealing—

Ms. DAVIDS. Administrator—

Mr. DICKSON [continuing]. [Inaudible] information to the FAA.

Ms. DAVIDS [continuing]. I want to clarify my question. I was asking what enforcement action has been taken versus acceptance of the safety protocols. I think that that is a good thing, but I am curious how we are going to make sure that Boeing or other manufacturers don't engage in concealment of things like inoperability in the future.

Mr. DICKSON. Well, we took enforcement action against Boeing, one of the largest civil penalties we have ever levied against a company. And, so, that was part of it. But overall, again, the type of thing that you are describing now cannot happen, because we have taken those single vulnerabilities out of the system, and we will continue to work to find them and ferret them out.

Also, we have increased our oversight, and the involvement of our engineering team out on the production floor. We typically have had inspectors out there. We still do. We have increased our engineering staff presence. And we are seeing differences in behavior

where we have seen Boeing actually stop production when issues have come up. So, again, this is something we need to stay on top of.

Ms. DAVIDS. Thank you, Administrator.

And I yield back, Chairman.

Mr. LARSEN. Thank you.

The Chair recognizes Representative Van Duyne of Texas for 5 minutes.

Ms. VAN DUYNÉ. Thank you very much.

Good afternoon, Administrator Dickson. Thank you very much for being with us today. My district, which is Texas 24, is home to Dallas/Fort Worth Airport, American Airlines, and Envoy Air. We are also closely surrounded by Southwest Airlines' headquarters in Dallas Love Field.

DFW Airport is the leading economic driver, not only in my region but in the entire State of Texas. Hundreds of thousands of jobs are reliant on the airport, and it serves as a major recruiting tool as we see and hear from hundreds of CEOs who are moving or who have moved their companies to that area because of the airport.

In the last few weeks, we have seen disruptions across the country from delays to cancellations. And while the causes of some of these delays remain unknown, the timing related to the announcement of the vaccine mandate is also very concerning. Just Tuesday, you may have seen that Southwest Airlines reversed their mandate.

I am curious now that we are coming upon the huge holiday season, how is the FAA preparing for further disruptions in the system as we move closer to the busiest travel time of the year?

Mr. DICKSON. Well, thank you for the question. And, again, on the subject of the vaccine mandate, the idea there is to get us past COVID-19 as a country as quickly as possible so that the system can operate efficiently and effectively and preserve all of those jobs.

My focus, again, is on aviation safety. I am very familiar with the operations of Dallas/Fort Worth and Love Field and American Airlines and Southwest Airlines. I have been in regular contact with their leadership, and also with their labor unions, to make sure that we can operate safely and efficiently going into the holiday season, and we will continue to stay focused on that.

Part of what is going on here is the changes in consumer preferences. And kind of the guardrail-to-guardrail capacity issues that we saw in the system require some time for airlines to get their fleets and their workforces aligned so that they can be responsive to consumer demand.

And we are doing everything that we can to make sure that the aviation system, the air traffic control system, stays open for business so that Thanksgiving and Christmas travel, and really travel every day can continue unfettered and uninterrupted, because it is a huge part of our economy and it is a service that we provide to the public.

Ms. VAN DUYNÉ. I mean, it is absolutely a huge service to our economy, but American Airlines alone has 4,000 pilots who haven't been vaccinated. I know that your purpose and focus is on pre-

serving jobs, but what they are facing is right before the holiday season actually having to be forced to lose their jobs.

Have you had or sought input from pilots or from air traffic control about the vaccine mandate?

Mr. DICKSON. I am in constant contact, in regular contact with labor leaders around the industry, and also with our unions within the FAA. So, I think—

Ms. VAN DUYNE. So, you have, you have sought input from pilots and from air traffic controllers?

Mr. DICKSON. Always have a dialogue with them on a whole host of issues.

Ms. VAN DUYNE. So, you have sought input from pilots and ATC regarding the vaccine mandates?

Mr. DICKSON. Well, not specifically the vaccine mandate, but certainly any operational or safety issues that we have all been concerned about throughout the pandemic and even in daily operations, to make sure that we don't have undesirable distractions, either at individual companies, or within the FAA itself.

Ms. VAN DUYNE. Because what I am hearing directly from many of them is just the increased stress. They are going to have to lose their jobs. And it is not just for travel, it's supply chain issues. UPS and some others have talked about the impact that that is going to have on supply chain and on our economy and on commerce in the U.S.

So what steps is the FAA using to address the supply chain issues that appear to be getting worse before they are getting better?

Mr. DICKSON. Well, throughout the pandemic, we have used the Commercial Aviation Safety Team, and we have collaborated again with all stakeholders to make sure that the aviation system remains available, and, again, open for business so that the supply chain is not interrupted.

The FAA was right in the middle of—

Ms. VAN DUYNE. Are you concerned that vaccine mandates are going to harm the commercial side on the supply chain side, as I have heard?

Mr. DICKSON. I don't have specific concerns there. Those are between those employees and their employer. What I am concerned about is to make sure that regardless of whatever the distraction is, whether it is a company going through a merger, whether it is challenges that people are having in their personal lives or otherwise, that we are able to focus on flying the airplane, operating the airplane—

Mr. LARSEN. Representative, your time has expired.

Mr. DICKSON [continuing]. And being able to operate the aviation system efficiently.

Ms. VAN DUYNE. Thank you, I yield back.

Mr. LARSEN. The Chair recognizes Representative Kahele of Hawaii for 5 minutes.

Mr. KAHELE. Mahalo, Mr. Chairman.

And thank you, Administrator Dickson, for coming to speak to the Aviation Subcommittee today on the implementation of the 2020 Aircraft Certification, Safety, and Accountability Act. As a commercial airline transport pilot, this issue is very personal to

me, and I am glad that the Aviation Subcommittee has committed and continues to provide oversight to ensure that these mistakes will not be repeated.

As part of the committee's investigation into the 737 MAX, we learned about multiple troubling instances where Boeing's Authorized Representatives, who are supposed to be acting on behalf of the FAA, and ultimately the public, signed off on plans that clearly prioritized Boeing's focus on production and profits, and not safety.

For example, when Boeing discovered that the angle-of-attack disagree alert wasn't functioning on more than 80 percent of 737 MAX airplanes after the MAX was already in commercial service, Boeing decided to wait nearly 3 years to fix the problem so that they could save money by doing the fix as part of its planned roll-out of the 737 MAX 10, and Authorized Representatives ultimately agreed to Boeing's plan to delay the fix.

Or when Boeing convened a meeting back in 2013 to assess whether it could downplay the significance of MCAS to regulators so that Boeing could avoid additional regulatory scrutiny and additional pilot training requirements, an Authorized Representative agreed with Boeing's plan to limit use of the term "MCAS" externally outside of Boeing to both regulators and customers and, instead, communicate this known issue externally an addition to speed trim.

And I want to quote from the summary report where the Boeing Authorized Representative concurred with Boeing's plan regarding its description of MCAS, and in a summary of that meeting, which was part of an internal Boeing email, and I quote, "This will allow us to maintain the MCAS nomenclature while not driving additional work due to training impacts and maintenance manual expansion."

So, the first of my two questions, Administrator Dickson, is: As the FAA implements the Aircraft Certification, Safety, and Accountability Act, what is the FAA doing to ensure that its Authorized Representatives prioritize the safety of the flying public over the financial bottom line of the industry?

Mr. DICKSON. Well, this is a great question, actually right at the point that I talked about earlier. We are monitoring actively ODA holder accountability to program requirements so that these things cannot happen again.

And what you are referring to, undue pressure or under the broader rubric of interference, is a special emphasis area and is a particular focus of our investigations and our oversight, not only of Boeing but of all manufacturers that have an ODA.

So, we have conducted interviews with Boeing employees. There is correspondence that we can certainly make available to you if you haven't seen it already, to make sure unit members are conducting their duties and are not under pressure from the company to be able to comport to timelines or to conceal issues.

Also, under Boeing's safety management system, one of the things that they have done is they are conducting a safety risk management process, to systematically assess everything that is happening in those interactions with the agency, to root out and address and be able to identify and eliminate any interference in that relationship.

We are also in the process—and this gets back to my opening answers to Chair Larsen. We are institutionalizing this guidance, in order that governs our ODA oversight, to make sure that it has got as much strength as it possibly can have. And we are issuing some clarifying policy this fall.

We are also, as you know, in the legislation, we are approving individual unit members, and we are appointing unit member advisers from the agency for every unit member of an ODA, so there will actually be those direct connections within the agency.

All of those things are designed to eliminate any kind of barriers to communication between Boeing and FAA.

Mr. KAHELE. A quick yes-or-no question: Can we have your commitment that the FAA will ensure that companies can't misuse Authorized Representatives again in the future to sign off on design and development plans that downplay any potentially deadly new systems to regulators?

Mr. DICKSON. Yes, absolutely.

Mr. KAHELE. Thank you.

Mr. LARSEN. Thank you.

The Chair now recognizes Representative Steel of California for 5 minutes.

Mrs. STEEL. Thank you, Mr. Chairman. And thank you, Mr. Ranking Member Graves. And thank you, Administrator Dickson, for coming out today.

You mentioned that it is imperative for the FAA to accelerate and expand the deployment of new technologies in order to reduce barriers and actively promote innovation that enhances safety and efficiency, and that is really important. But we need accountability when it comes to the future of aviation noise.

My district is home to John Wayne Airport, which is a world-class airport, and it is also close to Long Beach Airport. I cannot stress enough how important it is for you and the FAA to meet with local communities to discuss the issues with aviation noise.

We tried to set up some of the meetings, and I even had a very hard time to put your employees and these community leaders to discuss about the noise issue. We must meet with them outside of the formal roundtable process and on a regular basis.

My constituents feel ignored by your administration, and the FAA ombudsman has not adequately engaged with the community as of now. The FAA needs to work with manufacturers to prioritize safe, clean, equitable solutions to the complex and nuanced issue of the aviation noise, because for them, aviation noise—actually, for us—noise and environmental issues are the most important part when you have an airport in your district.

I believe the Federal Government has an important role to play in cutting redtape and providing a regulatory environment where new technology can be approved for use safely.

So, could you discuss how FAA R&D is helping to advance technologies to address noise issues, and what are some of these much-needed projects and technologies?

Mr. DICKSON. Well, thank you for the question. I will address the second part first and then get into the community engagement aspect, because that is really, I think, the nearest term focus of your concern.

We have conducted research for years on engine technology and on noise research, and that will continue. As a matter of fact, we just issued \$100 million in grants to, I believe it was eight aviation companies on engine technology for improved environment and also noise reduction. This is through our CLEEN program, the Continuous Lower Energy, Emissions, and Noise Program that we have had in place for a number of years.

So, this is the next iteration of that, and that will be a focus of the research. Those companies have to match that grant money, but we can certainly get that information to your office after the hearing, so you have got full visibility into what that noise research looks like.

In terms of community engagement, this is something that is extremely important to me, and I understand that the agency has not always engaged in an effective manner with local communities. But I think we have come a long way.

And in some of our more recent metroplex projects, for example, we have been, I think, much more effective in engaging everyone in the community. And with the Congress' help, our regional administrators and our regional ombudsman, we do use the roundtable process, but that is the front door of the FAA on noise issues. So, I will follow up with them, to make sure that they are engaging your constituents directly.

I also meet regularly, my staff and I meet regularly with the Quiet Skies Caucus, and I would encourage dialogue with them as well. We had our last meeting about, I believe it was about 2 months ago, and there has been a lot of beneficial dialogue there on ways that we can engage more systematically around the country, including the role of our regional administrators and regional ombudsman.

Mrs. STEEL. I really appreciate that answer, because metroplex has been implemented, and there is a certain runway path has been more affected than before, because it was like a scheduled landing to scheduled flying out. Now it is like one path. That is the reason most of these local communities—

Mr. LARSEN. Your time is expired.

Mrs. STEEL. I have more questions, but you know what, I will do it in writing.

So, I yield back. Thank you very much.

Mr. DICKSON. Thank you.

Mr. LARSEN. The Chair recognizes Representative Williams of Georgia for 5 minutes.

Ms. WILLIAMS OF GEORGIA. Thank you, Chairman Larsen, for convening this hearing. And I also want to thank the committee members and staff for all of the work that was done last Congress to enact the Aircraft Certification, Safety, and Accountability Act. And while I was not here, I know, you all, that this legislation will save lives.

It will equip the Federal Aviation Administration to ensure that our airways, airplanes, and, most importantly, our traveling constituents are safe. That last part is important to me, you all, because I am a frequent flyer at the Nation's busiest airport. My district is home to Hartsfield-Jackson Atlanta International Airport, the Nation's busiest airport. And, Mr. Dickson, we will be back as

the world's busiest pretty soon. We got a little asterisk in 2020, but we will be back really soon as the world's busiest airport. And I want all people who work in or travel through our Nation's busiest airport to be safe.

Mr. Dickson, in your testimony, you mentioned that one of the areas you are working on to implement the act is creating a culture of safety and excellence at the FAA, including by attracting talented staff.

To what extent are you focusing on diversity, equity, and inclusion as part of FAA's efforts to create a talented workforce, and what impact would a broader range of perspectives at the FAA have on ensuring potential safety hazards are identified and reported?

Mr. DICKSON. Well, thank you for the question. Actually, I really appreciate the opportunity to speak on this point, Congresswoman, because diversity, in so many ways, is important to the effectiveness of any safety organization, because ultimately our subject matter expertise is important. You have to have technical competency, but it is an organization that is made up of people, and people are our most valuable resource.

So, we want to make sure we have got the right skills in the right place at the right time, but we also want to make sure that we have diversity of thought and perspectives, experience, and opinions, because the last thing we want in a safety organization is groupthink. We don't want sameness. We want technical competency, but we have got to have experience across the spectrum.

So, we are evolving our staffing models. We are looking at the skill sets that we need now for in the future. What the FAA needed in the early 2000s and the 1990s, that is not going to be adequate for what we have going forward.

We are getting much more into predictive analytics, big data, drones. My son has a videography business. The barriers to entry are actually lowering in many respects. So, there are many more avenues into aviation. What we have to do, though, is meet people where they are.

This is one of the things where the pandemic has actually benefited us somewhat, because it has actually accelerated our virtual engagement. I have done podcasts with young people who are getting started in their aviation and aerospace careers. We have been able to highlight a lot of the great work, because it is an exciting career and we want those in the workforce, or those who are contemplating aerospace careers to understand what the tremendous opportunities are.

We have also internally, and more relevant to aircraft certification that we are talking about, we have reinvigorated our senior technical experts. We have engaged labor. We are expanding our engagement in career fairs and outreach. We have the Women in Aviation Advisory Board and the Youth in Aviation Advisory Group as well. We work with Future Aviation Professionals of America, OBAP, Women in Aviation. And we will continue to do those things.

And finally, in our regions, we have a very aggressive and robust, we call it our STEM AVSED Program and our Adopt-a-School

Program. And we appreciate the Congress' support on resources for those programs as well.

Ms. WILLIAMS OF GEORGIA. Thank you, Mr. Dickson. And I am probably going to need the followup to this in writing, because we are running out of time. But following the enactment of this act, I understand that FAA has implemented a Voluntary Safety Reporting Program that will make sure that employees can report safety issues to management.

So, if you could follow up later and just tell us more about this process and how it has worked since its implementation, and how would you characterize its success in flagging safety issues that need to be addressed. I would love to have more information on that.

Mr. DICKSON. Be happy to.

Ms. WILLIAMS OF GEORGIA. Thank you so much.

Mr. Chairman, I yield back the balance of my time.

Mr. LARSEN. Thank you, Representative Williams.

The next three Members in order that we have just so people can prepare are Representative Gimenez of Florida, Representative Titus of Nevada, and Representative Mace of South Carolina.

So, with that, I will recognize Representative Gimenez of Florida for 5 minutes.

Mr. GIMENEZ. Thank you, Mr. Chairman.

And, Mr. Dickson, in light of the COVID-19 pandemic, is it safe for the traveling public to travel by commercial airline?

Mr. DICKSON. As was said I think earlier, aviation is the safest form of travel. Commercial aviation in the U.S. is the safest form of travel in the world. And there are a number of mitigations in place. They have been well-publicized: airflow on airplanes, the protocols that the airlines have been using to make sure that airplanes are appropriately sanitized, and then, of course, the—

Mr. GIMENEZ. I take that as a yes. Thank you. I appreciate that.

Mr. DICKSON. Yes.

Mr. GIMENEZ. OK. Is there right now a mandate for any passengers that when they get on an airplane right now that they have to be vaccinated or they will be excluded from traveling on an airplane?

Mr. DICKSON. There is not a mandate within the United States that I am aware of, no.

Mr. GIMENEZ. Does it make any sense to you then that you could have an airplane full of 300 people, say, that are unvaccinated, and the only people that have to be vaccinated are actually the people that are operating the airplane? Does that make sense to you?

Mr. DICKSON. Well, again, the CDC is the public health authority, and these measures are being taken in concert with each other. So, I think it is important that we have all the mitigations in place so that the aviation system can operate. And I am not in a position to comment specifically on the public health benefits.

Mr. GIMENEZ. OK. Did the Biden administration contact you prior to issuing the vaccine mandate?

Mr. DICKSON. There has certainly been—you know, we were all certainly prepared—

Mr. GIMENEZ. Sir, I asked you a specific question. Did the Biden administration contact you, talk to you prior to issuing the vaccine mandate for airlines?

Mr. DICKSON. I am not going to talk about internal executive branch consultations.

Mr. GIMENEZ. OK. I will take that as a no then. OK.

Administrator, let's go to the certification process with the 737 and the MAX, and I understand that there are safety issues, et cetera. I am hearing concerns, though, from some of the airline or the aircraft manufacturing industry that the enhanced procedures that you have put in place may be also slowing down production.

Is it possible to have enhanced oversight, and also, production not to be slow? Is that possible, or are they mutually exclusive?

Mr. DICKSON. Thank you for the question, Congressman. No, they are not mutually exclusive. Our oversight, if it is conducted in a systematic way, and we work very closely with the manufacturer and with the production line, and they will surface information through their safety system, that actually allows them to be safer as a manufacturer, but it also allows us to be more effective in conducting our safety oversight as a regulator.

And that is the approach that we have taken all along is we are not overseeing individual anecdotal situations. We are actually overseeing the entire design and production system and making sure that it has the layers of protection and the processes are disciplined and effective in producing a safe product.

Mr. GIMENEZ. I am hearing some concerns, though, by some on the production side of our aircraft industry that they are being slowed in production. Again, if it is a safety issue, I have absolutely no problem with that, but I would urge you to make sure that your processes are in place so that we can have the safety that the flying public and the American people deserve and demand, but also, that we keep pace with production, because it could cost American jobs in the end if we slow them down to the point where they can't get their planes out. So, we need to have a combination of the two. I am glad that you have said that they are not mutually exclusive.

And so, with that, I will I yield back the balance of my time. And thank you, sir.

Mr. LARSEN. Thank you, Representative.

I now turn to Representative Titus of Nevada for 5 minutes.

Ms. TITUS. Thank you, Mr. Chairman, Mr. Administrator.

Since we are talking about the role of the FAA in protecting the public, I think that it is very important, even if it takes a few extra minutes, to not slap something together. So, thank you for doing that.

Under the Trump administration, there was an order "one in, two out." If you made a new regulation, you had to get rid of two existing regulations. Well, Secretary Buttigieg has issued a rule that has eliminated that. I said repeatedly in this committee that that was not a good system, especially in aviation. And we saw how it held up regulations for the drone industry, and the UAS in the airspace.

So, I am wondering if you had any experience with this, if FAA is using this? You have moved to the forget about the "one in, two

out.” Has it been advantageous for you to use this, go back to the old system? Could you just kind of address that for us?

Mr. DICKSON. Well, thank you, Congresswoman. And, again, I will just reiterate the point that whether it is in the 2018 reauthorization, or the Aircraft Certification Act or previous reauthorizations, we take congressional mandates very seriously, and we are always working diligently to execute those in a timely fashion.

With respect to the two-for-one rulemaking policy, we worked very closely with our colleagues at the Department of Transportation to implement updates to that policy. And we are laser-focused on executing the rulemakings that benefit the aviation system, particularly in the area of safety, which is always going to be our North Star.

As an example of that, we had great Department support very early in the administration to push forward the last remaining rulemaking from the Colgan accident back in 2009, which was the pilot records database. That was a huge priority for me, and we were able to get that across the finish line earlier this year.

You mentioned some of the drone rulemakings, remote identification, operations over people. And then, of course, just this morning, we announced the publication of the Flight Attendant Duty and Rest NPRM.

So, I think that is a reflection of how we are pushing this activity forward under the paradigm of Secretary Buttigieg’s leadership at the Department.

Ms. TITUS. Great. I am glad to hear that. I didn’t think it ever worked, and I am glad it is not in place now.

My second question is that we have been hearing kind of a series of, I don’t know if it is rumor or if there is some press about it, but that there are problems with the Boeing Dreamliner. And yet the production of that is continuing, and there are also plenty of those planes still flying around with customers in them even as we speak.

Can you talk about the FAA’s role and how it relates to these objections to the Dreamliner? What is going on there?

Mr. DICKSON. Yes. Well, this was—I believe you are referring to some nonconforming titanium parts that were identified recently. These were produced by a Boeing supplier. They affect a number of 787 aircraft. And I think the positive aspect of this is this is something that Boeing’s safety system highlighted and they brought it to us. And we continue to monitor the issue, and we use our continued operational safety monitoring processes to determine the appropriate corrective action. So happy to follow up with you on more specifics, but it is something that we are looking at very closely.

Ms. TITUS. OK. So, you couldn’t say if it affects or is enough to affect the certification process?

Mr. DICKSON. This is not—this is a supplier issue, and it is something that was discovered during the in-service of the aircraft. And so, we will go back and look at the suppliers, because the manufacturers also have oversight of their entire supply chain. So, we will be running that thread back to its origin as well.

Ms. TITUS. Well, thank you. I am glad to know Boeing brought it to you this time instead of covering it up like last time with the MAX.

Mr. DICKSON. Yes.

Ms. TITUS. Thank you, Mr. Chairman. I yield back.

Mr. LARSEN. Thank you.

I now recognize Representative Mace of South Carolina for 5 minutes.

Ms. MACE. Thank you, Mr. Chairman.

And, Administrator Dickson, first of all, I appreciate you coming before our committee here today and speaking on your focus on implementing aircraft certification reform, legislation enacted in the last Congress. As one of many Members who represent a district with aviation manufacturing, to include Boeing, we appreciate all that we are doing to try to work together.

I would like to shift the focus, my focus to another area related to aircraft certification. The enforcement of bilateral agreements on aircraft certification between the U.S. and foreign aviation authorities I believe deserves some attention.

I have met with and spoken with different aviation manufacturers so far this year in my first 10½ months in office. And it is my understanding the FAA abides by its obligations to accept, after a reasonable review, the certification given to new aircraft produced in other countries, like Canada, France, and Brazil.

But what I have learned over the last few months is that the same cannot be said for the certification of new U.S. aircraft by various foreign aviation authorities. And these delays result in significant delays in U.S. companies getting their products to market in other countries.

This not only impacts the U.S. balance of trade where aviation products and services are leading U.S. export and American jobs in a sector where the United States continues to be a world leader in aviation. Just as significantly, it delays the introduction of the latest generation of aircraft, which represent a real increase in safety as well as a greater fuel efficiency, reducing aviation's impact on the environment in terms of greenhouse gases and noise.

Both Ranking Member Sam Graves and Ranking Member Garret Graves have expressed concern about recent EASA statements in this area, and Senator Wicker has asked the GAO to review this topic.

So, I just have two very simple questions this morning: Do you share the concerns of the industry about compliance with bilateral agreements by various foreign aviation entities?

Mr. DICKSON. Thank you, Congresswoman, for the question. And, as I said earlier, the bilateral agreements are extremely important to us, and that is why my counterpart over in Europe, we conducted a summit to make that very clear this summer. But there are always going to be debates with various authorities.

I will say that we are laser-focused on this. We want consistent validation of U.S. products. There have been, at times, questions that we have had about products that are produced in other countries. So, there is always going to be some give and take, but we want to make sure that the bilateral agreements are recognized

and abided by, because all of us want consistency in the design and manufacturing process around the world.

Ms. MACE. And secondly, how can we in the Congress work with you and the FAA to address this issue? I mean, it impacts American jobs. It impacts safety. It impacts the environment.

Mr. DICKSON. I think, really, we need to keep you informed, which I think we are doing, as to what these bilateral agreements are producing. And then we need to make sure that we continue to institutionalize them and have productive engagements at the working level, and that U.S. product are treated equitably among the other states of design around the world, and that decisions are not made for anything other than aviation safety purposes.

Ms. MACE. Thank you, Administrator Dickson.

And, Mr. Chairman, I yield back.

Mr. LARSEN. Thank you. Before I recognize Representative Payne, who will be next, and then Representative Stauber, and Representative DeSaulnier, in that order.

So, Representative Payne, you are recognized for 5 minutes.

Mr. PAYNE. Thank you, Mr. Chairman, for holding this timely hearing, and also the ranking member.

Let's see. Administrator Dickson, the 2020 Aircraft Certification, Safety, and Accountability Act authorizes \$27 billion in annual appropriations to recruit new engineers, safety inspectors, software experts and others who perform duties related to the certification of airplanes and component parts.

With this funding should come some opportunities for candidates that come from diverse and underserved backgrounds. One of my top priorities is ensuring that everyone has a fair shot at getting good-paying jobs.

So, can you assure this committee that the FAA will make every effort to ensure that these new opportunities reach minority and underserved populations?

Mr. DICKSON. Congressman, thank you for the question. And I hope that that was clear from my earlier comments, but we are going to leave no stone unturned to make sure that we bring the best and brightest and most diverse candidates to the agency.

We need to have an agency that looks like the country that we serve. And to the extent that we have had a very successful, really set a record with our minority-serving internships this year. I believe we had 321 participants. They did a great job for us. We want to bring a lot of those folks onboard at the FAA.

So, again, we need to meet people where they are. We need to make sure that we are engaging within those underserved communities. Deputy Administrator Brad Mims and I are both committed to this, and we are both using the networks and the relationships that we have to be able to support the most diverse and equitable hiring process, because we do have, as you said, a tremendous opportunity to bring in the next generation within the agency. And we are absolutely committed to that.

Mr. PAYNE. Excellent. Yes, it is a great opportunity at this point in time to try to attempt to change the culture that has existed. One of the most striking things I recall from the multiple hearings this committee held on the tragedies was the complete lack of a safety culture at the FAA.

Based on the information provided to me, it appears that the FAA has not fully implemented requirements under the Aircraft Certification, Safety, and Accountability Act. Full implementation of these requirements is essential to creating a safety culture at the FAA.

Have you discussed how to implement these requirements? And, if so, what do you plan to do to create a safety culture? If not, when do you plan to review them and begin actions to create the culture to prevent future tragedies?

Mr. DICKSON. Well, there are multiple dimensions to your question. Let me address the culture issue first. I think the single most important thing at this point is making sure that we have engaged our employees, our workforce—it is an extremely professional and capable workforce—and that we have room for differences of opinion, and we have processes by which employees can bring concerns forward.

So, the question came up earlier about the Voluntary Safety Reporting Program. In my experience in the airline industry, the ability for employees to bring up safety concerns in realtime is extremely valuable. So, the VSRP is a very powerful mechanism in doing that.

We have already received more than 320 reports from our employees. We work very closely with our employees through our labor partners to make sure that we are intaking these issues, and then we are also communicating the results back to the workforce.

I have been very transparent in my communications with the workforce and been extremely supportive of their efforts. And we need to make sure that that is happening throughout all levels of the organization, and we will absolutely stay focused on that.

With respect to the execution of the act itself, as I mentioned to Chair Larsen, we have implemented quite a few of the provisions through policy memos to make sure that we are—and other mechanisms—to make sure that we are moving forward as expeditiously as possible, and that we will incorporate those into our permanent guidance in order to make sure that they are—

Mr. PAYNE. Thank you.

Mr. LARSEN. The gentleman's time is expired.

I would now turn to Representative Stauber of Minnesota, who will be followed by Representative Stanton of Arizona. Representative Stauber, you are recognized for 5 minutes.

Mr. STAUBER. Thank You, Chair.

Thank you, Administrator Dickson, for being here today. I do want to reiterate what my colleague, Congressman Carson spoke about, the secondary barriers. I think it is important that that is a priority for the FAA and the industry. It is going to help us become even more safe, and I think that there are a number of us on this committee that support that for sure.

And I am going to follow up on what Congresswoman Van Dwyne had stated and have some similar questions. So, as you know and have already heard from many of my colleagues, President Biden's vaccine mandate could have some seriously troubling consequences going into our holiday season.

Although we do not have all the details from the administration yet on timing, I would like to inquire about a few scenarios that

families in my district and across the country are concerned about. I understand that the TSA is not under your jurisdiction, but I am sure you are aware that about 40 percent of TSA agents are unvaccinated.

What will happen to air travel over the holidays if 40 percent of the TSA workforce is fired, which is equivalent to about 20,000 officers, on the November 22nd vaccine mandate deadline for Federal workers?

Mr. DICKSON. Again, my focus is on safe and open operation of the aviation system, and I know my counterpart at the TSA for his role has the same concern. So, we are going to do everything that we can to make sure that commercial aviation operates in an uninterrupted way throughout.

Mr. STAUBER. Administrator Dickson, what is the contingency plan you have in place if 20,000 officers are fired on November 22nd?

Mr. DICKSON. We have contingency plans for our own workforce. And I can't speak for what the TSA's contingency plans are, but I know that they have plans to deal with whatever challenges they might face in their daily operations.

Mr. STAUBER. Then, Administrator, what would happen to air travel if the air traffic controllers who are unvaccinated are terminated on the November 22nd vaccine mandate deadline?

Mr. DICKSON. Again, we have dealt with this. We have lived this on a daily basis throughout the pandemic. And I am very proud of what we have done at the FAA to keep the air traffic control system open and operating. Our—

Mr. STAUBER. Just because my time is limited, I appreciate the answer, but do you have contingency plans for ATC deficiencies?

Mr. DICKSON. We always have contingency plans, whether they are facilities outages or anything that would affect the availability of our employees. So, the answer to that is yes.

Mr. STAUBER. Several air carriers have self-reported that they each have hundreds of employees who are unvaccinated. This likely equates to thousands of aviation employees who will be fired or forced to quit when the Biden vaccine mandate goes into effect.

If the air carriers were to experience mass forced layoffs due to Biden's mandates, what would happen to air travel, and specifically, flight cancellation and delays, over the busy holidays?

Mr. DICKSON. I am not going to speculate about that, Congressman.

I know that we all have an interest. And I think the aviation industry's focus is on serving the public and making sure that people can travel in an unfettered way and that they can do so in a safe manner.

And I know that the airlines are focused on that. We are using their safety management systems to monitor every aspect of their operation, regardless of whether there are challenges with maintenance programs or aircraft availability or anything else. And we will continue to do that, because that is part of our responsibility.

Mr. STAUBER. Administrator Dickson, can you guarantee to Americans who are planning their holiday travel that their flight plans will not be interrupted or impacted by President Biden's vaccine mandate?

Mr. DICKSON. I can guarantee that the FAA will be focused on aviation safety and on making sure that the air navigation system is available and open for business as we have throughout the COVID-19 pandemic.

Mr. STAUBER. So, what I heard you answer is you don't know. You can't guarantee that the flight delays won't affect the American people during the busy holiday season because of the mandates.

Mr. DICKSON. That is not what I said. I said I will guarantee that we will do everything humanly possible to make sure that the aviation system is safe and available and open for business.

Mr. STAUBER. Thank you, Administrator.

And I yield back, Mr. Chair.

Mr. LARSEN. Thank you, Representative Stauber.

Representative Stanton, you are recognized for 5 minutes.

Mr. STANTON. Thank you very much, Mr. Chairman. Thank you for holding this important accountability hearing.

Administrator Dickson, thank you for your testimony here today.

In January, the Department of Justice entered into a deferred prosecution agreement with Boeing. The agreement focused on the actions of two Boeing 737 MAX technical pilots, and one of those pilots was charged with six counts of fraud last week by the Department of Justice.

In its agreement with Boeing, the DOJ determined that an independent compliance monitor was unnecessary for several reasons, including because the DOJ concluded, quote, "The misconduct was neither pervasive across the organization, nor undertaken by a large number of employees, nor facilitated by senior management," unquote.

These conclusions run contrary to this committee's own investigative findings. In the course of this committee's investigative findings, Boeing's meeting minutes from very early on in the MAX program were uncovered that did document a deliberate effort to avoid using the term "MCAS" outside of Boeing to avoid additional regulatory scrutiny and the impacts on pilot training. The plan called for Boeing to describe MCAS as merely an addition to speed trim.

Administrator Dickson, without asking you to make any assessment of criminality, are you aware of anyone else at Boeing, other than these two technical pilots, who tried to downplay the significance of MCAS to regulators?

Mr. DICKSON. I am not aware of any particular individuals, but I will tell you that at the highest levels of Boeing, from day one, I made it clear of my expectations of how we were going to oversee their operations and that I expected for systemic improvements to take place.

And that is exactly what we have done in executing upon the legislation that has been passed in December of last year and also in response to our own internal reviews, as well as various investigations and recommendations from review bodies.

My position is that these types of single failures, or even small groups, we have put systemic improvements in place to prevent this kind of activity from resulting in an unsafe outcome.

Mr. STANTON. Mr. Dickson, let me reclaim my time, because I appreciate the answer, but it is not the answer to the question that was asked.

I am not asking whether you believe that any actions by others may have been criminal, but I am asking this question: Do you believe that only two Boeing employees attempted to downplay the significance of MCAS to regulators, or do you believe there were more employees that tried to downplay the significance of MCAS?

Mr. DICKSON. I believe that MCAS should have been included in the materials and that it was a safety-critical system. Whether there was any intentionality on the part of others, I can't speak to.

Mr. STANTON. So, you acknowledge that obviously that MCAS was somewhat disclosed to you and the FAA. But the issue here obviously really isn't whether FAA was aware of MCAS. It is how MCAS was presented to the FAA.

As the Joint Authorities Technical Review said, quote, "The FAA was not completely unaware of MCAS," end quote. However, the manner in which MCAS was presented to FAA made it, quote, "difficult to recognize the impacts and implications of this system," end quote.

The JATR also said that, quote, "If the FAA technical staff had been fully aware of the details of the MCAS function . . . it likely would have identified the potential for the stabilizer to overpower the elevator," end quote.

Obviously, this is going to be continuing to be investigated and reviewed. So, Administrator Dickson, will the FAA commit to cooperate fully with the Department of Justice should they need anything additional from FAA to complete this investigation?

Mr. DICKSON. Yes, Congressman. Absolutely. And one of the—if I could just take one moment—

Mr. STANTON. Please.

Mr. DICKSON [continuing]. Aspects that you are referring to are the coordination between classification and flight standards within the agency.

And we have taken very strong steps with our project teams and also looking at a certification project not only to the design but also through [inaudible] the service to make sure that those communication and coordination gaps are effectively closed. So, we will continue to do that.

Mr. STANTON. Thank you for your commitment to fully cooperate with DOJ moving forward.

Thank you. I yield back.

Mr. LARSEN. Thank you, Representative Stanton.

I now recognize Representative Fitzpatrick, who will be followed by Representative Allred.

Representative Fitzpatrick from Pennsylvania for 5 minutes.

Mr. FITZPATRICK. Thank you, Mr. Chairman, for yielding.

Thank you, Mr. Dickson, for being here.

And, Mr. Dickson, the Lion Air flight 610 crash was incredibly tragic, and this committee took action to prevent any future crashes like Lion Air or Ethiopian Airlines.

As part of the legislation, the FAA is set to take action regarding pilot training. The 1,500-hour rule for pilots has led to the past 12 years being among the safest in aviation history.

Administrator Dickson, can you confirm to this committee that you will not in any way, shape, or form weaken or reduce requirements for first officer qualifications, the so-called 1,500-hour rule?

Mr. DICKSON. We do not have any plans, and I do not have any plans to deviate from that. So, the answer is no.

Mr. FITZPATRICK. OK. And if you do, would you be informing this committee in advance?

Mr. DICKSON. Of course.

Mr. FITZPATRICK. Second, safety is our top priority, sir. Several people have brought up secondary barriers.

As Chairman DeFazio and Mr. Carson mentioned, as well as Mr. Stauber and several others, in 2018, flight deck secondary barriers were included in the FAA reauthorization.

That bill was signed into law 3 years ago this month, and we still have not seen action from the FAA. And as Mr. Carson noted, we, along with 11 other Members—a strong bipartisan contingent, by the way—sent a letter to you on October 8 expressing our concern with the continued delays in implementing this critical safety provision.

All of us, sir, that fly take note of this. This was one of the recommendations from the 9/11 Commission.

Sir, can you give us a realistic timeline of when we can expect to see a final rule on secondary barriers?

Mr. DICKSON. Well, Congressman, thank you again for the question. And I will just reiterate my frustration at how long this process has taken in this particular case, and rulemaking by design is a lengthy process.

I am not able to commit to a specific timeline. What I can commit to is that we are going to get this rule out there as quickly as we possibly can.

We are absolutely devoted to complying with congressional direction here, and we have the Department's very strong support and advocacy as well. And so, I am confident that we will be able to move forward.

Mr. FITZPATRICK. Sir, what is it going to take? Because we have heard these responses for years now. My colleagues and I are concerned that we may not see a final rule before we start working on the next FAA reauthorization in 2023.

You said earlier in this hearing that you are committed to secondary barriers. What assurances can you give me, can you give this committee—and this is a bipartisan push, sir. We are demanding that this happen. We passed it. What assurances can you give us that it will be expedited, made a priority, and not delayed any further?

Mr. DICKSON. Well, again, I can just give you the assurances that I am pushing my team extremely hard on this.

We have got the beneficial work done by the Aviation Rulemaking Advisory Committee, which gave us some of the technical data that we needed, and I expect for there to be industry comment once we do put a notice of proposed rulemaking out.

But we are going to do that with all deliberate speed and certainly all diligence, and we will keep you and the committee informed of our progress as we move forward.

Mr. FITZPATRICK. OK. Mr. Dickson, just please take back, if nothing else, that this is a top priority of Democrats and Republicans on this committee.

Mr. DICKSON. I hear you.

Mr. FITZPATRICK. This is critical to aviation safety. This was one of the 41 recommendations made by the 9/11 Commission. Still, 20 years later, it has not been implemented. It is very frustrating to us.

So, if you could please send that message back that we are insisting that this be a top priority.

Mr. DICKSON. I understand, and I hear you.

Mr. FITZPATRICK. I yield back.

Mr. LARSEN. Thank you, Representative.

I now call on Representative Allred of Texas for 5 minutes.

Mr. ALLRED. Thank you, Mr. Chairman.

And thank you, Mr. Administrator, for being here and for appearing before our committee.

One of my main concerns that I have discussed over the course of our investigation and our hearings of the 737 MAX crashes was Boeing's seemingly capture of the regulatory process.

And in your testimony, you mentioned that the agency is prioritizing the oversight of manufacturers now, which of course is what this is all about. And we are hopeful that that is including oversight of the Organization Designation Authorization, or ODA, process.

And I understand that recently FAA sent a letter to Boeing initiating a review and expressing concerns with the company's culture and how that appears to prevent ODA members from communicating with FAA, which is one of the main things that Congress has asked FAA to address in the Aircraft Certification, Safety, and Accountability Act.

And I just want to ask, first of all, has Boeing responded to your agency's letter?

Mr. DICKSON. I am not aware of a formal response to the letter, but we are having dialogue with them daily on this and other matters, and it is something that we are laser-focused on.

We are also, as I said earlier, we are involved in their safety risk management process that is designed to root out any interference between unit members and their ability to be able to communicate and work with the agency.

I am not aware that we have got specific correspondence back, but I will get back to you on that.

Mr. ALLRED. Well, yeah, I think that a letter of that kind from your agency should be responded to formally and informally. And we certainly are interested in what that response is.

And, I guess, addressing the concerns over Boeing's ODA process, I am wondering whether you think something more dramatic needs to be done in terms of addressing the culture there, whether there needs to be some kind of pause in that process or some kind of intervention of some kind, because it sounds like you are having an ongoing discussion.

But that, to be honest with you, sir, sounds similar to what was occurring before when these oversights were allowed into the process and of course led to these horrible crashes.

Do you feel confident right now in Boeing's ODA process and what we are doing, our work with them?

Mr. DICKSON. Well, thank you for the question and the opportunity to respond in some more detail.

Again, cultural issues require constant attention. And I have seen several indications of the kind of improvements that I am looking for.

But I don't know that you would ever be complacent or satisfied. This is always going to be an area of focus, not just—I mean, with any regulated entity, to make sure that undesirable issues are not percolating into the relationship.

So, we monitor our ODA Office that we have stood up in the last 1½ years, and actually we are in the process of—they are going to be responsible for quality control across all 80 ODAs that we have with the industry.

But with Boeing in particular, for example, their number of voluntary disclosures where they are bringing things forward that they weren't before, those are providing us with information and data that we didn't have visibility into before, so that we can make sure that they are systematically intaking those issues, doing it with transparency, and driving down those risks.

They have done other things that they weren't doing before, such as stopping the production line. They would never do those kinds of things before.

And finally, my people understand—and we have added engineering expertise and others—they understand that I have their back and that they are supported at the highest levels of the agency.

So, these kinds of things, again, they aren't things that happen overnight. They will require constant attention.

And, additionally, I would also point out that we have retained several items. We have taken some of those ODA privileges away, which I talked about earlier, such as airworthiness certificates and requiring the validation of human factors assumptions for safety-critical designs, and that will continue.

Mr. ALLRED. That is good. And you mentioned that your ODA Office has the support from the top of your agency. I would say they have the support of the Congress as well. We are here to support them, I certainly am, in terms of making sure that we are providing sufficient oversight to protect the public.

So, with that, thank you for your testimony and for your work.

And, Mr. Chairman, I yield back.

Mr. LARSEN. Thank you.

In order, I have Burchett, Norton and Van Drew.

So, I will recognize Representative Burchett for 5 minutes.

[Pause.]

Mr. LARSEN. Representative Burchett?

[Pause.]

Mr. LARSEN. Let's come back. We will go to Representative Van Drew for 5 minutes.

Dr. VAN DREW. Thank you, Mr. Chairman.

Good afternoon, Administrator Dickson. Thank you for appearing before the House Subcommittee on Aviation, and thank you for your exemplary leadership over the past 2 years.

In August, the FAA submitted a reprogramming request to the Congress that would radically reorganize the FAA's research, development, testing, and evaluation functions.

The FAA has gone to great lengths to obscure the proposal. The request was submitted after the House had already passed its transportation funding bill. The FAA is using evasive tactics to sneak through bad policy that affects 1,000 FAA workers at a minimum and \$1 billion worth of taxpayers' money.

Today, I will share with you and everyone the truth of what the FAA is proposing.

Administrator, I sent you a comprehensive letter of many shortcomings of this proposal. I highly recommend my colleagues read this letter, which I request to submit to the record.

Mr. LARSEN. Without objection.

[The information follows:]

Letter of October 19, 2021, from Hon. Jefferson Van Drew, Member of Congress, to Hon. Stephen M. Dickson, Administrator, Federal Aviation Administration, Submitted for the Record by Hon. Jefferson Van Drew

OCTOBER 19, 2021.

STEVE DICKSON,
Administrator,
Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, DC
20591.

DEAR ADMINISTRATOR DICKSON,

I am troubled by the Federal Aviation Administration's (FAA) request to the Congress to reorganize the FAA William J. Hughes Technical Center and the FAA's broader research, development, testing and evaluation functions. I am concerned that the proposal will reduce the efficiency of the Technical Center and the FAA, hamper federal oversight of the aviation industry, and is beyond the authority that the Congress has granted to the FAA. I urge you to withdraw the FAA's reprogramming request and instead develop a forward-looking strategy that preserves the efficacy and integrity of the FAA William H. Hughes Technical Center and the Federal Aviation Administration.

For over 50 years the FAA William J. Hughes Technical Center has been the FAA's premier laboratory and facility for the research, development, testing and evaluation of cutting-edge aviation technology. It is home to the FAA's NextGen air traffic control modernization program, the FAA's Unmanned Aircraft Systems and Advanced Air Mobility programs, and many other critical programs bringing American aviation into the 21st century. These programs all stand to be adversely affected by the proposal submitted by the FAA to the Congress in August.

The Technical Center operates under a centralized organizational model, led by the Technical Center Director. This model is standard best practice across similar federal institutions. The concentration of the Technical Center's multifaceted capabilities is a force-multiplier for each distinct component. These capabilities regularly collaborate on projects in ways that are only possible because they share a campus and are organizationally connected. This holistic, unified, and independent approach to the research, development, testing and evaluation of aviation technology is the reason that the FAA's seal of approval is the international gold standard of aviation.

The proposed reorganization would inexorably disrupt this operational structure. The FAA has submitted a reprogramming request that in effect would "split" the Technical Center into three organizationally separate business lines, each of which would report to offices in Washington D.C. This division of capabilities is antithetical to the holistic philosophy that underlies the Technical Center's effectiveness. Erecting such internal barriers will decrease efficiency as well as operationally weaken each distinct component of the Technical Center, and the Technical Center as a whole.

A notable shortcoming of the FAA's reprogramming request is the failure to understand and respond to the needs of the United States' domestic Unmanned Aerial System (UAS) industry. This high-potential technological and commercial frontier should be at the forefront of the FAA's policy development. There are serious policy

challenges facing the UAS industry, particularly in the areas of certification and airspace integration. Instead of advancing solutions, the proposal before the Congress takes a tremendous step backward by offering a policy model more appropriate for the UAS industry of ten years ago.

The FAA proposes to essentially demote the extant “UAS Office”. The UAS functions would be made subsidiary to an “Office of Innovation,” and moved from a business line under an Associate Administrator to a lower line under an Assistant Administrator. This new position is organizationally distant from both the certification functions under the AVS line, and the airspace integration functions under the AJO line. During a congressional briefing, FAA officials recognized the importance of organizational distance and described the proposed placement of UAS functions as “half-way to everything.” The burgeoning UAS industry deserves better than the half-measure this proposal represents.

The most alarming element of the proposal is the apparent intention to eventually privatize the research, development, testing and evaluation capabilities of the FAA. In a memo provided to the Congress, the FAA asserts that “in many cases that testing, and evaluation can also be provided by industry for approval by the FAA,” that “the testing workforce may need to shift to experts under contract and consultancy,” and that “this changes the nature of the research workforce from hands-on researcher to project manager.” This is an extraordinary divergence from the FAA’s current research, development, testing and evaluation model.

The impact of the FAA’s request is substantial, immediately affecting hundreds of positions and over \$1 billion of expenditures. The question before the Congress deserves the fullest scrutiny considering the magnitude of the changes being proposed.

The FAA has justified their proposal by citing Sections 545 and 711 of the FAA Reauthorization Act of 2018, stating that the FAA is simply abiding by congressional mandate. These sections respectively direct the FAA to create the positions of Chief Technology Officer and Assistant Secretary for Research and Development but there is nothing which necessitates the organizational division of the Technical Center nor the broader changes being proposed.

It seems neither in the letter nor the spirit of the law to move from the FAA’s existing model wherein federal labs’ research, development, test, and evaluation operations are responsible for setting and refining the safety, testing, evaluation gold standards of today, to a model where the FAA rubber-stamps evaluations conducted by the industry. Federal oversight of the aviation industry is important and necessary. If implemented, this reorganization could cast doubt on the safety of products approved for use in the NAS.

Further, Sections 545 and 711 appear to have been cherry-picked to rationalize the proposed reorganization. There are similar provisions that have not been implemented. I would direct you to Section 524, which states:

“The Secretary of Transportation shall define the roles and responsibilities of the William J. Hughes FAA Technical Center in a manner that is consistent with the defined roles and responsibilities of the Civil Aeromedical Institute.”

As of the date of this letter, the Department of Transportation has not yet posted these congressionally mandated official roles and responsibilities. Determining these responsibilities seems an important step in developing any strategy related to the Technical Center.

The question of reorganization that the FAA has presented to the Congress is an important one, particularly as it affects the safety of the millions of Americans that travel and work via air every year. It is the responsibility of the Congress to conduct proper oversight of federal agencies to ensure that they are acting in the best interests of the American taxpayer and in accordance with the law. On these two points the FAA’s reorganization does not pass muster, as it has the potential to reduce the efficiency of the FAA Technical Center and the FAA, hamper federal oversight of the aviation industry, and is beyond the authorities that Congress intended to grant in the 2018 Authorization law.

Considering the concerns enumerated above, I urge you to withdraw the FAA’s reprogramming request, and instead develop a forward-looking strategy that preserves the efficacy and integrity of the FAA William J. Hughes Technical Center and the Federal Aviation Administration.

Sincerely,

JEFF VAN DREW,
Member of Congress.

Cc:

House Committee on Appropriations

Congresswoman Rosa DeLauro—Chair

Congresswoman Kay Granger—Ranking Member

Congressman David Price—Chair—Subcommittee on Transportation, Housing and Urban Development

Congressman Mario Diaz-Balart—Ranking Member—Subcommittee on Transportation, Housing, and Urban Development

House Committee on Transportation and Infrastructure

Congressman Peter DeFazio—Chair

Congressman Sam Graves—Ranking Member

Congressman Rick Larsen—Chair—Subcommittee on Aviation

Congressman Garret Graves—Ranking Member—Subcommittee on Aviation

Senate Committee on Appropriations

Senator Patrick Leahy—Chair

Senator Richard Shelby—Vice Chair

Senator Brian Schatz—Chair—Subcommittee on Transportation, Housing and Urban Development

Senator Susan Collins—Ranking Member—Subcommittee on Transportation, Housing and Urban Development

Senate Committee on Commerce Science, and Transportation

Senator Maria Cantwell—Chair

Senator Roger Wicker—Ranking Member

Senator Kyrsten Sinema—Chair—Subcommittee on Aviation Safety, Operations, and Innovation

Senator Ted Cruz—Ranking Member—Subcommittee on Aviation Safety, Operations, and Innovation

Dr. VAN DREW. In short, this proposal is terrible.

First of all, it is doubtful that the FAA even has the authority to do this under the 2018 authorization.

This deal would kneecap the FAA William J. Hughes Technical Center. The technical center produces gold standard results through a centralized model. It is a centralized model that would be fractured under the FAA's proposal. This would break the technical center.

The proposal also sets the drone industry back at least a decade. I can state with absolute confidence that the drone industry opposes this.

Particularly damning is the apparent intention to privatize portions of the FAA. And I will say that again: the apparent intention to privatize portions of the FAA.

An FAA memo states that, quote, "In many cases that testing, and evaluation can also be provided by the industry for approval by the FAA," end quote, and that, quote, "The testing workforce may need to shift to experts under contract and consultancy," end quote.

This privatization strategy threatens the FAA's independent oversight over the aviation industry. In my letter, I request that the FAA's proposal be formally withdrawn.

Administrator, I make that request again today.

Several major labor unions have just released a joint letter in opposition to the proposal. These unions include but are not limited to the National Federation of Federal Employees, the International Association of Machinists and Aerospace Workers, and the American Federation of Government Employees.

Together, these unions represent over 1.4 million American workers. Their letter also requests that the FAA withdraw this proposal.

I request to submit this letter to the record as well, Mr. Chairman.

Mr. LARSEN. Without objection.
[The information follows:]

—————

Letter of October 21, 2021, from the American Federation of Government Employees, International Association of Machinists and Aerospace Workers, and National Federation of Federal Employees to Hon. Stephen M. Dickson, Administrator, Federal Aviation Administration, Submitted for the Record by Hon. Jefferson Van Drew

OCTOBER 21, 2021.

Hon. STEVE DICKSON,
Administrator,
Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591.

DEAR ADMINISTRATOR DICKSON:

We, the undersigned federal labor unions representing Federal Aviation Administration (FAA) employees, demand that the FAA withdraw language in the FY2022 budget reprogramming request that seeks to separate and realign research, development, test and evaluation functions of the *William J. Hughes Technical Center*, (“WJHTC”), and immediately halt any further efforts to diminish the WJHTC.

The William J. Hughes Technical Center is a world-renown aviation research, development, and test and evaluation facility responsible for maintaining and modernizing the U.S. air transportation system. It completes its mission through centralized, state-of-the-art laboratories, test facilities, and support facilities that optimize U.S. air traffic control, communications, navigation, airports, aircraft safety, and security. The WJHTC is tasked, among its other missions, with supporting the nation’s Next Generation Air Transportation System, called NextGen.

It is within the FAA’s Congressional and statutory mandate to advance the NextGen program that we believe your administration has taken liberties from which to augment both spirit and intent of the law, to further position federal assets, programs, and jobs for weakening and outsourcing. FAA leadership has not been fully transparent in its communications with Congress, labor unions, and other stakeholders regarding your plans for and movements within WJHTC. The budget funding for the System Planning and Resource Management program at the WJHTC was slashed by approximately 68% for FY2022, which indicates the FAA is already implementing a reorganization. A reorganization is inconsistent with appropriation law, appropriation acts, and the intent of Congress.

We adamantly disagree with the claim cited in an FAA response to a request from U.S. Representative Jeff Van Drew (NJ–2) to halt the dismantling of the Tech Center, that the FAA Reauthorization Act of 2018 and the sections cited within, Section 545 and 711, provides any authority to realign any part of the FAA, much less “splitting” the William J. Hughes Technical Center into three disparate parts. The authority cited in the FAA response is not reflected in the law. The law only requires FAA create two positions: Chief Technology Officer and Assistant Secretary for Research and Development. The proposed splitting or reorganization of the WJHTC is not required for FAA to comply with the law.

Your April 8, 2020 letter to Representative Van Drew made clear your goal to make the WJHTC “an even more attractive partner for public-private partnerships with industry”. The work performed by union members at the WJHTC is inherently governmental and too important to outsource. In their work to preserve the safety of the flying public, our federal government researchers are accountable to the traveling public and taxpayers, not profiting business leaders or their shareholders. The reorganization is seemingly a means to foster contracting out at the expense of our members’ jobs and directly conflicts with President Biden’s Executive Order 14025: Worker Organizing and Empowerment.

Without a more detailed response from FAA regarding its plans for the WJHTC, it is difficult to determine how many of the 5,000 employees at the Tech Center may be affected by a reorganization, splitting, or dismantling. However, based on the information we do have, it is reasonable to conclude that all employees—among them, more than 1153 union members from six unions—will endure relocation or termination through a Reduction in Force. As the FAA positions federal assets for outsourcing, five thousand engineers, research specialists, computer scientists, ana-

lysts, mathematicians, and other support staff will lose their jobs at the Tech Center location.

We request that you cease immediately any further action on closing or splitting or reorganizing the WJHTC.

For any questions or additional information, please contact any of the following union representatives for further assistance: Julie Tippens (AFGE) [email redacted], Hasan Soloman (IAMAW) [email redacted], Steve Lenkart (NFFE) [email redacted].

Signed,

*American Federation of Government Employees (AFGE).
International Association of Machinists and Aerospace Workers (IAMAW).
National Federation of Federal Employees (NFFE).*

CC: The White House
U.S. Senator Bob Menendez
U.S. Senator Cory Booker
U.S. Representative Jeff Van Drew
Senate Committee on Appropriations
Senate Committee on Commerce, Science, and Transportation
House Committee on Appropriations
House Committee on Transportation and Infrastructure

Dr. VAN DREW. Administrator Dickson, I don't believe that this proposal is coming from you. I do not believe it is coming from you. Nor do I believe that it is even coming from this administration. It is crystal clear to me that this proposal is emerging from deep-seated DC-based career FAA officials.

Administrator Dickson, considering the tremendous opposition to this proposal, will you withdraw the reprogramming request and work with Congress, work with labor, work with industry to develop a good-faith proposal that actually works for the aviation sector and the American taxpayer?

And, once again, thank you for being here.

Mr. DICKSON. Well, thank you, Congressman Van Drew.

And I am happy to meet with you and our union partners. I meet with them regularly, within the last week, as a matter of fact. And I welcome hearing your concerns.

My goal actually is to strengthen the tech center, to make sure that we are undertaking activities there that will benefit the aviation industry.

I also want to assure you that, as this proposal had moved forward, it does not affect the function or location of any employee's job, tech center or otherwise.

And this really is a management reporting realignment. It is putting the tech center on a more equal footing with our aeronautical center in Oklahoma City, which has been a tremendous success.

And I believe this will actually act to strengthen the tech center. But I certainly would be interested in hearing your thoughts and those of our labor partners as we move forward.

Mr. LARSEN. The gentleman's time has expired.

Dr. VAN DREW. I look forward to that. I have great concerns. Thank you.

I yield back.

Mr. LARSEN. The Chair recognizes Representative Lynch of Massachusetts for 5 minutes.

Mr. LYNCH. Thank you, Mr. Chairman.

Let me just jump in, in support of Mr. Van Drew. Not what I intended to speak on. But I am concerned about regulatory capture, as we saw with the 737 MAX and the influence of Boeing. That

was an instance where a contractor came in and I think really bigfooted what should have been independent agency review.

So, for those reasons, I am inclined to agree with Mr. Van Drew, and I would like to be part of that conversation to maintain that independence among FAA employees.

I have had an opportunity to visit the tech center. And I appreciate the good work that you are doing, Administrator, and as well the good people at the tech center.

I really want to talk about the Civil Aviation Registry operated by the FAA. As you know, we have had some troubling incidents with U.S.-registered aircraft.

And this goes back to 2014. We found out through a bank that the FAA had given a tail number to an individual who was funded by Hezbollah.

We had another situation where the FAA had given a tail number to an individual whose aircraft was in Tehran during a time when we had sanctions against them.

We had another situation where another U.S. aircraft, commercial aircraft—I am sorry—civil aircraft was found on the tarmac in Libya when we had a no-fly zone in effect against Libyan rebels.

We had a situation where Wells Fargo Bank represented the individuals affiliated with the Sinaloa Cartel, and they were given registration of aircraft.

So, I have a bill that would address some of the insecurities that have been found to be present in our current registration program. It requires beneficial ownership to be established in terms of who the actual people in control of that aircraft would be.

So, I am hoping to get some support from the FAA to try to tackle that problem. Maybe it is not my bill. But we have got to figure out a way to do this.

I think if 9/11 taught us anything is that there is a certain vulnerability there with respect to our aircraft. And now that we have drones, as well, in the mix, I think this is a clear and present danger to our national security.

So, I am wondering if you have any thoughts on that, about tightening up our Civil Aviation Registry.

Mr. DICKSON. Thank you, Congressman. And actually, we would look forward to working with you on that.

The only caveat I would say is we are working very hard on the new registry system, which is sorely needed, and there have been some technical challenges there. So, I would want to make sure that we don't set back that effort, because that is something that needs to get across the finish line.

So, we would look forward very much to having that dialogue with you.

And if I might, just for 30 seconds, a question that you and Congressman Van Drew raised about the tech center.

I want to make it clear that no one is delegating any safety responsibility in this proposal. Prior to any federally procured system going into the national airspace, it is validated and approved by FAA technical professionals. And that will not change under this proposal.

So that is not part of what we will be talking about here.

Mr. LYNCH. OK. I will take that at face value. I would like to drill down on it a little bit more—

Mr. DICKSON. Sure.

Mr. LYNCH [continuing]. Just in terms of where the lines of responsibility begin and end. I think that would be helpful to just reassuring people that what you say is, in fact, accurate and that we all understand where the lines have been drawn.

Administrator, thank you for your testimony.

Mr. Chairman, my time has expired, and I yield back. Thank you.

Mr. LARSEN. Thank you, Representative Lynch.

I now recognize Representative Johnson of Georgia for 5 minutes.

Mr. JOHNSON OF GEORGIA. Thank you, Mr. Chairman, for holding this hearing.

As FAA implements the Aircraft Certification, Safety, and Accountability Act, I am concerned about how difficult it is going to be to get Boeing to improve its safety culture. Our 737 MAX investigation raised serious questions about Boeing's willingness to learn critical lessons and change the way it does business to improve safety.

Mr. Dickson, when committee staff interviewed Boeing's then-vice president of propulsion, an individual who was responsible for the general management of the MAX development, including engineering and manufacturing, he said that he considered the development of the MAX a success, despite two deadly crashes that killed 346 people and MAX planes being grounded for more than 1 year.

When committee staff interviewed Boeing's chief project engineer for the 737 MAX program, he admitted that at the time he approved MCAS, he was not aware that MCAS operated from a single angle-of-attack sensor, that MCAS could activate repeatedly, or that it took one of Boeing's own test pilots more than 10 seconds to respond to an MCAS activation in a flight simulator, resulting in what the pilot described as catastrophic consequences.

Again, this was the chief project engineer who approved MCAS. Yet Boeing went on to appoint this same person to be the chief project engineer of the new 777X.

Are you aware, Mr. Dickson, of these facts and statements from Boeing personnel?

Mr. DICKSON. Yes, Congressman, I am.

Mr. JOHNSON OF GEORGIA. What do you think of them and of the movement of the MAX 737 chief project engineer to the same position for the 777X?

Mr. DICKSON. Well, again, as I have said previously, our oversight of Boeing has fundamentally changed. We have retained certain safety-critical functions for these certification projects. We have retained the airworthiness certificates on the 737 MAX aircraft. We are instituting a Technical Advisory Board for the 777X, which will give us an independent validation of our work.

We have also increased our involvement on the certification of designs related to continued operational safety issues, and we are meeting daily with Boeing on the performance of its global fleet.

And, again, a number of systems and process improvements have been put in place. And we have also increased the proportion of our engineering personnel in the Boeing Certificate Management Of-

office, which oversees production, and added additional management to the Boeing safety oversight organization as well.

But I will be the first to say that this requires continued vigilance, and that work is not done. Boeing safety management system, we conduct regular reviews, and we are looking at their safety data on a regular basis. And they are producing and doing what they need to do, but there is more to be done.

Mr. JOHNSON OF GEORGIA. All right. Thank you.

If Boeing considers the 737 MAX program a success and the same individual responsible for approving MCAS is now in charge of Boeing's new 777X, what is the FAA doing as part of its implementation of the Aircraft Certification, Safety, and Accountability Act to get Boeing to improve its safety culture and ensure that the 777X doesn't suffer the same fate as the 737 MAX?

Mr. DICKSON. Well, again, these are systematic improvements so that an individual or a failure in an individual process cannot result in a consequential safety impact.

And that redundancy is built into the safety management system. It is built into the data and the reporting that Boeing is now generating that the FAA has visibility into. It is part of the reset of the relationship. And that will continue going forward as Boeing's safety management system matures.

These cultural changes require constant vigilance. And my experience in the airline industry is it takes some time for all levels of the organization to be fully executing on these estimate processes. And that is what we are focused on, is making sure that the process matures accordingly to produce a safe product.

Mr. LARSEN. The Representative's time has expired.

Mr. JOHNSON OF GEORGIA. Thank you.

Mr. LARSEN. The Chair calls on Congresswoman Norton, who expressed an interest in questions.

[Pause.]

Mr. LARSEN. Administrator, just give us a moment.

Mr. DICKSON. OK.

Mr. LARSEN. So Representative Norton is not present as it turns out. So that concludes the questions from most—OK. Hold on. She just got on, Administrator. This is part of the dance of Zoom, if you just give us a moment.

[Pause.]

Mr. LARSEN. So we will wait until she comes up on the screen.

[Pause.]

Mr. LARSEN. We are still here, just waiting.

[Pause.]

Mr. LARSEN. Let's call on Congresswoman Norton again to see if she is going to come up. If not, then—

Mr. GRAVES OF LOUISIANA. Mr. Chairman?

Mr. LARSEN. Yes.

Mr. GRAVES OF LOUISIANA. While we are waiting, could I ask for a U.C.?

Mr. LARSEN. Sure. Representative Graves.

Mr. GRAVES OF LOUISIANA. Mr. Chairman, I would like to ask unanimous consent that a document that has been included by some of the victims' families be included in the record of the hearing titled "FAA Document Confirms."

Mr. LARSEN. That is fine. Without objection, we will include that in the hearing record.
[The information follows:]

Fact Sheet Titled “FAA Document Confirms It Wasn’t The Pilots,” by the Flight ET302 Families Foundation, Submitted for the Record by Hon. Garret Graves



FAA DOCUMENT CONFIRMS IT WASN’T THE PILOTS

FAA: Boeing was required to make six design changes to correct unsafe conditions of the original 737 Max design.

This FAA document confirms¹ that Boeing was required to make six design changes to correct the unsafe conditions that existed in the original 737 Max design. The design fixes, as well as training enhancements and one maintenance issue were needed to correct the unsafe condition and return the 737 Max to service. Any suggestion that pilot error was the cause of the crashes is false.

13. FAA Conclusion

Following a thorough, transparent and inclusive process, the FAA determined that Boeing’s changes to the 737 MAX design, flightcrew procedures and maintenance procedures effectively mitigate the airplane-related safety issues that contributed to the Flight 610 and Flight 302 accidents.

* * *

13.1 Safety Issue #1: Use of Single Angle of Attack (AOA) Sensor

In the original design, erroneous data from a single AOA sensor activated MCAS and subsequently caused airplane nose-down trim of the horizontal stabilizer. In the new design, Boeing eliminated MCAS reliance on a single AOA sensor signal by using both AOA sensor inputs and through flight-control law changes that include safeguards against failed or erroneous AOA indications. The updated FCC software with revised flight-control laws uses inputs from both AOA sensors to activate MCAS. This is in contrast to the original MCAS design, which relied on data from only one sensor at a time, and allowed repeated MCAS activation as a result of input from a single AOA sensor. The updated FCC software compares the inputs from the two sensors to detect a failed AOA sensor. If the difference between the AOA sensor inputs is above a calculated threshold, the FCC will disable the STS, including its MCAS function, for the remainder of that flight and provide a corresponding indication of such deactivation on the flight deck.

13.2 Safety Issue #2: MCAS Reset Generates Repetitive MCAS Commands

In the original design, when a continuous erroneous high AOA sensor value existed, the MCAS control law used pilot release of the electric trim switch to reset MCAS activation. Once reset, the MCAS system would make another airplane nose-down stabilizer trim command after five seconds. This scenario would repeat each time the MCAS made a command and the pilot made an electric trim command of any duration and released the trim switch. In the new design, Boeing included flight-control law changes to ensure that MCAS will not command repeated movements of the horizontal stabilizer. The revised flight-control laws allow only one activation of MCAS per sensed high-AOA event. A subsequent activation of MCAS is only possible after the airplane returns to a low-AOA state, below the threshold that would cause MCAS activation.

13.3 Safety Issue #3 MCAS Trim Authority

In the original design, all MCAS commands were incremental commands, which moved the horizontal stabilizer a fixed amount regardless of the current position of the stabilizer. Therefore, multiple MCAS commands resulted in a significant hori-

¹“Summary of the FAA’s Review of the Boeing 737 Max”, subtitled, “Return to Service of the Boeing 737 Max Aircraft”, dated November 18, 2020 (Page 76–78)

zontal stabilizer mistrim condition, which the flightcrew could not counter using only elevator control. In the new design, Boeing included flight-control law changes that limit the magnitude of any MCAS command to move the horizontal stabilizer, so that the final horizontal stabilizer position (after the MCAS command) preserves the flightcrew's ability to control the airplane pitch by using only the control column.

13.4 Safety Issue #4 Flightcrew Recognition and Response

FDR data from both accidents show that the flight crews were unable to effectively manage the stabilizer movement and multiple flight-deck effects that occurred as a result of the single AOA sensor failure. In the new design, Boeing revised eight non-normal flight crew procedures and proposed additional training. The revised flight crew procedures and pilot training provide the pilot with additional information to recognize erroneous stabilizer movement and the effects of AOA sensor failures.

13.5 Safety Issue #5 AOA DISAGREE Message

In the originally delivered configuration, the AOA DISAGREE alert message on the Primary Flight Display was not functional unless the airline chose the AOA indicator option. This alert message is intended to be standard on all 737 MAX airplanes. In the new design, Boeing revised the AOA DISAGREE implementation to maintain the original design intent to be standard on all 737 MAX aircraft. The FAA is requiring an additional software update that alerts the flight crew to a disagreement between the two AOA sensors due to a sensor failure or calibration issues. The updated software implements an AOA DISAGREE alert message on all 737 MAX airplanes. While the lack of an AOA DISAGREE alert message is not an unsafe condition itself, the FAA is mandating this software update because the flightcrew procedures now rely on this alert message to guide flightcrew action.

13.6 Safety Issue #6 Other Possible Stabilizer Runaway Failures

The FAA and Boeing conducted a comprehensive review of the integrated SSA of the MCAS function. This review identified an extremely remote failure condition that required timely pilot intervention to ensure continued safe flight and landing. In the new design, Boeing has implemented a Cross-FCC Trim Monitor, which can effectively detect and shut down erroneous stabilizer commands from the FCCs. This makes continued safe flight and landing for this type of failure not dependent on pilot reaction time.

Some say that the pilots could and should have used cutout switches. However, cutout switches were used in the ET302 crash, but because the auto throttle also malfunctioned as a result of the faulty AOA sensor (leading to excessive speed), the cutout switches did not help the situation.

Contact: Nadia Milleron, mother of ET302 victim Samya Rose Stumo
[phone and email redacted]

Mr. LARSEN. Well, with indulgence, Administrator, I do have some followup questions while we are waiting for Congresswoman Norton. None of these will come probably as a surprise to you in terms of the subject matter. But if you are prepared to answer these.

The committee investigation found the FAA neither received sufficient information from the manufacturer about the MCAS on the 737 MAX—for the record, that is Maneuvering Characteristics Augmentation System—nor did the FAA receive information through appropriate channels.

So, what changes to the process has the FAA done to ensure that manufacturers disclose all appropriate information to the FAA during the certification process?

Mr. DICKSON. Well, Chair Larsen, I spoke to this somewhat in the dialogue about our interaction, our changes in the way that we oversee Boeing. And the safety management system, once it is in place, it put certain reporting requirements in place based on the data that is in their design and production systems.

So, we have worked very closely with them. And as I said, we meet daily. We are going beyond our normal continued operational safety process to monitor the performance of the fleet around the world in near realtime.

We are also having dialogue with their customers to make sure that the relationship with the airlines that are operating their aircraft, to see what they are hearing.

So, we are getting at this through several different mechanisms to make sure that that information is coming to us in a timely fashion as these projects move forward.

Mr. LARSEN. And on the safety management system rule, you discussed the SMS and the voluntary SMS. But when will the FAA publish a rule on SMS?

Mr. DICKSON. We expect to have an NPRM—

Ms. NORTON. How can I get the sound?

Mr. LARSEN. Sorry. Congresswoman Norton, if you could mute for now and I will call on you when my questions are done. Thank you.

Administrator?

Mr. DICKSON. Yes, I will follow up with you on more details on what we expect the timeline to be. I believe, as I recall, the final rule is slated for 2024, roughly. So, we would expect to see an NPRM out probably sometime late next year. It may be late 2023, but I have got to confirm that.

Mr. LARSEN. Thank you.

And can you clarify the ODA system with regards to appointing unit members that you are—the deadline is January 1 next year, 2022, a couple months. But I understand you expect to issue final policy documents for manufacturers and FAA employees in February 2022. Is that accurate?

Mr. DICKSON. That is correct. We have already issued specific direction for the appointment of unit members and advisers within the last 10 days, I believe.

Mr. LARSEN. All right.

And then my final question, before we go to Congresswoman Norton. The bill requires FAA to take leadership in evaluating pilot training and standards, as you know. FAA also must ensure airplane manufacturers, engineers, and pilots fully assess human factors.

Can you be specific about the progress made on implementing those requirements with regards to incorporating human factors into requirements?

Mr. DICKSON. Sure. We are, first of all, we are requiring air carrier pilots to, in terms of pilot training, to regularly demonstrate manual flight operation skills. They do it in all training programs, initial, upgrade, and recurrent.

In March of 2019, we required pilots to complete Upset Prevention and Recovery Training. I mentioned this in response to Congressman Sam Graves' question earlier.

We are also drafting, and it is near completion, a new advisory circular on flightpath management. This will provide guidance tied to air carrier training requirements on manual flying skills, managing automation, energy management, and situational awareness and pilot monitoring.

Also, consistent with congressional direction, we tasked our Airman Certification System Working Group to complete an airman certification standards call to action, and this brings members together to review how current standards affect pilot competency in manual flying skills.

And then, finally, I think to the last portion of your question, any delegation of safety-critical systems that have a human factors interface, we have retained the delegation of those until the applicant demonstrates what the underlying assumptions are and that we have reviewed and approved what those are.

Mr. LARSEN. Thank you. Thank you.

And now I am going to turn to Congresswoman Norton for 5 minutes.

You are recognized.

[Pause.]

Mr. LARSEN. Congresswoman Norton, you are recognized for 5 minutes.

Ms. NORTON. I am sorry. I was on mute.

My question, Administrator Dickson, is related to retention and recruitment of FAA certification oversight staff.

Section 104(f)(1) of the Aircraft Certification, Safety, and Accountability Act reads, and I am quoting here, sir, "Not later than 30 days after the date of enactment of this title, the Administrator shall begin collaboration with the exclusive bargaining representatives of engineers, safety inspectors, systems safety specialists, and other qualified technical experts certified under section 7111 of title 5, United States Code, to improve recruitment of employees for, and to implement retention incentives for employees holding, positions with respect to the certification of aircraft, aircraft engines, propellers, and appliances." That is pretty long, but that is the quote.

The FAA has briefed Congress and FAA unions in recent months and indicated that the FAA initiated collaboration through individual meetings with NATCA, PASS, and AFSCME in February 2021, and the FAA coordinated with the Office of Human Resources Management to identify flexibilities and initiatives that support recruitment and retention activities.

May I ask you, what specifically has the Federal Aviation Administration done to collaborate with labor unions that represent the engineers, safety inspectors, system safety specialists, and other qualified technical experts to improve the recruitment of employees for and to implement the retention incentives for employees holding positions with respect to certification of aircraft, aircraft engines, propellers, and appliances?

Mr. DICKSON. Well, Congresswoman Norton, it is good to see you again. Saw each other when we had that gate 35X out of DCA. It is resting in peace now with the new concourse out there. So that was a big day. So, again, nice to see you.

Yes, you are absolutely right, we are always collaborating with our unions. It is the right thing to do. And it was required by the legislation.

We have engaged with them to refine and extend our recruitment and retention incentives for these critical skill sets and identify also the training needs.

There is always a concern, rightfully so, when we bring in folks maybe with varying backgrounds and experience levels into areas that traditionally have had a lot of experience in the aerospace industry, and maybe even a second career in some case, so that we make sure that they are successful when they come into the agency.

So that has been very important. The Deputy Administrator and I collaborate. In fact, we met with our unions as a group last week and do so on a regular basis. They are supporting us through all of our outreach programs, our recruiting.

And we are looking at ways where we can use some of the independent authorities that we have, because we, if done correctly, we do have some more flexibility than other parts of the Federal Government to do direct hires and targeted hiring in some areas.

And I can tell you, I have been very personally involved as well, not only with labor, but in these outreach efforts. And we have actually used virtual means to expand our outreach and meet people where they are during the pandemic.

So, we will continue to do that.

Ms. NORTON. Yes, we have heard from at least one labor union representing FAA workers that there has not been true collaboration and very little proactive engagement from the safety line of business on this initiative.

What is your response to this? And how will you improve FAA engagement with labor unions?

Mr. DICKSON. I am not aware of that, but I am very interested in that perspective. And so, I would love to work with your office to see where that might be coming from and what we can do to address it.

Ms. NORTON. I will be in touch with you about that labor union, and I very much appreciate your cooperation.

Thank you very much.

Mr. DICKSON. Thank you.

Ms. NORTON. I yield back.

Mr. LARSEN. Thank you, Congresswoman Norton.

And that is a reminder as well, her questions remind me, Administrator, that as you implement SMS, as you prepare a rule on SMS, I think it is important, as well, that the women and men who are working in the facilities, building, designing, and assembling these aircraft, are an active part of the safety management system. And their input is going to be critical to ensuring long-term safety improvements as well.

So, with that, I want to thank the Administrator for joining us today. That concludes our hearing. I want to thank our witness again for his testimony. The comments have been informative and very helpful and have given us some things to follow up on, as well as for you.

And I ask unanimous consent that the record of today's hearing remain open until such time as our witness has provided answers to any questions that may have been submitted to him in writing.

I also ask unanimous consent the record remain open for 15 days for any additional comments and information submitted by Members or the witness to be included in the record of today's hearing.

Without objection, so ordered.

And the Subcommittee on Aviation now stands adjourned.
[Whereupon, at 12:45 p.m., the subcommittee was adjourned.]

SUBMISSIONS FOR THE RECORD

Prepared Statement of Hon. Eddie Bernice Johnson, a Representative in Congress from the State of Texas

Thank you, Subcommittee Chairman Larsen and Ranking Member Graves for holding today's hearing as this committee continues its investigation into the tragic Boeing airline crashes in Indonesia in October 2018, and in Ethiopia, in March 2019. I also want to thank the Honorable FAA Administrator, Mr. Stephen Dickson, for his testimony.

As we solemnly approach the 3rd anniversary of the 2018 Boeing airline crash in Indonesia, wherein Lion Air Flight 610 crashed shortly after taking off from Jakarta, killing all 189 passengers and crew members on board, to this day it still seems somewhat mindboggling to me why the FAA would have delegated the certification of something so critical to airplane safety as the "maneuvering characteristics augmentation system" or MCAS, to Boeing in the first place.

The aftermath of the airline crashes also resulted in terrible administrative and logistical chaos, which affected all airlines across the nation. Southwest Airlines, based in my congressional district in Dallas, was perhaps the most adversely affected given that they are the biggest operator and customer of 737 Max planes, and had grounded their entire fleet for nearly two years.

Potential Questions for Witness Stephen Dickson, Administrator, FAA:

Mr. Dickson, in a Department of Transportation OIG report following the Boeing airline crashes, the report "revealed numerous shortcomings in the FAA's process for certifying the safety of new airplane designs, including derivatives of 50-year-old airframes."

- 1) Does the FAA support and continue to practice the retrofitting of airplanes? What is your current policy on this?
- 2) Mr. Dickson, since Southwest Airlines and American Airlines both have a large presence in the Dallas metro area, and both operate large 737 MAX fleets, is the FAA closely monitoring the reliability of 737 MAX airplanes to immediately detect any safety issues and ensure they are corrected quickly? If so, have any such issues arisen?

Mr. Dickson, in your testimony you mention that "the FAA is prioritizing the oversight of manufacturers and is working to focus that oversight on safety in critical areas, while, among other items, demanding more transparency from them."

- 3) In what ways has your relationship with the manufacturers changed and what types of transparency are you demanding?
- 4) Mr. Dickson, in what ways specifically is the FAA striving to strengthen risk management practices and improve communication between air and manufacturing industries and the FAA?

Mr. Dickson, with respect to increased global collaboration, in your testimony you say that the "FAA is working closely with the International Civil Aviation Organization and others to influence and adjust the maintenance and pilot training requirements for U.S. products operating under the oversight of another civil aviation authority."

- 5) Can you provide the committee with specific examples of these adjustments?

Mr. Dickson, with respect to data collection, in your testimony you say that "the FAA's new contract with the Transportation Research Board will aid the agency's effort to conduct analysis and reporting on current and emerging safety trends in aviation."

- 6) Are you able to provide the committee with one or two specific examples of the types of safety data being collected and how it will prove beneficial towards the goal of identifying potential hazards and safety issues before they lead to a serious incident?

Mr. Dickson, you mention in your testimony that in April of this year the FAA began a “Voluntary Safety Reporting Program to provide a mechanism for employees to voluntarily report potential hazards and safety concerns without fear of reprisal.”

- 7) I am curious to know if, in your estimation, this practice has been successful thus far and what kind of employee feedback have you received?

Statement of Paul Hudson, President, FlyersRights.org, Submitted for the Record by Hon. Peter A. DeFazio

NOVEMBER 2, 2021.

BACKGROUND AND BASIS FOR HEARING

In this oversight hearing, FAA Administrator Steve Dickson appeared remotely as the only witness to answer Committee Members’ questions and concerns about what the FAA has been doing since the Lion Air Crash.

A Boeing 737 MAX jetliner crashed killing all on board in October 2018. A second crash in March 2019 also killing all on board, for a total of 346 lives lost, was due to the same cause: powerful software coupled with faulty sensors meant to correct design flaws in the MAX. The system known as MCAS, hidden by Boeing from pilots and largely from the FAA until after the second crash, would take control from pilots to prevent stalls when sensors told the software the aircraft was pitching up in danger of a stall and it would mimic the handling of earlier versions of the 737 during regular flight. After the second crash, the MAX was grounded worldwide, notwithstanding repeated assurances by Boeing that it was still safe. It was ungrounded and re-certified as safe by the FAA until November 2020 based on largely secret changes and testing.

This hearing was also meant to address the lack of rulemaking by the FAA on approximately 100 Congressional mandates, often going back many years.

LACK OF TRANSPARENCY IN MAX AND OTHER FAA SAFETY REGULATION

Both the FAA and Boeing since 2019 repeatedly specifically promised transparency to the media and to Congress under oath throughout the 737 MAX ungrounding process.

However, in FlyersRights.org’s Freedom of Information Act litigation against the FAA, the FAA claimed that it cannot or will not release many thousands of pages of documents pertaining to the changes made to the MAX and to the testing performed on the MAX. The FAA makes the implausible claim that all of the redacted material, usually entire pages, are either proprietary information or non-proprietary information that cannot be reasonably segregated from proprietary information.

The FAA makes this claim based solely on Boeing’s claims that this material is proprietary business information and Boeing’s alleged belief that it submitted this information to the government with an implied promise of confidentiality. Under the Supreme Court’s *Argus Leader* decision in 2019 concerning proprietary information and FOIA Exemption 4, the government *may* withhold information from public disclosure under FOIA if a private company merely had the subjective belief that the information within the submission constitutes proprietary information and that it received an express or implied promise of confidentiality.

This interpretation of the FOIA statute allows a federal agency that does not want to publicly release any information to withhold all information on the most spurious of claims. The erosion of FOIA could not be more obvious than it is in this case. Since the 737 MAX crashes, the Boeing Company has paid \$2.5 billion in fines and compensation to airlines and victim family members for criminal fraud in obtaining original FAA certification for the Boeing 737 MAX. However, Boeing’s assertion is treated as determinative even though, according to the U.S. Attorney prosecuting the case:

The misleading statements, half-truths, and omissions communicated by Boeing employees to the FAA impeded the government’s ability to ensure the safety of the flying public. This case sends a clear message: The Department of Justice will hold manufacturers like Boeing accountable for defrauding regulators—especially in industries where the stakes are this high.

So although Boeing has been punished for defrauding the FAA, Boeing continues to enjoy the fruits of the fraud by having its claims of proprietary information re-

spected by the FAA. Can Boeing have a reasonable expectation of privacy for fraudulent information or information provided in furtherance of fraud?

FAA, for its part, has a documented history of being misled by Boeing and for having too cozy of a relationship with its regulated entity. Numerous instances of this are detailed in the Department of Justice Deferred Prosecution Agreement and the House Transportation and Infrastructure Committee's September 2020 report, "*The Design, Development & Certification of the Boeing 737 MAX*." Despite promising transparency in the aftermath of its single biggest failure in its history, one that exposes the potential for future safety deficiencies, the FAA has decided to treat as gospel the assertions made by its regulated entity, the criminal felon, Boeing.

This not only illustrated how the FOIA statute needs updating, modernizing, or clarification, but that known safety risks continue to exist at Boeing, FAA, and in aircraft certification. Between the DOT Inspector General Report, the House Transportation and Infrastructure Committee Report, numerous Congressional hearings, and public disclosures in litigation, no one can say that they are not aware of these problems.

The 10/21/2021 House Transportation and Infrastructure hearing could have been an opportunity to probe specific actions that the FAA has and has not taken. Instead, Administrator Dickson was able to give vague assertions that the agency "was working on" any topic that a Member of Congress brought up.

FAA FAILURE TO SET SEAT STANDARDS OR UPDATE EMERGENCY EVACUATION PROCEDURES

Another important issue not remarked upon in the hearing is the issue of emergency evacuation safety and seat size. The 2018 FAA Reauthorization Act gave the FAA one year to establish minimum seat standards needed for passenger safety. Two years have passed since this deadline and the FAA has not publicly released any standards or progress. The Act also required the FAA to evaluate and modernize its emergency evacuation standards. Again, the FAA has not submitted its report to Congress and has not publicly released the May 2020 report submitted by the FAA Emergency Evacuation Standards Aviation Rulemaking Committee to the FAA.

NEEDED REFORMS TO ENFORCE CONGRESSIONAL MANDATES ON FAA

The FAA, as the Aviation Subcommittee is well aware, has a long history of ignoring Congressional mandates and deadlines, especially for rulemaking. And such mandates are most often enacted only after the agency has ignored or rejected stakeholder pleas for action. Flyersrights.org and its predecessor the Aviation Consumer Action Project having represented passengers and the general public on safety issues before the FAA for decades has seen this ingrained pattern repeated constantly.

In the case of emergency evacuation delays goes back at least to 2005, in the case of setting reasonable seat and passenger space standards to 2015 and in the case of enforcement of helicopter crashworthiness standards for over 20 years.

The solution in our view involves using the Congress' power of the purse in FAA appropriation bills to prohibit spending on non-Congressional mandates until Congressional mandates are completed. This could include prohibiting spending on processing waiver and exemption requests for existing FAA rules. The FAA Office of Rulemaking expends considerable resources on this activity granting 250 to 500 such requests annually based on industry requests.

Such enforcement mechanism were common in past decades by the Transportation Appropriation subcommittees, particularly under the chairmanship of the late Senator Lautenberg but have fallen into disuse.


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3. Flyers Rights Education Fund v. FAA, 19–3749, (D.D.C. 2021)
4. *The Design, Development & Certification of the Boeing 737 MAX*, House Transportation and Infrastructure Committee Report, September 2020: <https://trans->

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7. *Food Marketing Institute v. Argus Leader Media*, No. 18–481 (2019) https://www.supremecourt.gov/opinions/18pdf/18-481_5426.pdf

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**Boeing 2013 Meeting Minutes,
Submitted for the Record by Hon. Greg Stanton**

View Item

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6-FEB-2020 14:33:39

37MAXFCI-EDR AI22

Item Header:

Title: MCAS/Speed Trim
 Primary Resp Person:
 Secondary Resp Person:
 Fix Need Date: 01-JUL-2013
 ECD:
 Phase: CLOSED Item is resolved, no further action required
 Model: 737 MAX -8

Information Last Modified: 27-JUN-2013 10:46:49 US(Pacific)

Item Progress:

Date	Resp Person	Type	Attachments	Last Updt (USPac)
21-MAY-2013	<input type="text"/>	ORIG	N	24-MAY-2013 08:38:21

Problem Statement: Every new buzzword represents a company and airline cost via changed manuals, changed training, changed maintenance manuals.

Recommended Action: Investigate deletion of MCAS nomenclature and cover under the umbrella of 'revised speed trim'.

07-JUN-2013	<input type="text"/>	ANALYSIS	N	07-JUN-2013 08:29:23
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6/7/13 Meeting Minutes:

- 1) GTTA left the name as MCAS but treated as analogous function as a speed trim type function.
- 2) If we emphasize MCAS is a new function there may be a greater certification and training impact.
- 3) Treat as an addition to Speed Trim.
- 4) Externally we would communicate it is an addition to Speed Trim.
- 5) Internally continue using the acronym MCAS (within variable names etc).
- 6) Work with AR on certification perspective to ensure this strategy is acceptable.
- 7) Make sure RASA Fam Tech presentation is consistent with intent that MCAS is an addition to Speed Trim.

07-JUN-2013	<input type="text"/>	PROP_RES	N	21-JUN-2013 09:25:42
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After speaking with the Autoflight AR, concurrence was provided that we can continue to use the MCAS nomenclature internally (variable names, etc) while still considering MCAS to be an addition to the Speed Trim function. This will allow us to maintain the MCAS nomenclature while not driving additional work due to training impacts and maintenance manuals.

27-JUN-2013	<input type="text"/>	PROP_RES	N	27-JUN-2013 10:37:24
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Accepting team analysis on keeping MCAS nomenclature. Item can be closed.

27-JUN-2013	<input type="text"/>	CLOSURE	N	27-JUN-2013 10:46:49
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Action Item is complete and is closed.

Cross Reference:

View Item

Code	Item Type	Ref Item ID	Version
PRG_NTFY	PERSON	<input type="text"/>	
PRG_NTFY	PERSON		
ONE_NTFY	PERSON		
PRG_NTFY	PERSON		
PRG_NTFY	PERSON		
CHG_NTFY	PERSON		
ONE_NTFY	PERSON		

APPENDIX

QUESTION FROM HON. SAM GRAVES TO HON. STEPHEN M. DICKSON, ADMINISTRATOR,
FEDERAL AVIATION ADMINISTRATION

Question 1. As you are aware, the last FAA Reauthorization requires that towers that pose an obvious risk to aircraft operations be clearly marked and/or included in the FAA's database by April 5, 2020. I understand that despite Congressional direction, the FAA has no plans to carry out this mandate in the foreseeable future. Can I get your commitment today that the FAA will implement this provision with appropriate urgency?

ANSWER. We are working through this rulemaking though there have been challenges over the years. I understand there was direction in 2016 that created a wide array of towers that were supposed to be marked and then the 2018 bill narrowed that list down while establishing the requirement for a database to include the location of various kinds of towers. One of the central challenges we have faced implementing this rule is obtaining the necessary safety data and cost-benefit information to support rulemaking under the Administrative Procedures Act. While we work on that, we have identified an existing FAA maintained obstruction database that will be able to present the information required in the bill. Until a rule is in place, it will be voluntary for structures under 200 feet to be placed in the database but we will continue to work through these issues.

QUESTION FROM HON. GARRET GRAVES TO HON. STEPHEN M. DICKSON,
ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION

Question 1. Administrator Dickson, as I stated during the hearing, it was not Congress' intent to transfer primary investigative authority for whistleblower retaliation to the Office of Audit and Investigation (AAE) under section 133 of the Aircraft Certification, Safety, and Accountability Act (Public Law 116-260). Instead, as section 106(t)(3)(A)(vi) clearly states, AAE may only "investigate allegations of whistleblower retaliation by employees of the Agency that have been delegated to the Office by the Office of Investigations and Professional Responsibility, the inspector general of the Department of Transportation, or the Office of Special Counsel." While this clause permits the delegation of whistleblower retaliation investigations to AAE, it does not require such delegation. Does FAA agree with this understanding of the law?

ANSWER. Yes. Section 106(t) of title 49, U.S. Code, as revised by section 133 of the Aircraft Certification, Safety, and Accountability Act (Public Law 116-260), states that the Office of Whistleblower Protection and Aviation Safety Investigations shall, "investigate allegations of whistleblower retaliation by employees of the Agency that have been delegated to the Office by the Office of Investigations and Professional Responsibility, the inspector general of the Department of Transportation, or the Office of Special Counsel." Further, as you noted, nothing in the text of section 106(t) requires the delegation of whistleblower retaliation investigations to the Office of Whistleblower Protection and Aviation Safety Investigations.

The FAA is continuing its work to implement all of the requirements under section 133 of the Aircraft Certification, Safety, and Accountability Act.

QUESTIONS FROM HON. SCOTT PERRY TO HON. STEPHEN M. DICKSON,
ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION

Following up on your October 20, 2021, response to the September 23, 2021, letter sent by myself and my colleagues:

Question 1. What is the name and title of the CBP official who submitted the request for the TFR?

ANSWER. Pursuant to the agreement between CBP and the FAA, the CBP submitted this request for a TFR via a generic CBP email address to a FAA group inbox specifically for TFR requests.

Question 2. Your response makes it appear that FAA assumed the validity of the CBP request, was the basis of the request ever verified by FAA?

a. Is it FAA policy to assume the validity of the request?

ANSWER. As stated in the FAA previous letter, the FAA has TFR agreements with the Department of Defense and various U.S. Federal security and intelligence agencies, including, but not limited to, CBP. These interagency security partners may request a TFR via the established procedures and communication channels between FAA and interagency security partners. As previously stated, the request was received from a CBP email address.

The FAA follows the procedures and processes contained in the applicable regulations and interagency security partner agreements when issuing TFRs. The FAA works with its interagency security partners on the assumption that incoming TFR requests have a valid legal basis, and are made in good faith and in support of the interagency security partner's mission and the interests of the U.S. more generally.

However, when appropriate, the FAA will follow-up with the requesting agency and adjust the size and scope of the restriction, as appropriate, based upon the hazard/risk identified by the requesting agency. For example, based upon the language in the request, the FAA may decide to verify that the hazard/risk necessitates restrictions on access to the requested amount of airspace identified by the requesting agency and/or should cover the full scope of kinds of aircraft requested.

In this situation, the FAA evaluated the original request for a TFR and reached out to CBP for additional information. The original request for a TFR covered additional types of aircraft. CBP explained the basis for its request specifically related to operators operating unmanned aircraft in a reckless or malicious manner and interfering with the operation of other aircraft. Based upon those hazards, the FAA narrowed the restriction to just unmanned aircraft.

b. If so, what is the justification of that policy?

ANSWER. As discussed above, the FAA assumes that its partner agencies are acting in good faith; however, the FAA may validate the amount of airspace requested for the restriction and the kinds of aircraft that are restricted.

Question 3. You stated, "In the last five years, FAA has received and processed more than 1,200 CBP requests for TFRs." How many of those were granted?

ANSWER. The FAA has received and processed 1,200 TFR requests from CBP in the last 5 years. All 1,200 TFR requests received during this timeframe were granted.

Question 4. You stated, "By limiting sUAS operations to known remote pilots, CBP officers were able to more easily identify unauthorized sUAS being operated in US airspace within the TFR from either side of the border by remote pilots attempting to track law enforcement and to communicate with groups of migrants attempting to avoid detection and evade detention, i.e., using drones to direct migrants to evade law enforcement."

a. Do UAS operations conducted by criminal enterprises to avoid law enforcement abide by TFRs?

ANSWER. TFRs provide a sorting mechanism whereby illegal operations are easier to identify because they tend not to abide by TFRs.

b. How many violations have been noted? How many have been prosecuted?

ANSWER. We are working on gathering this information, and will follow-up with a response separately.

c. How many aircraft illegally present in US airspace on the US border have been interdicted?

ANSWER. CBP and other national security and law enforcement agencies are responsible for interdictions. The FAA does not track this information.

Question 5. You stated, "On Thursday, September 16, 2021, CBP requested FAA to establish a TFR over the area of the law enforcement activity for the safety and security of responding officers and to further the efforts of CBP to maintain border security." It's pretty apparent to everyone that there was no actual law enforcement activity occurring—no one was stopping folks from coming into the country—and that there was little to no effort to maintain border security in the region. Given this, what were the alleged law enforcement activities that required the TFR? Did CBP tell the FAA what activities were occurring or were they assumed to be occurring without validation?

ANSWER. As stated above, the FAA follows the procedures and processes contained in the applicable regulations and interagency security partner agreements when issuing TFRs. The FAA works with its interagency security partners on the assumption that incoming TFR requests have a valid legal basis, and are made in good faith and in support of the interagency security partner's mission and the interests of the U.S. more generally.

Question 6. Your response indicates that FAA is working on gathering and reviewing the requested documents related to my letter and will follow up with these documents separately. If they are not included in response to these questions for the record, what is the timeline for sending these documents?

ANSWER. The FAA is working, in coordination with CBP, on gathering and reviewing the responsive documents related to the Del Rio TFR.

Vaccine Mandate Questions:

Question 1. Congress has provided the passenger air carrier industry with nearly \$54 billion to keep pilots, flight attendants, and other employees connected to their jobs and their healthcare. Why did we spend these taxpayer dollars if the plan is to force the airlines to fire these very employees over their vaccination status?

ANSWER. The FAA does not administer the funding referred to in this question and does not enforce COVID-19 vaccination requirements for industry. The FAA is responsible for promoting safe flight of civil aircraft in air commerce. Throughout the pandemic, the FAA has remained focused on aviation safety and making sure that the aviation system can operate effectively, including addressing workforce issues. The FAA has taken a number of actions to help the aviation industry adjust operations in response to the pandemic.

Question 2. Why can't pilots self-medicate with certain over-the-counter medications prior to flying, yet the FAA seems to be encouraging them to take a vaccine with no long term safety studies?

ANSWER. The COVID-19 public health emergency has driven extraordinary global efforts to develop effective and safe vaccines. The vaccine produced by Pfizer-BioNTech has received Food and Drug Administration (FDA) approval. In addition, the vaccines produced by Moderna and Johnson & Johnson-Janssen have been made available to the American public under an Emergency Use Authorization (EUA) by the FDA. After careful review of available data regarding safety profiles, the FAA Office of Aerospace Medicine (AAM) adopted the following policy as both safe and operationally responsive to this unique situation:

Holders of FAA-issued Airman Medical Certificates or Medical Clearances may receive the Pfizer-BioNTech, Moderna, or Johnson & Johnson COVID-19 vaccine; however, a 48-hour no fly/no safety related duty interval must be observed after each dose.

Individuals holding an Airman Medical Certificate or Medical Clearance should be reminded that they are prohibited from performing flight crewmember duties or air traffic control duties if they do not meet medical certification requirements, including those related to adverse events from medications that render them unable to perform such duties. AAM will monitor the patient response to each vaccine and may adjust this policy as necessary to ensure aviation safety.

For additional information: https://www.faa.gov/licenses_certificates/medical_certification/

Question 3. The FAA has appropriately high safety standards, safety of flight is paramount to the industry. Why then, has the FAA not been emphatic that more studies are needed on the effects of this vaccine with respect to high altitude, environments of changing atmospheric pressure, and long-term sitting (i.e., blood clots and deep vein thrombosis)?

ANSWER. The Office of Aerospace Medicine carefully reviewed the vaccine manufacturers' applications for approval/emergency use authorization and continues to monitor the performance and side effect profiles of the vaccines for potential impacts to aviation safety. This office also established the 48-hour "No Fly/No Safety-Related Duty" interval following each dose based on medical information about the vaccines and the potential side effects.

For additional information: https://www.faa.gov/coronavirus/guidance_resources/vaccine_faq/

Question 4. Has the FAA had an open forum or sought the feedback of pilots and air traffic controllers regarding their concerns for flight safety with regard to this vaccine? If so, when will said forum occur and where will the results be published?

ANSWER. As a general matter, public health agencies are the appropriate entities to manage public outreach regarding COVID-19 vaccines. With respect to any safety

of flight-related concerns, pilots and air traffic controllers should consult with their aviation medical examiner (AME), so that they can receive medical advice appropriate to their individual circumstances.

Question 5. Is it true that it took a period of seven years for the FAA to be satisfied that it was safe to raise the mandatory retirement age of pilots from 60–65? And during that time the FAA also instituted a policy that two pilots could not occupy the cockpit who were both over the age of 60? Why hasn't a similar safety study been launched between vaccinated and unvaccinated pilots?

ANSWER. The Fair Treatment of Experienced Pilots Act (P.L. 110–135) was signed into law on December 13, 2007. This law set 65 years old as the mandatory retirement age of pilots.

As it relates to vaccines, the Office of Aerospace Medicine carefully reviewed the vaccine manufacturers' applications for approval/emergency use authorization and continues to monitor the performance and side effect profiles of the vaccines for potential impacts to aviation safety.

Question 6. Is the FAA aware of the additional stress that will fall onto the system should otherwise qualified pilots and air traffic controllers be terminated due to their constitutionally protected right to refuse a vaccine? What is the plan for mitigating this potential increase in stress?

ANSWER. The FAA has not seen any impact in the system. Specific to FAA employees, as of Nov. 23, the FAA had achieved a 99.8% compliance rate—meaning employees who are vaccinated with at least one dose or who have a pending or approved exception or extension request—and a 90.2% vaccination rate—employees who are vaccinated with at least one dose—across our workforce. Implementation of the requirement will not result in any disruptions to critical services that the American people depend on.

In addition, the FAA has contingency plans that are utilized today to support continued operations if a facility experiences staffing constraints. These facility-specific contingency plans are coordinated in advance with aviation stakeholders prior to implementation. As demonstrated over the past 21 months, the FAA is prepared to continue to provide safe and efficient air traffic services if individuals do not meet the Federal employee or contractor vaccine mandates, as applicable.

Question 7. Is the FAA aware of the current stress on the system where pilots are being faced with two decisions: take a vaccine with documented potential side effects that can be career ending, or don't take the vaccine and lose that same career? This puts pilots in an impossible, stressful situation. That induced stress degrades flight safety today. Has the FAA considered the same impossible, stressful situation for mechanics, air traffic controllers, TSA agents, and all other aviation safety-related fields?

ANSWER. The FAA regularly monitors a variety of data sources in order to identify adverse trends and/or stressors that may be developing within the National Airspace System. Data systems monitored include the Aviation Safety Information Analysis and Sharing (ASIAS) System, Aviation Safety Action Programs (ASAP), line operations safety audits (LOSA), Aviation Safety Reporting System (ASRS) etc. When risk are identified, the Certificate Management Office adds it to the Safety Assurance System's Certificate Holders Assessment Tool (CHAT) for monitoring and surveillance. The airlines, using their Safety Management Systems (SMS), can incorporate the safety data captured by the programs listed above into their individual SMSs for monitoring and assessing. This approach allows both the FAA and airlines to tailor their approach to identify and address specific stressors as they arise.

The FAA is requesting labor organizations and airline leadership communicate with their membership and employees to address their concerns and remind everyone to focus on safety and not allow distractions to compromise it.

We continue to monitor the system for any circumstance that could undermine safety.

Question 8. How can the FAA be certain that there are not currently fully vaccinated pilots and air traffic controllers who are suffering from an adverse vaccine reaction and are concealing that reaction so that they will not potentially lose their medical license? What systems are in place that a pilot or air traffic controller can safely disclose these reactions and keep their jobs?

ANSWER. To maintain the highest level of safety in the National Airspace System, the FAA requires pilots with medical certificates or air traffic controllers with medical clearances to observe a period of 48 hours following the administration of each dose of a COVID–19 vaccine before conducting safety-sensitive aviation duties, such as flying or controlling air traffic.

The required waiting period applies to those holding an Airman Medical Certificate issued under 14 CFR Part 67 or a Medical Clearance issued under FAA Order 3930.3C.

In addition, pilots must adhere to the guidance in 14 CFR 61.53 and not exercise the privileges of their airman certificates if they know they are medically unfit. There are similar requirements in FAA Order 3930.3C for air traffic controllers.

Question 9. The “IM SAFE” acronym the FAA encourages aviators to use promotes the idea that safety to fly is self-determined. Why are pilots who have determined through an informed decision made in concert with their medical doctors that a Covid vaccine is detrimental to their ability to fly safely being forced to take the vaccine anyway?

ANSWER. With respect to any safety of flight-related concerns, pilots should consult with their aviation medical examiner (AME), so that they can receive medical advice appropriate to their individual circumstances.

Question 10. Are you familiar with the Harvard University T.H. Chan School of Public Health Study that was conducted and published last year which indicated that airline crews and passengers are not at risk for contracting COVID-19 on an airplane? When it was published in October of 2020, the study noted that “to date, the CDC has not confirmed a single case of viral transmission on a U.S. plane”. The study concluded that there is a 0.03% chance of contracting COVID-19 on a plane. Given these findings, why is the FAA encouraging the aviation community to take this vaccine—especially in light of the mounting VAERS reporting evidence that there are serious adverse reactions and those reactions can come upon a person suddenly?

ANSWER. The FAA is aware of this study. The FAA continues to follow the guidance and direction of the public health agencies with respect to the response to the COVID-19 public health emergency in the aviation context.

To maintain the highest level of safety in the National Airspace System, the FAA requires pilots with medical certificates or air traffic controllers with medical clearances to observe a period of 48 hours following the administration of each dose of COVID-19 vaccine before conducting safety-sensitive aviation duties, such as flying or controlling air traffic.

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In addition, pilots must adhere to the guidance in 14 CFR 61.53 and not exercise the privileges of their airman certificates if they know they are medically unfit. There are similar requirements in FAA Order 3930.3C for air traffic controllers.

Question 11. Does the FAA intend to require vaccines for passengers on commercial aviation flights? Will you commit FAA to not imposing these requirements?

ANSWER. The FAA remains steadfast in its focus on safety of flight and continuing to provide safe and efficient air navigation services during the COVID-19 public health emergency. The public health and security agencies have been the primary agencies to issue mandatory public health requirements with respect to the COVID-19 public health emergency in the aviation context. For example, the wearing of face masks during travel and vaccination and testing mandates for international travel have been implemented via public health orders and security program changes.

QUESTIONS FROM HON. PETE STAUBER TO HON. STEPHEN M. DICKSON,
ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION

Question 1. We all know and understand the importance of 5G broadband deployment and connectivity, including for use in aviation. At the same time, aviation safety is of utmost importance. Several other aviation authorities, including Canada, France, Australia, and the UAE, announced that they are looking at 5G deployment in and around major airports and heliports and the need for mitigations to minimize 5G interference impact on aircraft radar altimeters. By way of background for those who may not be familiar, a radar altimeter is equipment on an aircraft that directly measures the precise distance to the ground, particularly important for safety when operating close to the ground.

- a. How engaged has FAA been on this matter and have you issued any formal positions or planned actions on this like other aviation authorities? Have you communicated the significance of this issue and any safety concerns with DOT and other agencies, like NTIA or FCC? Do you expect to take further action? It seems to me that FAA may have been somewhat stifled in your ability to ensure that potential impacts on aviation safety are raised and appropriately

considered and addressed by other government agencies. Do you think we need to reevaluate this process?

ANSWER. The FAA has been continuously engaged on this issue for several years and we have both shared our concern and worked with stakeholders concerning the potential safety risks for 5G deployment to interfere with radar altimeters, which provide data to other avionics. On November 2, the FAA issued a Safety Information Alert Bulletin (SAIB), which notifies the aviation community of a potential risk to the National Airspace System.¹ This SAIB also asks manufacturers and OEMs to provide information to the FAA that may help us to more effectively scope that risk. Similarly, the FAA is continuing its work to assess the risk in order to issue formal safety guidance. In parallel, we continue to work closely with the Department, NTIA, FCC, and industry on technical solutions that ensure both the safety of the national airspace and enable 5G services—which the FAA has always supported.

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¹FAA, Special Airworthiness Information Bulletin, *Risk of Potential Adverse Effects on Radio Altimeters*, AIR-21-18, November 2, 2021, at [https://rgl.faa.gov/Regulatory and Guidance Library/rgSAIB.nsf/dc7bd4f27e5f107486257221005f069d/27ffcbb45e6157e9862587810044ad19/\\$FILE/AIR-21-18.pdf](https://rgl.faa.gov/Regulatory%20and%20Guidance%20Library/rgSAIB.nsf/dc7bd4f27e5f107486257221005f069d/27ffcbb45e6157e9862587810044ad19/$FILE/AIR-21-18.pdf)