UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

Investigation of:	*	
ALASKA AIRLINES BOEING 737-9 MAX LEFT MID-EXIT DOOR PLUG SEPARATION NEAR PORTLAND, OREGON ON JANUARY 5, 2024	*	Accident No.: DCA24MA063

National Transportation Safety Board
Office of Administrative Law Judges
490 L'Enfant Plaza East, Southwest
Washington, D.C. 20594

Wednesday,
August 7, 2024

The above-entitled matter came on for hearing, pursuant to notice at 9:00 a.m. Eastern Time.

BEFORE: CHAIR JENNIFER HOMENDY

APPEARANCES:

JENNIFER HOMENDY, Chair
DOUG BRAZY, Investigative Officer
POCHOLO CRUZ, Technical Panel
NILS JOHNSON, Technical Panel
SABRINA WOODS, Technical Panel
MICHAEL GRAHAM, Board Member
TOM CHAPMAN, Board Member
ALVIN BROWN, Board Member
TOM INMAN, Board Member
National Transportation Safety Board

SETH HEIPLE, AFA Air Safety, Health, and Security Chair
AFA Party Coordinator
Alaska Airlines

CAPTAIN STEVE JANGELIS, Aviation Safety Chair
ALPA

JON HOLDEN, President & Directing Business Representative

MAX TIDWELL, Vice President, Safety and Security
Alaska Airlines

HEATHER MEYER, Vice President of Quality
Spirit AeroSystems

DAVID GERLACH, Manager of Office of Accident Investigation
Federal Aviation Administration

I N D E X

I N T E R V I E W

CHAIR HOMENDY: Good morning. We're now in session. I'm Jennifer Homendy, and I'm honored to serve as Chair of the National Transportation Safety Board, and Chair of this Board of Inquiry. I'm joined by my fellow board members, member Michael Graham, Member Tom Chapman, and Member Todd Inman. As a reminder, Member Brown is on launch to a highway crash in Florida, and our thoughts are with him, and certainly those who lost loved ones in that crash. So, Mr. Brazy, please start us off with a safety briefing.

MR. BRAZY: Thank you, Chair Homendy. If you have not already done so, please silence your electronic devices. Leani, do you have the safety slides, please? The address of our boardroom is 429 L'Enfant Plaza Southwest, Washington D.C. We have approximately 150 attendees in the room here today. The restrooms are located in the lobby to the left as you exit the boardroom.

In the event of an emergency, we have designated NTSB personnel to certain roles. Please stand as I call your name and remain standing until the conclusion of the safety briefing. Tim LeBaron will dial 911. Den Adler will meet emergency personnel outside the front doors. There's a defibrillator located in the lobby just outside the doors in front of me. Elias Cantanas will retrieve it if needed. Sabrina Woods is trained and willing to use the device. Larenda Ward is trained and willing to perform

CPR.

Fire extinguishers are located near all exits, two behind the dais, down the stairs, two at the back of the boardroom where you entered, and one by security. Deidra Estes will run and retrieve one if needed. We have a first aid kit in conference room A. This is the room closest to the security area. The kit's on a counter in a blue pouch. Dana Shultz will retrieve it if needed.

If there is a need to evacuate for any reason, please follow Rochelle McAllister, who will lead you to the exit route, and she will be wearing a yellow vest. Please walk quickly, don't run, to the rear of the auditorium. Go out the doors, proceed through the lobby, past security, go up the stairs and straight ahead through the glass doors to the outside. Once outside, turn left and follow the sidewalk to the end of the street. That is our rally point. Please do not return to the boardroom until instructed to do so. Next slide.

The wheelchair accessible exit instructions are as follows. Kelly Hessler will lead you to the exit route. She will also be wearing a yellow vest. Go out the doors, proceed through the lobby, past security. Immediately turn left and exit through the door, which will take you into the parking garage. To exit the garage, turn right, proceed up the ramp, and go outside. Once outside, turn left and follow the sidewalk to the end of the street, which is our rally point.

Should the unthinkable occur, and there is an active shooter,

the FBI recommends that you run, hide, or fight, in that order. Running improves your chances of survival. Leave your belongings behind, and don't stop until you've reached a safe location. Keep your empty hands raised and clearly visible when exit the building and follow all instructions from police. If there. If there is no escape route, hide. Silence your cellphone. Do not call 911 until it is safe. And fight only as a last resort. Next slide.

If there's a need to shelter in place due to an emergency, we will remain in this auditorium. We are below ground and in a secure location. If such a situation arises, we will make an announcement. Staff and security will guide anyone in the lobby into this room. We will then secure the doors until the danger passes. Next slide.

Lastly, I'd like to remind everyone that each of us has a vital role to play in any emergency. If you see something concerning or suspicious, say something to one of our NTSB or security staff right away. If you have any questions or concerns, don't hesitate to come talk to any member of the NTSB staff.

Chair Homendy, that concludes my remarks.

CHAIR HOMENDY: Thank you, Mr. Brazy. And just for everyone here, first of all, I would encourage -- we obviously switched, and we tried to get word out, but I think people are in from out of town and might not have casual wear. Whatever casual wear you have, if you want to bring it back, I don't think any of us care if you want to wear jeans. You're here. That doesn't matter to

me. I would rather you be comfortable and cool than feel like you have to look a certain way here.

You know, whether you're in the audience, whether you're back in the media room, or you're a party, a witness, or anybody on the technical panel, and certainly everyone knows that back here, it is hot. Just so you know, the compressor broke. Of course it did, because we are here for a hearing. That's another issue. If the press wants to report that I'm calling GSA, I am definitely going to do that.

With that said, we're trying to get more ice here. We have more fans coming. But we're probably going to take more frequent breaks than we did yesterday, just so people can take a break. It is hot, especially with these lights. I would encourage strongly anyone to -- if you aren't feeling well, if you feel faint, you know, it's -- your health and safety is -- we're a safety agency. Your health and safety is more important.

And so, you know, if you want to raise your hand, or leave, or walk out, or you need something, please do. Speak up. Okay? And I know it's hot over there. So usually witnesses feel like they have to be right there. Do not feel that way, you know, today. I would rather you be safe than anything happen. Okay? Everybody good? All right.

All right. So introducing our technical panel, and those supporting our technical panel, obviously you heard from Doug Brazy, who is our hearing officer. We have John Lovell, who is

the investigator in charge for this investigation. We have Pocholo Cruz, who is Lead Aerospace Engineer, we have Nils Johnson, Aviation Accident Investigator for Maintenance, and we have Dr. Sabrina Woods, Senior Human Performance Investigator.

In the back row, supporting those on the technical panel, are Ms. Leani Benitez-Cardona, who will operate the audio visuals. We have Sierra Juliano, who will operate the timer. And we have Tim LeBaron, who's director of our Office of Aviation Safety. And behind me is Eric Johnson from our Office of General Counsel to provide legal support.

Introducing the parties. As I call your name, each party representative, please identify yourself, and then introduce others at your table. And we'll start in alphabetical order. ALPA, Airline Pilots Association.

CAPT JANGELIS: Good morning, Madam Chair. My name is Steve Jangelis -- Captain Steve Jangelis with the Airline Pilots Association. I'm the Aviation Safety Chair for our group. Joining me today is Captain Mark Henninger, he's our party coordinator for this accident; Captain Brian Moynihan, the Alaska Airlines Safety Chair; Captain Craig Boxrucker, Subject Matter Expert; Mr. Chris Heck, our lead engineer, and Captain Jeff Perin, our ALPA Accident Investigation Board Chair.

CHAIR HOMENDY: Wonderful. Thank you. Alaska Airlines.

MR. TIDWELL: Good morning, Chair. Thank you. Max Tidwell, Vice President of Safety for Alaska Airlines. And to my right is

Ben Allen, our counsel. We have Peter Goelz, who is our advisor; John Sites, Director of Flight Ops Safety for Alaska Airlines, and Jason Lai, our Managing Director of Engineering for Alaska Airlines.

CHAIR HOMENDY: Thank you. Mr. Heiple for Association of Flight Attendants.

MR. HEIPLE: Good morning. I'm Seth Heiple. I serve as the AFA Air Safety Health and Security Chairperson at Alaska, and as the AFA Party Coordinator for this accident. With me this morning are Chris Witkowski, Director of the Air Safety Health and Security Department at AFA; Dinkar Mokadam, AFA's OSHA specialist; Ronda Ruderman, Chair of AFA's Aircraft Technical and SAE Committees, and Steve Vincent, AFA's Investigator for this accident.

CHAIR HOMENDY: And I -- we have -- I saw and talked with your president, Sarah Nelson, earlier, and it's nice that she showed up to lend her support to you all, very nice. Federal Aviation Administration.

MR. GERLACH: Good morning, Chair. David Gerlach. I'm the Manager of the Office of Accident Investigation and your spokesperson today for the agency. To my right, Mr. Matt Rigsby, who is our party coordinator and FAA. And to his right is Scott VanBuren. He's a senior technical advisor for the Office of Accident Investigation. And then to his right is Brian Kilgroe from the Office or Aircraft Cert. And then from our chief

counsel's office, Chris Stephens.

CHAIR HOMENDY: Thank you. International Association of Machinists and Aerospace Workers.

MR. HOLDEN: Madam Chair, my name is Jon Holden. I'm President of the Machinist Unit District 751. To my right is Daniel Swank. He's our Grievance Coordinator. And we also have John Petruzzello. He's an AMT on our flight line in Seattle, and also assigned to the accident investigation. We also have our general counsel, Jonathan Shapiro. And as a witness, we have Business Rep Lloyd Catlin.

CHAIR HOMENDY: Thank you. And Spirit AeroSystems.

MS. MEYER: Good morning, Chair, committee. My name is Heather Meyer, Vice President of Quality for Spirit AeroSystems. And with me I have Mark Dombroff, counsel, as well as previous witnesses, Scott Grabon and Mike Riney.

CHAIR HOMENDY: Thank you very much. And as a reminder, only party spokesperson may question the witnesses on behalf of their organization.

Before I go over the order of proceedings, if you are watching remotely, and for some reason you can't hear or see something, and you think it's an issue on our end, if you don't think we listen, we do. Yesterday, Gale from North Carolina emailed me, and we were able to address her issue. So feel free to do so. And it's chair@ntsb.gov.

CHAIR HOMENDY: All right. I'd now like to provide a general

overview of today's proceedings. You may wish to refer to the hearing agenda in more detail. We expect to run until about 7:00 p.m., though we can go longer if needed. We'll break for an hour for lunch, and as I mentioned, we will have more frequent breaks because it is so hot.

Panel Three will begin in a moment and will take us until lunch, and that topic is safety management systems and quality management systems. Following lunch, Panel Four will cover FAA oversight, or Federal Aviation Administration oversight.

For each panel, we'll follow the same process as yesterday. Mr. Brazy will reintroduce the members of the technical panel and swear them in. Witnesses will then be questioned in the following order: first, by the NTSB technical panel; second, by the parties; and third, by the Board of Inquiry, which is the Board of the NTSB.

On behalf of the board, I'd like to thank the witnesses for being here today and for testifying. We really appreciate it. it is critical. You're a critical part of our investigation. The information you share is helpful as part of our investigation to develop the facts around the investigation so that we can do the analysis at a later point. So really appreciate you being here and your efforts.

Mr. Brazy, please go through -- explain or describe the exhibits.

MR. BRAZY: Thank you, Chair Homendy. Exhibits for this

hearing include reports produced by NTSB investigative staff, videos, and other documents submitted to the -- submitted by the technical panel members, witnesses, and parties to support the testimony and questions you will hear today. The exhibits for this hearing are in the public docket. That docket number is SA, like Sierra, Alpha, 543.

The NTSB is authorized by statute to disclose information to carry out its mission, but we protect the confidentiality and proprietary information to the greatest extent possible. As such, the exhibits contain redactions. These are the result of negotiations between the parties and the NTSB regarding the disclosure of information claimed to be personally identifiable, security sensitive, or proprietary in nature. Though redacted, the exhibits contain sufficient information so that members of the public can refer to them during the hearing and throughout the NTSB investigation.

The exhibits are entered into the record, and any presentations, along with other records of the investigation, become part of the NTSB public docket, which are available now via the NTSB website, ntsb.gov. The public docket opened yesterday. Party spokespersons and witnesses have been provided electronic copies of the public docket containing the exhibits identified above.

The docket is located on the investigation page, which you can access in one of two ways, visiting ntsb.gov, or if you've

joined us in person, you can scan the QR code on the back of the hearing agenda. On the investigation page you will find the link to the public docket on the righthand side just above the map.

A transcript of the testimony taken during the hearing will be prepared and entered into the docket as soon as possible. In addition, Mr. Johnson will keep a list of any documents that are admitted during the hearing which are not currently exhibits in the NTSB public docket. As a reminder, if a party to the hearing has a new exhibit to propose, in accordance with 49 CFR 845.9, it will not be admitted unless the Chair determines that good cause has been shown. These documents will be submitted after the hearing and entered into the public docket.

Chair Homendy, that concludes my remarks. Thank you.

CHAIR HOMENDY: Thank you. And will you please introduce -- well, we've already introduced the members of the technical panel, so why don't you go ahead and swear in the witnesses?

MR. BRAZY: Thank you. I do have a point of order. We did have a witness scheduled on this panel. Mr. Bartron had a death in the family and is unable to join us today.

Chair Homendy, the next panel is on safety management systems and quality management systems. The panel will address the following topics: safety management systems, including the process of promoting effective safety culture; quality management systems, what they are, how they relate to manufacturing, and recent challenges; the dissemination and communication of policies

at Boeing and Spirit AeroSystems; evolution of the production rate at Boeing; FAA's action on the NTSB's 2021 recommendation on safety management systems for manufacturing; and finally, changes that have been made at Boeing and Spirit AeroSystems since the accident.

Witnesses for Panel Three are composed by the following individuals, from my left, nearest the board members: Mr. Paul Wright, Senior Director, Safety Management System and Chief of the Aerospace Safety Office at Boeing Commercial Airplanes; Mr. Hector Silva, Vice President for Regulatory Compliance and Core Quality at Boeing; Mr. Doug Ackerman, Vice President of Supplier Quality at Boeing; Mr. Greg Brown, Senior Vice President for Quality and Support at Spirit AeroSystems; Mr. Bill Brown, Senior Advisor for Quality at Spirit AeroSystems; Mr. Chris Eick, Aerospace Engineer in the Policy and Standards Division at the Federal Aviation Administration; Mr. Steve Slagle, Program Manager in the Project Management Section at the FAA; Mr. Brian Knaup, Manager of the System Operation and Oversight Branch at the FAA; and Mr. Lloyd Catlin, Business Representative at the International Association of Machinists and Aerospace Workers.

I will now ask that the witnesses on the panel not previously sworn in please stand. Raise your right hand, and please answer by saying I do.

(Whereupon,

PAUL WRIGHT, HECTOR SILVA, DOUG ACKERMAN, GREG BROWN,

WILLIAM BROWN, CHRIS EICK, STEVE SLAGLE,
BRIAN KNAUP, AND LLOYD CATLIN
were called as witnesses and, having been first duly sworn, were examined and testified under oath, as follows:)

MR. BRAZY: Thank you. Please be seated. As a reminder to the witnesses, you will remain under oath until the conclusion of the hearing. We ask that you answer the questions factually and avoid analysis. Finally, please push the microphone button to talk, and push it again when finished. Chair Homendy, these witnesses have been prequalified, and their respective experience and qualifications appear in the docket as exhibits. I would now like to turn the questioning over to Dr. Woods.

DR. WOODS: Thank you, Mr. Brazy. Good morning, gentlemen. We are actually going to talk about quality management systems first, before then going on to address the respective safety management systems. There will be some questions that have already been asked previously in yesterday's panels. However, I feel in order to get a comprehensive understanding of your respective programs, some of those questions will be asked again. So just recognize that, please.

So with that, we're going to start off with Boeing.

Mr. Ackerman, we've already met.

INTERVIEW OF PAUL WRIGHT, HECTOR SILVA,
DOUG ACKERMAN, GREG BROWN, WILLIAM BROWN, CHRIS EICK,
STEVE SLAGLE, BRIAN KNAUP, AND LLOYD CATLIN

DR. WOODS: But if you would please, Mr. Silva, could you give us a high level overview of what your roles and responsibilities are at Boeing?

MR. SILVA: Sure. Good morning. And mic check, am I coming in clear enough? Okay. Thank you. So I'm the Vice President for Regulatory Compliance and Core Quality. The Core Quality Organization really supports the rest of the Quality Team. So we don't support just one program, we support all the programs, from a regulatory perspective, technical perspective, and some of our data analytics as well.

DR. WOODS: First, please, can you tell us, overall, what exactly is a QMS, a quality management system, and how does Boeing manage that process?

MR. SILVA: Sure. And if I can ask if we can pull up Boeing's presentation, slide 11? So QMS stands for quality management system, and probably the best way to describe it is as a system. It really is the comprehension of all the structure, processes, procedure, resources, basically everything we need to document, implement, and maintain the necessary requirements, so that we can satisfy our technical requirements from a design perspective, for conforming and compliant products, regulatory requirements, as well as customer requirements.

The QMS is managed by our quality manual. It's part of a way to satisfy a regulatory requirement to have a quality manual. That quality manual describes all those policies and procedures,

and points to a number of different documents that then go into more detail. The quality manual is structured in a way to satisfy AS9100, which is an industry standard, in terms of requirements. But it is also written in such a way to demonstrate compliance to federal regulation requirements as well.

DR. WOODS: So given that, presuming there's a lot of data that you look at, what are some of the metrics that you routinely track under your QMS?

MR. SILVA: Sure. There's a number of metrics that we routinely track. We track -- as a little bit was alluded to yesterday, we track defects within our system, so nonconformances. We track internal audit reports, the results of those findings, those corrective actions. We track rework performance, so how much time it takes to rework the airplane and make sure that we have the right resources. And we track those on a daily, weekly, monthly basis, and review those in certain venues and forums.

DR. WOODS: And how is that information packaged for use? What sorts of reports or documents are produced, and at what letter are they disseminated throughout the company?

MR. SILVA: Oh, sure. Perhaps we can go to the next slide, slide 12 in the presentation? So as you can imagine, with a number of policies and procedures and all the -- or sorry, all the metrics that we track, there's different tier levels, like discussed yesterday, with the different tiers, that information is shared.

So starting on the left, we have our factory tiered meetings, where all the way from a manager and their crew, they would review quality performance. That gets rolled up to senior manager levels, and ultimately to executive levels within the program. We also have quality management reviews, where at least on a once a month basis, we review audit performance, compliance action performance, and that will go as high as the airplane program leadership team.

And then we also have our quality leadership reviews, and that's where we look at conformance performance, so how we're trending in terms of defects, rework, and in-service feedback, so any issues we see from our airline customers, and issues we have to follow up from a quality perspective there. Those are also reviewed at an executive level as well, all the way up, as high as the CEO.

DR. WOODS: And to be clear, is this structure how it was back in September of 2023, or is it how that is now?

MR. SILVA: No. Thank you for that. I should have noted that earlier. The structure is how it was as of September 2023. The one thing I will note is in that time period, the quality management reviews, the column that you see in the middle, we were going through a process of strengthening that to get higher level visibility.

So at that point in time, those would have been reviewed more at a local level within a program. But the quality leadership

reviews, those were in place as of September 2023, as well as the factory tiered meetings.

DR. WOODS: So within this data, these metrics, who or what establishes doing well versus doing poorly?

MR. SILVA: That's a good question. It really depends on the tier of information that you're looking at. So as you can imagine, data that is looked at, at a local level, really starts with what the daily performance is from a defect perspective, that is typically managed by the team themselves, the manager. But as you start to get up levels, in terms of looking at the overall system, that's where different levels of leadership would then assess the overall health of the system in terms of the metric performance.

DR. WOODS: Okay. So let's say you find things that are doing poorly. What happens next? What are some of the mitigation strategies that you would use to get it back in the doing well category?

MR. SILVA: Yes. So part of our overall quality management system, and I apologize, I should have mentioned it in the overall introduction, by definition, and by our policies and procedures, when we see information that would tell us that we need to warrant a corrective action, we then react with mitigating actions, either from a containment perspective, or overall corrective actions from a more comprehensive set of activities. And it would really depend on the nature of the issue, the findings, and the types of

data that we see within the system.

DR. WOODS: So how confident are you that the data you're receiving, because presumably, it's coming up from all these different levels -- how confident are you that the data that you are receiving is the data that you should be receiving?

MR. SILVA: Overall, I'm fairly confident -- very confident. And one of the reasons -- a few of the reasons why we're so confident around that is one, that data, most of our leaders at multiple levels have direct access into the databases that collect that information, so they have either automated reports or direct dashboard access to see the information. Two, we do review it in multiple venues and forums, to crosscheck that that information is consistent.

And probably the most important is going down to the floor and checking and validating that the data that we're seeing from a system level and that we're seeing in these different reports are in alignment with what we're hearing from our teammates.

DR. WOODS: And who are the people that are responsible for going down to the floor to check and see and confirm the data is true?

MR. SILVA: It would really depend on the metric that we're talking about or the tier that we're talking about. Generally, different levels of leadership would be responsible. And ultimately, we use different reporting venues to also check that as well.

DR. WOODS: I'd like to move to Spirit for now and ask some of the similar questions. As you are both Mr. Brown, I will try to preface by saying Greg Brown or William Brown, so apologies for that.

But with that, Mr. Greg Brown, would you please give us a high level overview of your roles and responsibilities at Spirit?

MR. GREG BROWN: Yes, ma'am. Good morning. My name is Greg Brown. I am the Senior Vice President of Global Quality for Spirit. I have responsibility for the quality assurance and inspection function across all of our 12 sites globally, as well as the administration oversight of the quality management system.

DR. WOODS: So same with Mr. William Brown, would you give us the same?

MR. WILLIAM BROWN: Yes. I'm a senior advisor to Spirit AeroSystems. And what that entails is when senior executives need any assistance from me, I support those requirements. Prior to March 17th, I was the Senior Vice President of Global Quality for Spirit since June of 2022.

DR. WOODS: Thank you. So again, similar to what I asked for Boeing, Mr. Greg Brown, would you please give us an understanding of what your QMS is comprised of?

MR. GREG BROWN: Yes. At the sake of sounding repetitive, it's very similar to what you heard from Boeing. Our quality management system, it is based on our AS9100 certification, which we've held since, I think, 2004. It's an aerospace manufacturing

standard that ensures that we have all the right policies and procedures to deliver conforming, compliant product to our customers.

The QMS, it does a number of things. It is a closed loop system within Spirit, but it also relies very heavily on our customer feedback. So while we have auditors and inspectors providing a lot of our feedback internally, as well as our frontline employees, we also have a lot of data that's coming in from our customers as well.

DR. WOODS: And again, what types of data are you looking at? What metrics do you follow?

MR. GREG BROWN: Yeah. So the primary, probably the things that are really in front of you every day, are the nonconformances, whether it be in the form of rejection tags or pickups, which I think you heard yesterday. Those are telling us a lot of our quality workmanship on the -- in production.

We're also looking for compliance with our procedures. We have compliance walks. We have inspections and audits that go out, and they monitor our employees. We also take in data from Quality 360, which we spoke about yesterday, which is a voluntary reporting system, using all of that to try to intersect at various places throughout the production system that we need to focus our risk mitigations on.

DR. WOODS: And so for the reports that are produced from these metrics, at what level is that disseminated? Who's looking

at that information?

MR. GREG BROWN: So the data is aggregated within quality. We have a team that pulls that information together. It's actually -- probably one of the first stops it makes is back with the production leaders themselves, the program leaders. We have weekly program corrective action boards where we review adverse trends. We look to see if certain data is within control limits or if it's exceeding control limits. And then working together with the process owner, which is typically operations, we try to develop a corrective action plan, and we monitor that to a closure.

DR. WOODS: And who or what establishes that you are doing well or if something is doing poorly?

MR. GREG BROWN: I think setting the control limits, again, along with operations and the various process owners, is a key aspect of understanding, are we winning or losing a particular area. But beyond that, all of this data is elevated to the executive level as well, all the way up to the CEO.

And then in addition to that, as mentioned by Mr. Silva earlier, we do a lot of compliance and Gemba Walks on the floor, talk to frontline employees, and really just make sure that what we're actually seeing is matching what we're hearing in the reports.

DR. WOODS: You mentioned corrective actions before, but what are some of the other mitigation strategies you have to get what

might be doing poorly back in doing well?

MR. GREG BROWN: Yeah. I would say safety promotion is a -- it's something that has been in place for a long time at Spirit. I mean, again, I can only speak back to March 18th. But it has been in place for a while. As part of an ongoing safety management system effort, it is going to continue to be a key aspect. It's something that we're continuing to grow today. We do a lot of professional development internally. But really trying to make sure that some of this data doesn't get stuck at the upper-level and mid-level management, and it gets down to the frontline employees.

DR. WOODS: We'll talk about safety management systems a little bit later on. But to be clear, does Spirit currently have a voluntary SMS?

MR. GREG BROWN: No, we do not.

DR. WOODS: So now given that Spirit is a major supplier for the Boeing Company, how, and this is for, essentially, all four of you gentlemen, how does your QMS integrate with one another? How do you ensure that you are looking at the same things?

MR. ACKERMAN: I'll start. So first of all, our quality management system has a responsibility for overseeing our supplier's quality management system. So it is a tiered system. As part of that, Boeing does audits in Spirit's quality management system. We look at the results of those audits. They are shared with Spirit. Any findings are written up in, as I mentioned

yesterday, what's called a supplier evaluation record. So that's -- that oversight is one element of the way they integrate.

The second thing I would say is, as Greg Brown just mentioned, the data sharing, the data transparency between their system and our system, anything we identify during the final verifications that we do in Spirit's quality management system, data that we have from any of our programs, including the 737, on findings we have in our production system of Spirit escapes is shared back with Spirit at different levels on a daily or weekly basis.

DR. WOODS: Mr. Brown, is there anything you would like to add to that?

MR. GREG BROWN: No. I mean, just to probably build on the daily and weekly communication, with Boeing's on-sight presence of their quality team, it's not just a daily interaction. It's a multiple times a day interaction, the sharing of information, the ongoing follow-up and investigations and making sure the corrective actions are either on schedule or that we're working very closely to come up with plans to address those.

DR. WOODS: So Mr. Ackerman, you say that part of your QMS is to in fact audit your suppliers. What are the sorts of things that you're looking for during those audits?

MR. ACKERMAN: There's a variety of different audits we'll do, and I can speak specifically Spirit, but broadly the same is true across our supply chain. Different audit tools, we use our

quality management system -- well, I'll start with, as Spirit is, all of our suppliers are required to be certified to the AS9100 standard.

The audits that we would do include quality management system audits at the supplier, is their quality management system documentation adequate? Are they following it? We'll also do product audits or manufacturing audits. So we'll take a product, and we'll follow it through the production system, and audit is it conforming and compliant as it moves through the production system, and following the supplier's internal processes and procedures and requirements? Or we'll take a particular manufacturing process and look at product that's moving through the manufacturing process and ask the same questions.

Each of the different types of audits we have, have a checklist. We have a number of different tools we use. And depending on what we're focused on at that particular supplier, we'll pick a checklist, a tool, and run an audit. Any findings, again, are provided to the supplier through a supplier evaluation request, and we require corrective action on that.

DR. WOODS: And again, to be clear, is this something that's been in place since January of 2024, or how long has this -- the collaboration and the integration between your QMS been in place?

MR. ACKERMAN: Everything I just described predates 2023. It goes back, as far as I'm familiar with supplier quality, for many, many years.

DR. WOODS: Okay. So snapshotting the last -- let's say five years, what has that audit data for spirit looked like?

MR. ACKERMAN: As I mentioned in yesterday's testimony, we have had -- we have about 15 auditors onsite at spirit and have for the last couple of years. Findings have been fairly consistent in the types of things that we have had findings on and written on, as I mentioned yesterday, FOD tool control, compliance and access to work instructions, and part protection have predominantly been the main types of findings we've written up.

DR. WOODS: That's the type of findings. How is the data trending? Up, down, staying even?

MR. ACKERMAN: I would say the volume over 2022, '23, it varied. I would say if you were to try to draw a line through the data, it trended up. And as we've put -- as Spirit's put corrective action, and we've worked with Spirit to put corrective action in place, we're seeing improvements in the data.

DR. WOODS: Over what amount of time have you seen those improvements?

MR. ACKERMAN: I -- I'm trying to not draw a trend line through an inadequate number of data points, but I would say we've been seeing improvements in -- you know, in this calendar year.

DR. WOODS: Okay. Mr. Silva, does your QMS define what processes require inspections, tests, or audits? And if so, how is a person to find that information?

MR. SILVA: Yes, it does. As described earlier, in that set

of policies and procedures, one of the sections of the quality manual goes and refers to the requirements for inspection and tests. Typically, to answer your question in terms of how a person would find those, most of that instruction would be in the actual work instruction itself. So the installation plans that a mechanic or an inspector would follow, that would have that little detail.

But the governing requirements in terms of policies and procedures would be referenced in the quality manual and then housed in our one PPPM system. That's just the database we use for all our authoritative documents for process perspective.

DR. WOODS: And how often is that information reviewed for clarity and accuracy?

MR. SILVA: I believe Ms. Lund described this yesterday, but at a minimum, every five years. And then based on feedback that we get from teammates, it can be more frequent, and that's where you see revisions or other changes to those -- that documentation.

DR. WOODS: Does your QMS additionally define who is to perform the inspections, audits, and tests?

MR. SILVA: Yes. Within those policies and procedures, details are laid out in terms of not just what the requirements are to include inspection tests, but then who performs them.

DR. WOODS: So if I'm a mechanic coming in off the street, I've recently been hired, how am I to know about all of this? Where am I going to learn about how I'm going to find information

to do my job?

MR. SILVA: As was discussed yesterday, most of what you would learn, in terms of how you would know to accomplish a job, would be through, initially, foundational training, and then subsequently through on the job training. In the -- in that foundational training curriculum, that's where certain classes would cover those types of requirements, and then on the job training being another area where folks would learn, in terms of how to follow those instructions, on a more detailed to their work statement perspective.

DR. WOODS: Admittedly, this might be partially an opinion-based question. But how confident are you, if I were to walk into your factory floor right now, and ask a mechanic, do they know what their quality management system is, and how to find information, that they'll be able to respond in a way that you deem efficient?

MR. SILVA: It's a tough question to answer, because we actually saw some feedback during our recent FAA audit that -- I don't believe, in this case, it was mechanics, but it was other teammates that were asked that same sort of question. In the context of saying could they directly point to a document, they struggled. But when asked some follow-on questions, they were able to describe oh, that's our policies and procedures, and our command media, and our policies and pros and BPIs.

So we recognize we have some work to do in terms of making

sure that folks not only understand where to go to collect the -- get that information in the system, but as discussed yesterday, how to simplify it significantly, because it is very complex, and we recognize that.

DR. WOODS: Was that feedback on that recent? At what point did that feedback come, to where you had an understanding that maybe you needed some refinement?

MR. SILVA: That was in -- specifically in March of this year, during an out brief from an audit finding. But we also had similar type of feedback from the ACSAA report.

DR. WOODS: Does Boeing have a mechanism for soliciting that kind of feedback prior to an incident occurring and you receiving that?

MR. SILVA: Yes. I think some of this is going to be covered when we get to the portion of SMS. But through our reporting channels that we have within the system, those would be some of the main ways we would want to collect some of that feedback up, to incorporate some of that change.

DR. WOODS: I guess what I just don't understand is that if you're just now receiving that feedback after an accident has occurred, it seems like those opinions didn't just develop all of a sudden, that they would have probably been there. So I wanted to get a better understanding of why haven't those questions been asked prior to January 5th?

MR. SILVA: I would say some of those questions have been

asked. What's tough about our system, and something I probably should have laid out earlier when we were giving the overall QMS overview is, just to give you some context, there are approximately 400 documents that govern our quality portion of our command media, with another about 600 or so supplemental writings that are additional layers of detail.

Those documents comprise a body of knowledge that we have collected over time. And in many cases, it's feedback from our team, asking for more detail to be put into the system. In other cases, it's asking for detail to be taken, not necessarily out of the system, but structured in a way that's a lot easier to follow.

And so we've received both types of feedback. We work really hard at making sure that feedback can be incorporated appropriately in the command media, or those policies and procedures. But as mentioned, that was some of the -- that feedback has been ongoing. The accident just helped reinforce taking the step back of how complex the overall system was from a command media perspective.

DR. WOODS: Similar questions for Spirit. Does your QMS define what processes require inspections or tests or audits?

MR. GREG BROWN: Yes, it does. It does have a matrix for our audit requirements across our entire business plan. And then also the planning portion, while developing the work instructions, are where we insert our inspection points.

DR. WOODS: And how is a person to find that information,

were they to need it?

MR. GREG BROWN: All employees have access to the policies and procedures, and they're taught how to access those in their initial training. And then the inspection points are -- they're essentially made available to mechanics and inspectors as they're assigned job tasks.

DR. WOODS: So does your QMS also establish who is responsible for conducting inspections, tests, or audits?

MR. GREG BROWN: It does. It lays out very clearly exactly what roles and responsibilities are responsible for each of those.

DR. WOODS: And much like I asked Boeing, if I were to walk in on your factory floor and ask an average mechanic, do they know what their QMS is, and how to research it, and how to find it, how confident are you that they would be able to?

MR. GREG BROWN: I'm competent -- or I'm confident that -- I'll say most mechanics know where they're supposed to look for policies and procedures, and that they understand what role they play in the QMS. As to how many of those can tell you all aspects of the quality management system, and how it ranges from the floor to dissemination of data to the executive level, I don't know that many are going to have that depth of understanding.

DR. WOODS: Back to Boeing. FAA order 8120.22 requires a quality system to be unambiguous and not subject to misinterpretation. Do you feel that Boeing's QMS currently meets that requirement?

MR. ACKERMAN: I believe in terms of that being a requirement, I think it does. However, I think what we've learned is there are certainly places within our command media, within our policies and procedures, where we have to continually get feedback to see how to clarify as much as possible, while still balancing out not putting in tons and tons of information that make it very complex to comprehend.

DR. WOODS: Mr. Catlin, similar vein question. From your point of view, as an IAM representative, does the IAM feel that Boeing's QMS meets this requirement?

MR. CATLIN: Thank you, Dr. Wood. No, it does not. Boeing's quality system is very complicated. There are so many policies, pros -- not necessarily policies, but pros and BPIs that make up our quality system. And they have been through so many changes over -- especially over the last 10 years, that it's very ambiguous and open to misinterpretation.

The -- one of the biggest changes in Boeing's quality system is the vernacular, changing it from an inspection to a verification, now to a conformance decision. I don't think that the vast majority of our IAM members can define the difference between an inspection, a verification, or a conformance decision.

DR. WOODS: Does the IAM have a process in place where a member may anonymously self-report a production error or confusion about the QMS or process independent of Boeing?

MR. CATLIN: No. The IAM itself does not. We have -- as IAM

members, we have been working through the Speak Up system. And when that has failed us, we have turned to FAA hotlines. We have continually submitted large numbers of FAA hotlines when Speak Up let us down and was not able to address our concerns. But as an -- as the IAM, no, we do not.

DR. WOODS: You mentioned something yesterday about SHEAR. Can you explain what that is and how that's used?

MR. CATLIN: Can you repeat the word? Did you say fear?

DR. WOODS: SHEAR.

MR. CATLIN: Oh, a SHEAR. Yeah, a SHEAR is a system that we use when there is a safety concern. We -- if somebody believes that there is a situation on the floor that is a safety concern, we submit what's called a SHEAR, and it elevates it through the process to get eyes on it through environmental health and safety and some of the other internal organizations, plus it brings the union safety coordinators in to evaluate the situation and determine is there a fix, and how do we get it fixed.

DR. WOODS: So for me, your we was a little ambiguous there. Is that we, the IAM, or does the we include Boeing?

MR. CATLIN: Yeah, it would include Boeing. Yes. It is a -- it's a cross-functional operation, where it brings people from Boeing, it brings people from the IAM and whatever other organizations are necessary to correct the situation on the floor.

DR. WOODS: So again, if I wanted to submit a SHEAR, how do I go about doing that?

MR. CATLIN: There's a system within internal Boeing computers, it's called Enablon. And you would go into the Enablon system, you would create a SHEAR event, which would generate a report, it assigns it a number, and then you give your details. And then it processes it. It sends it off to several different organizations, where it assigns manager responsibility to address the issue, too.

DR. WOODS: Do you have any insight on over -- let's say the last five years prior to the accident occurring, of approximately how many SHEARs come in?

MR. CATLIN: It's hundreds. Hundreds a year.

DR. WOODS: And has that pace remained since the accident has occurred?

MR. CATLIN: Yeah. And it can be everything from lights out in the parking lot, it can be to a stand that is creating a situation where somebody could have a fall incident, to a damaged ladder, to -- you know, I mean, it covers just about anything that could be determined or considered a safety hazard.

DR. WOODS: And how do you view the timeliness in which these reports are responded to?

MR. CATLIN: It varies. It depends on the complication of the situation. Some of them are immediately addressed that are the easy ones. Some of them that are much more complicated, they take much longer to address. For example, we had one SHEAR that was filed on -- by one of my union stewards over issues with the

fire alarm systems within the factory. That SHEAR was open for two years. This last test that we just did last month seemed to have gotten the problem addressed and taken care of. So it all depends on the -- on how complicated the issue is.

DR. WOODS: Going back to Boeing, let's take a 10 year snapshot, if you will. What significant changes or adaptations has your QMS gone through?

MR. SILVA: Sure. Maybe I'll start, and then Doug, you can chime in from a supplier perspective. So over 10 years, it's quite a broad horizon, as you can imagine. As was discussed yesterday, we've had a number of rate changes across various programs.

We obviously had differences in our production system from the perspective of storing many airplanes. I think at one point we had -- just about every program had planes in a state of storage, which is atypical for our production system. We've had a lot of employee turnover, not just due to COVID, but then just changes in the work force over time. So there's been quite a bit of change. Now, it -- that's just some context, now, for the quality management system.

So what we've done is really, then, looked at it from the perspective of if you think about how a quality management system is structured to operate, it's continuously improving and continuously looking for corrective action. And so in cases of training, the corrective action would be around supplementing

training courses, and making sure that more information or tools are available for our teams.

We have -- we did have changes in that 2017 to 2019 timeframe that were discussed yesterday. All those changes, really undone, and a significant amount of effort being put into what we call strengthening our quality management system, really over the last five years.

And so this has been around increasing the number of inspectors, increasing the number of inspections, putting more emphasis around our regulatory compliance, we had a number of commitments that we had to do from a regulatory perspective in terms of how we respond to FAA findings, and how we voluntarily disclose. I think that was another amount of work that we did really in the last few years, to emphasize more voluntary disclosure for the sake of transparency with the FAA.

So to kind of wrap it up, our quality management system continues to evolve based on the environment, but then also based on the performance that we see within the system, and then corrective actions that we have to take accordingly. And Doug, anything you'd like to add there?

MR. ACKERMAN: Yeah, I'll add a couple things around our supply oversight. So I can talk on the time period that I've been in supplier quality, so the last three, almost four years now. In that timeframe, we've pretty substantially increased the size of the organization, primarily the people we have out on the field

directly interfacing with suppliers. We've increased the number of suppliers, where we have permanent on-site presence. We've put additional -- and everything I'm framing here is pre-accident, 2023 and prior.

We've put additional rigger and structure around the data systems and the data review process. We've put additional rigor and structure around the escalation process we have with suppliers escalating to a major finding, with a supplier escalating to probation.

We've put more structure and rigor around and increased the number of suppliers where we have either pulled full delegation for inspection or put additional inspectors or inspections in place. So that's just over the changes we've had over the last, say, three, three and a half years.

DR. WOODS: Have there been any large fundamental changes since the accident has occurred?

MR. ACKERMAN: I'll start with supplier quality. Yes, as we mentioned yesterday, we put a full final verification inspection in place on the 737 fuselage at spirit. That's -- that is in place. And then we have a number of changes we're making going forward as part of the comprehensive plan. But in terms of what's in place today, primarily it's about the full tip to tail inspections at Spirit.

MR. SILVA: And then I was just going to add, around the comprehensive safety and quality plan, changes we've made have

included increasing the number of staff that we have from a quality perspective. We're working on getting more auditors, to increase internal audits.

And then overall, the elements that we put in the plan around strengthening the removals process, strengthening the pickup process, making changes to our overall command media, and then just also looking at any other signals that we need to do from a corrective action perspective on quality. And safety risk assessments on travelled work, for example. There's quite a bit. I don't want to go into all of it right here right now, but just -- the comprehensive plan is really the bulk of it.

DR. WOODS: Which each of these iterative changes, what sort of changed management process does Boeing undertake?

MR. SILVA: I guess I'll start, and maybe Doug, you can chime in. So one of the things that we've been really mindful of since the accident, as we go review the plan, and a lot of feedback that we received both from the Admiral's team, and then also even from just internal stakeholders, is around this topic of change management, that trying to change too many things too quickly can either lead to unintended consequences or different results or run the risk that they're not implemented as fully and as deeply as we need to.

So one of the things that we're being really mindful of is laying out the plan in a way that really paces learning first, taking and incorporating some of those learnings, and then going

to scale and deploy. The other thing that we're really being very mindful of is continuous to get -- continuing to get feedback from our team.

And then I'll use kind of some jargony words. We really just want to be mindful of metering change. So for example, the BPI 1581 that we released a revision for in July, we're deliberately not going to release another one for another few months, so we give some time for things to stabilize, and then proactively use some communication before doing another release. So from a change management perspective, it's really been all around monitoring for stability and trying to be mindful about not changing things too quickly.

MR. ACKERMAN: But what I'd add to that is we've also started using -- and when I say started, late '22, early 2023, safety risk assessments on types of change. When we're going to do a large change, we will do an SRA. There has been change where we have either paused the change or put additional mitigations in place before we implement a change as a result of a safety risk assessment. So that's a process change that we introduced well over a year ago, almost two years ago now.

DR. WOODS: How is the information about a change disseminated to the factory floor? How do I, as a mechanic, know a change has been made?

MR. SILVA: It really could be a variety of ways, and we're constantly looking at feedback for how else we can approve some of

those communication vehicles. I believe yesterday we talked about alerts, right? So quality alerts or messages that could be sent out.

One thing that we learned here just recently in the process of making some changes to the removals process was putting alerts more directly within the manufacturing execution system. So before you go to log into CMES, you would see an alert message within the actual tool that you interact with. And what we learned there was that had a lot more visibility and connected with and got to more folks much more quickly than some of the other mechanisms that we've used in the past.

So really, we try to take a multilayered approach to policy dissemination communication, but one of the things we're continuing to evaluate is how can we improve that, and then leverage other tools and other opportunities to get that signal out.

DR. WOODS: Before I move onto my next question, I would like Mr. Catlin to follow up on this. From the point of view of the IAM, how do you record the information dissemination tactics that Boeing uses to get that information down to the mechanics?

MR. CATLIN: I -- they're not acceptable. So the problem that I have, that we have, that the IAM has, is we will see a document that gets revised over and over and over and over again, and there will be minor changes, such as the example I just previously used, inspection, verification, conformance decision.

But that's not clarified. Nobody knows what it means. Nobody can define what it means. Is there a difference between an inspection versus a verification?

And so now it's left up to the person who is now reading this new document to make that dissemination. And that, then, you get into ambiguous and open to misinterpretation. And that is one of the biggest problems that we have faced over the last five, six years, is this ambiguous terms that are being used within the quality management system that are being applied in ways differently depending on who it is that's reading the documentation.

We continually see this change on change, whether it be BPI 1581, whether it be BPI 2573, 43, 45, where they are -- they appear to be slight changes, but they are dramatic changes. Because the difference, from Boeing's perspective, is the difference between an inspection and a verification, inspections are performed by quality inspectors. Verifications are performed by manufacturing personnel.

And that's what VO was all about, converting quality inspections to manufacturing verifications. And today, now those two terms are no longer used. It's now a conformance decision, which in Boeing's eyes, can be assigned to whoever they choose.

DR. WOODS: Mr. Silva, has Boeing ever taken the pulse or the floor, so to speak to determine how these changes affect the actual workers?

MR. SILVA: We do. I certainly understand where Mr. Catlin's coming from in terms of -- one thing I should have mentioned earlier is through our communications being more up front around intent, and being more up front at the beginning of any communication on why a change is, and spending more time not just on the why, but then helping to explain.

But in terms of pulsing the floor, we do it through a number of different ways. I think later we'll speak about some reporting channels. But specific -- I'll use the removals example here. Recently, we had a workshop in March, late February or early March, and we included mechanics, inspectors, folks that use and interact with these processes and procedures on a day to day basis.

That's important, and that's been an element of most, if not all of the processes that we're looking to change within the comprehensive plan, is really getting out and getting feedback from teammates.

I think Doug alluded to some of the changes that we're making from an engineering perspective, even on changing insulation plans. It's a requirement. It's necessary that we have to go get the mechanic to get feedback, the inspector to get feedback. Is this installation plan change adequate? Are there different things we can do?

I think we can always continue to do more of it. I look forward to continuing to do more of it. But that's -- those are

some of the mechanisms that we use, and we certainly welcome feedback on how else we can improve that.

DR. WOODS: So to be clear, when you say feedback, there are two types of feedback. There is active and passive. So active feedback is you are going out there and asking for feedback right now, versus passive feedback, where you are waiting and relying on somebody to write a report, and then you get that feedback. So which are you talking about?

MR. SILVA: I'm referring more to the former, around active. We also have mechanisms for the latter, but my statements were more around the active feedback.

DR. WOODS: So pivoting to Spirit, and I know, Mr. Greg, you haven't been -- you've been there since April of this year. But these iterative changes in Boeing's QMS, let's say over the last 10 years, how has that affected you as a major supplier?

MR. GREG BROWN: I actually think I should defer to Mr. Bill Brown on that one.

MR. WILLIAM BROWN: Yeah. So I would say everything that Boeing has done in their QMS, a lot of that has flowed down to us through the open conversations that we have. I would also say that the things that go well for Boeing that they share with us, we'll adopt those. And the things that are going well for us, Boeing will adopt.

But within our QMS over, let's just say the last five years, we've made significant changes to the QMS. The QMS itself, the

main elements that are part of AS9100 and ISO9001, they're the same. They're embedded in our documents. They're clear. We're audited to those.

But the work we do within our QMS to improve our systems, things like automated drilling improvements, the investment of MES throughout our 737 system, investments into process product verifications, which tell us are we building the product correctly.

But more importantly is, when I first took over the role as quality leader, we brought in all the inspectors for the Wichita plant and asked them hey, what are the top issues you think we need to go resolve? And we took a top five out of all those meetings and started working on them.

And one of them was hey, the experience of our inspectors and the experience of our mechanics isn't good enough. So we brought in an outside auditor. We audited the training program. We realized it's actually pretty good. So why isn't that transferring onto the floor? So we developed what was called employee proficiency verification.

We went out and spent about two to three months in critical areas, and audited our employees on can they read the manuals, can they get into the engineering, do they know how to use the tools, and how quickly are they adopting standard processes?

And what we learned was when they first come out of school, they're actually pretty good. They're developing quickly. And we

saw a very wide range of experience levels, all the way up to 15 years with the company, all the way down to six months. We use that data to continue to modify our internal training.

We also use that information to help our inspectors in critical process points that they were inspecting. So we gave that feedback to them, and I would say finally, one of the things they asked us was for a feedback loop, and we developed Quality 360, which anybody, anybody in this room can file a Quality 360 report at Spirit.

You just need a QR code, you go to your phone, and you can fill it out. And you can do it anonymously, or you can give us your name. If you give it anonymously, we'll give you a code so you can always check up what we're doing and close that feedback loop with you.

But we go out on the floor for every one of those and investigate it. If you tell us who you are, we bring you into the process so we can understand what those issues are and continue to improve our QMS. I think that's what we've done beyond what Boeing had shared with us to continue to get our employees engaged in QMS.

DR. WOODS: So Spirit is in a unique situation to where you have your own QMS, because you have other customers, not just Boeing, that's internal, but then you're also subject to Boeing's QMS. How do you manage that? Are there ever points where things might conflict in how you want things to be managed within your

system? And if so, how does that resolve?

MR. GREG BROWN: I'm struggling, in just my short time there, to think of an event where we disagreed on the root cause or a corrective action. I think that with the open dialogue that we do have, there's a lot of common ground, and we're able to arrive at joint decisions pretty easily.

DR. WOODS: You said there was no example, so I guess -- I was going to follow up was there any time that you can remember where one trumps the other, and who would have that authority.

MR. WILLIAM BROWN: I could give you an example. Within our QMS, there are certain customer requirements that Boeing has that they ask us to abide to. And as an example, there may be a fastener that was installed improperly, and we put a freeze plug in. Which is, per our engineering, an okay. Boeing may come in and say hey, we don't like that. Change this again.

So we'll get into those conversations, what's the right thing to do for the airplane, but what does the customer want as well? And when Boeing says change it, the customer wants that done, we'll do that. But it's definitely a conversation within our QMS. It's okay, but they still want us to change it.

DR. WOODS: Okay. And thank you for that, because we had heard some from yesterday's panels to where there could be a disagreement on how something should be approached, and I was wondering a little bit more from a QMS point of view as to how those issues might be resolved.

Sticking with Spirit, please, you talked a little bit about some of your internal metrics and processes in place to maintain quality control, and you alluded to, just a little while ago, that if there's something that you have a process that you think is benchmarkable, I would like to know more about that. If there's something that you find that you would like to benchmark, how do you push that information back to your customers, and most specifically, Boeing?

MR. GREG BROWN: Could you get -- I'm struggling to remember the benchmark comment.

DR. WOODS: I'm asking -- there was no specific comment.

MR. GREG BROWN: Okay.

DR. WOODS: I'm telling you, you were saying that there's -- sometimes that we have a process, that's great, and we share it with Boeing, and maybe they change their QMS. That was a discussion that just happened a little while ago.

So what I'm wondering is, say if you developed something, a better way of doing something, a benchmark for doing something, what kind of conversations happen with Boeing, and to ensure that the QMS change is adopted?

MR. GREG BROWN: Okay. Yeah, I think it's the same conversations that we're having when things are flowing our direction from the Boeing Company as well. Between Doug and myself, his direct reports onsite in Wichita, and our team, as well as Mike Riney, a bit, who's stationed up at Renton, in

Boeing, the conversations, they happen very frequently.

And, you know, again, even back to the examples they gave a few minutes ago, I'm thinking more of, you know, the larger root cause, corrective action type items, not necessarily fasteners that we may disagree on.

Just even the final product verification that we've implemented at the Wichita facility to make sure that we're delivering conforming product to Renton Boeing, we have established shoulder to shoulder inspections. We have come up with training that we believe gets us much greater alignment on what a nonconformance actually looks like, ensuring that we are always tracing back to the Boeing spec, and able to come to agreement on those so that we can, again, ship conforming product in a timely manner. So I think that that's one example of how we're able to establish that and push that back into the Boeing Company.

DR. WOODS: And do you find the Boeing Company amenable to these sorts of suggestions?

MR. GREG BROWN: I have found them to be very strong working partners on those, yes. If they have a disagreement, they have stated that, and we have come to resolution on those in probably much the way that Bill eloquently described it.

DR. WOODS: Mr. Silva, the Boeing QMS manual mentions escapes, and it largely refers to those escapes as being, like, defects in manufacturing and engineering. How does Boeing track

escapes, and what becomes of that information if the escapes exceeds the threshold?

MR. SILVA: Sure. A few different ways, and some of this actually might bleed a little bit into some of the discussion we'll have from an SMS perspective. But a few years ago, as we were maturing our SMS forums, we started tracking escapes across our value stream.

And so to put a little bit more context around the definition from the quality manual, and escape would be, say, something that left an external supplier, like Spirit, left their system and got introduced into our system, or even an internal supplier, like a fabrication site within the Boeing production system. Escapes can also be when they leave from the factory out to a flight line, or predelivery, or even from predelivery out into one of our customers.

And so through the joint SMS, QMS review of data, we would track and monitor those escapes at an aggregate level across all those different parts of the value stream. We would then set up control limits to monitor generally how stable those amounts were. And then once those control limits were exceeded, that would warrant corrective action, or warrant us to do further investigation and determine what else we could do to get those escapes down.

In the case of supplier escapes, for example, and my -- probably Doub Ackerman can speak a lot to that at a very detailed

level, but those would be interventions or countermeasures that we would put in there. And then internal escapes are things that left from our factory to our flight line or from our flight line to our customer. Very similar process, we would investigate for corrective action. Paul, anything you want to add?

MR. WRIGHT: Yeah. I think just to clarify, in 2023, we were tracking where escapes were happening in the value stream. And so if we were seeing escapes in the field, that would tell us something was getting past our factory processes. And we're doing it by location in the value stream more.

And since the accident, we've relooked at that, and the KPIs we feel are going to be more effective are types of escapes as opposed to where in the value stream. So to just clarify when and the before and after there.

DR. WOODS: That is a great segue into a question I have about two questions from now. But before I get to that, we talked a lot about essentially supplier escapes, supplier nonconformances. What I want to know now is has the number of internal escapes -- how has that fluctuated over the last five years or so?

MR. SILVA: As Paul was referring to, so back in the 2021 -- or 2023 timeframe, where we saw a fluctuation of internal escapes was really from our factory out to our flight line. We were seeing, actually, some positive trends from a -- from the flight line out to customers, so seeing a reduction in escapes out to

customers. And we're seeing less of internal to the factory escapes, so say maybe from one major build position to another.

But where we saw the fluctuation go up was from the factory to the flight line. And so that, from a value stream perspective, got us involved in terms of corrective actions to -- what we call pushing the defects back, but really go investigate what are the sources of defects that are getting out to the flight lines, how do we get teams to go take corrective action on them, and then to help bring that back down.

DR. WOODS: How does Boeing classify quality control deficiencies that are a result of human error?

MR. SILVA: Probably the closest way we currently have, and this was during the accident, and even currently, now, that we have to classify issues like those, would be within our nonconformance system. Every single nonconformance gets a code assigned to it to describe what the issue was and then what the potential cause of the issue was.

And so those would typically get written up as what we label internally, workmanship issues. But if you were really to unpack those, that would probably get the closest umbrella that we have towards human error or human factor type codes. It is an area we're investigating further in terms of how we can approve the coding we make, and how we can get better visibility on those types of issues. But right now, that'd probably be the closest way, and it's not the best.

DR. WOODS: And that's -- I guess how long has that been in place? Is that since the accident or prior to?

MR. SILVA: Prior to and since, yes. I -- that -- everything I just described has just been how we've operated in terms of how our manufacturing system works for nonconformances.

DR. WOODS: So is refining that understanding of how human error is introduced, is that going to be part of your comprehensive quality and safety plan going forward?

MR. SILVA: Yes.

DR. WOODS: We're here because an accident happened. Right? It took place. At what point should this escape have been caught and contained? Taking your QMS system and how it's structured, at what point should this escape have been caught?

MR. SILVA: And just to make sure, I'm clarifying. When you say this escape, you mean the lack of removal documentation?

DR. WOODS: Yes.

MR. SILVA: Yes. I'd say the -- as we discussed yesterday throughout Panels One and Two, and I don't have the -- we can certainly pull up a timeline. But typically, that escape should have been caught either within that time range for the removal to be written, and to have that documentation, or at the absolute latest, prior to the rollout of the airplane.

DR. WOODS: And the reason I ask, my point by that is that an error was committed. Essentially, the error, we all know here, is that bolts were not reinstalled. But one error, in a robust

system, should not be able to progress all the way to an accident. So that's why I'm probing your system and trying to find out at what point should the error have been caught. It's not about whether or not the error should have happened in the first place.

MR. SILVA: Understood.

DR. WOODS: That's neither here nor there.

MR. SILVA: Right.

DR. WOODS: It's in your system, where should the error have been stopped in its tracks?

Spirit, same, similar questions. How do you define escapes within your quality management system?

MR. GREG BROWN: Escapes within our quality management system are going to be nonconformances that are found or detected after our last opportunity to find it ourselves in our -- within our quality inspection processes. It may be something that is brought to our attention, in most cases, directly from Boeing, after the product's been delivered.

DR. WOODS: And how do you classify quality control discrepancies that are a result of human error?

MR. GREG BROWN: We have a set number of categories, I think much along the line of the answer that these gentlemen gave. You know, often times I'll see a response, and this, again, in my short time there, I'll see a response, such as failure to follow procedure. That's the first why, it's not the last why that you ask.

It could be -- we know it's a result of workmanship. We often know that maybe it's a failure to follow procedure. Maybe it's inexperience. Maybe it's ineffective training, whatever it may be. But there are a number of different categories available to -- after you drill down to exactly why it occurred.

DR. WOODS: So what are some of the mitigation strategies you have? What are -- what do you do after the corrective action process has run its course?

MR. GREG BROWN: Well, after the root cause analysis occurs, and we understand exactly what we think drove it, it generally leads to a number of different mitigations. Some of those may be enhanced training. Some of those may be communication in the form of quality alerts, crew meetings, quality standdowns, mistake-proofing, developing engineering solutions so that the workmanship problem is greatly reduced, if not eliminated altogether.

DR. WOODS: And for Boeing, my last couple questions about QMS is essentially at what point does your QMS interface with your SMS?

MR. SILVA: Sure. I think we have a slide that speaks a little bit to that, maybe, if we could pull up Boeing presentation, I believe it's slide 7. So I offered one specific example earlier. But really, to take a step back, the QMS and SMS within Boeing, they're highly complementary. Quality system -- the quality management system, very much focused on the quality of products and services from compliance to our policies and

procedures, and then conformance to all our requirements, and then the safety management system really focused around safety performance of all of these processes.

And so the example I gave earlier of the escapes, we would track that information within the build portion of what you see in the middle of the screen, where we would look at conformance information, like quality escapes, and then assess that against do they present safety risks.

And so this was kind of the beginnings of the journey of how we have both systems compliment each other. At the time of the accident, this is how we would have operated. One of the things we're doing now as part of our plan is then to obviously strengthen that integration much tighter. But this would generally give you the overview of how the two operated in that timeframe. And Paul, anything you'd add?

MR. WRIGHT: We could talk for quite a while on this one, but I'll just add a little. We do have, in this system -- it's a very broad system that covers the SMS hazards that are part of the triggers of the SMS standards. But it includes our continuous operational safety program, our notification of escape program, the thread of safety that travels through our design and supply chain, through our build, and through our fleet.

So as we have QMS interactions with the SMS, there's definitely safety risk management activity on things that hit the triggers for the proactive side of SMS. But there's also the

event-based pieces, where we interact, and we have a board structure that looks after that.

DR. WOODS: Apologies for going backwards for just a moment. Going back to the identification of escapes, identification of this error, for instance, under what system, or who is responsible for walking the floor on a daily? Was there anyone out there that should have noted that, for instance, in this specific incident, that this plug was open, and then maybe looked around to see if there's any paperwork associated with it?

MR. SILVA: I would say at a system level, in terms of how we operate, and some of this alludes to the factory tiered structure, throughout our entire production system, you know, you would have mechanics, inspectors, managers, senior managers, whose obligation is to really walk the floor. And I want to focus on, from a management perspective, their responsibility to also be attuned to what's going on within the system, and not just operating to identify feedback from teammates, but just making sure the system's operating as intended.

I can't speak to is there one particular person that should have just been doing something. But I think collectively, we have folks that live in our system and are attuned to making sure that if things look off, or if things look like they need to be raised for either a concern or an issue, that we have a quality management system for those items to be addressed from a conformance perspective.

DR. WOODS: So in the aftermath of this accident, is that something that you, being over core quality, is that something that your team is looking at?

MR. SILVA: I think as part of our comprehensive plan, we are looking at how we -- one of the things that we did recently was at a workshop around how we look to give a significant amount of time back to our managers to make sure that they are much more embedded within the production floor, at a manager and senior manager level.

DR. WOODS: And then my last question, again, about that intersection between QMS and SMS's, you just talked about, like, even based triggers. Are there any specific triggers that automatically start a conversation or a meeting or something between the SMS leadership and the QMS leadership?

MR. WRIGHT: Absolutely. So when we -- an example of an event-based trigger that automatically starts that process would be the notification of escapement process that Doug could speak to quite a bit. What -- part of that process is to determine if there's a safety issue with that escapement, and to determine how far into the production or fleet that even has occurred.

So the safety review board process that we have, it's part of continued operational safety, but also part of our production safety. We would have a team with the subject matter experts from safety and engineering, and whatever disciplines are needed, to determine if that escapement is a safety issue, and to determine

what type of compliance period would be recommended to rectify it.

DR. WOODS: Okay. Thank you. At this point, this concludes my question on QMS.

CHAIR HOMENDY: Thank you, Dr. Woods. We're going to take a 15 minute break to 10:45, and I -- we will -- please be back here promptly at 10:45 and in your seats.

(Off the record)

(On the record)

CHAIR HOMENDY: All right. I appreciate everybody coming back. We're going to get started again, and I will turn it back over to the technical panel.

MR. BRAZY: Thank you, Madam Chair. We will continue with questioning from Dr. Woods.

DR. WOODS: Thank you, Mr. Brazy.

Moving into the subject of safety management systems, first, Mr. Eick, welcome. If you would please just give us a high level overview of what your roles and responsibilities are with the FAA.

DR. EICK: Hi. Good morning. I'm an aerospace engineer, and my responsibilities are policy development for the implementation of safety management systems and design and manufacturing organizations. This includes -- included working on the rulemaking team that recently published the amended part five rule, developing guidance material for industry to comply with part five, including the advisory circular for design and manufacturing, and then developing FAA orders, work instructions,

data collection tools that will provide guidance for FAA personnel that are providing oversight of design and manufacturing organizations' safety management systems.

DR. WOODS: Okay. And with that, there are some that do not know the history of SMS, where it started, how it came to be, and most specifically to this case, how it now applies to aircraft manufacturing, among others, in the new rule. Would you please give us a comprehensive history of SMS, the development of the new rule, and where we stand now?

DR. EICK: Yes. If you could pull up my presentation on slide 2, please. One more slide. There you go. Thank you. It's a little hard for me to read that, so I'm just looking at my own sheet, here. So safety management system has been a phased approach, both with the International Civil Aviation Organization, ICAO, and with the FAA. It started out in the 2001 timeframe with ICAO applying and requiring SMS for both air traffic management organizations and airports. And then shortly after that, the FAA began their implementation of SMS.

Around the 2006 timeframe, ICAO amended -- had some more amendments requiring a member state to create an internal safety program. Around the 2008 timeframe, a rulemaking project was initiated. And that followed into an ARC, Aviation Rulemaking Committee in the 2009 timeframe. And that ARC actually covered all of the service providers. It started with part 21 design and manufacturing, the operators, 121, 135s, maintenance

organizations, and so forth.

And an advanced notice of proposed rulemaking was put out shortly after that, but then public law -- let's see. Well, I forget the number, but there was a public law passed around 2010 timeframe that directed the FAA, implement SMS for part 121. And so those other areas were dropped off from the rule, and then the rulemaking went forward, with an NPRM published, to implement SMS for part 121. And that was published 2010 timeframe.

Shortly after that, the airports SMS published an NPRM, and then the air traffic organization actually had their SMS certified a little after that. Now, around 2011 timeframe, the FAA initiated a manufacture safety management system pilot program. So this was the first working with the manufacturers in 2011. And then in 2012 to 2014, there was the part 21 SMS ARC. Again, that's with manufacturing, again, part 21.

And then ICAO, in 2013, they published annex 19. Annex 19, specifically for design and manufacturing, that required SMS for organizations that design or manufacture aircraft. That was the first requirement in 2013. In 2015, the part 21 rule became effective. In 2016, ICAO amended annex 19, and then they expanded it to organizations that design and manufacture aircraft, engines, and propellers. That was 2016.

Now, I've highlighted in bold some of the key part 21 activities for the -- now in 2017, the FAA initiated the design and manufacturing voluntary SMS program. Rulemaking project was

kicked off in late 2020 to amend part 5, and that also came out with the ACSA Act, that directed the FAA to implement SMS for companies that hold both a type certificate and a production certificate.

The NPRM was published in January of 2023. That -- the part 139 airports rule was published shortly after that. And then in April of 2024, the amended part 5 was published. And I'm going to skip -- I'll skip maybe two slides forward, and I can give you some details on how SMS really rolls into design and manufacturing going forward.

On this chart, we have the approval holders on the top and the FAA on the bottom. And so the rule was effective on May 28th of 2024, and that gave the company six months to submit an implementation plan of how they're going to develop and implement an SMS. The FAA will approve those implementation plans within 60 days of submittal. And so those, by January of 2025, we'll have those approved. And then the companies have 30 more months to fully implement their SMS. So by May 28th of 2027, they have to be fully implemented.

Now, the FAA is going to conduct two compliance checks, and these are all covered under order 8120.24, and including approving the implementation plan. We're going to have two compliance checks. The first one, there'll be -- there's a - and I should say there's approximately 65 companies that will be required to comply, both this rule and part 21.

And so the first compliance check is we go and complete an SMS verification. And what we're doing there is we're looking to make sure that the companies have developed all the necessary policies, procedures, and processes that are required by the rule. That's step one. And then we wanted to have a 12 month time period before we do what we call an evaluation to see how the SMS operates, and make sure it operates in compliance with the rule.

And we did this -- I know it looks like a long time there, but we wanted to see how -- an SMS that's just a bunch of policies and procedures, and doesn't actually operate properly, isn't an effective SMS. And we wanted to see how the SMS really operated in real world examples. And so we're waiting a year for the companies to operate their SMS, then we're coming back in, and we're doing another compliance check to make sure your SMS operates in compliance with part 5.

Now, following that, we're working on another order right now, which will be our continuing oversight order. And that is still under development. And that'll be our -- what we're really going to work on in that order is how the company's SMS is performing. This gives you the timeline of how a part 21 SMS will roll out.

DR. WOODS: Thank you. If you would go back two slides. I just want to clear up a few things for clarity, because again, you had a lot of acronyms in there. And so to ensure that everybody understands, some of the key points I want to point out here is

first of all, what was the implementation year for part 121?

DR. EICK: Part 121 implementation is 2015.

DR. WOODS: Okay. And what is part 121?

DR. EICK: Those are the airlines -- major airline operators.

DR. WOODS: Thank you for that. And what is an NPRM?

DR. EICK: Notice of proposed rulemaking.

DR. WOODS: And when did that happen for part 5 for part 21?

DR. EICK: For part 21, we published that in January of 2023.

DR. WOODS: And what is part 5?

DR. EICK: Part 5 is safety management systems.

DR. WOODS: And lastly, what is part 21?

DR. EICK: Part 21 is procedures for design and manufacturing organizations.

DR. WOODS: So to be clear, the voluntary SMS for part 21 came into effect what year?

DR. EICK: The voluntary came into effect in 2017.

DR. WOODS: And the new rule was announced when?

DR. EICK: It was published in April of ’24 and is effective in May of ’24.

DR. WOODS: And this is now from -- moving from a voluntary SMS to a regulatory one. Correct?

DR. EICK: For -- yes, for companies that fall under requirements of the rule. There still will be some companies that will stay in the voluntary program going forward. But the companies that fall under the rule, companies that design or

manufacture aircraft, aircraft engines, or propellers.

DR. WOODS: And implementation for the regulatory SMS is about -- full implementation is required by about what timeframe?

DR. EICK: Implementation is required -- for the required -- voluntary or mandatory?

DR. WOODS: Mandatory.

DR. EICK: For mandatory, it is required by May of 2027.

DR. WOODS: Okay. Thank you. So I apologize for that, but again, for those of us that are familiar, we followed right along. But I want to make sure that everybody understands where we are stepping through the timeline. So out of all of this, where does Boeing fall?

DR. EICK: Boeing, they're a holder of a type certificate and a production certificate, design or -- and manufacture a product, an aircraft, and so they would fall under the required rule.

DR. WOODS: Implementation due by May of 2027.

DR. EICK: May of 2027.

DR. WOODS: Okay. Thank you. Mr. Eick, where does the supplier fall under this new rule, or do they?

DR. EICK: The new rule -- the SMS part 5 rule does not apply directly to suppliers. This applies, as I mention, to the manufacturers of aircraft engines and propellers. But there are some provisions in the rule that will -- those companies that the rule does apply to can fall down to their suppliers.

For example, in the safety assurance portion of the rule,

you're required to monitor the safety performance of your organization, looking for hazards, looking for ineffective risk controls, and so forth. And one of the areas that you're monitoring is your management of your suppliers. And so you're responsible for your suppliers, and so that's one of the areas you're monitoring.

In addition, we put safety communication aspects into the amended rule. We required that when you're conducting safety risk management, you consider interfaces. And the interfaces for a part 21 design and manufacturing company would primarily be your suppliers.

We also put in a requirement that you have to notify -- prior to notification of hazards to suppliers, to interfacing persons. And that's a special requirement. We also put in a requirement that you have to investigate hazard reports that have been received from external sources, and those external sources could be a supplier, could be an airline operator.

And so all those provisions are how a company would integrate SMS with their suppliers. But the SMS rule does not require entire flow down of the SMS requirements to suppliers.

DR. WOODS: For those of us that might be more familiar with what an SMS looks like for a part 121 operation, what are some of the key differences? It sounds like you just mentioned a few, between what it would look like for 121 and what it would look like for part 21.

DR. EICK: Right. I've got a slide. It is -- I'll just go back to my presentation. And that would be slide 5, please. We put in three specific requirements for part 21. This first one is really important. We require that part 21, and only part 21 companies, to develop what we can an organizational system description. This defines where SMS is to be applied in the organization.

And in the advisory circular, we asked the companies to define that in three subsystems, their design and certification subsystem, their production system, and their continued operational safety system. And we want them to describe, you know, what are their aviation-related process, procedures, activities? What's the function and purpose of the products they provide, so forth, the operating environment? What are their personal equipment facilities for operation?

But what this does is it serves as the basis of an implementation plan. An SMS is only effective if it's implemented across the organization. And the key point here at the bottom is that it enables the organization to know where to do their safety performance monitoring across these systems, and again, where to perform safety risk management if they're making a revision to assist, or developing a new system, or amending a procedure, so forth.

In addition, as I mentioned before, the implementation plan, that's required -- that's only required for part 21 companies.

And finally, there's an ACSAA requirement, Aircraft Certification Safety Accountability Act. It requires companies to hold a type certificate and a production certificate, to submit a summary of confidential employee reports that they've received to the FAA every six months.

DR. WOODS: Thank you.

For Spirit, I recognize, again, that as a supplier, with the exception of the concessions that have been made in the customer, Boeing's SMS system, that a supplier is not required to have their own independent SMS. However, they can still have an SMS within their own, or a voluntary SMS submitted to the FAA. Where does your company currently stand on that process?

MR. GREG BROWN: Yes. Thank you for that. In September of 2023, and probably much earlier than that, Spirit actually began their SMS journey by electing to implement a voluntary system. The gap analysis, assembling all of the various industry references and ICAO, FAA support, guidance and such, and even cooperating -- coordinating with Boeing Company on their SMS journey, they began putting together an implementation plan.

I arrived in March of this year. As you know, a lot was going on in January, February, and March. I began looking through the plan that had been developed at the time, began asking a lot of our own questions to try to make sure that what we started putting in place was going to work for Spirit AeroSystems.

As of right now, we are well through the gap analysis. We,

again, continue to partner with Boeing. I cochair an SMS development counsel with a member from Boeing for a lot of their suppliers that are seeking to develop voluntary systems as well. We hope to have our implementation plan completed here in the -- by the end of the third quarter, with a -- and once we have that in place, we'll know definitively when we expect to fully implement the system.

DR. WOODS: Pivoting back to Boeing, Mr. Wright, we had a -- we talked to you a little bit under the QMS portion of this panel, however I don't believe you had a chance to introduce yourself. So if you would please just give us a high level overview of what your roles and responsibilities are at Boeing.

MR. WRIGHT: Thank you, Dr. Woods. So my name is Paul Wright, and I am responsible for the safety management system implementation across Boeing Commercial Airplanes, including the subsystems that Mr. Eick -- or Dr. Eick just described with the design, the build, and the support area of the fleet.

DR. WOODS: And if you would please give us a high level overview right now -- or I guess actually prior to the accident, of what your voluntary SMS program looks like.

MR. WRIGHT: Sure. Maybe I'll use a couple of exhibits that I think will help a little bit. The first one, if you could please pull up the Boeing slide 9, just to give a feel for where we are timeline-wise. Thank you.

The -- Boeing was approved under the voluntary program in

2020. And then in 2021, very similar to the timeline that was just laid out, the operational approval was granted in 2021. So from a maturity level, following the voluntary program requirements, we've since -- and I'll describe a little further as to what it really looks like -- been developing SMS deeper and deeper into the organization, starting with the accountable executive, which is the top risk acceptor at the company, and working our way down through those design, build, and operate systems.

And to give a feel at what that looks like, I'd ask if we could go to the Boeing slide 8. So for those of you who don't see safety management system in your regular world, this is a really good way to look at it. And it starts off with the pillars and having a safety policy and objectives clearly written. Safety risk management is the mitigation of known hazards.

And safety assurance, what that term really means is your hazard detection system. So that's the channels. That's your employee reporting, your KPIs, your audits, your change management processes. And then safety promotion, that fourth pillar, is really key, because that is how you promote SMS throughout the organization, through training, communication and participation.

And the three areas below are really critical, with the top level commitment, that's the leadership commitment, through those subsystems, the positive safety culture, which I'm sure we'll talk about more, and the continuous improvement loop, I'm sure you'll

hear more of that as many of us speak, having a way to get feedback as to how the SMS is working to continually make it better.

And those two middle pillars, those are really the engine of SMS, with hazard detection being where we understand where our risks are, safety assurance, safety risk management, doing the assessment and mitigation, and then back into safety assurance to ensure that that mitigation worked.

So when we talk about where Boeing is in our SMS, we've implemented, through our design, build, and operate systems, and we operate those through seven SMS boards. We have three cross-functional boards, one for build, one for operate, and one for design. And then each program has a program-specific board that are responsible for these elements.

DR. WOODS: Dr. Eick, two formal apologies. One, I apologize for not using your title earlier properly. And the second is, I'm going to go back a bit. You touched on the ACSAA rule and the requirements that were imposed upon Boeing for the development of their involuntary SMS. Can you go into just a little bit more detail about the circumstances surrounding that and how that process was initiated?

DR. EICK: I'm not sure I understand the question. If -- for ACSAA?

DR. WOODS: Under ACSAA, there was a rule requiring, I believe --

DR. EICK: Yeah.

DR. WOODS: -- and correct me if I'm wrong, for Boeing to establish a voluntary SMS.

DR. EICK: Not under ACSAA --

DR. WOODS: Okay.

DR. EICK: -- that I'm aware of. There's -- maybe there's a different provision of ACSAA that I'm just not aware of. The key one that I was aware of was -- it required companies -- all companies that hold the type certificate and a production certificate for the same project to implement in SMS. That was section 102, I believe.

DR. WOODS: Can you tell us a little bit more about what was the reasoning for that? How did we get to that point?

DR. EICK: I don't have all the background, but it was likely a cause from a prior accident in the 737 max, and then -- and Congress then enacted this requirement to implement in SMS across design and manufacturing.

DR. WOODS: Okay. Thank you. I just wanted that to be established because I wanted to give a little bit of history as to why this came to be and at this time.

Moving back to Mr. Wright. Ultimately, who's responsible for managing your, at this point, voluntary SMS program, and ensuring its success at Boeing?

MR. WRIGHT: The accountability for SMS is quite specific, and we align to the ICAO standards there. So, you know, we could

talk about implementation organizationally. My organization, the Chief Aerospace Safety Office, is responsible for the implementation and the planning.

But when we talk about the execution, the -- we have an accountable executive, the Chief Aerospace Safety Officer, and then we have our series of risk acceptors throughout the organization. And that really has a role for everybody at the company in the SMS, which is critical.

So we rely on our employees to report hazards and participate in risk mitigation for those hazards that are in their area. And we also rely on many organizations that are part of the policy and promotion. So when we talk about who's responsible, there's roles for everybody, and there's different places where risk is accepted.

DR. WOODS: Okay. We are going to step through the different foundations of SMS in a little bit and talk about each of those in greater detail. But right now, I just want to have an understanding of how your voluntary SMS came to be.

So with that, I'm actually going to move to the FAA. I see you guys back there. Mr. Slagle, if you would please just give us a high level overview of what your job was and what your role was in helping Boeing to develop their voluntary SMS.

MR. SLAGLE: Thank you. My involvement with the voluntary SMS program started back in 2017. I was a national team lead for the program, and Boeing was one of the companies that I was

assigned. My duties and responsibilities were to help Boeing understand the program and help them as they worked through their implementation process.

There is a slide, FAA slide number 8, if you could pull that up, it shows the basic outline of what we did to get Boeing through the process. If you look at that second bullet, the steps, the applicant, Boeing, needed to show interest in the program. They developed a system description, very rudimentary compared to what we have today with the rule. They developed a safety policy and a gap analysis. They provided that to the FAA. The FAA reviewed it and basically okayed it.

From there, Boeing went on to develop processes and procedures. We were involved with Boeing as they were working through this process. So we were pretty aware with what was going on at Boeing.

At the completion of that point, the FAA did what we called a compliance assessment. That was basically looking at the processes and procedures that were in place, and that they met the requirements of either national aerospace standard 9927, and also part 5 as it existed at that point in time.

From that point, Boeing went forth, they basically turned the key, got the engine going of SMS, and we then -- the schedule was to do it approximately six months later. I think we actually did seven months later. So we accepted the Boeing SMS on the compliance phase in December of 2020. And in July of 2021, we did

the performance assessment, which was basically looking at the processes and procedures that Boeing had in place, and if they were operating, and if they were successful.

So many of that -- many of those processes and procedures, in the six month time frame, weren't fully implemented. So some of the observations that we made were based on a desktop or a simulation of the procedure working.

At the completion of the performance evaluation, another acceptance was not given to Boeing. We just went with the original acceptance from the December compliance evaluation. So at that point, Boeing had an accepted SMS by us, meeting the requirements of 9927 or part 5.

DR. WOODS: And after that point, is there any sort of continued monitoring to ensure that improvements are made or that it still meets, I guess, the voluntary SMS standards that were set forth?

MR. SLAGLE: The way the voluntary program was set up is the performance evaluation was the last evaluation that we did, and it was incumbent on the oversight office to continue monitoring. But it was nothing that was really documented at that time.

So I know that the -- at the time, it was the Certificate Management Office, the CMO continued to do observations and interactions with Boeing. I know that the CMO personnel participated with Boeing in safety -- or safety risk management activities. The CMO manager at the time was very passionate about

SMS, and oftentimes brought things up -- when an issue would arise in the company, I know that he would ask what's your SMS say? What does your SMS tell you to do?

So that was basically the oversight that took place. Nothing extremely formal. But the routine interaction was monitored, and the SMS principles and tenants were overseen.

DR. WOODS: And I am going to move to Mr. Knaup in a moment to talk a little bit more about what monitoring looks like under a voluntary program. But before I do that, if at any time during this process, and even shortly thereafter, after that last performance evaluation was made, if Boeing had questions, or wanted to reach out, or needed more information about how to help facilitate their program, who would be their direct line at the FAA?

MR. SLAGLE: At that time, there was a wealth of information in the manager of the CMO. And I know that Boeing could go to him at any time and ask questions and get information about SMS. They could also reach out to me and my organization and ask questions if they had questions about anything that they were working on, clarifying information about what later progressed in the voluntary program to the data collection tools. So there was a lot of interaction back and forth between the Boeing SMS folks and us in the FAA.

DR. WOODS: And now Mr. Knaup, given that this is a voluntary structure, first, welcome. I don't think we've had a chance to

talk to you yet. What is your role and responsibility at the FAA?

MR. KNAUP: Yeah. Good morning. My name's Brian Knaup. I'm the manager of the System Operation and Oversight Branch that is responsible for oversight of Boeing, GE, and Pratt & Whitney for their production, ODA, and SMS.

DR. WOODS: So now going back to the fact that it is a voluntary program, what does oversight look like for a voluntary SMS?

MR. KNAUP: So for a voluntary SMS, there isn't any mandatory oversight. We did meet regularly with the SMS leaders at Boeing. As Steve had mentioned, the previous manager provided a significant amount of insight due to his previous experience in part 121, as they implemented SMS. But it was regular meetings, and we participated in safety risk management activities that Boeing had identified that were related to the parts of the company that we, you know, do oversight of.

So that was the extent of our oversight, and certainly, you know, providing guidance when there was questions, as we knew the rule was coming, ensuring that they were ready, you know, to satisfy those requirements.

DR. WOODS: So I've heard both of you mention a couple times now that you had a person at the CMO who was very knowledgeable, who was passionate about it, and who was very involved, which is sounds like we got lucky. I guess what do you have in place if that person isn't knowledgeable and passionate and ready to go?

MR. KNAUP: Right. Certainly, as SMS is now a formal rule, there is training in place for all of our staff. And we've identified a number of our staff to go to in-person training around SMS and become familiar with each of our applicant's SMS -- the way they're organized, so that we are ready to implement the rule and provide, you know, oversight of the now formal rule. So --

DR. WOODS: Okay. So given that some of that formal training hasn't come yet, understandably, ASIs, or aviation safety inspectors, what would you say, in their day to day functions, what percentage of that is dealing with specific issues to Boeing's SMS, voluntary SMS?

MR. KNAUP: I'd say the majority of their time is spent on the quality system at this point. So our involvement in, like I'd mentioned before, in their SMS's, mostly are participation in safety risk management exercises that Boeing is doing. We do have a handful of folks that participate regularly in the biweekly meetings to understand what risks Boeing is looking at.

And I think now, you know, is a good time. We do have a triparty agreement with Boeing, IAM, and ourselves to implement an ASAP. It is the first design and manufacture ASAP. And we're working through that. And that is a process to review Speak Up reports, which is also, you know, obviously a part of Boeing's SMS. So --

DR. WOODS: Aside from the Speak Up reports, are there any

other reports or metrics that Boeing produces that the FAA also reviews specifically to its voluntary SMS?

MR. KNAUP: We certainly review the risk register. It's not something we make a decision on or are a part of their approval. But we certainly review how Boeing is determining risks of the -- you know, how Boeing is determining risks of the assessments they're making. But we don't formally, you know, provide input into that.

DR. WOODS: Not to get ahead of myself, but do you see that changing now with the mandatory rule?

MR. KNAUP: So I don't know -- I think we would have a bigger role in how Boeing does -- you know, manages their risk register, but I don't foresee us determining the risk level of SRMs per se.

DR. WOODS: Do you have an idea of what the FAA is going to be looking for in that interaction between Boeing's QMS and their SMS?

MR. KNAUP: We would certainly expect the QMS to provide triggers to the SMS, right? So when there is an issue with the QMS, that should trigger their SMS to do a safety risk management exercise. And so we would be monitoring various metrics, some that were mentioned yesterday, to ensure that if those control limits were triggered, or potentially other ones, Boeing was conducting an SRM for that.

Additionally, if they were making changes to their quality system, they would do an SRM in advance to ensure that they

understood all the risks that were a part of the change they were planning to make.

DR. WOODS: So far, under the voluntary system, what are some of the things that the FAA has observed in Boeing's interface between their QMS and their voluntary SMS, recognizing that ASIs haven't been fully trained and it's not a requirement yet?

MR. KNAUP: So I -- we've certainly seen examples of -- where risks that either we've identified, or Boeing has identified themselves have driven SRMs. I mean, one of the examples is the removals process that was in the factual report that Boeing, you know, had identified as an issue and had a active safety risk management activity started in, I believe, July of 2023, you know, prior to the accident. So that's an example of them identifying issues and starting a safety risk management. We've seen that in -- certainly in other areas as well.

DR. WOODS: Thank you. So now, Mr. Wright, we are going to walk through the different fundamentals of what makes up an SMS program. And for those that are unaware, that's safety assurance, safety risk assessment, safety policy, and safety promotion. So we're going to start off with safety policy. Tell me about how Boeing applies safety policy, and what that means under your voluntary SMS?

MR. WRIGHT: Happy to. The safety policy is -- and just to kind of give some context, as we developed our SMS, we relied a lot on input from airlines who had been conducting SMS activities,

many for a decade, which is very helpful, and also across other OEMs. And we found the most effective way to have a safety policy was to put it on one page that everybody in the organization could digest easily, as opposed to a deep document.

And in that safety policy, we walked through our commitments around safety culture, safety risk mitigation, really across the pillars of safety promotion, and also the foundational elements around continuous improvement, leadership commitment, things like that.

And that safety policy is signed by our top leadership at the company. And I should note that that policy doesn't just apply to commercial airplanes. We see great value in SMS, and are -- also have SMS implementations in our defense and services businesses.

DR. WOODS: And if one wanted to know or read up on Boeing's safety policies, where do they go?

MR. WRIGHT: One would go onto our front page website and search under safety policy, and it would come up. There's also an area of our front web link around the messages from top leadership, and you can find it there.

In practice, we review the safety policy, we do safety policy reflections during every review in our SMS. So at lower levels to the highest levels, we will pull up the SMS and a leader will walk through an element of that, and we'll have a discussion on what that means to us. And that's part of our cultural setting.

DR. WOODS: When you say we, who are you talking about at

that time?

MR. WRIGHT: Sure. So just examples, in an SMS, you have an accountable executive review, where we review risks. That would be a place for that type of reflection. We have business unit level safety reviews, and that's a business unit CEO and the leadership team. We also do invite the FAA to be part of that. So that leadership level. Our SMS boards, so our SMS boards for design, build, operate, as well as the programs. So those are VPGM level.

And I should note that when we say we, the required quorum to make a risk acceptance decision at Boeing and at -- I believe this follows the standards well, is we have engineering, design is a critical area, so the chief project engineer, chief program engineer on any program at Boeing is responsible for product safety and integrity. They're definitely a member, what we call a voting member. The VPGM of the program, and then there's a independent safety officer, that's typically myself, on the business unit for cross-model ones, and a manager in my organization for the program level.

That's the core we, and then we include the leadership teams for those specific areas when we're having those discussions. Below that, there are working groups that feed. In an airline environment, you might hear them called data analysis working groups or safety action groups. We call them working groups.

Those are the functions that support. So for instance, the

functions that support our build area, our supply chain, our fabrication, our quality, and our operations leaders. There's working groups in those areas. And right now, we're right in the midst of developing our data analysis working group structure. So that's what we're in the midst of implementing right now. So when I say we, that's what I'm trying to convey.

DR. WOODS: So with all those groups of people that you've mentioned, is, at any point, the IAM invited in to help establish and develop safety policy?

MR. WRIGHT: The safety policy is established under the accountable executives, so I'd say no. We do welcome feedback.

DR. WOODS: So then I guess who is representing the touch labor when you have these quorums discussing and developing safety policy?

MR. WRIGHT: The management that touch labor reports to.

DR. WOODS: However, to be clear, the managers are typically not part of the union. Is that correct?

MR. WRIGHT: That's correct.

DR. WOODS: Mr. Catlin, from your point of view, as a representative of the IAM, where do you feel union representation should be in the development of safety policy for Boeing?

MR. CATLIN: I think that it should be a integral part of the development of this. We are the ones who are down there on the airplane. We are the ones who are assembling the airplane. It's our IAM members that continually run into these concerns,

especially, for example, during verification optimization, when thousands of inspections were being removed.

You know, we were the ones who went to the company and raised these concerns, and it fell on deaf ears. So we ended up having to turn to the FAA. I believe, our union believes we have an integral part in both the manufacture and the safety of these aircraft after we've assembled them. We should be a part of the voice being heard when these kinds of decisions are being made, and especially when it comes to a safety management system.

DR. WOODS: So then what has the IAM done to have those conversations to get an invitation to the table?

MR. CATLIN: Well, we did enter into a triparty agreement with the Boeing company and the FAA. I believe that was in 2022. We have had some struggles getting that up and going. There seems to be a lot of disconnect between who handles what and what it is that the IAM is allowed to see. It has been limited to our IAM members here in the Puget Sound in Washington State.

But we are experiencing Speak Up reports that are being filed by our IAM members in Everett, and these Speak Up reports are not making it to our members on the triparty agreement. They're being sent to South Carolina for review and closure.

So, you know, there's a lot of things that do need to be worked through with the triparty agreement. It is a beginning, but it does have -- it needs to mature.

DR. WOODS: Well, I would also argue that the voluntary SMS

is also -- what year, Mr. Wright?

MR. WRIGHT: 2020.

DR. WOODS: So immature, it is. Moving to safety assurance, describe some of the indicators that you use to track your performance.

MR. WRIGHT: Sure. So we've talked a little bit, just to be clear, on timing. Prior to the accident, or after, or both?

DR. WOODS: Prior to the accident, and then I will give you an opportunity to talk about what's going on lately.

MR. WRIGHT: Certainly. So prior to the accident, safety assurance, when we look at the channels for safety assurance, the standard channels that we've benchmarked are employee reporting, audit reports, KPIs, change of management internal to our company, and changes external to our company.

So when we talk through KPIs, they're one piece of the input into the SMS. I just want to make sure that that part's coming through. So we established KPIs in our areas of the company, and for our QMS or our build processes, those were the escapes we talked about in the different parts of the value screen.

And we looked at control limits in those areas, and when they were out of a control limit, a safety risk management was required to be conducted to determine if that process could be corrected with what is called an SMS corrective action, which is bringing something back into process, where that process is robust, or if it needed that process to have safety risk management done to it

to adjust the controls, add, or clarify. So that's the type of system the KPIs had before.

DR. WOODS: Please describe Boeing's hazard identification process, and who's responsible for identifying hazards?

MR. WRIGHT: Absolutely. So hazard identification can come through any of those channels. And the people who work within those channels are the responsible areas. So everybody at the company can use Speak Up as a hazard reporting area. Also, hazards can be reported through management. And also, you have things like seek, speak, and listens. We talked about stand downs, things like that.

The -- everybody at the company has training and is obligated to report hazards. It's part of our code of conduct, and it's part of our annual training, and I personally use the system.

DR. WOODS: And I appreciate that. But if I'm coming in off the street and I'm a new mechanic working for Boeing, how do I know what a hazard is?

MR. WRIGHT: So during the foundational training, just for instance -- and we've learned along the way how to describe what hazards are. SMS can be made to be very simple, but it can also appear quite complex. So from a mechanic's standpoint, a hazard is really about any hazard that would impact their personal safety or a hazard that could impact the quality of the airplane. Those are the pieces we want our mechanics to report on.

And it could be something that was done incorrectly, it could

be something that they see that could be done incorrectly. So it's really about personal safety and quality, and we do have training that points to that.

DR. WOODS: Talking in timelines, from the point that a hazard is identified, all the way up to -- I'm moving into safety risk assessment. But until your SMS is activated, essentially, what is the expectation?

MR. WRIGHT: It really depends on the hazard. And we've been learning over time, and we've changed our training, around the beginning of last year, to not only work your hazard with your local management to contain it, but to also put it into the system. Because what we might find is there's the same hazard being worked locally across several crews. And if we can see it at the system view, it's a lot easier to understand if we might have a systemic issue.

But the timeline is that immediately, corrective action must be taken to rectify anything that's happening on the floor. And then depending on the type of hazard, it's either used corrective action to correct, or if it's something that appears to be systemic or high risk, that gets elevated into the SMS resolution structure, which is through those boards I mentioned.

So when we think of the timeline, it's hazards reported, we have a triage process to understand what it is, get it to the right spot, and then immediate containment. And then depending upon if further action is needed, that could go into the SRM

process.

DR. WOODS: Where do audits fall in your safety assurance component of your SMS?

MR. WRIGHT: So audits are a key input, and the -- as we have been looking at how to incorporate audit findings, what we had been doing prior to the accident was looking at top finding areas, kind of a Pareto approach, and applying safety risk management in those areas.

And as we've, you know, really taken a hard look at our system and ourselves, we've done some realignment since the accident, and we've actually realigned the audit function that used to report through quality, and now it reports through the Chief Aerospace Safety Office as an independent body.

DR. WOODS: So you talked about systemic issues and those being identified, and then what happens next. What are some of the systemic issues, and I do believe some of them have already been mentioned throughout these two days, what are some of the systemic issues that you're finding?

MR. WRIGHT: What we find is that a lot of the systemic issues are really well aligned to a lot of the feedback that we've gotten through many channels. And if I give you some examples of them, stamping, tool control, FOD, also things around some of our supply chain elements, so when we have suppliers of concern with high levels of defects, processes that can be complex and have confusion, such as the removals process that we spent quite a bit

of time talking about. We started a safety risk management activity on that from employee reports.

And I should correct the date. July has been used. It was March of 2023 when that was identified through the safety assurance channel of Speak Up.

DR. WOODS: So we've heard extensively from quality, and we're going to hear more from the FAA on their audit and oversight process later on this afternoon. But arguably, some of these systemic issues have been around for a while. So the question is then what is happening under your safety assurance component to where resolution still has not been achieved in these things that have been determined to exist year after year?

MR. WRIGHT: Part of it is the -- historically, we didn't have an SMS to elevate through. And that puts a different level of escalation and urgency on an item when it gets into the safety system. The voluntary program has helped us with that.

So when we think about understanding something from a safety risk level process, that's really the key element that drives the speed. And we've had a lot of learning, even as we've conducted safety risk assessments, as to how to scope them, and how to understand what the -- what types of tools are the industry best practices, things like that.

So with that learning, the speed's increasing. And I'm really very much feeling good about the 90 day plan elements that are -- have sped up some of our process elements. And we've made

some major process changes to get initial risks done more quickly, to really help drive the urgency to the right place.

DR. WOODS: Well, we've already bled into safety risk assessment. But to continue with that vein, how exactly does Boeing go about conducting a safety risk assessment? So walk me through, there's been trigger, it's been identified that an SRA has to occur. What happens next?

MR. WRIGHT: You bet. So I'm going to walk you through kind of an administrative element, but there's really -- it's the assessment and the results that are the important part, so I don't want it to sound overly administrative.

The hazard comes in. It is identified and recognized by my organization, and we place it on the risk register. It's assigned a number, and it's put into identification and disposition, which follows the 9972 standard that was referenced earlier. There's standard steps to safety risk management, and we follow those.

So identification and disposition occurs. A system description is written. And one thing I will note that I feel is very powerful with SMS is it's a system of record. And a hazard or a risk cannot be lost or overcome by events. It -- once it's there, it's on our books.

From there, we move into the risk assessment phase. So we understand what the hazard is. We use an industry standard tool called bow tie, and we conduct a bow tie analysis. And depending on the complexity, that can take anywhere from a few weeks to

several months to identify the system in what they call a -- this bow tie, which is the event in the middle you want to avoid, the items in the front, for the pilots out there, it's threatened error management, and then consequence is on the other side, and we identify every control, preventative or recovery.

And during that assessment, each control is graded using aerospace risk management system, ARMS criteria. that's an industry standard criteria, for likelihood and consequence.

And from there, the consequence is just the things that can happen on the right side of the bow tie. Those are the things that happen if you, for instance, have a nonconformance with that certain part, what could the consequence be? And if we take a look at the likelihood, that's how strong those controls are.

So with the grading of those controls, we get likelihood and consequence, and that gives us a risk level. That risk level goes -- there's five categories, high to minimal. High risk, and example of a high risk would be one where we would ground a fleet, and that goes to our accountable executive immediately. A serious risk is one where we would stop our production line to prevent a hazard from -- or a risk from reaching the fleet. And when we get into moderate, that's around regulatory action, things like that, and it goes from there.

The next step, once that risk level is established and understood, is to create a control plan to use as an action plan to mitigate the hazards. And the power of this bow tie is when

you make an action plan, we've all done it, we think of the actions that will be effective in mitigating the area. What it does is it assesses how strong are those actions, and are they the right actions?

It uses the hierarchy of controls. So this is remove the hazard, substitute the hazard. Engineering controls, which are hard controls, or administrative controls, we look at the strength of those. And we also map the actions to every control in the system. And if we have a control that's rated red, and we don't have an action for it, that control plan won't be approved.

We also can find, through brainstorming, that we stack up actions on one control and we leave other ones alone. This bow tie has really helped us see the coverage of the actions and the strength of the actions.

Another thing it helps us see is the complexity of the system. If we look at the complexity, and we find that we have an inordinate amount of controls that have been added over time, it can call attention to what controls are ineffective and should be removed so that the team is not spending time being stretched on those, and what controls are strong and should be kept, so the team can focus and be very good at those.

That's how we develop a control plan. With the control plan, that gets approved through the SMS board, and we go into control plan execution. We execute the actions with urgency that is aligned to the risk.

When those are complete, it goes into targeted monitoring, and either a KPI or a series of events are chosen to judge whether or not those actions were effective. If those actions were not effective, then we go back and do the analysis phase and understand where did our analysis have a gap. If we see the actions were effective, we usually pick three to six months to check that.

Then we take the risk on the risk register, the SRM, it goes into phase 5, which is it becomes inactive. It's still on our risk register, but it's no longer active. And if that event or hazard comes up again, we reopen.

And one thing that's been very helpful if we do have an escape in the future with this type of system, you don't have to, from scratch, create a whole root cause corrective action. You can rapidly figure out which control, preventative or recovery, failed, and focus right in on that. And it helps speed the mitigations going forward. That's kind of the end to end on a safety risk management.

DR. WOODS: Mr. Wright, was there ever an SRA done on the experience gap, if you will, that Boeing has seen with employees that existed, essentially, prior to 2020, and those that have been hired since?

MR. WRIGHT: In 2020 -- I'll kind of walk the timeframe here. There -- we did see the high amount of employee turnover, especially in manufacturing. And during that time, that was one

of our early SMS triggers that we noted. So we did do an SRM on employee onboarding, and we looked at our training systems, we look at the throughput, and we did find gaps where the quantity of folks that needed to go through training didn't match our capability. And we changed the training plan and the speed of hiring to make sure that we had people go through that area. That was in around 2020, and that was an ongoing plan that had a feedback loop with improvement.

If we look at post-accident, that's where we took a much fresher look at that and went to the proficiency-based model. And so now, we have a safety risk management project on the employee efficiency plan that we have, but it's really an SRM that's defining that plan.

DR. WOODS: And moving back for a moment to Mr. Knaup, I believe you said earlier that the FAA is not currently involved in Boeing's SRM panel or safety risk assessment process. Is that accurate?

MR. KNAUP: So we are -- we do participate in some of the Boeing SRMs to provide input on the controls and stuff that Paul talked about. So there are some SRMs that we are involved in. We are not involved in determining what makes it to the risk register for Boeing, though our findings during our auditing activity is certainly an input that they use that could drive something to their risk register.

DR. WOODS: And do you foresee that role expanding at all

with the regulatory SMS coming on board?

MR. KNAUP: Yes.

DR. WOODS: Could you go into a little bit more detail?

MR. KNAUP: Sure. So certainly, as the new rule comes on board, you know, online, and they're required to meet it, there will be additional input that they would take from us as we ensure that they are managing that system. And we will get more output from them as well to ensure that they are doing all the things that the rule says and that their policy says. So yes, we'll have more input.

DR. WOODS: Moving to the last component of the voluntary SMS and future regulatory SMS, Mr. Wright, please describe how Boeing applies safety -- the safety promotion foundation.

MR. WRIGHT: Absolutely. I think a slide would help on this one, if we could please pull up Boeing slide 10. Thank you. So we think about safety promotion. We, through our benchmarking, have categorized it into training for SMS, and then promotion of it. And there's different communication channels that we use for those.

And from a training standpoint, you can see -- is my mic working okay? It seems a little quiet on my end. I don't think I can get closer. I'll keep going. Thank you kindly.

So you can see that there's role-based training. That's listed on the slide for managers, for employees, around reporting. There's leaders teaching leaders is where -- deploying just

culture, things of that nature. And then we have an all employee training that's brand new around positive safety culture.

From a promotion standpoint, there are various channels, things you would expect, company newsletters, different stories, things like that. But I also want to point out something that was mentioned yesterday, employee engagement teams and employee involvement teams. So these are teams of employees that meet weekly to -- all teams, to talk about safety items in their area or hazards and talk about things that need to be elevated or handled locally.

We also have a program called a safety champions program, and we've had several hundred people through that now, which is a week long program that has people from all aspects of Boeing. We have union members, we have different folks from engineering, we have finance, HR, what have you. And that program is open to people who have an interest in becoming part of SMS in their local area. So that's called the SMS champions program, and that's a powerful spot, where we'll developing people with the capability to lead safety risk management activities and further promote locally.

DR. WOODS: So how do you know all of that's working?

MR. WRIGHT: Very good. Is it too close? All right. I was taking the previous coaching too literally. Sorry.

So a few ways to know it's working. Culture's a challenging spot to measure. There's a lot of schools of thought on it. But one element is we look at hazard reporting, through our different

systems for employee safety, personal safety, that's OSHA type, and also through our Speak Up process.

We also do surveys with employees. So we've conducting pulse surveys since 2021 across tens of thousands of employees at this point to understand, with very specific questions around quality and safety, and things like schedule pressure, things of that nature. So retaliation's part of those surveys.

So part of the feedback loop to know if it's working, the employee reporting for Speak Up, I look for year over year increases in the quantity of Speak Ups. And we're definitely seeing that, year over year. You know, if we look at the trendline through it, it's anywhere from twice as many from the previous year to several times as many from the previous year. Right now, we're well over 2,000 year to date through Speak Up.

The element s of the OSHA type employee reporting, that's a more mature initiative that I used to lead, prior to this role. But that reporting is higher. And -- but I look for year over year improvement in reporting as a key measure. And then -- from a promotion standpoint. That's people understanding they need to report hazards. There's evidence there.

And then the survey feedback is really key, I think. And, you know, part of that feedback, we actually changed and updated our antiretaliation policy through some of that survey feedback as we've gone along our journey. So those are the two main levers I look for.

DR. WOODS: We will talk a little bit more about feedback in a moment. But before we get to that, how does Boeing define positive safety culture?

MR. WRIGHT: Happy to talk to that. The -- we follow the positive safety culture methodology, that's an industry standard through James Reason's work. Some of you may know of his work. He's a decorated aviation safety professional. And it has five elements. The -- it's a reporting culture, a flexible culture, a learning culture, an informed culture, and a just culture. And we need to have all of those.

And I've learned a lot benchmarking airline ASAPs. I've had the very good fortune to sit in on a few ASAPs at airlines and understand what that looks like. And those are the five elements that we have for our program.

DR. WOODS: So what are some examples of positive safety culture or positive safety culture behavior that you would expect from touch labor?

MR. WRIGHT: I would expect touch labor to report hazards, and what we want to see -- and expect is the wrong word, because you can't expect somebody to feel a way. But what we want to see is employees reporting good faith mistakes without fear of reprisal. And in that way, that unlocks the rest of that whole positive safety culture system, because that allows the learning, the informed part. Flexible is about change. And it all comes down to employees feeling safe to report.

DR. WOODS: Same question, but let's say for tier one managers. What examples of positive safety culture behavior would you expect from them?

MR. WRIGHT: This is part of our implementation. In a just culture, we need first line managers to think differently when they're seeing behavior that is not aligned with our policies and procedures.

And there's a model that James Reason, we follow that model, too, has, and it's part of our safety culture guiding principles that we're deploying to our managers, to help them understand, is this a -- you know, it gets through things like is this a malicious act? Is this a reckless act? Would other people in the group do the same act? What's the motivations? Was it for personal gain, for organizational gain?

And it helps you walk through, and this is what I would expect our first line managers to do in our just culture program, to make sure that we don't have employees go into a proactive -- corrective action, a punitive part of our processes, unless it was part of that early on -- part of the rules that we've learned from the airlines, you know, reckless behavior, things like that, or malicious behavior.

And there's very set rules for that. And what that does is it starts to build that trust that employees can come forth. And one of the ways that I think we'll know we're getting there is when employees report their own mistakes.

DR. WOODS: As the manager overall, or the vice president for the program, how confident are you that Boeing's touch labor employees recognize what a positive safety culture is and can adhere to these behaviors?

MR. WRIGHT: This is a new space for us. I think what it's going to take is employees seeing repetition. You know, we talk about the triparty agreement with the event review committee. That's quite new in our space, and we're just starting to get some repetition there. So I think we're at the beginning of that journey.

DR. WOODS: Given that safety promotion as a whole is a process used to communicate, develop, and sustain safety within an organization, how would you rate the overall effectiveness of this foundation of your SMS at this point in the voluntary SMS?

MR. WRIGHT: Sure. I would say that our improvements are on the right track from a trajectory, but the magnitude clearly needs to move faster. So what I mean by that is, like, Speak Up reporting year over year, that needs to increase much more quickly. And our 90 day plan is all about accelerating that, feeling like these are the right actions we need to take to accelerate. But my short answer to the question is these are the right things to implement, we need to implement more quickly.

DR. WOODS: My next question is for Mr. Catlin. How would the IAM describe the safety culture for its members currently on the production floor?

MR. CATLIN: I guess one of the things that, from my perspective, and from the IAM perspective, is that Boeing's been around for over 100 years. These should be things that have been part of our Boeing culture for the last 100 years.

Prior to the McDonald Douglas Boeing merger, this was a family. Boeing, the IAM, machinists, we built airplanes to the highest standards ever seen. We built safe airplanes. There was a safety culture. There was a culture of people working together to accomplish a common goal.

Since the merger of McDonald Douglas and the Boeing Company, all of this that we're talking about is basics. If we see something, we say something. That has not been my experience at the Boeing Company. I've heard this term, just culture, being thrown around at the Boeing Company for the last several years.

This safety management system, and Speak Up, going back to 2020, I have a FOIA request that I received from the FAA, and they say -- it states, based on FAA interviews with the complainant and the Boeing personnel, and review of Boeing's PP&P, including the BCA SMS manual, and ASRs, the FAA did not find any requirements related to how the issue identified in an ASR are to be addressed or defined -- defining what constitutes an adequate response to an ASR.

And I realize this is from 2020, but an adequate response to an employee safety concern at the Boeing Company should be to address the safety concern. An awful lot of what I had brought to

the Boeing Company through Speak Up, that I ended up having to take to the FAA through hotlines, should have been addressed by the Boeing Company, and they were not until the FAA ruled that there was a violation. This is something that has puzzled me for a long time, as to why we have to have this contentious relationship instead of just doing the right thing.

So I have -- it all sounds very good. It sounds really great. In action on the factory floor, it is not what it appears to be here in this meeting.

DR. WOODS: So to be clear, Mr. Catlin, I'm asking about how does the IAM perceive the behaviors of touch labor in accordance with a positive safety culture on the factory floor?

MR. CATLIN: Well, I think that again, as we spoke about yesterday, we have a very large majority of new hires at the Boeing Company that have -- you know, one of the things that was just spoken about is that back in 2020, there was an acknowledgement of the throughput through Boeing's training.

For the last several years, we've been seeing 150 to 200 new hires coming in a week. Boeing's training, in foundational training, has been working with upwards of 800 people working their way foundational training at a time. The people who have been going through foundational training, right up until the January 5th event, were being cut loose to the floor with very substandard training.

I don't know that our manufacturing and quality personnel,

our touch labor on the floor, truly have an understanding of Boeing's SMS and the safety culture and everything else, because I don't believe the training was provided to them when they came in.

DR. WOODS: So independent of Boeing, what is the union doing to get involved in promoting safety culture amongst your union members on the factory floor?

MR. CATLIN: We are continually out there having conversations with our members. I personally am on the factory floor on a regular basis, having shop floor meetings and conversations with our members. The problem is we -- again, we don't have a seat at the table.

DR. WOODS: Do you feel that just because you do not have a seat at the table, you are unable to influence your members?

MR. CATLIN: It's not a matter of we're not able to influence our members. We do hold our monthly union meetings. We do have our Aeromechanic Newspaper, where we do run informational stuff in those. But to call our membership together, we're talking 32,500 members. We would have to hold our union meetings in T-Mobile Park, like we just did for our strike sanctions event.

DR. WOODS: But you do have meetings, and you do have a newsletter. So again, what types of issues do you discuss in those limited forums that you do have that help to encourage a positive safety culture?

MR. CATLIN: We run a lot of articles in our Aeromechanic that talk about things that deal with safety, things where we have

had an impact on safety around the workplace. And we -- to add to it, we also worked through to get this triparty agreement that gets us a seat at the table, so that our members, when they do file Speak Up reports and have concerns, we have IAM members who are reviewing those concerns.

DR. WOODS: There are a lot of different companies and a lot of different elements that go into a piece of sheet metal becoming an airplane. There's a lot of different hands that touch that process. Who ultimately should be involved, not responsible for, but should be involved in creating a positive safety culture, according to the union?

MR. CATLIN: Everybody.

DR. WOODS: Okay. Thank you.

Mr. Wright, we have talked a lot, extensively, actually, about Boeing's Speak Up plan -- program, sorry. And I don't want to go into all of those details again, because I do feel like a lot of it has been discussed. Some of the points I want to make -- I won't have you describe the process again, I feel like that's been done adequately. But who ultimately has oversight for that process?

MR. WRIGHT: Oversight fits in two pieces. One is the facilitation of the process, to make sure that the Speak Ups enter into the process, and get assigned, and move through the system at the right rate, depending on the Speak Ups. There's an oversight body. And then there's the different organizations around the

company that are responsible for addressing the Speak Ups, which tend to be local groups. They're varied.

So the Safety Office provides the oversight of the process, and then we do raise up any Speak Ups that are out of process, if they're not meeting timeline, or not having adequate closure. And this has been in place for probably about 14 months, just to get the timeline. We bring those to the CEO of the business unit, and that's done on a every week basis, and it goes through -- no, it's every other week, sorry. We had a cadence change.

And the leaders for those areas, the senior leaders, have to describe what's being done to make sure that any Speak Up that's not being addressed at the right speed or adequately, what's being done to address that.

DR. WOODS: Again, we've talked a lot about the process, and I've read through your BPI on Speak Ups, and I feel like I have a good understanding of what happens after it's submitted. But I want to talk a little bit more about the tactical level of how do you -- how does a mechanic actually submit. Walk me through that process, please.

MR. WRIGHT: Sure. The mechanic goes to the shared workstation, pulls up, you know the Boeing front page, comes up on everybody's workstation. You might have to click on the Boeing home button. And then Speak Up is an icon right on the front page. You click on your Speak Up. And then -- and I'll tell you from personal experience, I use the system -- you go ahead and

type out what element you're concerned about. You know, for me, maybe I'm writing a process hazard.

And then I have the option to pick anonymous or confidential. If I pick anonymous -- or sorry, if I pick confidential, my employee number, they call it a BEMS ID, goes into the system so that a trained person can talk to me and ask me if I want to be part of the solution or if I want to just remain confidential. If I click anonymous, a zero goes into the field where the employee number would be. You can't see that, but that's what happens in the system, for anonymity.

And then you hit send, and it heads off. We -- now, we -- that is prior to the accident. Post-accident, we're adding a couple fields in there to help make sure that we get hazards addressed more quickly. So it gets into the what type of hazard and some location information to help us triangulate the resources better. Employees don't have to fill it out, but it's helpful if they do. There, it gets into the process that I think you've looked through.

DR. WOODS: So we heard from Spirit earlier, and they have a similar process. I think they called it 360.

MR. GREG BROWN: Yes, Quality 360.

DR. WOODS: Quality 360. Thank you for that.

MR. GREG BROWN: Yes.

DR. WOODS: But it sounds like unlike theirs, which is accessible from anywhere -- is that accurate? And by anyone?

MR. GREG BROWN: Yes. That's correct.

DR. WOODS: Does Boeing have that same level of accessibility, to access their Speak Up program?

MR. WRIGHT: We do have a QR code, but it needs to be a device inside the system.

DR. WOODS: Do you have any concerns at all in trying to maintain anonymity, or anybody who would want to do so, about having a feedback process that's only contained within the internal system?

MR. WRIGHT: Always willing to consider new ideas for sure. But I -- where I see the trust really being built is through our actions and through repetition. If we tell people they're anonymous, and through repetition, we have thousands and thousands and thousands of Speak Ups, nobody's anonymity is compromised, I think that's how we build trust with the floor, is through action. I -- we can tell them that it's anonymous because it's outside the firewall. I don't know if that builds trust as much as actions. But I still am open to ideas.

MR. SILVA: And Paul, if I may, Dr. Woods, based on some of the feedback that we had received post-accident in the last few months, one of the sub elements of our plan is to look at the reporting system that we use for Speak Up and see if we can make other technology enhancements to address some of the things you're bringing up as far as how to help make it more accessible, like Spirit has discussed, but also help increase that level of

anonymity.

DR. WOODS: So if a change is made as a result of a submission, let's say it's anonymous, and not somebody who's put in their information so that they're talked to, how is that change communicated back to the factory as a whole?

MR. WRIGHT: That's a good one. The way that we approach that -- and I should say that even an anonymous employee gets a URL that they can click on, or have their -- have anybody click on to see the status of that Speak Up. It's a one way look.

But the way that we found the best is to -- either through a broad enough set of crew meetings, because we don't want to have a conversation that would imply that we know who that person is. So if you have just a single crew and say, you know, hey, we're making this change, that might make somebody nervous. So we do it a little more broadly.

And also through organizational newsletters and bulletins and things like that, we communicate changes from Speak Up through those. And those are in a way that gives the person more security that their anonymity has been protected.

DR. WOODS: Going back to you, Mr. Catlin, what role does the union play in aiding their members through the feedback process?

MR. CATLIN: I'm not sure I understand the question, aiding our members through Boeing's feedback process?

DR. WOODS: Yes. So if somebody has a question, let's say you have a member who comes to their union representative and says

I have this problem, I don't know what to do with it next. I would like to provide feedback. Go.

MR. CATLIN: So me personally, I get contacted on a regular basis by our members who have issues. And I usually always direct them to the Speak Up process first. And I walk them through the process. We have a lot of members that don't even know what Speak Up is. They've -- I'm sure that there's been stuff put out. I'm sure that they have seen it. But they don't understand the process.

So I help them get into the system, file the Speak Up, tell them to keep their URL number so they can gain access to it. But beyond that, we don't really have a role in the feedback loop with the Boeing Company.

DR. WOODS: I recognize that. But you have a better understanding of what to do than maybe that mechanic that's on the floor. So again, as you put, you would help the person through the process. How confident are you that all of your union reps out there are doing the same, should they be asked from one of your members?

MR. CATLIN: Not confident. I mean, we have many of our business reps, who were business reps before Speak Up rolled out. So to them, they would not have the knowledge.

DR. WOODS: Going back to Boeing, Mr. Wright, what role do the touch labor technicians, the mechanics on the factory floor, have in ensuring a successful SMS?

MR. WRIGHT: Really, several places has reporting like we've noted. That best source of information at -- I think arguably in our whole safety assurance system is the employees. They see hazards before anybody.

Hazard resolution is also a key part of it. We do find when the employees are part of the solution, so like in a Speak Up, where it's confidential, and the employee agrees to be part of the solution.

And I should be clear, I have a lot of Speak Ups that start with my name is, and I want to be part of this. It's definitely -- it goes in many places. Those are when we have the best solutions, is with the employee involved, making sure that the solution makes sense, and it's not something that is developed with some side team, and tries to solve a problem without having constant feedback on it.

And that's definitely an element of it, is the reporting, but also part of the solution in this -- work safety risk assessment process that was mentioned. When we go to the airplane and talk directly with the mechanic and ask the human factors questions around is the tools or equipment there, can we keep the employees safe, can we keep the airplane safe, and talk about things like access, and how many people, and is there going to be overbuild, is this your fourth consecutive weekend of overtime, things like that. We get a much better answer with that direct teaming.

DR. WOODS: My last set of questions is the transition that

you're about to undertake. Can you please explain the process for how Boeing intends to transition from a voluntary to a regulatory SMS program?

MR. WRIGHT: Certainly. The -- maybe just to help me with this, we'll pull up slide -- or Boeing slide 7, please. But I don't have to wait for the chart too long. We're evaluating the rule right now. So we certainly have a team that's in my organization evaluating the rule and looking for gaps to our voluntary program, between the voluntary and the regular -- regulated.

And as we see those gaps, we're putting our plan together that's due, as Dr. Eick mentioned. The primary example of a gap that I've seen so far, really the main gap, is the reporting hazards to interfacing organizations that Dr. Eick also mentioned. This makes a lot of sense.

And when we think about that, we already have a way to report hazards that are even-based. I talked about that with notification of escapement. What's being added is the proactive part of the SMS, the change management part. Things are changing, we want to see these things, and how do we get our hazards understood?

So we are part of an OEM working group, and that group is tasked with making standards so that those hazards can be communicated effectively and efficiently. But there's work to be done, and I think that's the biggest gap, but I think it's one of

the most important ones that we have, is that having hazards up and down the value stream understood, that's where SMS really comes together for me.

Because as you know, supply chain comes to Boeing, that could be an issue, Boeing to an operator or an airline, that could be an issue, airlines to passengers, that could be an issue. And we all have to have a flow of hazard knowledge to respond to this in the best way.

DR. WOODS: Will the personnel that are currently responsible and have the most knowledge about your voluntary SMS change during this transition time?

MR. WRIGHT: No. My organization is going to be transitioning from an implementation organization to more of an oversight organization. But we will be including others more broadly, because managing the full set of risks takes many hands.

DR. WOODS: And this might have already been asked -- answered when we discussed safety policy earlier, but how does Boeing intend to assure that all levels, all the way down to the touch labor, are going to understand their roles in the regulatory SMS?

MR. WRIGHT: I see this through a few areas, and I might see if you could help me a little here, Hector, too, as we go, but certainly training and promotion. But as we think about that regular interaction with the production floor, that close coupled nature with the quality management system. That's how they get

information today. And we don't want to confuse people with lots of different channels of information, so we try to line up on using our existing systems and embedding SMS into how they work.

So they'll be training, but I think it's also going to be part of our regular quality management system, engagement with employees. Anything to add?

MR. SILVA: Well certainly, the two compliment each other. I'll add specifically, we launched a new SMS and positive safety culture training course in our foundational training. So far, we've had about 400 folks go through it. We've gotten really positive feedback so far. That's something we want to scale. But that's an opportunity to catch folks not just at the beginning of their Boeing careers, but we also need to look at how we implement recurrent training, and then make sure we catch folks that have all come onboarded here recently as well.

DR. WOODS: This question is for the FAA essentially, and I'm going to actually start back to you, Mr. Slagle, because I had asked you -- previously when we had met, I had asked you this question. At that time, when you were helping aid Boeing through their transition to a voluntary SMS, did you feel that they were poised and ready to transition to what would eventually become the regulatory SMS?

MR. SLAGLE: Yes. At that time, they -- I felt they were ready to transition. They had all the elements in place. Maybe not fully mature and fully permeated through the entire

organization, but they had the basic foundation. So the transition to a regulatory SMS, adding a few of the things that they need to complete the organizational system description, and then also putting together how they're going to complete their confidential employer report summary, although there's a couple things to be added, I think they're well suited to move forward.

DR. WOODS: And now to you, Mr. Knaup. Present day state, how -- or I guess where does the FAA, right now, interact with Boeing's transition to a regulatory SMS? Is there a level of involvement there, or is it essentially when you're ready to present to us what you have, we'll look at what you have?

MR. KNAUP: So we still participate, and how I previously talked about, in their voluntary SMS. We are awaiting Boeing's implementation plan that's mandated by the rule, and certainly will review that, obviously, when it comes in, and go from there, from meeting the specifics of the rule. We certainly provide advice, as we always had done, since they've been in the voluntary system. But for the regulated part of their SMS, we're awaiting the implementation plan.

And then the last question I have, also for the FAA, is that you have the ASIs that you have currently. They did not have that responsibility. That responsibility is coming, and with that, I'm sure new training. But do you anticipate a change in manpower at all for your staffing levels, to provide that additional oversight that a regulatory SMS might require?

MR. KNAUP: Yes. We certainly are increasing staffing within our branch and other areas for many reasons, and one of those is to ensure that we can do proper oversight of SMS.

DR. WOODS: Okay. Thank you. With that, Mr. Brazy, that's all the questions that I have.

MR. BRAZY: Madam Chair.

CHAIR HOMENDY: Thank you very much to the technical panel. Great questions. We're going to take a 10 minute break, but I mean 10 minutes. So be back here at 12:40, because I'm starting without you.

(Off the record)

(On the record)

CHAIR HOMENDY: I encourage to get back in your seats. I'm serious. We're starting. And we are starting with the technical panel. And let's see. I mean, I'm sorry, not the technical panel, the parties. I think the technical panel is done for right now. We will start with the Airline Pilots -- I'm trying to talk slower so people can get in their seats, so it wasn't working. Airline Pilots Association.

CAPT JANGELIS: Thank you, Madam Chair.

First question is for Boeing, Mr. Wright. Based on your described responsibilities in aircraft design, we see the majority of this accident is focusing on the mid exit door. We're also trying to find out what worked during this accident event. From an SMS perspective, how important was having two pilots on the

flight deck to ensure the eventual safe outcome of this flight?

MR. WRIGHT: I don't know that I have enough information on the details of the investigation to have a real informed opinion on that.

CAPT JANGELIS: You would agree that the two pilots did a good job that day?

MR. WRIGHT: I think the flight crew and cabin crew performed flawlessly.

CAPT JANGELIS: Excellent. Thank you. Post-accident, did Boeing and Spirit perform a safety risk analysis on production process escapes and inspections?

MR. ACKERMAN: Sorry. I'll start with that. We actually started working through, as I mentioned in previous testimony, risk analysis and actions prior to the accident.

CAPT JANGELIS: Okay. So it was found that post-accident, that the right mid exit door, not the door in question, wasn't up to perfect standards. How and where did the inspection process break down, and why didn't QMS catch the deficiencies?

MR. ACKERMAN: I'll start for Boeing, and then I'd like Spirit to add to that. We did find, on the righthand door, and other airplanes in service, deficiencies that were covered in testimony yesterday. I will say that is one of the driving factors to us driving additional inspections, specifically of the mid exit door, all other doors, and then finally the full up inspection process we have in place in Wichita today.

CAPT JANGELIS: So is this a systemic problem that we should be considering other aircraft that are in flight in service today?

MR. ACKERMAN: Was that question specific to the mid exit door? Because the -- as a result of the accident, the mid exit doors on all the Max airplanes were inspected.

CAPT JANGELIS: So they are safe to fly, with all of the mid exit doors on both the 900 and also the Max aircraft?

MR. ACKERMAN: Yes.

CAPT JANGELIS: Okay. Thank you. What's the progress -- this is again for Mr. Wright. What is the progress of today's SMS program with the goal of complete implementation by May of 2027? Is it on pace? Do you need more time for an implementation? Is it going to take right up to the deadline?

MR. WRIGHT: All elements are on pace, and we've since applied additional resources in this space as part of that in the 90 day plan, which is, I think, going to bring us beyond compliance. The one element around the standards being needed for the alerting of interfacing organizations, I think that's the pacing item.

CAPT JANGELIS: Okay. Thank you. And Mr. Wright, you also said earlier -- you spoke about a lot of controls. Controls can be as much of a problem as an air etching wall. Is including IAM in the control development?

MR. WRIGHT: I feel strongly that anybody who uses those controls -- and when we talk about controls, it's like an

activity, like an inspection or a piece of tooling or something like that could be a control. Having direct feedback from the person doing the job and the users is critical.

CAPT JANGELIS: Okay. So my -- I follow up with that question to Mr. Catlin. Is the IAM involved in control development with the Boeing Corporation?

MR. CATLIN: When you ask the question of the IAM, are you talking about the individual members or are you talking about the leadership of the IAM?

CAPT JANGELIS: The safety leadership, the safety subject matter experts, are they involved?

MR. CATLIN: No. No. So in my experience, decisions are made at a much higher level amongst Boeing management, and they are in some way implemented and maybe communicated. But no, we don't have a say in those decisions.

CAPT JANGELIS: So I think my next question is to Mr. Catlin again. What should Boeing do to build trust in the anonymity and effectiveness of voluntary reporting systems and other reporting systems scattered around the corporation?

MR. CATLIN: Well, it's -- from my opinion, it's a cultural issue. Number one, they've got to build trust with their IAM machinists. What we have experienced, what I've personally experienced, and many other IAM members have experienced, is that they have filed Speak Up reports, and they were not at all satisfied with the result of the Speak Up report, and it doesn't

go anywhere.

And so a lot of people that speak with me tell me what's the point? And that's when I usually direct them, if you believe that you have a concern that violates the Code of Federal Regulations, file the hotline report with the FAA.

CAPT JANGELIS: What's concerning to us as pilots, Mr. Catlin, is the fact that yesterday, you said that there isn't a lot of confidence that you're being heard. And meanwhile, the executives are telling us everything is on pace and everything is moving forward. Any further comment on that, and should we be concerned with development of aircraft today at this moment?

MR. CATLIN: Yeah. Absolutely. For example, there -- you know, I keep coming back to verification optimization. Because it was a very big event that appeared to be downplayed in yesterday's hearings. But beginning back in 2017, there was a lot of inspections removed from the build process without any input from the IAM, either the mechanics on the floor, the quality inspectors, or the leadership of the union.

It wasn't announced until January of 2019 that this quality transformation plan was being -- was identified in the Seattle Times. It was at that point that the IAM was able to engage in a conversation, and was able to implement an agreement, the Verification Optimization Committee, where eight members of the IAM were allowed the opportunity to look into what Boeing was doing.

And we had tons of problems. There was red warnings going off everywhere. We reached out to the Boeing management. We engaged in in depth conversations. When they went nowhere, we wrote emails to David Calhoun. We got emails back from Ernesto Gonzalez-Beltran. It did not matter. They continued to drive on. They continued to remove tens of thousands of inspections until we began activity by filing hotline reports with the FAA. The inspections were put back on, but there was nothing done to address the airplanes that were built without the inspections.

Now, today, there was some conversation yesterday, are we going to see this happen again? It's in the process right now. BPI2573 has been revised twice this year to add a note in the section 3.3 that authorizes manufacturing personnel to perform inspections and convey data to the quality inspector to buy off the products and articles. That has been rejected at least four times by the FAA, three in November of 2017, and one on May 18th of 2021. But yet here we are, doing it again. And so no, I don't believe that we're being heard.

CAPT JANGELIS: Thank you.

My next question is for Boeing and Spirit. Are there any abnormal situations that require a mandatory irregularity report. Example, like a failed inspection, something that would be mandatory reported, into the management or in to the system?

MR. GREG BROWN: Yes. Certainly contractually, but even within our own QMS. If we identify a nonconformance ourself that

has escaped the Spirit production system, we are obligated to notify Boeing directly.

MR. ACKERMAN: I would concur with that answer. There is a contractual requirement to notify.

CAPT JANGELIS: Again, another question for Boeing and Spirit. When hazards are identified within your operation that may impact another external organization, what is your process to share the hazards and any supporting data, such as suppliers?

MR. ACKERMAN: I'll start with that one. If we receive -- and this is not unique to Spirit. If we receive information that would indicate that there is a risk that is broader than a specific supplier, we will take a couple different actions, depending on what it is.

We may issue an alert that goes out to all suppliers, asking them for -- just for awareness. If it's something where we need definitive feedback, that we need a closed loop, we will send an action that requires a closed loop information feedback, we call it a compass action.

And then again, depending on what it is, we may reach out and set up individual engagements with different suppliers, you know, depending on the severity and the scope of the risk that we've identified. And again, that's not unique to our interactions with Spirit. That's any supplier we have.

DR. WOODS: And one final question, both, again, for Boeing and Spirit. We're confused a little bit on what's the difference

between Speak Up and SHEAR, and why are there two different programs that seem to be doing the same thing?

MR. WRIGHT: I can help with that one. Paul Wright here. The SHEAR process predates Speak Up, and it's a process that is -- it's really a little bit like an event review committee, where you have multiple entities coming together to raise up issues in the safety process.

And as we look at the SHEAR, it's focused on OSHA type issues, workplace safety. And the Speak Up process is focused on airplane safety, flying public type issues. So that's why they are two different processes. But employees who report into Speak Up, if they have a workplace safety item, we'll get it into the right spot, and vice versa.

CAPT JANGELIS: Okay. Thank you. No further questions, Madam Chair.

CHAIR HOMENDY: Thank you. Alaska Airlines.

MR. TIDWELL: Thank you, Chair Homendy. Let's see. Got a few questions, here. First, Dr. Woods, great job going through that. That was a lot of detailed information, so of course it changed my questions significantly, but I do appreciate that.

First question for Boeing, Mr. Wright. So what process does Boeing have to aggregate nonconformance data, as in quality control, quality assurance, airplane findings, what you're finding out of your QMS, FAA findings, supplier findings to develop predictive risk?

MR. WRIGHT: We are in, I would say, early to middle stages, depending on which of those elements that you mentioned. The QMS, we definitely have a lot more availability of that data to look at the -- start to look at the predictive pieces of it, that type of data analytics.

But I would say in some of the other elements we're looking at, the -- when we look at things in the fleet, elements like that, the event-based data, we have a very good look at trends, you know, if we look at unstable approaches, things like that.

But it's the proactive parts where there's changes in the system that those have been harder to foresee, things like GPS jamming and spoofing, just as an example. That's the part where I think we have some work to do. Now, from a QMS perspective, Hector, would you mind commenting on that part, that interface with Predictive?

MR. SILVA: No. Sure thing. And that was a good overview of -- those are data elements that we currently track today that we do aggregate up. We see them in our quality leadership reviews, in our quality management reviews.

To the point of Predictive, we've partnered with a few sets of internal resources from our IT and data analytics department, as well as some external parties, around how to co-link some of that data with other elements, so things like staffing, things like proficiency, other parts of our system, so that we can then start to do more predictive type analytics. So we're in the

relatively earlier stages of that, but that is something that we have as part of our go forward plan.

MR. TIDWELL: Okay. Very good. Thank you. So according to testimony, we'll stay with Boeing here for a little bit on the SRA process, the undocumented maintenance SRA was initiated in March of '23. Is that accurate?

MR. WRIGHT: Yes. That's when we first placed it on the risk register.

MR. TIDWELL: Okay. Yet undocumented maintenance continues to occur in the production of aircraft. So here's a few questions. I'll just go through them singularly. What was the initial risk assessment level identified in the SRA?

MR. WRIGHT: And just to make sure I'm understanding the question, we're talking about the part removals --

MR. TIDWELL: Yes.

MR. WRIGHT: -- SRA?

MR. TIDWELL: Yes.

MR. WRIGHT: Thank you. We think of that as more production. The theme that put that together, through that detailed process I described, when they had been looking at that risk, that risk hadn't reached a maturity level to get to leadership until February of 2024. So the initial risk that leadership saw was serious, and the team was working through various risk levels as they did their analysis prior to that.

MR. TIDWELL: Okay. So at that point, there were no further

mitigations put in place, there was no acceptance of the risk level, there was no process continuation, other than we have a hazard. Is that accurate?

MR. WRIGHT: Yeah. That -- this really precipitated at -- major changes in our process, the learnings that we've had after the accident. One is that the initial risk, having that full analysis done for the initial risk is too long. So we've changed our process, and as of March this year, and we've been doing it ever since, the initial risk has to be placed within seven days of the risk hitting the risk register. And so we have a dedicated team overseen by myself that does those initial placements.

MR. TIDWELL: Okay. Thanks. That provides some clarity. I appreciate that. Mr. Silva, you mentioned an increase in ability to monitor quality escapes from the factory to the flight line and to the front line from the factory flight line to the customer. Have you established a forum to communicate, or some sort of strategy to inform the customers of any common faults that you're finding through the quality process post-delivery?

MR. SILVA: We do. I think one of the things I can point to today, and this is really around how our current customers onsite have all customer meetings. And so we would review overall quality metrics and talk about in service findings and investigations.

Most of the -- well, most, if not all of the issues, it's really just the information that we get back from customers. So

if it's reported through our fleet service support, down into our system, we can then look for those potential manufacturing or production related issues.

I know that our fleet chiefs also work in sharing some of that information. But certainly happy to grab any more feedback on how else we can help share common findings and common corrective actions.

MR. TIDWELL: We would like to work with you on that. Let's see. Mr. Wright, do you have a safety team specifically assigned with you to drive change based on employee reporting and what you're seeing in your data and trends?

MR. WRIGHT: Yes. The -- there is a team that is my organization that's the team that oversees the safety risk management part. There is a dedicated team that has the -- has reporting from employees process. But I would think of it as beyond that. Because as hazards are mitigated, that's really done by the employees of Boeing in those respective areas.

MR. TIDWELL: Okay. Very good. Thank you. Do you have a simple example of maybe a report that you got on the production line where you implemented change, and how that process worked, and how it was given back to the front line as a thank you? Any sort of recognition?

MR. WRIGHT: It's definitely part of our process to have a thank you that comes in. I think with recognition, there's always more recognition that I think all of us should do every day.

The -- an example I have is one where we were going to do some engine work on an aircraft, and the crew wasn't available, and the airplane was scheduled to be moved, and a Speak Up was written about crew availability, and it's a specific crew. And with that information, because that wasn't fully known or understood, the airplane was held and -- until that crew was back in order.

And it was helpful to have the Speak Up to know what was happening with the crew. And that was one where it -- the Speak Up system brought it into the safety space quickly.

MR. TIDWELL: Okay. That's it for this round. Thank you.

CHAIR HOMENDY: Thank you very much. Association of Flight Attendants.

MR. HEIPLE: Thank you, Chair. AFA has experience with safety programs that support SMS at the carrier level, ASAP, or Aviation Safety Action Programs, are in place at many AFA carriers, which provide flight attendants the opportunity to report safety concerns and events, including unintentional regulatory and policy violations. They can do that confidentially and without discipline.

These voluntary self-reporting programs, as well as peer-to-peer audit programs, like LOSA, Line Operation Safety Audits, provide essential SMS inputs that are -- that contribute to numerous safety improvements. Just one example, as a result of an ASAP report, one AFA carrier was able to correct the inflation

lanyard packing on emergency rafts, which could have led to the raft inflating inside the aircraft.

The Speak Up program has been well covered in questioning. Thank you, Dr. Woods. However, we would like to hear a bit more from Mr. Catlin about Speak Up reports, which appear to have many of the attributes of our ASAP programs.

Mr. Catlin, does the Speak Up reporting program include stakeholders from labor, the FAA, and the company, who meet collectively to reach a consensus on reports and collective action recommendations?

MR. CATLIN: Well, that is the design of the triparty agreement. So the triparty agreement came into play because we were having issues with Speak Ups. And we were able to get the triparty agreement signed by both the -- or all three, the union, the company, and the FAA, that all three would have an opportunity to review Speak Ups, and they would all agree on the closure of those Speak Ups.

The problem that we are running into is that only a portion of Speak Ups are making it to our two representatives. We have two people, two IAM members who are on the Event Review Committee. And when a Speak Up is filed, it goes to Boeing, and Boeing triages it, and they make a determination on which Speak Ups will go to the ERC, or the Event Review Committee.

So a portion, I don't know what that portion is, of all Speak Ups that are filed actually make it to our people to review. And

of course when we get them, they are redacted, sometimes very heavily redacted. So it's not an even participation in the Event Review Committee, no.

MR. HEIPLE: Well, given that response, I'm going to assume that you're not -- you don't have a direct access to the reports and the reporting system. You can't just log in and look at the reports as --

MR. CATLIN: No.

MR. HEIPLE: Okay. Do IAM members feel comfortable utilizing the program because they are confident that doing so will not subject them to discipline or retaliation? I know that's subjective, a bit.

MR. CATLIN: It's very subjective. I can't speak to what our 32,000 IAM members feel or believe. I know that from some of the feedback that I have received, we have members who will not use it because they don't believe anything within a Boeing system is confidential. And so, you know, we do have a portion that just won't use it. But we do have a portion that are using it.

And we are seeing some positive changes through some of those Speak Ups. I know of several that our -- one of my quality inspectors are processing. I don't know that I agree with the channel that, you know, that it went through. But he is seeing positive change.

So, you know, without seeing all the data, without seeing how many Speak Ups are being filed versus how many are being sent to

our Event Review Committee, it's -- everything is subjective.

MR. HEIPLE: Thank you. We've found that complete transparency is an essential part of these types of programs and our SMS. Can you tell me, does the Event Review Committee, are they empowered to investigate events, with the company and with the FAA, and recommend corrective actions? And do you believe those corrective actions are given appropriate consideration for implementation by Boeing?

MR. CATLIN: Is that to me?

MR. HEIPLE: It is.

MR. CATLIN: No, they're not. You know, they -- when they get the report, the names of the person who filed it have been redacted out, so they don't have the opportunity to go and meet with the person who filed the complaint or the concern, to have the conversation to find out what their concern genuinely is.

I do know that from my own experience of Speak Up, because I personally have filed numerous Speak Up reports, I will receive a notification that my Speak Up was received. I will then receive a phone call from somebody within the Speak Up program, and I will meet with them, whether it be by phone or in person. We will have a discussion about what my concern is, where I can explain all the ins and outs of my concern.

And then at some point down the road, I will get notification that it was -- I might get notification that it was closed. It might just be closed without notification to me.

Again, it's been a while since I have filed one, and the process is maturing. But I do know that if you don't keep track of the URL number that you receive when you file the Speak Up report, there's no way to gain access back to it, or at least there wasn't. That may have changed now. But there was no way to gain access to the investigation to determine what the status is of your concern, whether it was open, still under investigation, or it had been closed.

MR. HEIPLE: Thank you. And I know that this isn't supposed to be personal, but I am finding it a little personal this afternoon and this morning. One of my friends was one of the flight attendants on the aircraft. The next morning, when I arrived at the aircraft for the investigation, I looked at the tail number and discovered it was the last aircraft that I worked as a flight attendant with one of my best friends. And I just know that had this happened at a different altitude, it could have been very different for many of us.

I'll continue to my next question. On Panel Two yesterday, it was highlighted that the time pressure Spirt Employees felt to get things done quickly, and potentially work overtime to accomplish tasks so that they could get Boeing -- out of Boeing's way, in our experience as operators, this can lead to errors caused by rushing and by fatigue.

During this hearing, we heard from leaders at Spirit tell us how easy it is to release contract employees from their

employment. We also heard how readily discipline was brought up as a corrective action when things didn't go right. Because this is a public hearing, these statements aren't just indicative of the work environment. They actually are now part of the work environment that you've created for these employees.

Are your employees reporting safety concerns at a rate similar to that of Boeing employees in similar roles? And if you could explain your efforts to implement just culture for Spirit contractors working at Boeing facilities, it would be appreciated.

MR. GREG BROWN: Yes. I don't know the numbers of exactly who at Boeing reports these safety reports. I do know that since 2023, I think it was in the second quarter, when we implemented Quality 360, we have seen a consistent, quarter by quarter growth of reports, which is exactly what we'd be looking for. In addition to that, the amount, or the percentage of deidentified reports, or people who are choosing not to remain anonymous, continues to increase as well, which to me, is good.

From a just culture perspective, there's a lot to unpackage with just culture. I do believe very strongly that as we move forward into our SMS, a key part of the trust related to this is that discipline has to be something that's absolutely reserved for intentional acts, reckless behavior, for example, willful disregard. But there's a lot to learn from employees involved in making mistakes, and we need to be using them as part of the investigation to learn from it.

MR. HEIPLE: Okay. I'm going to yield the 45 seconds I have, and hopefully there's another round.

CHAIR HOMENDY: Yes. Next -- oh. I -- Federal Aviation Administration, you are next.

MR. GERLACH: Thank you, Madam Chair.

For Boeing, can you describe the type of Speak Up reports that are not approved for the triparty review?

MR. WRIGHT: Yeah, I can. They type of Speak Up reports are typically process improvement type reports, where it's not really -- there's not a behavior to evaluate in that. So those are the type. We keep it to ones where there is some type of mistake or something like that that has to be evaluated. We try to model it on the self-reporting ASAP.

MR. GERLACH: Okay. Thank you. And again, a couple more Boeing questions. Regarding command media changes, has Boeing considered process, procedures, workplace coaching, or other in-person formal activity prior to revised rollout?

MR. SILVA: Yes. Yes, we have. And as a matter of fact, with some of the changes that we're embarking upon through the comprehensive plan, we've also established an advisory board that includes the FAA as well. We need to get as much feedback on changes before we go implement.

MR. GERLACH: Thank you. Can you describe BPSM?

MR. SILVA: Yes, I can. BPSM stands for the Boeing Problem Solving Model. At a high level, it is basically a structured way

of going through identifying a problem, putting in containment, using information to go conduct an investigation and determine root cause, so root cause analysis. Based on that root cause, evaluating different countermeasures, and then selecting a countermeasure. And then once that countermeasure is selected, implementing the countermeasure to in fact establish that it addresses the root cause of the problem, and then what we call sustain the gains, which is ongoing monitoring to ensure the problem is resolved.

MR. GERLACH: And thank you for that. Is BPSM, is that a component of SMS, QMS, or BSMS?

MR. SILVA: It's a component of our quality management system, yes.

MR. GERLACH: And in that process, is the FAA a component to BPMS?

MR. SILVA: It can be. It can be. Certainly, if there are issues that are identified by the FAA during, say, an audit, we would respond with a BPSM to, in a very structured way, go through our problem solving process. It could also be instances where we're trying to do an internal item, and we could voluntarily disclose that or let the FAA know of a change based on a BPSM.

MR. GERLACH: Thank you. And SRAs, does that fit into the BPSM process as well?

MR. WRIGHT: We will often, if we see repeat BPSMs for the same issue, that's when the safety risk assessment gets activated.

And we do pull the data that the team did just to, you know, not start from complete scratch. But it's for repeats, is when it triggers into the SMS SRA.

MR. GERLACH: Thank you. And you all mentioned the accountable executive at Boeing. Who is that?

MR. WRIGHT: Today it's Dave Calhoun.

MR. GERLACH: Okay. Thank you. And this -- the next two questions, these are really Boeing and Spirit questions. You talked about the internal audit data. Does the FAA have access to the internal audit data?

MR. ACKERMAN: Are you asking about the -- where we have people onsite in Spirit's QMS, auditing Spirit?

MR. GERLACH: Correct.

MR. ACKERMAN: I would have to validate that. Believe we've shared in the past. In terms of access to a system, I don't believe so. In terms of have visibility of the data, yes, I believe so.

MR. GERLACH: Okay. Thank you. With regard to metrics, inputs, corrective actions, what actions are Boeing and Spirit taking to improve corrective action and sustain them?

MR. ACKERMAN: So we have an onsite team at Spirit, and as I've mentioned in previous testimony, we've expanded that team pretty substantially. There's certainly an inspection component of that onsite team, but there's also a team working more on quality management system, part of the team that does the audits.

But part of that team also does work directly with Spirit, as Greg Brown discussed before, to develop and implement root cause corrective action, and then monitor that root cause corrective action, both with formal audits and with floor walks and direct engagement with the teams implementing that corrective action.

MR. GERLACH: Thank you.

MR. GREG BROWN: Yeah. And if I could add --

MR. GERLACH: Sure.

MR. GREG BROWN: -- just from the Spirit side of this, I think ensuring that we're not accepting corrective actions in the form of simply communication or crew briefings and such, making sure that we're actually incorporating fixes, either into the engineering documentation, the planning, policies and procedures, training, just something so it doesn't exist for just a moment in time, and then frequently review those corrective actions at the senior leadership level for -- you know, until we feel like the matter is fully closed.

MR. GERLACH: With regard to the Speak Up program, and I think you may have said this, but it sounds like it's a very internal program. Can Spirit participate in the Speak Up? Do they have the ability to access it and write a Speak Up?

MR. WRIGHT: Not at this time.

MR. GERLACH: Okay. Thank you. And then I wanted to kind of set the record straight. We -- Dr. Eick mentioned that there was a public law, that he couldn't remember specifically what the law

was.

Dr. Eick, this was the Airline Safety and FAA Extension Act of 2010. Do you recall what the public law was?

DR. EICK: That's public law 111-216.

MR. GERLACH: Okay. Great. Thank you very much.

And then one question for my colleagues with the FAA. Has the FAA observed an increase in whistleblower or hotline complaints?

MR. KNAUP: Yes. We've received -- we've had an increase in hotline and whistleblower complaints since the accident.

MR. GERLACH: Thank you.

And one more question for Boeing. Now that the SMS is mandatory, what gaps have you identified in your voluntary SMS, and how will your SMS be different going forward?

MR. WRIGHT: I'll refer to the previous gap. I won't go into details. But the -- alerting interfacing organizations to hazards is the primary gap. An additional element that I can add is we will be under formal audit, now.

MR. GERLACH: Okay. Thank you. And again for Boeing, how would you describe the working relationship between Boeing and the IAM, and are you looking to try to strengthen that relationship regarding QMS, SMS, and safety culture?

MR. SILVA: Yes. We're always looking to try to strengthen that from a QMS, SMS, and overall culture perspective.

MR. WRIGHT: I definitely agree. I think things like the

triparty agreement are good steps in that direction.

MR. GERLACH: Thank you. Do you believe your workforce, engineers, technicians, your quality folks, management, do they understand their role and responsibility within the quality management?

MR. SILVA: Back in 2022, we sent out a QMS 001, or a fundamentals QMS training to help address just that. We had received some feedback from surveys back during that time that some folks had a harder time articulating their role. And so we sent that out, we used surveys to monitor and get feedback, and that's a continuing part of our QMS promotion as well, is making sure that folks understand.

And I didn't do a very good job at the beginning highlighting those four elements of say what you do, do what you say, prove it, and improve it.

MR. GERLACH: Thank you.

And the same question for Spirit. Do you believe your workforce really understands their role in quality management?

MR. GREG BROWN: I believe that they do. I believe that they're trained in such. I mean, at the end of the day, a mechanics responsibility is to follow the instructions as written. When you're not able to do that for any reason, you're to raise your hand. If that doesn't work, you have Quality 360. And if you feel like that's not working, we have an ethics complaint hotline. That's -- primarily, that is the responsibility of the

front line mechanic.

MR. GERLACH: Do they get any special training for QMS?

MR. GREG BROWN: I believe that they do get trained specifically on the tools that I just now mentioned, such as Quality 360 and such. As far as the extent of the holistic quality management system, I'd have to get back with you on that.

MR. GERLACH: Does it vary with experience, or is it just the same cookbook all the way through for everybody?

MR. GREG BROWN: I'd have to get you an answer on that one.

MR. GERLACH: Thank you. And I'm out of time here. Thank you.

CHAIR HOMENDY: Machinists Union.

MR. HOLDEN: Thank you, Madam Chair. Since we're on the topic of ASAP, I'd like to dive a little bit into that for the parties.

Mr. Wright, you were involved in some of our early discussions around the triparty agreement. Is that true?

MR. WRIGHT: Yes, sir.

MR. HOLDEN: Thank you. So you had just mentioned that it's meant to address more of a reactive event, not a process improvement. When we worked through the negotiations on the triparty, we had a lot of discussion, and including proactive reports. Do you recall that?

MR. WRIGHT: That might have been after my time, or maybe my recollection missed it.

MR. HOLDEN: Okay. I would ask Brian Knaup if he has an understanding of our discussions around proactive reporting within the triparty agreement.

MR. KNAUP: Yes. So proactive reports are a part of the triparty agreement. They should be addressed. There is also a path to get IAM more involved in SMS, where proactive reports are additionally addressed.

MR. HOLDEN: Thank you. Specifically, those proactive reports were, and you heard today from Mr. Catlin, was our effort to address the redefinition of inspection to verification, or product conformance by a mechanic only.

I want to ask Mr. Wright, how does -- or Mr. Silva, how would our effort to address proactive reporting around process improvements, addressing changes to BPIs that effectively transfer quality inspections by an inspector to a mechanic for conformance decisions.

MR. SILVA: So at a high level, and I also want to take a moment to thank Mr. Catlin, as well, for his feedback, at a high level, just with all our Speak Ups, every single Speak Up that we get, per process, has to be investigated, has to be thoroughly assigned some resources.

In the case of some of the ones you're talking about, I do believe we were able to come to some sort of resolution on some. But in others, I understand that we were not. And so ultimately, our commitment is to make sure that on all our Speak Ups, we take

that information, we get the right folks assigned to help understand from a technical perspective, or from a subject matter expertise perspective, what the right corrective actions are, and go from there.

MR. HOLDEN: Thank you. So you would agree that our triparty agreement should include proactive as well as reactive reporting?

MR. SILVA: Based on what Mr. Knaup said, and I apologize, I'm not -- I have not been as involved in the triparty agreement, it would make sense to me.

MR. HOLDEN: Thank you. I understand that you, Boeing, is working on an ASAP or Speak Up process with SPEEA. And Mr. Wright, can you report on how that's coming along? SPEEA is the union that represents the engineers.

MR. WRIGHT: I don't have a current update on that with me.

MR. HOLDEN: Okay. Thank you. So in our triparty agreement, it's defined that we will work to reach consensus, and then work to reach a resolution. We later found that that would become a recommendation to an SMS panel, who would then choose to implement or not. Who makes up the SMS panels for Boeing?

MR. WRIGHT: I can speak to that. The forum membership of the SMS boards is the language we use in the working groups, is the -- for the build area of the company, it's the functional leader and -- functional leaders, I should say of quality manufacturing, supply chain and fabrication, and the independent safety manager.

MR. HOLDEN: Do IAM members or the event review committee have access to the SMS panels?

MR. WRIGHT: I don't know that I've seen that, but I don't know that we've had a chance to discuss it.

MR. HOLDEN: If not, and my understanding is they don't, wouldn't that effectively limit the triparty agreement both for the IAM and for the FAA?

MR. WRIGHT: I'd have to get closer to that to understand.

MR. HOLDEN: Thank you. I would like to change up a little bit and look at -- review Exhibit 11S. Yesterday, there was discussion around the blanket installation, the okay to install. There's two Ips that are associated. We believe that it's important not to associate this discussion with blame, but to get clarity on what operations were stamped and when, and what that should have led to in regards to BPIs that should have invalidated the okay to install, and I think it's important for us to look at that to show that it's a systemic issue that we want to solve, we all want to solve.

So -- and I guess I would ask my questions to Mr. Catlin on this first. Well, with redaction, it's hard to see which installation plan this is. There's an installation plan on okay to install, and there's an installation plan to install the blankets.

MR. CATLIN: This is the install, Jon.

MR. HOLDEN: Okay. Can you direct the person moving this to

the areas where --

MR. CATLIN: Sure.

MR. HOLDEN: -- the stamp to complete the work is performed?

MR. CATLIN: The first thing I find important on this page is in the notes section. Down there, you will see a note that says process operator verification and acceptance has been applied to this job. Any changes to the quality criteria or process performed must be approved by the site quality engineering group, standard text note MZQSD.

Then if we scroll down to operation 6-1, it should be right there, 6-1 states that manufacturing conformed. Notice, this IP has conformance operations assigned. When stamping this IP complete, manufacturing is conforming the airplane to the approved design.

Then we scroll down to -- which will be the 999 note, which will -- should be the last operation on the job. And there we -- right there. So we have a manufacturing final inspection. As you can see in the QA column that's X'd out, there was no quality involvement in the installation of the insulation blankets on line 8789.

So at 11:30 a.m., a final acceptance was applied to this job, which tells us that manufacturing installed every blanket that was listed in the bill of materials, including the blanket that was installed over the door plug.

MR. HOLDEN: And what day was that on?

MR. CATLIN: That would have been on September 1st, 2023, at 11:30 a.m.

MR. HOLDEN: So we later know that we saw rework on the five fasteners on the left MED plug.

MR. CATLIN: Correct.

MR. HOLDEN: So what BPI would invalidate these stamps and require a reinspection of that area?

MR. CATLIN: So the thing to keep in mind is that there is also an installation plan that gives the okay to install. There is an operation in that installation plan for quality to give the okay to install, which was stamped complete on September 1st. There's also a customer inspection that is performed that gives the okay to install the blankets, which was also stamped complete on September 1st.

Those inspections are the inspections we spoke of yesterday that are extensive. They cover everything from station 727 to 887 on the airplane, from stringer 17 left to stringer 17 right, which takes you up over the crown of the aircraft. They are looking for open holes. They are looking for missing parts, loose parts, knicks, dings, scratches, FOD, damaged fasteners. It was that IP where they had identified the five damaged rivets on the lefthand side of the airplane, where they wrote the pickup for the five damaged rivets.

But by installing -- by giving the okay to install complete, and by installing the blankets complete, that is now a closed

area, even though there was rework to be performed in that general area. Per BPI 2573, as soon as those blankets were opened for rework, it invalidated the okay to install by both customer and by line quality, which required those to be redone.

In order to open those blankets, a removal record was required to be implemented. We know that the same condition exists on the righthand side. So we're not talking about one removal that was missing, we're talking about three. We're talking about two okay to closes that were given that were invalidated that should have been reperformed on both the right and the lefthand side of the airplane.

MR. HOLDEN: Thank you. No further questions.

CHAIR HOMENDY: Thank you. Spirit.

MS. MEYER: Spirit has no questions, Madam Chair.

CHAIR HOMENDY: ALPA.

CAPT JANGELIS: Thank you, Madam Chair.

One of my questions is for Boeing. One of the concerns that came to light post-accident was that the pilots and the airline never knew, nor were taught, that the cockpit door would blow off its mounting inward towards the passengers and flight attendants as a result of the massive cabin pressurization breach. Was any action taken using the SMS process to reevaluate what pilots need and should know to safely operate the aircraft post-accident?

MR. WRIGHT: I don't have deep understanding, but my understanding is that it was reviewed through our safety type

process in the safety review board type area and that the FCOM was updated. I don't have more than that, though.

CAPT JANGELIS: All right. We could assume that the same action was taken fleet-wide across the product line?

MR. WRIGHT: I don't have that information with me, but we could get that.

CAPT JANGELIS: Thank you.

My next question, again for Boeing, and also Spirit, one of the most productive reports we see in the airline SMS voluntary reporting systems are sole source, meaning the reporter is the only one who knows or sees the safety hazard. It gives us valuable insight on issues that others may not have been party to. What percentage of reports have you seen and received that could be considered sole source?

MR. GREG BROWN: I'll start for Spirit. I can't tell you the percentage right here, as I sit here, unfortunately. I'd be happy to get that back to you. I do agree that those are -- that is probably the primary reason that we have that type of voluntary system, is to understand things that we don't know about yet versus things that we probably would have found out about through other channels. But happy to follow up on that.

MR. WRIGHT: I could start with the Speak Ups. They're typically put in by an individual, but sometimes involve groups. And we don't typically split that out, but I absolutely agree that those closest to the hazard are best positioned to report it.

CAPT JANGELIS: No further questions. Thank you.

CHAIR HOMENDY: Thank you. Alaska.

MR. TIDWELL: Thank you, Chair.

For Boeing, Mr. Wright again, sorry, as you've discussed, one of the major tenants of an effective SMS is safety promotion, which is used to share information and foster in improving safety culture. You touched a bit on it a little bit earlier. But your efforts post 1282, I want to know, can you tell us a little bit more about the return on that investment, what you've done with promotion, and what you're seeing in your system?

MR. WRIGHT: Yeah, happy to. Post 1282, one of the significant things that we've done is conduct ongoing safety and quality events; there's a few things, but I'll mention this one first; with our teams. So we've -- I think Ms. Lund's testimony is relevant, where she talked about the 70,000 folks, and the inputs and the actions.

So she did talk about the 30,000 inputs. We have completed 11,000 actions as part of that promotion to really have that feedback loop occurring. And then the employee involvement teams, and getting those implemented in a broader sense, and these are where crews are taking time. I think those are the two most significant examples, post-accident.

MR. TIDWELL: Okay. Thank you. With most SMS's, there's shared meetings. So whether it's your analyst group, your operational group, your leadership group, your executive group,

can you talk me through where -- what your tiers are for your SMS reviews, and if you have any of your prime vendors or support folks that attend to those specifics?

MR. WRIGHT: It -- the tiers are modelled quite a lot after the airline part 121 SMS, where we have our data groups, and they feed into a working group structure. That working group structure covers each airplane program, 7-3 through 7-8, as well as our out of production programs.

And if we find something that's cross-model, similar to a cross-model safety review board that you might have in an airline space, we bring that up to either the functional heads of engineering -- and in that engineering board, all the chief engineers of all our programs are part of that board. And then -- excuse me. Too much hand talking. We've got a build type board. We follow the NAS 9972, design, build, operate. That is the functional heads.

So these are the Boeing Commercial Airplanes leadership team members that are the head of that, for supply chain, fabrication, quality and manufacturing. And then we have our operate board, which is fleet. This is where we look at things like the quality of service bulletins, things like that. And that is our head of customer services as well as our out of production chief engineer. And there's an independent safety manager on all those boards.

Those boards go up to the CEO level of the business unit. So the Boeing Commercial Airplanes CEO is the next level up of the

tiered structure. And then one more up from that is the accountable executive here, and that's where the CEOs of Boeing Commercial Airplanes, Boeing Defense and Space, and Boeing Global Services all personally articulate their risk postures to the CEO of the company.

MR. TIDWELL: Is Spirit involved in any of those levels of review with any of their data?

MR. WRIGHT: Absolutely. For instance, we have -- Spirit would -- is joined with us on an SRM that we started back in fourth quarter, so November 2023, on internal escapes. So we have a joint SRM with Spirit that is being managed in that 3-7 board, and they're part of the presentations and the discussion.

MR. TIDWELL: Okay. Very good. Thank you. One last question. We learned a little bit yesterday in the testimony about -- what was it, a rate readiness process. How engaged is your SRA process or your overall SMS in feeding information to that decision, and is that risk assessment signed off by the accountable executive for any rate level increases?

MR. WRIGHT: As we -- one of our first forays into the change management trigger for SMS was to require an SRM for every rate change. So we've been doing this for a while across all our models and learning along the way how to effectively do that.

So we do create the bowtie I described earlier for each airplane program's threats and error management around rate. And then the results of that are presented as part of the cap stone.

And that rate level, if there is a risk that the rate will be unsuccessful and not produce conforming aircraft, then we -- that risk has to be accepted.

And the moderate risk can be accepted at a program level, and that would be the risk of unacceptable regulatory actions. The -- to -- from a risk standpoint. They're all acceptable. I want to be clear about that. If it's higher, it would go up. But we wouldn't elevate -- one of those, we just wouldn't change rate. That's about as far along as we are to date.

MR. TIDWELL: Okay. Thank you. No further questions, Chair.

CHAIR HOMENDY: Thank you. And perhaps we can check Mr. Catlin's microphone, because people online are apparently saying they can't hear him. Anyways, our technical people will work on that. We are going to AFA.

MR. HEIPLE: Thank you.

Mr. Wright, you mentioned that you ask yourself the question, now, what does SMS say, what does SMS tell you to do? I like that. AFA has visibility to SMS in action at operators, and we have observed that SMS can lead carriers to make decisions that exceed regulatory requirements.

At Boeing, there appears to be a focus on meeting the reg, or minimum regulation. The decision to have the single point of failure on the mid door plug design and installation process appears to be an example of a decision to meet the minimum certification requirement.

As a result of the accident, you are making numerous reactive fixes and changes. Do you think that your SMS will change this way of looking at risk management, even when there's a cost associated with meeting a higher than minimum standard?

MR. WRIGHT: Good question. And first, I meant to do this earlier, I meant to acknowledge, because as a safety professional, your friend being in danger is personal to me, too. So I just wanted to say I'm sorry.

When we look at the -- this 90 day plan and the investment that goes with it, it's going to result in a lot of processes going above regulation. And I'm seeing evidence of that. I'm part of every single piece of that plan to look at it from a safety perspective.

The elements of will our SMS act differently, the answer is yes. It has to. An SMS needs to look at risks, and single point risks are something we do look at. And we've actually started a few SRMs on areas that look like there might be a single point, and looking at design changes around some of those, and seeing if that's truly a single point.

But it's getting us to think about, much more broadly than in this case, the door plug, what are other similar things on the airplane that might be similar. And it is definitely causing a change in that thinking. And I haven't run into any cost area in my time as the SMS leader on anything that's required for safety. I -- we're fully committed there.

MR. HEIPLE: I'm afraid I was speaking from personal experience with that one as well, just actually hearing Boeing engineers say it meets the reg. But --

MR. WRIGHT: Sure.

MR. HEIPLE: So I'm looking forward to seeing some change there.

So yeah, I guess this is for Boeing and Spirit. We heard that some defects are not nonconformities. Do Boeing and Spirit share the same understanding of what constitutes a defect versus a nonconformity, and do you track all defects, or just ones that are deemed significant, or that were nonconformities?

MR. SILVA: Yeah. I was going to start. We track all defects as nonconformances. Every single one of them gets written up within our nonconformance management system. I think yesterday you may have heard of some different types in terms of some are pickups and some are tags requiring -- one what's required to bring the airplane back to type design requirement. But we track everything.

MR. GREG BROWN: Yeah. I would agree with that. We do document -- if there is a nonconformance observed by a Boeing inspector, for example, it does get documented. If we have a disagreement about conformity or not, we go to the Boeing spec, and we will measure, analyze, whatever we have to do to determine if it is or is not in conformance. If it is in conformance, we'll usually have the conversation, but it will be signed off as such.

Otherwise, it'll be reworked back to design.

MR. HEIPLE: I'm sorry. I missed -- do you share the same understanding of what constitutes a defect, I mean between Spirit and Boeing, versus a nonconformity?

MR. ACKERMAN: We have the -- we have a common understanding of what is required by type design, we have a common understanding of what is required in our specifications, and we have a common system that says when we find things that don't match what's in the type design, that we document them, and address them, and whether it's -- use MRB or rework or whatever to bring them back to type design requirements.

If there are desires that are not type design related, as member Graham mentioned in yesterday's discussions, about things that we would deem as cosmetic, or satisfaction issues, then we have a discussion about what is required to resolve those. They still, as Hector Silva mentioned, still get documented in the same system, in the same way.

MR. HEIPLE: Thank you.

Mr. Wright, I'm sorry. I had -- I'd missed your comment. Thank you. Thank you for that. This question is also for you. During panel two yesterday, Ms. Lund had said that we talk a lot about not sacrificing safety for operational pressure. AFA members know from experience that safety talk by itself is not effective safety promotion.

It was also noted during panel two yesterday that safety talk

isn't doing much for Boeing's employees either, at least from some of the interviews. And I'm thinking of the comment about the safety posters. Because basically, they're safety promotion that they're aware of.

What meaningful action is Boeing taking to demonstrate that it really is okay to slow down or stop the operation for safety. I'm referring, of course, to pillar four here.

MR. WRIGHT: Sure. I'm a firm believer that leadership actions have to match, the work we ask people to do have to match the work environment they're doing it in. If those don't match, there is no promotion.

And I think that an example that I'm finding very powerful right now is the travelled work safety risk assessment process that we've implemented on 737 flow days one through seven, and 787 in the first two positions.

The change I'm seeing, as I get the -- I'm part of the daily oversight, is we are holding the airplane on a much more regular basis, and we're seeing rework numbers go down. So I see fairly significant percentages of airplanes held if the safety risk assessment says we cannot do that work and keep either people safe or the airplane safe.

MR. HEIPLE: This question is for Mr. Catlin. We'll test your mic. You brought up concerns about inspections becoming verifications becoming a conformance decision. Can you give us some examples of how this has impacted safety outcomes and tell us

what you believe should be changed to improve these outcomes?

MR. CATLIN: Thank you for the question. In the demonstration that Mr. Holden had just put up, you -- I showed you that in the notes section, it said -- stated that they were assigning the conformance decision. And then in operation 6-1, it says that the conformance is assigned to manufacturing, and in the final inspection operation, it was a manufacturing inspection operation.

What's important to understand is that in May of 2021, EIR 2021 NNM420001 was issued by the FAA to the Boeing company. And in counter condition four, it clearly states Boeing assigned inspection conformance decisions to manufacturing personnel without training or controls necessary to perform product acceptance.

And here, even after this incident on January 5th, we still have installation plans on this airplane that have conformance decisions assigned to manufacturing. And I have done the research and found out we have close to 250 installation plans on that airplane that the conformance decision was assigned to manufacturing.

And so that's our concern, is that through the last five years, prior to verification optimization between 2014 and 2017, we saw several opportunities that Boeing took to attempt to take quality inspections and convert them to manufacturing verifications. The did it under -- in 2016, under 2016 FCA41012.

They did it again in 2017, in November of 2017, three compliance findings were issued by the FAA, CMP 2018 NM420004, CMP 2018 NM420008, and EIR 2018 NM420001.

In those three FAA compliance findings, they emphatically stated that the FAA does not recognize verification as an acceptable method to meet the requirements of the aforementioned regulations. They also stated, over and over again, that you cannot have manufacturing perform the inspection and provide the information to quality to accept the products and articles.

Again, in May of 2021, in counter condition number 10, addressed functional testing of the aircraft, where Boeing was having -- they removed all the inspections off the just in time tests and the installation plans, and was having manufacturing perform the tests and quality to accept the tests based on document review alone.

And so it's been rejected over and over and over through the last few years, and as I just recently stated, again in BPI 2573. It was revised in January of 2024, and again in June of 2024, to allow manufacturing to perform the inspections, provide the data to quality to accept the products and articles.

So even after the January 5th door plug blowout, we are now still continuing to try and let manufacturing perform the inspections and let quality buy it off based on document review alone.

MR. HEIPLE: Thank you.

CHAIR HOMENDY: Thank you. FAA.

MR. GERLACH: Thank you, Chair.

I'd like to walk you all through a little scenario, and that is a part, like a bolt or something like that, doesn't get torqued properly. There's a Speak Up. A mechanic says I tightened the bolt down, but I don't think I got the right torque on it. Maybe it was the wrong kind of torque wrench, or the torque wrench was broken.

It makes it all the way through the system. It's out flying with a carrier. How does Boeing tell the carrier I think we have an improperly torqued part? And then how do you tell the FAA as well? For Boeing.

MR. WRIGHT: So thank you for the scenario. So in that specific scenario, what would happen is that Speak Up would get reviewed and investigated. Based on that investigation, a nonconformance order would be written, depending on the results of the investigation.

Because the airplane has left our production system, we have a process called the suspect discrepancy report process. That process would be used to notify the airline -- or it would be used to notify our service engineer organization, who then can in turn notify the airline. And then through our voluntary disclosure process, either formal or informal, we would notify the FAA.

MR. GERLACH: Thank you.

And then the same similar scenario for Spirit as well. Maybe

it's a rivet, sheet metal, something like that. It escapes the system, but you can't participate in Speak Up. How do you let Boeing know? How do you let the FAA know?

MR. GREG BROWN: Yeah. So we have a notice of escapement process, I think we mentioned earlier. It begins with an initial notification of the investigation to Boeing, generally to Doug's team.

Our first steps are to do our best to understand what the scope and bound is. So when do we think that this problem started? We'd generally be very conservative and move up several lines before that. We will send that to Boeing. Boeing will typically initiate investigation on the line units and production, assuming that they are still at their factor.

We will then ensure containment within our production system, writing it into the planning, whatever that corrective action needs to be, including it being just an inspection, until we get to the root cause and implement a corrective action. And there's generally going to be a date and a particular line unit where we'll ensure that that has been introduced.

MR. ACKERMAN: And for Boeing, after we've received that notification, it's essentially the -- exactly the same process that Mr. Silva described.

MR. GERLACH: Thank you.

MR. ACKERMAN: And in terms of notification to the FAA, that falls on -- that's Boeing's responsibility, as the production

certificate holder.

MR. GERLACH: Thank you.

And for Mr. Catlin, we've talked a bunch about IAM and the Speak Up program. But can you tell us number one priority, number two, number three, what changes have to occur to the Speak Up program where the IAM folks feel comfortable, and it'll cause an increase in participation in the Speak Up program? Just set us up for some priorities, here. What are they?

MR. CATLIN: Yeah. Number one, I think that having a truly transparent relationship in the Speak Up program, letting us and the FAA be an equal participant in the program, letting us get the opportunity to go and have the conversation with the member who filed the Speak Up concern.

I know that as a business rep, I get a grievance from one of my union stewards. I don't even begin to process that grievance until I go and I sit down with the member, and I find out okay, there's more to what's written here. What is it? Let me have the full insight and the scope of what it is that you're concerned about.

We need that opportunity. That would go as -- you know, would help to build that relationship between Speak Up and our members if they actually saw that we were an equal participant in the process. And then it's about building that trust. You know, letting us have that opportunity to help the Boeing Company build that trust with the people utilizing the process.

MR. GERLACH: Anything else?

MR. CATLIN: I don't know.

MR. GERLACH: Okay.

MR. CATLIN: Yep.

MR. GERLACH: All right. Thank you, sir.

Back to Boeing, and it's a question that I spoke -- with respect to Spirit as well. So with regard to metric inputs and corrective actions, what actions has Boeing taken to improve corrective action sustainment?

MR. ACKERMAN: Part of that corrective action sustainment is the additional resources we've put onsite in Wichita, and in going through the evaluations of when we get a root cause corrective action report from Spirit, the evaluation of is it sustainable and is it systemic.

MR. GERLACH: Thank you, Chair. Those are all the questions I have.

CHAIR HOMENDY: Mr. Gerlach saved four minutes and 44 seconds and has a gold star by me. I'm moving onto the machinists, and then we'll go to Spirit. And then, just for awareness for everybody, we are a safety agency, and the Board of Inquiry is getting hungry. Therefore, a hangry bunch of questions is not advisable for the witnesses.

So we'll go to the machinists, we'll go to Spirit, we'll take a half hour lunch -- half hour okay? Half hour, forty -- we'll see what time it is. Forty-five minutes. I'll negotiate it

forty-five minutes. And then we will come back, and then the Board of Inquiry will do their questions, assuming everyone is done here, and then we'll move into Panel Four. Machinists.

MR. HOLDEN: Thank you, Madam Chair. I have one last question.

Mr. Silva, you've mentioned that BPIs, or procedure documents, would be noted in the installation plans. We did have an installation plan up. Could you bring up Exhibit 11S again, and can we look at the operations and see, you know, how a mechanic or quality might use that document to find procedures or BPIs they're accountable to? Are you familiar with the installation plans, Mr. Silva?

MR. SILVA: I have general familiarization with installation plans, yes.

MR. HOLDEN: Okay. Can you go to the top? That is the top. Okay. Do we see any references to BPIs or pro docs in the installation plan?

MR. SILVA: If I may, I'd like to clarify. I believe it may have been Ms. Lund that made the comment around BPIs in installation plans. But typically, installation plans actually just take the required instruction and content, like Mr. Catlin pointed out, with CAN notes. Occasionally, BPIs will be referenced. But more often than not, the actual instructions are built into the installation plan, as you see here, or as you see in subsequent operations.

MR. HOLDEN: Okay. So it's fair to say that there isn't a reference to a BPI or a pro doc that someone could then go look up?

MR. SILVA: It really depends on the installation plan.

MR. HOLDEN: Okay. Thank you. No further questions.

CHAIR HOMENDY: Two gold stars for you. Can Spirit beat them? It's okay.

MS. MEYER: Spirit has no questions, Madam Chair.

CHAIR HOMENDY: Wonderful.

MS. MEYER: You're all welcome.

CHAIR HOMENDY: Great. Thank you very much. Give her some chocolate. Okay. We're going to take a break. We will be back at 2:40. Oh, yes?

MR. HEIPLE: On return, may we ask more questions?

CHAIR HOMENDY: Is it more than 10 minutes -- five minutes of questions?

MR. HEIPLE: No.

CHAIR HOMENDY: Perfect.

MR. HEIPLE: Thank you.

CHAIR HOMENDY: Yes, you can. 2:45. Thank you very much.

(Off the record)

(On the record)

CHAIR HOMENDY: Back. And I hope everyone got food. Okay, good. AFA has a few questions. I've checked with everyone else. Everyone else seems good. So Mr. Heiple, whenever you want to

start, and then we'll go into the Board of Inquiry.

MR. HEIPLE: Thank you, Madam Chair.

Mr. Silva, you stated that the MD plug defect should have been caught after it occurred or when rollout occurred. What rollout inspection would have caught this defect, which we understand may have been covered under the insulation blanket at that stage?

MR. SILVA: Sorry. Just to clarify, I believe I stated when the condition of a removal being -- needed to be written would have been caught. So yes, either at the earlier stage, as we saw yesterday through Panel Two, or towards the end of the line.

I can't speak to all the specifics right now in terms of all the inspections that we have before rollout. But we can certainly follow up and get you details around the types of inspections that we do prior to rolling out to the flight line.

MR. HEIPLE: Thank you.

And I believe this is probably for Mr. Wright. As discussed yesterday, the oxygen generator movement was identified prior to the accident. In two cases, the reports came from carriers that received the aircraft. Does your SMS system process those reports, and was a reactive SRA performed?

MR. WRIGHT: Yes. Our SMS, the part of our SMS that looks after the fleet event and factory event type process, that continued operational safety program type process, did process that. And what was done at Boeing was to actually do physical

testing with the oxygen canister in every migratable position. And it -- we could not find any time that oxygen flow was impinged. There was no crimping in the pullout. That said, we did write it up as safety, and we had a required compliance period for the service bulletin, which the FAA shortened.

MR. HEIPLE: You mentioned that bow ties take up to two months to perform. This -- it was two years after the reports starting coming in on this. Can you help us understand why it takes so long to respond to, potentially?

MR. WRIGHT: For this type of item -- we use bow ties in some elements, especially if it's a system. For this one, it was more of a physical safety analysis, more of a -- the type that we do under the cost program. So it's a different toolset that's used.

And the -- from what I understand, and I don't have much more detail than that, the fact that the oxygen flow could not be impinged on had a longer compliance period with that one, because the safety part of it, the exposure was a -- not as much because the flow was not impinged in any of the cases we could demonstrate. But I don't have much more than that.

MR. HEIPLE: I think our concern at looking at it, that they could also just be activated and then not be available when needed. Because if they migrate too far, it can pull the fire ring and -- yeah.

MR. WRIGHT: I would have to ask further on that analysis. I had asked about the oxygen flow yesterday. I don't have that

information on the lanyard that pulls the pin.

MR. HEIPLE: And lastly, were the carriers notified to make them aware of this potential hazard?

MR. WRIGHT: I don't have that on me here.

MR. HEIPLE: Thank you.

MR. WRIGHT: Thank you.

CHAIR HOMENDY: All right. Parties are satisfied right now? Okay. We are going to move onto the Board of Inquiry, and we're going to start with Member Graham.

MEMBER GRAHAM: Thank you, Chair. If you could pull up Exhibit 11F for me, please? There we go. Thank you. This is Boeing quality alert 0 -- 2023-00056-AR. This was an alert distributed due to audit issues with removals.

Can Boeing tell me what audits picked up these discrepancies for removals?

MR. SILVA: So I'll address that one. I couldn't tell you exactly which specific audit pointed to this, but I do recall seeing this alert. It is one that was both sent out to the 3-7 team for both the requirements around the removal, but then specifically, if this is the one I'm thinking of, is clarifying the short form and long form requirements.

MEMBER GRAHAM: Okay. Also, June of that timeframe, there was SMS activity going on that initiated a safety risk management activity titled removals. Was this part of this result also?

MR. SILVA: I'm not sure if this was related to that same

activity. I do recognize they were happening around the same time. But that SRM in particular was looking at the entire process.

MEMBER GRAHAM: Okay. Did one trigger the other, or did this trigger the SMS activity, do you know?

MR. SILVA: I believe the SMS activity was triggered by Speak Up reports.

MEMBER GRAHAM: Speak Up reports. Okay. Did the quality organization evaluate the effectiveness of this safety alert?

MR. SILVA: I don't think we did anything formal from going back and evaluating effectiveness afterwards on this particular alert. I think since the accident, we've been looking at how to notify and send out communications in a much more effective way.

MEMBER GRAHAM: Okay.

Mr. Wright, are you aware of the SMS activity in June 2023 on removals?

MR. WRIGHT: I'm aware of the removals SRM. My date that I have for start is March of 2023.

MEMBER GRAHAM: Okay, March. Okay. Can you discuss the findings and any actions taken from that?

MR. WRIGHT: Yeah. As the system was laid out, the findings were around process complexity and around employee proficiency, and those were broken into sub-elements that I don't have ready recall on. And then the actions were rolled in and aligned to the 90 day plan. So those actions are aligned, and I think Hector has

details on what those specific actions are.

MR. SILVA: And I think at a higher level, I could add a little bit more in terms of what that removal's SRM identified.

MEMBER GRAHAM: Please.

MR. SILVA: There were a couple areas. One, in particular, that was noted from Speak Ups was -- so the -- it's the one removal process that we have. There's just one BPI for any scenario. But one of the things that we saw through a number of Speak Ups were concerns around how to make sure teammates had all the necessary information for the reinstallation, particularly to make sure that tests were conducted appropriately, if anything was disturbed, that needed to be rereviewed.

And so one of the items that was identified during the SRM was how to change our manufacturing execution system and some of the tools we offer from a data perspective to make getting that information easier for our teammates. The other was really around -- I think it might speak a little bit to your question around effectiveness -- making sure that we had built in a more ongoing monitoring process around how removals are done on a continuous basis.

MEMBER GRAHAM: Thank you for that. So I'm going to go to the SMS now for a little bit, try to tie up some of the gaps, because it was well -- there was a lot of good questions on this already answered. Your SMS went operational in June of 2021. Correct?

MR. WRIGHT: It was -- yeah. It was approved as operational in 2021.

MEMBER GRAHAM: Okay. Did that go out to the entire company, or did -- was it implemented in different operations first?

MR. WRIGHT: The FAA sees the commercial operation.

MEMBER GRAHAM: Okay. So when did the SMS hit the Renton factory floor?

MR. WRIGHT: Oh, that was definitely applicable to that. I was just trying to articulate that --

MEMBER GRAHAM: Okay.

MR. WRIGHT: -- it didn't apply to our defense business.

MEMBER GRAHAM: Okay. But in this case, for this accident --

MR. WRIGHT: Absolutely.

MEMBER GRAHAM: -- when did the SMS go active on the Renton factory floor?

MR. WRIGHT: So the Renton factory floor started getting training in this time. We set up the SMS board structure, that tiered structure that I mentioned, the Renton tiered structure got formalized with -- it was there at that time, but the standard work was deployed in 2023.

MEMBER GRAHAM: 2023. When in 2023?

MR. WRIGHT: Could we please pull up Boeing slide 9? That'll help me make sure I get the dates right. There we go. Thank you. And my friends at Spirit, could we move that chair just a little bit, please? Thank you.

So the -- when we have the Boeing SMS boards established and effective in 2023, the standard work was established in the second and third quarter in the effective evaluation. We did an internal assessment of ourselves at that time and found that the standard work was met at that time.

Prior to that time, we had many of the elements. But this got the alignment across all our airplane models, looking at the same things in the same way. SRMs were being conducted before that, though.

MEMBER GRAHAM: Okay. So when would a mechanic on the Renton factory floor -- would have known about SMS and been trained in it to understand what their role is?

MR. WRIGHT: The initial trainings would have been in that 2022 timeframe.

MEMBER GRAHAM: Okay. Okay. Thank you. You did -- when did the Speak Up program start? Same time?

MR. WRIGHT: Yeah. Speak Up, I want to say, started in around 2021.

MEMBER GRAHAM: Okay. And on a Speak Up submittal, can an employee put in a proposed solution?

MR. WRIGHT: Absolutely.

MEMBER GRAHAM: Okay. And then you did state that after it's closed out, a Speak Up action is investigated, and some, maybe an action is initiated, that it can be communicated through, I think you said crew reads?

MR. WRIGHT: Oh. If the Speak Up was anonymous --

MEMBER GRAHAM: Yeah.

MR. WRIGHT: -- we can take other action, like by a more broad group communication. If the Speak Up is confidential, and the Speak Up, we call it the reportent is known, they get a direct feedback.

MEMBER GRAHAM: Okay. But are there any other methods of getting out the word to others if it's deidentified and it doesn't point towards one employee?

MR. WRIGHT: The primary method we use, and it kind of depends on the Speak Up, if it's applying to a process that, like, a lot of people use, we would target that audience, either with a newsletter or an all team meeting or something like that --

MEMBER GRAHAM: Okay.

MR. WRIGHT: -- is what we've done to date.

MEMBER GRAHAM: Okay. Very good. Thank you. Now, you did bring up earlier, continuous operational safety. And I don't think we've really looked at that at this point. I'm very much aware of it as being part of one as - with another aircraft manufacturer.

And for those that don't know what it is, I think the best way that I could put it here is it's a way that a manufacturer can verify the ongoing safety of the products manufactured in accordance with approved designs by monitoring existing aircraft. Would that be a good way of --

MR. WRIGHT: Yeah.

MEMBER GRAHAM: Yeah.

MR. WRIGHT: That resonates.

MEMBER GRAHAM: So -- yeah. It just ensures the integrity of the product throughout its service life. And you said Boeing has a continuous operational safety program. Correct?

MR. WRIGHT: Correct, for many decades.

MEMBER GRAHAM: For many decades. Yeah. I think most aircraft manufacturers do have that. Who -- what departments are part of that -- I like to call it a council, maybe, or something like that, part of that group.

MR. WRIGHT: Yeah. It's -- in our parlance, it's a board.

MEMBER GRAHAM: A board.

MR. WRIGHT: Yeah. And that is -- depending on --

MEMBER GRAHAM: What board has a seat at that -- or what group -- what departments have a seat on that board?

MR. WRIGHT: Sure. The chief engineer for that -- there's a board for every model of aircraft.

MEMBER GRAHAM: Mm-hm.

MR. WRIGHT: And then there is a cross-model board, and there's an out of production board.

MEMBER GRAHAM: Thanks.

MR. WRIGHT: Yeah. But just to align the resources and the expertise. So the -- in a program board, it would be the chief program engineer, so the chief engineer for that model. And then

you'd have the -- excuse me, the air safety engineering, there's an executive out of our chief aerospace officer organization that sits on that board.

And then depending on the issue, like if it's a structures issue, you'd have the chief engineer of structures. and any subject matter organizations that are required in there. And then the FAA also observes.

MEMBER GRAHAM: Very good. Yeah. Do you have, like, quality or -- let's see, I'm trying to think who else, certification for that?

MR. WRIGHT: Depending on what's coming through the board, it could be.

MEMBER GRAHAM: Okay. Great. I may come back to that. I'm out of time. Thanks.

CHAIR HOMENDY: Member Chapman.

MEMBER CHAPMAN: Thank you, Chair.

Mr. Wright, this is a hard question to ask, because I certainly can see your dedication and your passion to the work that you're doing. But I do think it's a question that needs to be raised, to give you an opportunity to respond.

So recognizing that Boeing's safety management system is still maturing, the circumstances of the door plug event appear to involve a failure to generate the paperwork required to authorize and document the actions taken to both open and then close the door plug. This seems to be a very basic breakdown in Boeing's

processes, and it also seems to be a completely obvious safety risk. What does that failure say about the effectiveness of the Boeing safety management system, and what lessons have been learned?

MR. WRIGHT: It's -- I could say the quality management system, part of our safety management system has controls, and this accident exposed gaps in those controls. And we wait for the NTSB on the cause. But we've taken a look at -- with a fresh look at our production system, at any potential things that we might see.

And it's caused us to recommend and start to execute a significant amount of change in our production system around a lot of the elements that were talked to yesterday around the 90 day plan. And specifically, with areas around removal, factory compliance, proficiency, many areas like that are areas of focus for us, just looking at our production system with this post-accident look.

MEMBER CHAPMAN: But does it signal weaknesses in the safety management system? Is there a need to make that more robust?

MR. WRIGHT: The safety management system needs to and is being made more robust. I definitely see opportunity for further integration with QMS at SMS.

MEMBER CHAPMAN: Also for Boeing, and I'm not sure who's best situated to answer this, but I'd like to follow up on the issue that was highlighted through the questioning from the IAM

representative. And if I correctly understood the concern and the line of questioning, it sounds like there may actually have been multiple failures to appropriately authorize and document removals in connection with the work necessary to address the five nonconforming rivets on the accident aircraft.

Is that the case, and with that documentation, necessarily -- would documentation have been necessary to authorize removal and presumably the reinstallation of the blankets?

MR. SILVA: Yeah. I guess I could start. So I guess a couple things come to mind. So to the latter part of your question, specifically, a removal document is and always was the requirement to make sure that a part is either removed, loosened, or taken off the airplane, and then restored correctly. So that was obviously a gap.

I'm -- I have not tracked as closely the sequence of events, and I haven't been as familiar in terms of the -- I -- obviously, I attended Panel Two yesterday. And I know Ms. Lund made remarks around some of the rest of the installation plans. I think we would need to go back and revisit what the sequence of events was and what happened in terms of those installation plans to have a better understanding.

MEMBER CHAPMAN: But you don't -- at least at this point, based on what you know, and I know we're all gathering facts. That's why we're here. But you don't necessarily take issue with the possibility that there may have been multiple failures here in

terms of the documentation for the removals.

MR. SILVA: I think there was certainly a failure on the lack of a documentation of removal. In terms of where those opportunities could have been or what other things could have triggered, and if that led to another failure, I just -- I couldn't speak to that.

MEMBER CHAPMAN: Okay.

MR. ACKERMAN: Yeah. If I could add to that --

MEMBER CHAPMAN: Sure.

MR. ACKERMAN: -- Mr. Silva, we, in the earlier testimony, looked at one of two IPs that governed the installation of the installation blankets. One is an okay to install, one is the actual installation itself. One of them was reviewed here. The other one does get into whether or not that document was fully closed and stamped off per process. So you'd have to look at the both of them together to get the full answer.

MEMBER CHAPMAN: Okay. Thank you. And you have probably covered this today. I'll ask if you can give me just a quick answer on it. Can you just describe for us how the Boeing safety management system interfaces with a major external organization, such as a supplier like Spirit?

MR. SILVA: Do you want to start, Doug?

MR. ACKERMAN: Here. I'll take that one. So I was -- well one, maybe I'll start with although it is not a rule, and it is voluntary, we have asked all of our supply base to implement

safety management systems. Many of our suppliers, Spirit and others, have already started that. Many of them have very mature safety management systems.

We've also created a forum for suppliers who want to voluntarily implement safety management systems to get together and share information, share notes on learning how to implement or ask questions of other companies who have implemented safety management systems. So we are strongly encouraging that across the supply base.

In terms of how ours interfaces with our supply base, we do monitor data that comes in from our supply chain, in terms of defects, in terms of risks. When we need to, as we have done with Spirit, we would implement a safety risk assessment with that supplier or, depending on the situation, internally, in response to data that we have coming in from our supply chain.

MEMBER CHAPMAN: Thank you.

And for the Spirit folks, you're still in the early stages of developing and implementing a safety management system. Is that right?

MR. GREG BROWN: That is correct.

MEMBER CHAPMAN: For Spirit, and you've probably mentioned this already this morning, so I apologize. I just want to clarify. Does Spirit have a process to promote positive safety culture, similar to the Speak Up employee reporting process at Boeing?

MR. GREG BROWN: Yes, sir. We do. It is the -- primarily, it's the Quality 360 --

MEMBER CHAPMAN: Okay.

MR. GREG BROWN: -- application. That is made available to all employees and participants.

MEMBER CHAPMAN: Okay. So it is the Quality 360 program. And that --

MR. GREG BROWN: That's correct.

MEMBER CHAPMAN: -- would cover not just quality issue, but also safety issue?

MR. GREG BROWN: We do have a separate application that's for accidents and incidents related to employee, OSHA type health concerns. Those are taken in by our safety department, just as the Quality 360 reports are taken in by the quality team. And we're always looking to see if they need to be forwarded to the appropriate teams.

MEMBER CHAPMAN: Your -- and you have 20 some employees at the Renton facility. Are those folks eligible to participate in Boeing's Speak Up program, or would they have to report through Spirit's program, or could they do either, or both?

MR. GREG BROWN: I'll let Boeing answer for the Boeing side. There are no prohibitions from a Spirit perspective as to whether they could participate in the Boeing program.

MR. WILLIAM BROWN: We've actually had one employee submit into the Boeing program.

MR. WRIGHT: The -- I think how the process works, and maybe we have to verify how the programs connect up, but definitely hazards can be raised through a lot of ways, not just Speak Up. And we do take those. Just -- sometimes it's a call to my department or not. But I --with regard to Speak Up, I think it is -- the way it would go is for Boeing to enter it on Spirit's behalf, if that was a question.

MEMBER CHAPMAN: So again, just following up on that, so do the Spirit employees at Renton have access to the Boeing system?

MR. WRIGHT: I don't believe so. Not directly.

MEMBER CHAPMAN: Chair, I have some questions for FAA. I'm just going to hold those for the next round. Thank you.

CHAIR HOMENDY: Sure. Member Inman.

MEMBER INMAN: Thank you, Chair. And I think Member Chapman started with this may be a tough question. I'm afraid I'm going to have several tough questions. If we can, can we pull up the Boeing SMS implementation, please?

And first, while they're pulling that up, can the Boeing employees, each of you, tell me how many years you've been with Boeing directly? Just go down the line.

MR. WRIGHT: Yes, sir. I'll start. Thirty-three years.

MR. SILVA: Eleven years.

MR. ACKERMAN: Thirty-four.

MEMBER INMAN: Okay. And for FAA, how long have you been?

MR. SLAGLE: Twenty-four years.

MR. KNAUP: Eight years tomorrow.

DR. EICK: Three years.

MEMBER CHAPMAN: Okay. Thank you.

MEMBER INMAN: So in your safety management system, it indicates in 2019 a products and services safety organization was established, and it says SMS aligned. Can you tell me quickly what that means?

MR. WRIGHT: Yes. We had a number of SMS systems, we have repair stations. And also we had SMS systems that were separate with different accountable executives, per the local regulatory requirements. So there was an SMS in Boeing UK, where we have our Chinook Helicopters, Australia. So what that meant was bringing all the SMS programs together to start to align into a standard single program going up to a single accountable executive at Boeing.

MEMBER INMAN: And that was 2019. Right?

MR. WRIGHT: That's when that agreement for alignment happened, and then we were working through the mechanics of it.

MEMBER INMAN: Okay. And that -- and if I'm correct, I get the impression that that actually was borne a little bit out of a number of enforcement investigative reports that the FAA had done over time.

MR. WRIGHT: On that, I think there were several inputs. That's a little before my time. I took the role in November 2021.

MEMBER INMAN: Okay. Well, let's -- if we can, we're going

to go down Memory Lane a little bit. Can we bring up the master settlement, please? The reason I bring this up is it -- maybe you remember --

MR. WRIGHT: Oh, pardon me, Member. I misspoke, 2020 November.

MEMBER INMAN: That's close enough.

MR. WRIGHT: Thanks.

MEMBER INMAN: So what we have here, actually, is -- the actual document is the United States Department of Transportation and the Federal Aviation Administration, Northwest Mountain Region, Office of Regional Counsel settlement agreement. And this settlement agreement was between the FAA and Boeing. This actually occurred in 2015, specifically around the issues -- covered topics were safety management in SMS, regulatory compliance, use of the Boeing problem solving model to analyze allegations of noncompliance, and accuracy of stamping and other verifications.

Now, I primarily listed those because they should sound familiar. It's what we've been talking about the last day and a half. But this was 2015. It's a little staggering to understand that those existed over a decade ago and were subject to a settlement.

I guess the bigger issue is, after that, if you'll pull up the agreement, or the sanction I was actually at the Department of Transportation when this was drafted, December 29th, 2020, five

years after the fact, in which that out of the 10 sections that were still applicable, it was determined that five of them had not even been met at that point. So we had another set of sanctions.

I guess the question is for Boeing, as part of that agreement in 2015, you actually said that you would have in place an SMS, and it had been accepted by the FAA. That was 2015. We continue to talk about things getting mature. I think if you'll find anybody that's a 10 or 12 year old, they'll think they're mature, but they may not be.

But almost three years after that -- or excuse me, six years later, we talk about it's implemented. And then three years after that, it still isn't, and we're hopeful that it will get implemented in 2027.

I guess the biggest question is does it really take one of the U.S. largest companies and one of the largest companies in the world 12 years to implement a safety program?

MR. WRIGHT: I appreciate what you're relaying. There's definitely a timeline of implementation, and SMS is a continuous improvement, is the best I can relay it, sir. So now, my understanding of this timeline was in 2015, we did hire SMS leadership, and conducted benchmarking, because the SMS for design and manufacturers wasn't very well understood.

And in 2017, we immediately asked the FAA for information on the voluntary program. And then conducted --

MEMBER INMAN: Well, wait. Can I stop you?

MR. WRIGHT: Yeah.

MEMBER INMAN: The voluntary program -- at that point, you were under a settlement agreement. It doesn't sound voluntary. It's a settlement agreement, that you would do that, and you would continue to add to it.

MR. WRIGHT: Absolutely. I should clarify that the only FAA program available was voluntary. It's just the name of it. So I'm -- the -- it was -- we were seeking to further get guidance on design and manufacturer SMS and what that entails, and that led us to the 2019 alignment. So that's the best I can explain that path to 2019. And then from there, it's as I've been attempting to describe.

MEMBER INMAN: Okay.

So for the -- I guess for the FAA, I'm going to bring that back again. It's kind of the same question. It's apparent similar issues existed back in 2015, stamping, safety management systems. And I realize we've got one lucky person who said he's only been there for three years. So you can -- you're off the hotseat a little bit.

But, I mean, they existed at that point. They were primarily saying, at that point, on the design side of the house. But in this accident, we're seeing similar issues on the production side. And is it just me, or are we seeing a game of whack-a-mole every five or 10 years on issues related to safety?

MR. KNAUP: So I wasn't around when they did the 2015

settlement agreement. But certainly, I'm aware of it. And yes, we have seen similar issues in, you know, this current event that we saw back then. We continue to do compliance and enforcement throughout that process to try to, you know, ensure compliance as we move through the process and, you know, the quality system or different or different aspects of Boeing changes.

MEMBER INMAN: So I guess to follow up that, in 2015, it was a monitoring process for five years, for -- but now we're back under another monitoring agreement. What do you think will be different this time?

MR. KNAUP: I'd say that differences on our side, on the FAA side, is we've increased staff significantly already, and plan to increase additionally so that we can be there more often than, maybe, we were before. So I know that's one thing that we are doing to ensure.

We do have a lot of data provided by Boeing as part of the 90 day plan that we, you know, will monitor, and ensure that that helps inform where we go look at potential issues within their system. You know, I think those are a couple of the actions that we're taking in the last nine months to make it be different than it was last time.

MEMBER INMAN: And to your credit, there -- I know there are a lot of dedicated FAA employees and Boeing employees. I don't think this is a situation any of us wants to be sitting in. But I sure as hell don't want to be sitting here again in five years.

I'll defer on my time, Madam Chair.

CHAIR HOMENDY: Thank you, Member Inman.

You did briefly, earlier, Mr. Wright, and I'm just hoping you can do it again in just a minute, one minute or less. Can you define just culture?

MR. WRIGHT: Yes, ma'am. It's a -- just culture is a philosophy and methodology that ensures that employees who report mistakes in good -- or who report good faith mistakes truthfully, that they are not punitively responded to, so that it enables the learning an organization needs to continually get better with safety.

CHAIR HOMENDY: And overall, how would you define safety culture?

MR. WRIGHT: Safety culture is -- I -- we do buy in, and I personally do, to the five elements of safety culture, with the reporting culture, informed, learning, flexible, and just, as all being required elements for this to work.

CHAIR HOMENDY: And how would you define a healthy employee/manager relationship?

MR. WRIGHT: A healthy employee/manager relationship would be one where they interact freely, where the manager knows about the employee and cares about them personally, and vice versa. And they know their business, and they know how to respond when work can't be done in a way that is correct. And it's in an environment where everybody feels respected.

CHAIR HOMENDY: In leading people safety, they talk about a healthy employee/manager relationship, and they talk about it in terms of it needs to be employee owned and not management driven. And they highlight three attributes of a healthy employee/manager relationship, and that being trust. Would you agree with that, trust?

MR. WRIGHT: Absolutely.

CHAIR HOMENDY: How about transparency?

MR. WRIGHT: That would make sense.

CHAIR HOMENDY: And how about treatment?

MR. WRIGHT: It seems like it goes with the other two well.

CHAIR HOMENDY: Yeah. Trust, transparency, treatment. So I want you to keep that in mind when I ask about a few things. Just going back to something related to nonconformance, or unauthorized removals. There is a lot of documentation about unauthorized removals. There have been FAA audits. There have been Boeing internal audits.

In fact, there were -- let's see, conducted audits of its own processes for noncompliance, repeatedly identifying concerns with documentation, or lack thereof, for removed parts, audit numbers 2239, 2106, 2228, 2333. These are all Boeing audits on 737s, 767s, triple sevens, 787s, repeated problems with unauthorized removals.

So I'm going to give Mr. Silva a second chance at asking Dr. -- answering Dr. Wood's question of at which stage should this

escape been caught?

MR. SILVA: I think since the accident and everything we've learned, both reflecting back on all those internal audits, and looking back more systemically at all our compliance actions, both from the FAA and voluntary, this really could have been something that we could have put some other countermeasures in place earlier, and we recognize that.

CHAIR HOMENDY: So by the time it got to flow day one, three, seven, nine, it should have been years before that. Correct?

MR. SILVA: Yes.

CHAIR HOMENDY: Years before January 5th.

MR. SILVA: Yes.

CHAIR HOMENDY: So I have a question just relating back to a healthy employee/manager relationship, and while I do this, Leani, can you pull up Exhibit 11K, page 233? To our crew at the time, 25 people?

MR. SILVA: I believe that's what heard yesterday in the panels. That sounds about right.

CHAIR HOMENDY: Okay. And before Leani picks this up, I do have a question. Who's responsible for safety?

MR. WRIGHT: Everybody in the organization.

CHAIR HOMENDY: That's right. That's right. Thank you. And when human error occurs, what action should Boeing take in a just culture and a healthy employee/management relationship?

MR. WRIGHT: Take actions to fix the system that allows for

the human error.

CHAIR HOMENDY: And do you believe employees should be punished for mistakes? I'm not talking about, you know, intentional or anything like that.

MR. WRIGHT: No. We think of them as good faith mistakes or unintentional mistakes.

CHAIR HOMENDY: Okay.

MR. WRIGHT: I do not.

CHAIR HOMENDY: Leani, do you have that exhibit? All right. So page 33, can -- or 233. Go down. Okay. It's actually -- this -- I might not have the right exhibit. That's all right. Take it down. That's all right. Stephen's going to check the exhibit.

The person I want to ask about is the two door crew employees who have been sidelined. I understand that you have an antiretaliation policy. We have it. I also understand that you have a policy for lateral moves.

Yesterday, Ms. Lund talked about two employees that after this occurred, I don't think we have any evidence to suggest this was intentional. I don't think Boeing does either. If you do, please tell us now.

So given that it's not intentional, and we just talked about how when there are safety issues and human error, that you should be welcoming people to speak up, what sort of impression does that give your employees if you sideline them and put them in quote -- and I'm quoting, Boeing prison, a cage? I'm just wondering what

message that sends?

MR. WRIGHT: I'm not directly involved with those employees. I have to refer to Ms. Lund's testimony yesterday about --

CHAIR HOMENDY: What --

MR. WRIGHT: -- and I don't have enough details to know. I do know that in a just culture, you need to address good faith mistakes with nonpunitive solutions. And I know that we always take action to assure that the aircraft -- product safety is protected. And we need -- it's not an and, it's a both.

CHAIR HOMENDY: And safety is a collective responsibility. It's just not -- it's not just one person. It's not just two people. And so I have a lot of questions about these two people who have been sidelined, granted they are apparently somewhere with pay, but it's very clear that they have been told that they will not return until -- if at all, until this investigation is over.

Have you communicated why that is effectively with them, anybody, Mr. Ackerman?

MR. ACKERMAN: I have not been involved in the actions with those employees at all.

MR. WRIGHT: I have not either.

CHAIR HOMENDY: Yeah. What effect, Mr. Catlin, does it have when you do something like that, to your entire workforce?

MR. CATLIN: It sends a very clear message to the entire workforce.

CHAIR HOMENDY: What's that message?

MR. CATLIN: You mess up, you get moved. We see it all the time.

CHAIR HOMENDY: Yeah. So I'm just going to read you a couple things. I have a minute and 20 seconds left. This is from our interviews. Quote, Boeing employees, so we've got a lot of people that won't, that are not going to speak up, because when they do, they've been burned by a manager, they've been moved, you know, relocated, pushed out. Every little thing they do, you were three minutes late, three minutes late, and then you're moved.

Another one says because my job, I work directly for Boeing, so when I have concern I go to my managers. I also have the fear I'm going to be moved to a different area or just, you know -- and when we asked, have you seen this happen, I have not seen this happen, but I've seen it somewhere in Boeing.

This is the effect that that type of -- and it is retaliation, happens. You have an antiretaliation policy. So I just want to understand why two people on a door crew are sidelined for something that is a collective responsibility, something that Boeing knew for years was a responsibility.

I want to ask, are you 100 percent sure a defect won't occur tomorrow? Yes or no?

MR. SILVA: No.

CHAIR HOMENDY: Are you 100 percent sure there will never be an unauthorized removal?

MR. SILVA: No.

CHAIR HOMENDY: Are you 100 percent -- can you tell Alaska Airlines there will never be -- there may never be a situation where bolts won't be put into a door plug?

MR. SILVA: I can't make a promise or a guarantee like that. All I can say is we are definitely committed to making sure that all of the changes we need to make --

CHAIR HOMENDY: And I do appreciate that.

MR. SILVA: -- are necessary.

CHAIR HOMENDY: I do appreciate that. I think, you know, I think there are many people at Boeing who are really focused on safety. I mean, it's clear it means a lot to each of you. I just -- and I'll get into just culture a little bit more. This is -- I do want to ask Mr. Catlin about it and some others. But thank you very much, and appreciate your honesty. Member Graham.

MEMBER GRAHAM: Thank you.

Let me go back to continued operational -- continuous operational safety. When the accident happened, I assume that team gathered to formulate the field response to what they were going to do as far as an inspection or whatever, and eventually what the FAA would require. Is that correct?

MR. WRIGHT: Yeah. That's my understanding, talking with the people involved.

MEMBER GRAHAM: Okay. And normally, a COS system would usually take input from the field, from issues that are out in the

field, from the fleet. Right? Is that correct?

MR. WRIGHT: Yeah, as a data gathering process.

MEMBER GRAHAM: Yeah. Is -- does Boeing COS program, do they ever take anything internally, from the factory, from production flight tests, any of that? I see a lot of shaking heads. Is that --

MR. WRIGHT: Certainly.

MEMBER GRAHAM: Okay. Good.

MR. WRIGHT: In that regard, I don't know if you want to talk about it. We do have that process.

MEMBER GRAHAM: Okay. That's good. That's good to hear. I mean, I know a lot of programs that didn't for years. And, you know, that might head stuff off at the pass, before it gets to the Alaskas and stuff like that. Very good.

One more thing on SMS here, being that I ran -- I developed and ran an SMS for a manufacturer for a number of years, a robust and effective SMS must permeate throughout the organization, from the most senior executive down to each employee on the manufacturing line. And every single person at the organization must be bought in as an empowered safety officer. I see a lot of head shaking there.

So my question is what steps did Boeing take prior to this accident to ensure that each employee was not only aware of its SMS, but bought into the system?

MR. WRIGHT: The steps we took were to go through the

promotion elements that I walked through a little earlier today, and then conduct surveys to see how that was going, and then use the surveys to guide our next actions.

MEMBER GRAHAM: And since the accident?

MR. WRIGHT: Since the accident, and I know you've said this some -- the people at Boeing care deeply about safety. Every one of us hurts inside. Since the accident, we've seen a significant increase in safety reporting, and the interaction with -- through stand downs with employees and managers collaborating on solutions has been significant related to the actions I was describing earlier, and the quantities.

MEMBER GRAHAM: Very good. I want to thank the witnesses for their answers, and that's all I have in this round, Chair.

CHAIR HOMENDY: Thank you. Member Chapman.

MEMBER CHAPMAN: Thank you, Chair.

Just a couple of questions for the FAA folks. How many part 21 organizations currently participate in the voluntary SMS program? I don't need an exact number, but if you can give us at least a reasonable estimation.

MR. SLAGLE: I'd say at present, 30 to 35 companies in the voluntary program.

MEMBER CHAPMAN: Thank you. And are all or most of those voluntary SMS programs currently under FAA assessment?

MR. SLAGLE: We have five companies that we accepted their SMS under the voluntary program. So the other 30 plus companies

are at different stages in the voluntary program.

MEMBER CHAPMAN: Okay. And I think I heard you say earlier that there will be 65 companies required to have mandatory SMS, part 21 companies, under the new rule. Is that correct? And if not, what is the number?

DR. EICK: Yes, 65 is our estimate.

MEMBER CHAPMAN: Sixty-five. And does FAA have adequate resources to ensure the timely, and frankly, quality assessment of those SMS's?

DR. EICK: Yes.

MEMBER CHAPMAN: Thank you. And I want to thank the witnesses as well. It's been, I know, a long day, a long, hot day. But we still have chocolate up here, so eat your heart out. Thank you, Chair. That's all I had for this round.

CHAIR HOMENDY: Thank you. Member Inman.

MEMBER INMAN: Thank you.

Let me just -- earlier, the FAA folks, you were talking about someone that was really an expert in SMS. Was that James Phoenix?

MR. KNAUP: Yes.

MEMBER INMAN: Okay. Can we bring up 11M, please? I'm just going to bring up -- it's a little bit of the paperwork. But Chair, I would point out one thing. I think the Boeing board of directors has their own retaliatory plan. It's getting rid of their CEO every few years. And I think that's going to change, I guess, tomorrow, too. Isn't it?

Do we have 11M? Thank you. This is from James Phoenix. He was retired at the time, but I think he's well known as an expert in SMS, and often times you can -- while you're employed for a company, you have to sometimes, certain messages you have to portray, or you've been told, or check with.

One great thing about someone who's no longer an employee of the FAA or otherwise, they often can tell the truth. I'm not saying anyone here is not. But I think it's a great barometer, and I think he makes some great comments in here.

So we're talking about in line 612 -- sorry, page 612, line 11. It's not 612 in the PDF. It's 612 -- yeah. Yeah. So when the airplane moves down the line, and the door, maybe, goes over to Moses Lake, when the part finally shows up that they need, they have to remove other parts. I mean, in the tens of thousands of removals, you would not normally see, Boeing was ill-prepared to manage this.

And this was the transformation, basically, after the shutdown, and then the restart. So he was talking specifically in that area. But then he goes on, if you will scroll on down a little bit. So the other issue we had with the removals were the instructions on reinstalling. They just didn't pull the old IP back up and say go out and do all this.

And I believe IAM actually testified to this a little while ago, the engineering instructions said put it back in and test it. Paraphrasing, but we were really disappointed with the level of --

next page -- instruction on reinstalling. It did not match the level of fidelity that you had on production IPs, and that was a couple years ago.

There's a lot of issues regarding -- around removals, undocumented removals. I think we had a number of compliance actions on that. So if you ask me if I'm surprised, I am not, unfortunately.

Is -- does the FAA feel like it's got more James Phoenixes out there that they can turn to? Are you the next James Phoenix? Do you feel comfortable that you can actually say that while you're still at the FAA?

MR. KNAUP: Well, I guess I'm not the next Jim. I don't think anyone can replace Jim. What I will say is we did identify this issue. Like he mentions in his testimony, we worked through our compliance actions, and tried to ensure Boeing implemented corrective actions around this issue, which was the reinstallation of parts, and ensuring that the IPs were adequate so that the employees knew how to reinstall part afterwards.

The removal process, you know, as mentioned previously, is a very complex process. So we did attack that process and, you know, I would say had compliance actions in many different aspects of that process throughout the time, you know, Jim is referencing in his testimony.

MEMBER INMAN: Okay. Can we drop down to page 620?

And so here they're talking about an interesting term that

I'd not really heard before. But apparently, it's known. It's called blame and train. Have you all heard about this? And I'm going to ask Boeing, is this something that maybe people haven't spoken to you about, but that you know is being discussed?

MR. SILVA: If you're -- oh, sorry. I was going to say yeah, with this comment, being familiar with who was being interviewed, we have heard him make that statement before around, in this case, the robustness of a corrective action not really being robust. It's inadequate to do root cause analysis and say we'll just continue to train someone.

MEMBER INMAN: And I think he goes on, down to line 16, you need to change your process to implement a control.

MR. SILVA: Process, and I would add, even the tools, the systems that we use. Yeah.

MEMBER INMAN: Okay. I do want to give a little credit where credit's due, if we could go to page 621, line 19. And I apologize. There's so many pages in the docket, sometimes it's our one chance to highlight a few for all the parties and other members. But occasionally, you can get a little credit, where he talks about the relationship between Boeing and FAA, whether it's adversarial.

No, it was excellent. We spent a lot of time in their facilities, with folks up at the Everett Office, the head of the office in the Boeing facility. But we moved out of there when we changed the location, 15 minutes and, you know, met with Boeing

leadership routinely, weekly. And I'll wait for the next page. Sometimes five times a week. You know, Boeing loves their meetings.

But they talked about the working relationships. And if you drop down a little bit further, the inspection unit members. And the reason I bring that up is he indicates they really know how Boeing works. If you want to, and they're not shy, they will tell you anything you want to know.

My suggestion is to spend some time with them if you haven't already, hopefully in a non-adversarial position. And I don't know if you have or haven't, but that would be a good -- that, I think it would be very helpful.

MR. SILVA: We certainly agree.

MEMBER INMAN: Okay. Okay. I do want to call out, though, I guess, one thing in this, and it's a little bit of the SMS history, even though -- because I brought it up in the last panel. And it was interesting to hear, you know, Alaska suffered a tragedy many years ago. And as far as I understand, they took it upon themselves to go after SMS even before SMS was cool.

In fact, Boeing has learned from them a little bit. They actually, I believe, started informally in 2008. Does that sound right, Max? I know you're not a party, and I'm not really asking you a question, so thank you. The thumbs up is okay.

And then in earnest, really picked it up in 2013, and actually was fully accredited by the FAA in September 2016.

MR. TIDWELL: Yes, Member.

MEMBER INMAN: You could have just thumbsed [sic] up. That's okay.

But I do think there's an opportunity sometimes, as Seth mentioned in his testimony, you know, we can -- we sometimes learn. And I know I've got a challenge coin that I have. It says from tragedy, on the back of it, and it used to be on the doors to our training center, from tragedy, we draw knowledge, to improve safety for us all.

Now, while this wasn't a tragedy, it probably was traumatic for a lot of the people. So I want to actually follow up just a little bit on your question on the oxygen canisters, because I think it's important.

We talked about -- it was March of 2023 when the first operator noted, in their pre-inspection delivery, I believe the plane only had 25 hours on it. They reported that almost all of them were dislodged in some way. And they may not have been crimped, but they were dislodged. They saw that again later that year, the same issue. They're obviously doing a really good check. And now, they're kind of worried about it.

But it wasn't until, I believe, May or June of the next year that the actual service bulletin went out ahead of the AD. Is that how quick an SMS should work whenever it's going to affect 600 or 700 airplanes?

MR. WRIGHT: The best way I can answer that question,

because, you know, it's hard with the specifics, and I wasn't right in the weeds of it. But I know our contingent operational safety program process does an assessment of safety, not safety. It's quite binary. And then there's a calculation of how long should it take for the fleet to incorporate the changes, so that we make sure we help the fleet focus on the right service bulletins in the right order with the resources to have.

And I do know that in addition to the Boeing process, the -- part of the ecosystem of this is there's a FAA oversight process that can choose to shorten that time period. And in this regard, they did.

So I -- it was all done per -- within process of how we handle all our safety events. And sometimes those compliance periods are longer so that it helps the airlines focus on the ones that are nearer term safety, is the best I can answer there.

MEMBER INMAN: I think if you've got a plane at 16,000 feet that's deompressurized [sic], it's pretty near term safety. So I'll just leave it at that. And also going back to a little bit of this, how do you -- so in this instance, we actually have learned a couple of questions. And we talked about the -- sorry. We talked about some of the great work, even though we're not going into the operations themselves.

But I think we did learn a couple of lessons specifically around where flight attendants may sit in certain configurations. I know Alaska has already done an update on their flight attendant

manuals to make that a little better. And I know their manuals also said that the flight attendants were not supposed to move from their station until they had established communication with the flight deck.

And through a series of a couple of other issues that I'm sure our investigative report will dig into, they may have broken a protocol, but they did the right thing. How do we get good lessons like that, where a protocol was written with good intentions, but real lessons are learned. One operator has made the change. How do you get that information out to other operators?

MR. WRIGHT: I don't have specifics on the process of how we get that out, but it makes absolute SMS sense to do that.

MEMBER INMAN: Does anybody else?

MR. WRIGHT: I don't think the people on this panel work in that area. We can take an action to follow up on that.

MEMBER INMAN: On updating air operators regarding safety issues in flight from a lesson learned?

MR. WRIGHT: Yeah. The specifics of the process are just run by a different organization, and we don't want to give wrong information.

MEMBER INMAN: Thank you, Chair.

CHAIR HOMENDY: Thank you very much.

Just really quick, in 2009, Boeing filed comments to the FAA's rulemaking on SMS, and then stated, quote, while we embrace

the concepts and principles of SMS, and believe there are potential benefits from a formal SMS implementation, the actual benefits to safety and compliance for our organization are expected to be small. Can you explain that?

MR. WRIGHT: I'm not familiar with that statement.

CHAIR HOMENDY: It was your comments to the federal register notice, Boeing's comments to the federal register notice for FAA's AMPRM on SMS in 2009 and referenced in the ODA technical review panel report.

MR. WRIGHT: Yeah. I'm afraid I can't comment on that.

CHAIR HOMENDY: You do not agree that the safety benefits -- or do you or do you not agree that the safety benefits to Boeing would be -- what do you think the safety benefits to Boeing would be to have an SMS, a well-functioning SMS?

MR. WRIGHT: We see great value in a well-functioning SMS.

CHAIR HOMENDY: Good. Good. I'm glad to hear that. Since we do all have a collective responsibility to ensure safety, we are going to do a safety culture survey of Boeing's Renton employees. And so I'd like a commitment from Boeing that you will work with us to carry out that safety culture survey without interference.

MR. SILVA: Yes, we would.

CHAIR HOMENDY: Perfect. Thank you very much. I want to ask some questions about Speak Up, and this really goes to a reporting culture. I know Alaska had asked, and I believe Member Chapman

had asked about who could use the Speak Up process, and whether it's available to all Boeing employees. Is it available to business partners, suppliers, venders, and contractors?

MR. WRIGHT: Not at this time.

CHAIR HOMENDY: Is -- and so the statement in your policy that says including that employee reporting in the Speak Up process is available to all employees, including business partners, suppliers, vendors, and contractors, the exclusion there is with access to the Boeing intranet? They do not have access to the Boeing intranet?

MR. WRIGHT: Yeah. It's the access to the Boeing intranet, and I think the working assumption, and I know we're changing our policy here, but at the time that the system was architected, was they would go through a Boeing person to submit on their behalf, is what I believe the initial setup was. But as part of this plan we're doing, we're definitely making changes, and I believe that's part of it.

CHAIR HOMENDY: Why, then, would you draft a policy on July 7th, 2023, that the vendors and suppliers could use it?

MR. WRIGHT: I don't know the answer to that, other than that working assumption I just relayed.

CHAIR HOMENDY: Okay. Do you think it would be reasonable, given some of the concerns I've raised from quotes in interviews, that a contractor would submit a Speak Up report through Boeing?

MR. WRIGHT: I haven't thought about all the ins and outs,

but I don't know why not.

CHAIR HOMENDY: Do you believe your Speak Up process is effective, that you're getting maximum participation and that people trust the system?

MR. WRIGHT: We are not at maximum participation, but I have seen significant year over year increases in reporting.

CHAIR HOMENDY: What does increases mean, numbers-wise?

MR. WRIGHT: Numbers-wise, when we first started up we were in the hundreds. Now, year to date, we're well above 2,000.

CHAIR HOMENDY: Two thousand. That's --

MR. WRIGHT: And --

CHAIR HOMENDY: -- 2,000 a year?

MR. WRIGHT: No, year to date.

CHAIR HOMENDY: Oh, year to date.

MR. WRIGHT: Yeah.

CHAIR HOMENDY: Oh, got it.

MR. WRIGHT: And every year, I've seen the number double, sometimes triple or more. So I'm looking for that scale of increase to continue.

CHAIR HOMENDY: And how can you get more participation?

MR. WRIGHT: My experience in environment health and safety, where I led that organization prior to this role, was repetition. Over 10 years, we got into the tens of thousands. And it took repetition and showing employees that they could trust the system with positive results. And when employees had a bad experience

with the system, we changed the system.

CHAIR HOMENDY: And do you believe your employees feel that they can submit truly anonymously? I know there's a confidential, and we'll go through the difference between confidential and anonymous again. Confidential is you submit your name, but there'll be a formal investigation, but supposedly, that would be -- the name would be protected in that group. I believe that's what the policy says in writing.

MR. WRIGHT: The confidential nature is as you described. It's -- the person gets to decide whether or not they want to have their name released, and there's an interaction there. A lot of employees do want to have their name released, to be part of the solution more actively. So we give them that option.

And do all employees feel trust in the system? It's a mix. Our surveys tell us it's a mix. And it's part of that road of repetition to build the trust that it takes with that. As you mentioned, trust, transparency, and treatment.

CHAIR HOMENDY: Do you think the union could play a role in that?

MR. WRIGHT: I think it's going to be critical for union members to help other union members build trust.

CHAIR HOMENDY: Does -- do you offer incentives for people to speak up?

MR. WRIGHT: We have not for product safety. We haven't done contests or gamification like we've done in other areas when we're

trying to raise hazards. I know there's schools of thought on that. I've actually seen benefit. And so we're discussing that. But to date, there hasn't been incentives for reporting.

CHAIR HOMENDY: For product safety.

MR. WRIGHT: Right.

MR. SILVA: We have offered recognition to folks that have --

MR. WRIGHT: That's true.

MR. SILVA: -- utilized Speak Up, yes.

MR. WRIGHT: That's a fair point.

CHAIR HOMENDY: Do executives get incentives for product safety?

MR. WRIGHT: Product safety in general?

CHAIR HOMENDY: Is it part of the compensation package?

MR. WRIGHT: It -- the compensation package for everybody has a product safety piece.

CHAIR HOMENDY: And does that include rank and file?

MR. WRIGHT: It does.

CHAIR HOMENDY: It does. I do want to get into that, and maybe -- I see Mr. Catlin might want to respond on that.

MR. SILVA: I'll make, perhaps, just one clarification. Our -- like Paul said, we have broad intensive plans across all different constituencies of our teammates. I believe within the IAM, it's workplace safety that's the metric that gets tracked.

MR. WRIGHT: Thanks for the clarification.

CHAIR HOMENDY: Workplace safety.

MR. SILVA: Yeah.

CHAIR HOMENDY: Mr. Catlin.

MR. CATLIN: Yeah, we do have a bonus that is part of our collective bargaining agreement, and quality and safety are two of the metrics that are in there.

CHAIR HOMENDY: Good.

And how do you show value, then, for reporting? Like, what's the -- am I over time? Okay. How do you show value in reporting? So you don't have an incentive program. I will say that going through all the witness statements, it says they have no idea how to report. I mean, whether it's, you know, Spirit contractors in their own avenue or it's Boeing employees.

And I know they're a limited number of employees. You have thousands of employees. We interviewed a certain number of employees. But all but one had no idea. And so what -- how do you show value?

MR. WRIGHT: The value that -- the feedback I get on the value, and I do get positive feedback from employees, is that management takes action on the issue that they had where they were stuck, locally. And then the issue gets solved, and they're quite pleased.

CHAIR HOMENDY: And do you communicate that broadly?

MR. WRIGHT: We communicate -- we've aggregated in Boeing news type -- the web articles. But I think there's room to improve in that area.

CHAIR HOMENDY: Okay. I -- when you file a Speak Up form, do you badge in or anything, or anything like that?

MR. WRIGHT: Well, you're inside the Boeing firewall, do you do have to use your -- either your badge, or some people use a password, depending on what kind of employee you are. But it's -- there's an inside the firewall gate you have to cross.

CHAIR HOMENDY: So when --

MR. WRIGHT: So like --

CHAIR HOMENDY: -- you file an anonymous report, there's still some sort of gate you have to cross, sort of like a badge in or a password for the intranet?

MR. WRIGHT: I can kind of walk through it, like when I submit a Speak Up, which I have. I put my badge in the badge reader when I first go into the Boeing intranet to get inside, to see my email and everything.

And then when I go into Speak Up, if -- and this is getting into the system that the employee can't see, but I know this is the architecture. If I click anonymous -- let me start with confidential. If I click confidential, my employee ID number goes into the system. If I click anonymous, that field is populated with a zero --

CHAIR HOMENDY: Mm-hm.

MR. WRIGHT: -- and after that, we don't have visibility once the employee hits submit, because that field's got a zero.

CHAIR HOMENDY: But you still badged in before you filed

that.

MR. WRIGHT: Sure.

CHAIR HOMENDY: Last question, because I'm out of time for this round. Does FAA get the Speak Up reports?

MR. WRIGHT: I'd have to have them --

CHAIR HOMENDY: Brian.

MR. WRIGHT: -- comment. I know what some of the reviews --

MR. KNAUP: Yeah. We do not get all the Speak Up reports. We do see some of them, certainly those associated with the ASAP, the folks that we have that are part of the event review committees see those Speak Up reports. We see other ones that might be associated with regulatory compliance. We do not see all --

CHAIR HOMENDY: Could you --

MR. KNAUP: -- of the Speak Up reports.

CHAIR HOMENDY: -- if you wanted all of them?

MR. KNAUP: I guess I'd leave that to Boeing to answer.

DR. EICK: Maybe I'll just throw something out, that the new rule requires that they submit, every six months, a summary of their confidential employee reports received to the FAA. And we say in our guidance material, that means the number of reports received, and a concise description of each report. So when the new rule is fully effective and --

CHAIR HOMENDY: Which is not until 2029, right?

DR. EICK: No, 2027.

CHAIR HOMENDY: 2027.

DR. EICK: Right.

CHAIR HOMENDY: We're still a couple of years away from that.

DR. EICK: Yeah.

CHAIR HOMENDY: So right now, no.

MR. SILVA: No. I can speak to -- currently, as part of our biweekly CEO safety review in Boeing Commercial Airplanes, we would have slides that include data around Speak Up reports. Historically, sometimes they even had more detailed data around the reports. As the volume has increased, now it's more the aggregate metrics.

But certainly, in terms of the transparency we want to give to the FAA, upon request, we can figure out a -- I'm sure we could figure out some sort of way to give them visibility.

CHAIR HOMENDY: Thank you. And I'm sorry, I'm over my time. Member Chapman. Member Inman.

MEMBER INMAN: Thank you, Chair.

I'm going to follow up a little bit on your rewarding, and just get into a couple of areas. So in your 2024 Boeing's proxy statement, it highlighted some of the issues from Alaska Air as being a driver for changes. And I think someone mentioned earlier that currently, the executive that signs off is -- But that changes tomorrow. Is that right?

MR. WRIGHT: That's David Calhoun, and that does change tomorrow. Yeah.

MEMBER INMAN: I went one prior. Sorry.

MR. WRIGHT: To Mr. Ortberg, yes, sir.

MEMBER INMAN: Mr. Ortberg. And they touted in that, I've read some of the news releases, that they were going to change compensation from -- previously, for named key executives, 75 percent financial performance, and 25 percent operational performance. This is for their bonus and incentives, to where it will now go to 60 percent operational and 40 percent financial. Do you believe this is a good idea?

MR. WRIGHT: How I understand the model is operational means quality.

MEMBER INMAN: Yes, sir.

MR. WRIGHT: Yeah. Safety as well.

MEMBER INMAN: Mm-hm.

MR. WRIGHT: So makes sense to me.

MEMBER INMAN: Okay. I guess the troubling thing, when we dig a little bit deeper, is it's only for six people.

MR. SILVA: And without having all the information in front of me, to clarify --

MEMBER INMAN: Mm-hm.

MR. SILVA: -- those changes were made beyond just those named officers. That was a change to the incentive plan overall.

MEMBER INMAN: Great. That's wonderful. Do you have an idea how big that universe is?

MR. SILVA: I'm sorry. I do not. But I'm sure we can follow

up with the details for you.

MEMBER INMAN: Could you find out for us? Because --

MR. SILVA: Sure.

MEMBER INMAN: -- I couldn't anywhere else.

MR. SILVA: Yeah.

MEMBER INMAN: Going into that a little bit, do the three of you that work for Boeing, do you get financial updates on how your business unit, Commercial Aircraft, how it's doing?

MR. WRIGHT: As a --

MR. ACKERMAN: In terms of overall financial performance of the business unit, just --

MEMBER INMAN: Every month, the CFO sends me about financial performance here, but what my officed budgets are, like, a snapshot of what we spent, what's pending. Do you get financial reporting?

MR. ACKERMAN: I know I get financial reporting for what's happening in my organization at a business unit level. So with Boeing Commercial Airplanes, we have the same quarterly financial information that's made public.

MEMBER INMAN: And in your three lines, are you considered a cost center? How do you typically equate into that overall balance sheet?

MR. ACKERMAN: If you look at -- I'll take it. For overall quality, it's different for different parts of the -- for the quality organization. So my costs in supply chain get aggregated

with a supply -- for supply oversight get aggregated with supply chain. The quality members we have that work for specific programs are part of the cost base for that program.

MEMBER INMAN: Okay. Where else?

MR. SILVA: And then I'm somewhere in between, as I support multiple programs. Sometimes we distribute our costs out to those programs directly, and sometimes we're just indirect cost.

MR. WRIGHT: I can say for my role, I tree up through the independent Chief Aerospace Safety Office, so we are overhead.

MEMBER INMAN: Okay. And so as you go into your budgeting, someone mentioned earlier that you're getting some more resources to add to, I think, your SMS process. How do you budget out -- how do you get more resources? Who do you go to? Who defines what amount you spend on safety?

MR. WRIGHT: The broad safety happens across many organizations. In my organization, we look at what's needed, we look at the actuals, we look at the work statement like you would in any company, and then make the request for either staffing or finance, up through our Chief Aerospace Safety Office, where it's aggregated. And then that comes in through the -- rolls up through the businesses that are the profit centers where the money comes from.

MEMBER INMAN: Okay. We're going to go down the line.

MR. ACKERMAN: So for my supplier quality organization, we look at what our driving metrics are. Are we having more

suppliers to oversee? Have they changed regions? And then we'll make adjustments to the budget based on what the driving parameters are.

MEMBER INMAN: Where does that go? Who signs off on that?

MR. ACKERMAN: That goes up -- for my budget in particular, that goes up through Ms. Lund in quality.

MEMBER INMAN: Okay. And --

MR. SILVA: I'm --

MEMBER INMAN: -- same thing?

MR. SILVA: -- very similar as Mr. Ackerman.

MEMBER INMAN: Okay. Mr. Wright, yours goes outside of Ms. Lund?

MR. WRIGHT: Correct.

MEMBER INMAN: Okay. In the last three years, or in your experience, have you been denied any resources that you requested in a budget cycle?

MR. ACKERMAN: I have not.

MR. SILVA: I have not.

MR. WRIGHT: I have not. We've been increasing.

MEMBER INMAN: I know you've been increasing. But --

MR. WRIGHT: In the past three. I --

MEMBER INMAN: Past three.

MR. WRIGHT: -- understand.

MEMBER INMAN: Or do you want to go back five? We can go back five.

MR. WRIGHT: I've only been in the role three.

MEMBER INMAN: Right. So I was trying to be there -- I guess the question is, are you asking for enough? If they're trusting you, and you obviously have an intent, I'm sure you didn't want to sit here this entire day. I'm sure the people on that flight didn't want to be on it. Are you getting everything you need?

MR. WRIGHT: I am.

MR. ACKERMAN: I'll add to that as well. Yes, I believe so. When we look at the parameters, the metrics we use to look at the number of people we need, where we need them deployed, the tools we need, the tool development we need as part of the 90 day plan, yeah, I believe we are.

MR. SILVA: And over the last few years, as being part of the quality leadership team, we have just been increasing our organization, so yes.

MEMBER INMAN: Okay. I would ask, because I know some of this could be proprietary data, but I would ask if the ISC was to ask for some of those metrics, or kind of how you were establishing that, would you be willing to discuss at least letting that be seen, even if it's on the OUO, which is redacted?

MR. SILVA: I'm sure we could figure something out.

MEMBER INMAN: Fair enough. Okay.

So I'm going to go back onto real quick, for the FAA, we -- earlier, I guess yesterday, we were discussing this -- the removal process that changed in the summer of 2023. Did you all hear that

testimony?

MR. KNAUP: Yes, we heard the testimony.

MEMBER INMAN: You're much better at auditing than using the mic. Right? It's okay.

MR. KNAUP: Sorry about that.

MEMBER INMAN: It's okay. It's okay. They said that their correction plan was to -- this form is no longer being a message requiring an acknowledgement that was read. Basically, you have to confirm, is that a best practice? Is that something you've seen that actually instills knowledge on something that needs a product update like that?

MR. KNAUP: No, it's not a best practice.

MEMBER INMAN: Were you aware that that was the change?

MR. KNAUP: We do not have regulatory compliance over how the individuals are trained in their -- to ensure that they be complaint. So I personally wasn't aware that that was changed, but I don't know if someone in the FAA was aware that that changed.

MEMBER INMAN: Well, they know now, right?

MR. KNAUP: For sure. Yes.

MEMBER INMAN: Okay. And that wouldn't have come up in your audits that were being conducted?

MR. KNAUP: The training part of it, not necessarily, would come up. We would see them not being compliant with doing the process. It certainly would come up in the corrective action,

that potentially could come up in the corrective action if we found a noncompliance, the corrective action plan could be to ensure that the training was acknowledged, and then we would, you know, find out that it wasn't that way previously.

MEMBER INMAN: But I guess I don't know if you were part of the manufacturing report, but I think they noted that Boeing had nine voluntary disclosures, and FAA had initiated several compliance actions related to Boeing's perform, part, or simply removal process, for several years prior to the incident.

MR. KNAUP: Yeah. So we have had non-compliances around the removal process. And like I talked about before, it is a -- an extensive process. There's a number of --

MEMBER INMAN: Mm-hm.

MR. KNAUP: -- aspects to it. And so our noncompliances were on various areas where we ensured that those corrective actions were put in place to solve the problem that we had found. But I --

MEMBER INMAN: I guess --

MR. KNAUP: -- obviously, there were other problems. Right?

MEMBER INMAN: I guess the question is do we just stop there? Are we missing taking the next step, to say they've given us their plan, this is what they're supposed to do, we need to see if it's right or wrong?

MR. KNAUP: For sure. So we do verification of corrective actions. We're continually evolving in how we analyze their

corrective actions to ensure that the corrective actions solve the problem for the whole process. Right? And it doesn't just solve the problem -- the very specific issue we saw at one specific, say, flow day, in the process.

We do really try to ensure that the corrective actions that are installed will solve that throughout not just Renton, right? But Everett, Charleston, you know, or any other of the 20 plus manufacturing facilities Boeing has that we oversee.

MEMBER INMAN: And what -- and it's unfortunate this was July of 2023. It doesn't seem like it solved the problem.

MR. KNAUP: Yeah. You're right. It didn't. Obviously, you know, there's work for us to do in how we analyze corrective actions, and ensure that that process does, you know, get through the whole system --

MEMBER INMAN: Mm-hm.

MR. KNAUP: -- at Boeing, and is effective in, you know, solving the problem for everything. So --

MEMBER INMAN: Okay. Keep going? Okay. I can go with -- I'm just trying to get back up to a different question. So I don't think that was mine.

So this is actually a question for Chris. And I went -- I talked earlier about we learned some lessons, some good things, some bad things. And this kind of struck me as a little odd. It was quickly mentioned yesterday, in Exhibit 7, and we don't need to pull it up. It was called the depressurization certification,

that the current regulation is the maximum hold size on a 7379 fuselage that can be certified to withstand a sudden depressurization is 820 inches. Does that sound familiar?

MR. WRIGHT: I don't have expertise in decompression.

MEMBER INMAN: Okay.

MR. WRIGHT: I remember the testimony.

MEMBER INMAN: Okay. Does anybody else have any expertise in it? Okay. It's your lucky day. I -- the bigger question is, there's a standard that's set at 820 inches. The door plug is 1,682 inches. It's pretty obvious if there's going to be an opening, the likely opening would be a door plug or a door. We're hearing a lot of incidents where people are trying to open doors. But we haven't set the standard to the size of the door.

I just -- I call that out, that sometimes we can learn small things, that while it might not be the emphasis of the testimony, maybe I'm a laymen and don't understand it, but it's going to be half the size of a door, so only half the door will fall out and depressurize. It just seems like -- that there could be some work if you take it back to your colleagues on looking at that standard a little bit closer.

And I think Boeing, it would probably be helpful for you all as well, because I'm sure you would be involved in the discussions regarding the depressurization. If anyone has an opinion on it, you can feel free to state it or not.

MR. KNAUP: It is outside of, I think, the witnesses on the

FAA side's area of expertise. But we can certainly take an action and provide an answer for the record.

MEMBER INMAN: That -- I would greatly -- I think it's an FAA reg, actually.

MR. KNAUP: For sure.

MEMBER INMAN: Yeah.

MR. KNAUP: Correct.

MEMBER INMAN: Okay.

CHAIR HOMENDY: And Dr. Woods may have asked this question, but I just want to clarify. Your SMS, how does it address suppliers, or feed in suppliers?

MR. ACKERMAN: Here. I'll start with that. As I mentioned earlier, we've asked all of our suppliers to voluntarily initiate a safety management system, and many of them have either initiated, as Spirit has, or have -- some of them have very mature safety management systems and we are benchmarking.

In terms of how our internal safety management systems address suppliers, we look at data from different sources, defect rates, types of defects, any risks we have in our supply chain. And when that data indicates we have a risk, we'll initiate an SRM, either with the supplier, as we've done with Spirit, or we'll initiate a risk assessment internally to see if it's something that is more broad, or an issue that needs broader attention than a specific supplier.

CHAIR HOMENDY: And again, Spirit does not have -- you're

initiating SMS now, but you did not previously?

MR. WILLIAM BROWN: That is correct.

CHAIR HOMENDY: Do you know why?

MR. WILLIAM BROWN: I'm sorry?

CHAIR HOMENDY: Why did you not have one previously. Boeing has, but why have you not, although voluntary?

MR. WILLIAM BROWN: Yeah. It wasn't required about a year and a half ago, after I took over the role as the quality leader. It was something I was very interested in. I thought it would be very important for our senior staff to learn about. They agreed, and we started initiating that program.

CHAIR HOMENDY: And I just want to ask, does it need to be required?

MR. WILLIAM BROWN: No. But it takes somebody to bring up the conversation to start it, and that's what we did.

CHAIR HOMENDY: But it wasn't -- but didn't you just say you didn't because it wasn't required?

MR. WILLIAM BROWN: No. I'm saying the company didn't because it wasn't required. Once I became in the role, I have experience with SMS, so I just -- I convinced the management team it's something we should do, and they agreed.

CHAIR HOMENDY: Okay. How will the -- Boeing's acquisition of Spirit improve safety?

MR. ACKERMAN: I'll take that one. As you know, we've announced that we've reached a tentative agreement on the

acquisition of Spirit. It still needs to go through the review at both boards, and obviously a regulatory review and approval before we're able to go forward with that acquisition.

But in terms of intent and why moving forward with it, there's many reasons, one of which is we'll be able to implement, directly, the Boeing quality management system across that build. As Ms. Lund mentioned in her testimony yesterday, Spirit is our largest supplier by a considerable amount, measured by a couple of different ways.

And we think it's important to have that capability, internal of the company, be vertically integrated in that area, than have that directly under the auspices of our quality management system and safety management system.

CHAIR HOMENDY: And will you still utilize the three supplier -- or contractor organizations that are Seattle based and doing work right now?

MR. ACKERMAN: Given where we're at in the process, we have not initiated the conversations of what that integration would look like. I do fully anticipate there will be changes as that integration happens over time. But we're still very much at the beginning of that process.

CHAIR HOMENDY: Okay. FAA, do you believe Boeing has a good safety culture?

MR. KNAUP: So Boeing's safety culture needs improvement. I think that's been stated by everyone, and we agree with that. We

see that manifest itself in increased hotline whistleblowers that come from Boeing employees who -- you know, that indicates they may not feel safe or trust the Speak Up system, so they come to the FAA. We certainly will investigate all of those, but it's an indication of that.

You know, we've been a part of the ASAP ERC with IAM and Boeing to try to build that trust in their Speak Up program. And certainly, the anecdotal evidence from their interviews that we got to see yesterday, you know, is a concern that there are safety culture issues with Boeing employees. So we certainly -- we agree, there is improvement that needs to happen with the Boeing safety culture.

CHAIR HOMENDY: Does Spirit have a good safety culture?

MR. KNAUP: I think a lot of the same things apply, outside of the ASAP. We have seen an increase in Spirit employee hotline whistleblowers. That is an indication they maybe don't have trust in the Quality 360 program and some of the similar stuff. So I think there's improvement that needs to happen there as well.

CHAIR HOMENDY: And does FAA have a good safety culture?

MR. KNAUP: I do believe that FAA has a good safety culture. I think we do receive reports from our folks, whether that's through our management team or our internal voluntary safety reporting program. And, you know, I think recently, we've done surveys across various parts of the FAA to, you know, measure our culture from our employees, and we've gotten positive responses in

that.

CHAIR HOMENDY: So to be -- and to be fair, I actually don't think any organization could say they have a good safety culture. It's not an end. It is not a destination. It is a journey, and it's continual. I mean, we have our own challenges. So there wasn't a wrong answer there. I just wanted to understand what your answer was.

I'll ask Boeing and Spirit. Do you -- what improvements would you like to see in your safety culture? And I'd also like to ask Mr. Catlin, then, as well. I could name numerous ones on NTSB, but I'm just wondering here, for you.

MR. WRIGHT: For sure. I think we've talked a lot about many of them, and I'll just summarize a few that are sticking with me, increased reporting, increased trust, the transparency, the flowing of information around safety information and trends, risk management, better integration between quality systems and SMS systems, complexity of procedures which lead to employees making less mistakes and feeling more safe about the work they do. Those are some ones that rapidly come to mind for me.

CHAIR HOMENDY: Thank you. Well, I would ask, because my time is limited, can we go to Spirit?

MR. GREG BROWN: Yes, Madam Chair. I would like to see more communication directly with our employees. I think everybody would like to see less coming through the whistleblower program, because that does signify a lack of trust and transparency. I

have a lot of interaction, in my short time there, with people on the floor.

I've had many a conversation in my office with people who are very trusting and sharing some very open concerns with us. And it's up to us to maintain that trust by delivering on actions.

CHAIR HOMENDY: Mr. Catlin.

MR. CATLIN: There's a lot of them, but I would begin with trust, honesty, transparency, inclusion, allowing our members to participate. Right now, there's so many problems. The trust is just -- is not there. The respect isn't there. And these are two very big things in building that safety culture, is, you know, our mechanics know if they don't sell their job today, they're going to be working post shift overtime, or they're going to be working the weekend to get that job sold. That's not part of a safety culture.

CHAIR HOMENDY: So I -- and I know these are really tough questions, but I think we all have a role to play, and that includes NTSB. I -- we want to see Boeing succeed, and Spirit succeed, and the employees succeed, and I think it's a partnership. So I'm going to ask each of the organizations, and maybe I'll just go down the line for everybody, and this is my last question for here.

Aside from, obviously, our mission, we conduct investigations. What can NTSB and this board do to partner with you and help you improve safety? How can we help you?

MR. WRIGHT: The -- when I think about safety, and I mentioned it before, I think of it as a thread that goes through everybody who interacts with a product or a value stream. And there's information that we have, there's information the NTSB has.

And as we -- visibility is a big piece of it. And so as we increase visibility, I know we pull in information from many organizations, there may be an opportunity there.

MR. SILVA: I was going to -- oh, I apologize. I was going to make a very similar statement earlier around the collective information that we can all share across this industry. But specific to the NTSB, I do want to say thank you.

Dr. Woods, Mr. Cruz, Mr. Johnson, they have been incredibly forthright in their observations, recommendations, things that they see. And that feedback has been incredibly helpful for us. So we would really just continue to appreciate that feedback and appreciate the suggestions you made.

MR. ACKERMAN: I was going to a similar place. Our interactions with the team that's doing the investigation have been very positive, enlightening, helpful. The NTSB has the opportunity to see risks and challenges from many different industries and incidents, broader than we have access to. So help with those broader insights, those systemic insights, so that we can take that learning from areas outside of the ones we have direct access to would be helpful.

CHAIR HOMENDY: Thank you.

MR. GREG BROWN: I would say on behalf of Spirit, there's been a lot that has already been actioned as a result of this event. A lot of employees that we talk to are very proud of what they do. They care passionately about safety, not just from a Spirit perspective, but from a Boeing perspective and from our friends and family that fly.

So I think just the ability to have voices heard for the few that do have critical feedback for all of us is important. And I think, you know, what can the NTSB do to help us? I think you're already doing it, just through these public venues.

CHAIR HOMENDY: Thank you. Mr. Brown. You aren't related, right? Just checking.

MR. WILLIAM BROWN: He wants to be, but not officially.

MR. GREG BROWN: If I had a dollar for every time --

MR. WILLIAM BROWN: Human factors. I think what you all see in human factors and sharing that with us is significant. And I think the questions that Dr. Woods asked really inspired me today to think about, as a senior advisor to Spirit, what can I do in that area? Very powerful.

CHAIR HOMENDY: Good answer. What can NTSB do to help FAA?

DR. EICK: Yeah. You already actually have helped FAA. When we looked at just the rules that were recently passed, the safety recommendations from the NTSB, they were key factors in getting that rule through.

In addition, right now we're working on how we're going to do oversight. As I mentioned earlier, we're not done with this order yet. But just participating in this process helps solidify my thoughts on how we can improve that order, so we're making sure the SMS's that all these 65 companies are really, truly going to be effective.

CHAIR HOMENDY: If you don't mind, Member Inman, I'll just get the back row and I'll be done. Mr. Slagle.

MR. SLAGLE: I wish I could learn to work the microphone a little better. The one thing I think I've learned during this hearing, and leading up to it, is I always thought the NTSB was a break glass in case of emergency organization. And I think the proactive nature of educating and getting information out that I've seen through your investigators has been very helpful to me. So seeing the NTSB in a different light, I think it's been beneficial.

CHAIR HOMENDY: It's really a benefit of the party process as well, because everybody can make change early and we can work together on that. Mr. Knaup.

MR. KNAUP: Yeah. I think certainly we have -- we're working through SMS oversight. I think we, in our organization, deal with an incredibly complex production system in Boeing. And if there are lessons learned from other non-aviation complex production systems that you guys might have insight into from your other activities, that would be, you know, helpful for us.

CHAIR HOMENDY: Thank you. Mr. Catlin.

MR. CATLIN: As I like to tell the Boeing managers when I'm out on the floor, like it or not, we're all in this together. We are all here for one collective point, and that is to ensure that when the pilots take off, when the customers board those airplanes, when we build those airplanes, when they maintain those airplanes, those airplanes are as safe as they can humanly possibly be.

And my colleagues here from Boeing started down a road of a thread. There's a thread that runs through each and every one of us. And I thank you, because I think this committee is bringing that out. What we can do is we need to find that common thread, and we all need to work together for a common goal.

CHAIR HOMENDY: Well said. Member Inman.

MEMBER INMAN: Thank you, Chair. And I'm going to push several of my questions probably to the next panel, in order just to expedite it. But I do want to go through a quick couple of items. We were talking about Mr. Phoenix earlier. And I remember, again, through my time at DOT, we actually -- the FAA took away the ability for Boeing to issue its own airworthiness certificates. Do you all remember that time?

And that testimony, I think it's very revealing. Because they said that they were specifically looking at all different types of issues that were coming out, because they were doing all the inspections. But it was forcing an increase in quality,

because they said we would only inspect for maybe six hours a day, because they weren't allowed to meter from the 42.

They said but if you're going to bring it to us, this is the only window you have. And it was an effort to try to bring more clean aircraft out. Was that successful?

MR. ACKERMAN: Are you looking for a Boeing perspective on that or an FAA perspective on that, or yes?

MEMBER INMAN: Well, you spoke up first, so go ahead.

MR. ACKERMAN: Okay. All right. Lesson learned. I -- in terms of driving airplanes, and again, I'm not close -- as close to the production system as some of my colleagues, but I'll start. In terms of making sure that the airplanes are ticket ready at the time that they are -- that they're put up for ticket, I think that that has driven a discipline around that process.

MEMBER INMAN: FAA?

MR. KNAUP: Yeah. So the intent of that was, like you stated, that we wanted to see airplanes, and we still do today, do ticket all the 3-7's and 8-7's. And that -- the intent of that is to -- issues that we identify during that process, we drive those to root cause in the quality system to ensure that that gets corrected. And we have seen improvements in that process by us being a part of the ticketing process.

MEMBER INMAN: But it also takes people out of the audit process and the inspections.

MR. KNAUP: It does. It is a resource use, and we continue

to evaluate whether that's the best use of our resources to ensure the quality system, you know, meets all of its processes.

MEMBER INMAN: So another game of whack-a-mole?

MR. KNAUP: Well, I wouldn't say that. But it is something that we utilize as a tool, and try to ensure that it is a force multiplier for us to drive improvements into the quality system.

MEMBER INMAN: How many more people do you need to hire right now to be up to staff?

MR. KNAUP: We are -- we've just about doubled our inspector staff since, you know, the accident. And we're on target to meet what the administrator said, which was 55, by the end of the year.

MEMBER INMAN: So how many do you need to hire?

MR. KNAUP: That is -- how many more to meet that?

MEMBER INMAN: Yep.

MR. KNAUP: We need to hire, I think, 12 more to meet that.

MEMBER INMAN: And the reason I'm bringing that up, that'll be 20, 25 percent of your workforce roughly that'll have been hired this year?

MR. KNAUP: We'll have a lot of newer individuals. But we are bringing folks from other organizations that are experienced to help.

MEMBER INMAN: Relocations and transfers?

MR. KNAUP: That's -- yeah.

MEMBER INMAN: Wonderful.

And I promise to keep it -- so I'm going to actually ask the

Boeing representatives -- we have discussed whether or not to bring Ms. Lund back today. So I don't think we're going to do it. But I want to ask a different question in regard to -- you have a new CEO starting tomorrow. Correct?

MR. WRIGHT: That's correct.

MEMBER INMAN: Can you tell me how many times you met with the prior CEO, either individually, or with Ms. Lund, or in a small group of, say, three to four, to update on your safety progress?

MR. WRIGHT: Every other month for the duration of my time in the position.

MEMBER INMAN: Is that one on one, five on one, fifteen in a room?

MR. WRIGHT: No. It's a group of -- I would say a maximum of 10.

MEMBER INMAN: Okay.

MR. SILVA: And I would also occasionally attend those meetings whenever certain subject matters came up for my role.

MEMBER INMAN: So maybe half that time, and he was every other month?

MR. SILVA: I wouldn't go as far as half, but certainly a number of those meetings.

MR. ACKERMAN: I've met with our CEO a couple of times in small groups, in terms of specific issues, not generally around the safety management systems. We do have a -- at a business unit

level, a Boeing Commercial Airplanes level, a weekly meeting at the Commercial Airplanes CEO level that we all attend.

MEMBER INMAN: Well, his first day's tomorrow. I hope you get a chance to meet him and convey some of the things we learned from today. Thank you, Chair.

CHAIR HOMENDY: Thank you. It is 4:30. We are going to take a 10 minute break, and then we're going to move -- are we good on Panel Three? We're okay? Technical panel, yep?

MR. BRAZY: Yes, ma'am.

CHAIR HOMENDY: You can breathe a sigh of relief and hopefully go change. It's very hot. I know. First of all, before we let you go, just a reminder, you can be recalled. But I just want to thank you. I want to thank you for your honesty. I know this is a very difficult process.

It can often seem one against the other, but that is why I ended with how can we help you, because we want to support your efforts. We want to ensure safety. We want to work with you to improve safety, all of you, because it is a collective effort. So thank you very much for being here. I hope you drank a lot of water. We'll come back at 4:40 and move into Panel Four.

(Off the record)

(On the record)

CHAIR HOMENDY: How's the technical panel? Are you ready? Ready to go? Parties ready? Witnesses? All right. Welcome back. We're now ready for our final panel. So Mr. Brazy, will

you please begin the introductions and swear in the witnesses?

MR. BRAZY: Thank you, Chair Homendy. Panel Four will address Federal Aviation Administration oversight, and topics will include the FAA's oversight process for airplane production, the results of the FAA's recent audit of Boeing, the effectiveness of FAA guidance, and actions on manufacturing, FAA oversight of manufacturers recordkeeping and audit history, and again, the FAA's action on the NTSB's 2021 recommendation on safety management systems for manufacturing.

The technical panel hasn't changed. So to save a minute or two, I'm not going to reintroduce them. Witnesses for this panel, some are the same, but we've got at least one new one I believe. Mr. Hector Silva, Vice President for Regulatory Compliance and Core Quality at Boeing; Mr. Bill Brown, Senior Advisor for Quality at Spirit AeroSystems; Mr. Brian Knaup, Manager of the System Operation and Oversight Branch of the FAA; Mr. Brian Kilgroe, Manager of Airplane Oversight Section and Designated PC700 Principal Inspector at the FAA, and Mr. Lloyd Catlin, Business Representative at the International Association of Machinists and Aerospace Workers.

I will ask that I believe the one witness who has not previously been sworn in please stand. Raise your right hand, and please answer by saying I do.

(Whereupon,

BRIAN KILGROE

Was called as a witness and, having been first duly sworn, was examined and testified under oath, as follows:)

MR. BRAZY: Thank you. Please be seated. As a reminder to the witnesses, you may remain -- you will remain under oath until the conclusion of the hearing. We ask that you answer the questions factually and avoid analysis.

Finally, please push the microphone button to talk, and push it again when finished. Chair Homendy, these witnesses have been prequalified, and their respective experience and qualifications appear in the docket as exhibits. I would like to now turn the questioning to Mr. Cruz.

INTERVIEW OF BRIAN KILGROE

MR. CRUZ: Thank you, Mr. Brazy.

Mr. Kilgroe, since you're new in this panel, could you please tell us what your roles and responsibilities are as the FAA principal inspector overseeing the Boeing production certificate?

MR. KILGROE: Thank you. My roles and responsibilities are the -- for the certificate management oversight of PC700, which includes all of the Boeing sites listed under the PC. So I work with the managers in Everett, Renton, and our supplier systems manager, to ensure that all of the supplier control audits and product -- or principal inspector audits are completed.

MR. CRUZ: And for clarification purposes, what is the difference between your role versus Mr. Knaup's?

MR. KILGROE: Brian Knaup also has responsibility for Pratt &

Whitney, GE, and the ODA.

MR. CRUZ: So this is for the FAA. I will let you two decide who would like to answer this. What does the manufacturer have to have in place in order for the FAA to grant the production certificate?

MR. KILGROE: I'll answer. If you could pull up the FAA's quality system oversight PowerPoint, page 2. So in order for a production approval holder to have a PC, they must have a quality system that conforms to each applicant for a holder of a production certificate must provide a manual describing its quality system to the FAA, and it must be approved.

MR. CRUZ: How many FAA offices oversee the Boeing certificate?

MR. KILGROE: There is an FAA office in Charleston, Renton, Everett, and then our supplier oversight section. So four.

MR. CRUZ: Okay. And obviously, you deal with the aviation safety inspectors at each of those facilities. How many report to you, Mr. Knaup?

MR. KNAUP: All the ASIs report to me through various section managers. So ultimately, they're -- they all work for me.

MR. CRUZ: But there's also some people that report to Mr. Kilgroe. Correct?

MR. KNAUP: Correct. So I have section managers that report to me in each of those locations. Brian's -- Mr. Kilgroe's staff in Charleston reports to him directly, and then Mr. Kilgroe

reports to me.

MEMBER INMAN: Okay. Mr. Kilgroe, how many people report to you in South Carolina?

MR. KILGROE: Currently, nine.

MR. CRUZ: And Mr. Knaup?

MR. KNAUP: Our current number is changing often, but it is 64 for our branch. That is -- that includes oversight of all of the, you know, the ODA, production, and GE and Pratt & Whitney as well. So --

MR. CRUZ: And you mentioned there's a separate FAA surveillance team for Boeing suppliers. Is that correct?

MR. KNAUP: Yeah. So we have a section that's dedicated to suppliers. That includes internal suppliers within the Boeing system, not the final assembly facilities, and external suppliers.

MR. CRUZ: Do those suppliers just deal with Spirit themselves, or they also work other suppliers that Boeing has?

MR. KNAUP: That section works other suppliers other than Spirit, but that would be where our inspectors that deal with Spirit are, in that section. Yes.

MR. CRUZ: But do you have dedicated inspectors at --

MR. KNAUP: Yes.

MR. CRUZ: -- Spirit? Okay.

MR. KNAUP: Yes, we do.

MR. CRUZ: And how many do you have there?

MR. KNAUP: We have three, as of today.

MR. CRUZ: Can you please describe how the FAA conducts surveillance program for a production certificate holder as big as Boeing, including its suppliers?

MR. KILGROE: So if we could pull up our PowerPoint again, and go to page 4. So quality system oversight is defined in our FAA order 81.20.23, certificate management of production approval holders. Our oversight consists of a combination of quality system elements -- or quality system audits, principal inspector audits, and supplier control audits. That -- each of these also contains what we call a product audit.

QSAs can be two -- up to two week or longer comprehensive system audits. Supplier control audits determine whether a PAH is satisfactory controlling its suppliers. And PI audits are data driven product-based audits in areas of high risk on a daily basis. And product audit evaluates the effectiveness of a PAH's quality system, using critical characteristics generated during the manufacturing process.

MR. CRUZ: So how did these FAA -- how does the FAA develop or assign a work program for each of the aviation safety inspectors that report to you?

MR. KILGROE: So each year, the process starts with a risk assessment. And if we could go to page 5 of our presentation. There we go. So each year, for each fiscal year planning, we start with the risk assessment that we do in our tool called ACAIS, Aircraft Certification and Information System. Anyway, I

think that's it.

Once that risk assessment is complete, it will give us a score, and it -- which tells us how many audits are to be conducted at that location for the year. It could be anywhere from a PI audit once every five years to as high as 18 PI audits a year. It depends on the risk score of the production approval holder.

MR. CRUZ: And once you put it in ACAIS, do each of you basically give that to the aviation safety inspector?

MR. KILGROE: So the ASIs and their respective managers complete the scoring, the risk score, to determine how many audits are required for the locations they have responsibility. And that's all done by ACAIS. So that is the only output that we get from ACAIS.

Once they know how many audits they need to conduct for that -- or for that fiscal year, then that process is a manual process, where they look at the cells, positions, control codes, other buildings that may be in the area, the risk of activities happening in those areas, compliance and enforcement activity in those areas, et cetera, and develop a work plan.

MR. CRUZ: So how do you ensure that that work program meets the FAA order of production certificate surveillance?

MR. KILGROE: Once they establish where they're going to conduct their audits, they enter -- they manually enter those audits into ACAIS. So the audits are now open, and then as they

complete them, they mark them complete.

MR. CRUZ: Since both of you have a role in giving the aviation safety inspectors their audit program, what type of tag up or coordination do both of you have to discuss the surveillance issues, since each of you actually work at different locations?

MR. KNAUP: I guess I'll talk to that. So our cadence of meetings within the branch is that I meet with all the section managers weekly, and I guess three times every two weeks, to talk about issues that are going on and other stuff. We meet with our senior ASIs and senior engineers on a weekly basis, and I meet with the entire staff on a weekly basis. So that's the cadence of our meetings.

As part of those meetings, we have dedicated time to talk about ensuring the surveillance that we're doing is addressing the most critical areas. And it also allows us to interchange in formation that we may receive from our COS branch or our certification branch that may inform us of additional audits or other areas that we might want to look at in those various facilities that we oversee.

MR. CRUZ: Okay. So you've talked a lot about audits. What types of audits are -- do you guys accomplish as the FAA?

MR. KILGROE: We do principal inspector audits, quality system audits, and supplier control audits. We can also do special audit items, like we did shortly after the accident event. And product audits is the last one.

MR. CRUZ: So on a yearly basis, is there a minimum number of audits that you have to do for the Boeing certificate, or is there a maximum, or how is that determined?

MR. KILGROE: Yes. There is minimums per location that is established through their risk score. So I know the number's out there. I believe it's in the report. So for the last calendar year -- or fiscal year, we completed 108 audits of the Boeing sites on the PC.

MR. CRUZ: And so with all these audits that you conducted, what happens to those audits, as far as where are they recorded? Is there an FAA system that records these audits?

MR. KILGROE: Yes. The completion of these audits are recorded in ACAIS.

MR. CRUZ: And how long are those audits kept in the system?

MR. KILGROE: Forever.

MR. CRUZ: Okay. Who does the FAA interface with at Boeing to conduct the surveillance audits?

MR. KILGROE: Our primary point of contact when it comes to conducting our surveillance is Boeing's Regulatory and Quality System Oversight Office, RQSO.

MR. CRUZ: And who heads that office?

MR. KILGROE: Each location has their own manager. For myself, in Charleston, I have a person I contact. Same goes for Renton and Everett, and then our supplier section has a contact that they interact with.

MR. CRUZ: Could you please describe the process of an aviation safety inspector conducting an audit at Boeing? What's the process he goes through?

MR. KILGROE: He -- depending on the type of audit, he will give Boeing RQSO notice that he will be conducting an audit, and the location that he'll be conducting that audit, and the dates of that audit. And in the case of, like, a PI audit, the inspector could walk in the door in the morning, and on the way to our office, which is located in the final assembly building, if he saw something of concern on his way in, he could march right up to his desk, call RQSO, and tell them he was going down to do a PI audit in a particular area, just like, you know, that easily.

Now, when it comes to supplier control audits and quality system audits, per our policy, we give 30 days' notice for supplier control audits and 60 days' notice for QSAs. And that is so that the production approval holder has time to gather up resources to support our activities. Because with -- in the case of the suppliers, sometimes we have to work on additional actions to gain access. And in regards to QSAs at Boeing, the teams are normally really significantly larger. So it gives the production approval holder time to allocate resources to support.

MR. CRUZ: But those are scheduled audits, correct?

MR. KILGROE: Quality system audits and supplier control audits are scheduled. Most of the time, PI audits are scheduled. But we can also do a PI audit at any moment.

MR. CRUZ: So there are surprise audits that you guys conduct?

MR. KILGROE: That is correct.

MR. CRUZ: So what role does the FAA play when Boeing has a need to revise any manufacturing process, procedures, and documents, such as a BPI?

MR. KILGROE: Our role with the quality system right now is the top level quality manual and the associated procedures. There are only around a handful of BPIs that the FAA reviews and approves.

MR. CRUZ: If there's only a handful, could you tell us what those BPIs are?

MR. KILGROE: I do not know what they all are off the top of my head.

MR. CRUZ: So should the FAA have concerns regarding those few that you said that you -- the changes, how is this communicated to Boeing?

MR. KILGROE: We can generate -- we can communicate transparently with them, or if we have that significant of a concern, we can open up either a compliance and enforcement action -- that would be our other avenue.

MR. KNAUP: But Boeing is required to send us, though -- if they make changes to those specific BPIs, they need to get sent to us, and we review them and approve them before they would -- that change would become effective.

MR. CRUZ: Okay. Thank you. Mr. Johnson.

MR. JOHNSON: My first set of questions are for the FAA. During previous FAA interviews, we were told of a risk-based resource targeting tool. Can you please describe in detail what this tool is and how it functions?

MR. KILGROE: The risk-based resource targeting tool is located in our audit system, ACAIS. It is a list of questions that we answer, that once we answer those questions, and submit it, and score it, produces a risk rating of the production approval holder. It could be as low as what we call low, so very low criticality, to very high criticality.

MR. JOHNSON: Okay. In accordance with FAA order 81.20.23, Boeing Renton is a one high, and based upon their production rate, will always be a one high, equaling a minimum of 18 plus audits per calendar year. Although the number of audits is based upon risk, it never changes for Boeing, due to the number of aircraft produced. Is that a true statement?

MR. KILGROE: The minimum number is 18. We consistently exceed that minimum number on an annual basis. In looking back the past two years, the average across the three major production sites has been plus 15, in addition to the 18.

MR. JOHNSON: Okay. So to clarify, the inputted information is inputted into ACAIS, which contains the risk-based resource targeting tool. And then that spits out a risk score. Is that how that works?

MR. KILGROE: That is correct.

MR. JOHNSON: Okay. Thank you. During FAA calendar year 2023, audit findings of the Boeing production certificate, were there significant findings or trends?

MR. KILGROE: Yes. there were trends that manufacturing processes, material handling, and tool control were identified trends.

MR. JOHNSON: Were any of those related to Spirit, by chance, or Spirit work?

MR. KILGROE: I cannot say if they were related to Spirit work.

MR. JOHNSON: Okay. Have you had any repeats in calendar year 2024 of those items?

MR. KILGROE: Yes.

MR. JOHNSON: Can you describe what the FAA is doing to get Boeing to fix these -- what appears to be a systemic issue?

MR. KILGROE: We have multiple enforcement actions in progress right now.

MR. JOHNSON: I think you answered this. I'll ask for clarification. Once compliance actions are closed by the FAA, how long does the FAA keep these records? Is there a time limit, or are they discarded, or what happens?

MR. KILGROE: I would have to double check the time limit. I believe it to be two years.

MR. JOHNSON: But you answered Pocholo previously that the

stuff entered into ACAIS is kept forever -- or yeah, ACAIS is kept in there forever?

MR. KILGROE: In ACAIS, the audit records. Those are the audits. For the compliance and enforcement action records, they have different retention periods.

MR. JOHNSON: Okay. Has there ever been an instance where the Boeing -- action tracker was used as evidence in an LOI compliance action on the Boeing certificate?

MR. KILGROE: Not to my knowledge.

MR. JOHNSON: All right. My next questions are for Mr. Silva. Prior to the accident, how long was the FAA conducting -- how often was the FAA conducting surveillance at the Boeing Renton facility?

MR. SILVA: So prior to the accident, as described by Mr. Kilgroe, the FAA would be conducting a number of scheduled audits throughout the facility, as well as just ad hoc PI audits. So I believe it would be in line with the numbers he rated, which are around anywhere from 30 to 50 in a year.

MR. JOHNSON: What type of feedback was your organization receiving about those audits prior to the accident?

MR. SILVA: So prior to the accident, with -- as with all audits, the FAA would then perform an out-brief, where they would share the results of the audit findings. And those would typically be broken up into -- at a high level, two categories. They would either be non-compliances they found or opportunities

for improvement.

The FAA does share observations on other things that they learn throughout the audit, but those would be the two typical types of categories that we would get. And as Mr. Kilgroe stated, they would be similar to some of those categories around manufacturing process control.

MR. JOHNSON: Could you please describe the Boeing process in regards to addressing FAA surveillance audit and compliance findings?

MR. SILVA: Sure. So at a high level, as described, at a top level within our quality manual. But then from the quality manual, into specific policies, pros, and BPIs, we have requirements in terms of when we receive the formal notification of those audit findings.

We launch into what we call -- I think I explained earlier, a Boeing problem solving model, where we would take the compliance finding, initiate an investigation to establish root cause. Based on root cause, develop a countermeasure, and then present that corrective action plan and submit it to the FAA for approval.

MR. JOHNSON: How does Boeing examine trends, both good and bad?

MR. SILVA: So as was mentioned in terms of two types -- at a high level, two types of metrics that we get, good trends would be things like those -- either observations, where we receive positive feedback, or audits with minimal or no findings. So

we've had some locations where we see minimal or no findings, and the FAA gives us feedback around what some of the things they saw that worked well there.

And then as far as adverse trends, we track and roll up all those FAA findings into what I believe I shared earlier, which is our quality management review, where we would highlight the types of compliance findings that the FAA had found.

MR. JOHNSON: Okay. As far as trends go, how does Boeing communicate those trends, both inside the company and back to the FAA?

MR. SILVA: If I may, we can probably pull up slide 15 from the Boeing presentation. So this was a little earlier, when we were reviewing the transcripts. But Boeing has frequent meetings with the FAA. In terms of the results of those findings, shared either with us, or that we share back some of our corrective actions, they can happen in a number of ways.

So from a program perspective that you see on the left, that would start with, in this case, a generalized -- it would be on a program level basis, meeting with our manufacture and delivery teams. Last year, in 2023, we launched an FAA quality and engineering integration meeting specific to the 737 program and the 787 program. And then we also have a standing -- it was monthly.

We then went to weekly, and I think now we're back to monthly PC700 program review, where we look at a number of metrics and

corrective actions and things that we're doing from a Boeing perspective. And then lastly we just have a number of different forums and meetings from an FAA and Boeing leadership perspective on a daily, weekly, and monthly basis.

MR. JOHNSON: What steps are being taken to fix trends that are bad?

MR. SILVA: So when we get those trends, and in particular, I'll mention the special audit item that we received this year. We are -- this is post-accident. So would you like me to start pre-accident?

MR. JOHNSON: No. You're good.

MR. SILVA: Okay. So post-accident, we are taking a much more holistic and systemic approach in terms of looking at some of those corrective actions. Historically, as I was mentioning earlier, when we would receive the results of the audit, we would get the specific non-compliances, we'd launch into the BPSM. But many of the corrective actions tended to be focused around the local activity, or scoped around the finding that was identified during the audit.

One of the things that we've been working to try to strengthen up over time, and certainly since the accident, has been more looking at collective trend analysis, and looking for other similar type issues, and then using that to drive more systemic and holistic corrective action. And in particular, as mentioned earlier, things like changing tools and processes, as

opposed to just focusing on communications and training.

MR. JOHNSON: Okay. Next set of questions are for the FAA. During the -- or during this investigation, the -- sorry. During this investigation, the investigative team heard the term VDR, or voluntary disclosure reporting program. Can you please describe this program?

MR. KNAUP: Yeah, I can. I think we have a slide. I might need some help on the number. It might be 7, I believe. So the objective of the voluntary disclosure reporting program is to encourage compliance to regulations and foster the safe operating practices and promote the development of internal evaluation programs. It's really a critical component of a healthy SMS.

We do have policy around it. The way this works in practice is if Boeing identifies an issue or a noncompliance in their quality system, and it meets the requirements of the voluntary, it is an inadvertent issue, it's not done intentionally, and they report that to us, they let us know that they have an issue, we track all of those VDRs.

Similar to our compliance actions, it requires Boeing to do immediate and long-term corrective actions to solve that problem. And we verify that those corrective actions have been effective, basically.

MR. JOHNSON: Between September of 2022 and September of 2023, did Boeing voluntarily disclose any issues to the FAA?

MR. KNAUP: Yes.

MR. JOHNSON: If so, what were those issues?

MR. KNAUP: I don't know every issue. We have a lot of -- we do have VDRs in our system for that timeframe. I could not give you the number, though we can provide that. But the issues were similar in nature to other issues that we have identified. You know, we've talked about trends around, you know, tool control, failure to follow process.

MR. JOHNSON: Were any of these issues reoccurring in that 12 month period?

MR. KNAUP: So I would say yes, we did find reoccurring issues that we worked to -- you know, worked with Boeing to solve.

MR. JOHNSON: Are all these issues closed at this time?

MR. KNAUP: I do not believe so. I don't know the status of every one, but I do not believe they're all closed.

MR. JOHNSON: I think you kind of described this. If Boeing voluntarily discloses an issue to the FAA, what does the FAA do to ensure corrective action is taken? And I'll add on to that and say what does the FAA do to ensure the corrective action is effective?

MR. KNAUP: Yeah. Right. So there's a number of things that we do. We review the corrective action, obviously, that came in from Boeing. We may conduct an audit in the area that was identified for the corrective action. Sometimes, the corrective actions are policy -- you know, command media based changes. And so we would review the command media that was changed to ensure

that that was -- would correct the issue.

A number of things that we do to ensure that the corrective action both was implemented, and it was effective, usually that's done, you know, six months to 12 months after the corrective action has been implemented, so we -- you know, there's time for the corrective action to get put in place and us to see that it's effective.

MR. JOHNSON: I'll add onto that a little bit. What -- if the corrective action is evaluated to be -- to determine it's effective, but yet we're having repeats of the same items over and over again, and these -- some of these are self-disclosures, some of these are CMP items or LOIs or EIRs, why are the issues not getting fixed?

MR. KNAUP: Well, I would say that the complexity of the Boeing production system leads to an item being considered recurrent -- there are many different items that get categorized in the broad quality system element categories that are very unique. And so we will see an issue in Everett or Renton or Charleston that may be unique to that facility, and get solved, and we would see similar issues in those other -- we would see issues categorized the same in those other facilities that are not actually recurring issues, per se, because they are unique in how production is done in each of those facilities.

So recurring in the sense that they fall within the same quality system element category, but not necessarily recurring in

the sense that they're the same issue across the whole system, if that makes sense.

MR. JOHNSON: Okay. Mr. Silva, what does it mean when Boeing voluntarily discloses an issue to the FAA?

MR. SILVA: So similar to the slide the FAA shared, it's our opportunity that when we find either noncompliance or potential noncompliance even, in certain cases, we take the opportunity to share that, submit it to the FAA. We have policies and procedures that dictate how we operate in terms of what we must submit, how we go conduct our investigation, and then what we provide to the FAA from a corrective action plan perspective.

MR. JOHNSON: What immediate actions does Boeing take upon voluntarily disclosing an issue to the FAA?

MR. SILVA: So for every item, there is a requirement to do immediate containment. An immediate containment can show up in different ways, depending on the scope of the issue. And so we provide that as well when we share the results of the noncompliance.

I should also add that we both have a mix of what we call formal voluntary disclosure reports and informal voluntary disclosure reports. But in both cases, records that we share with the FAA.

MR. JOHNSON: Okay. Thank you.

Mr. Catlin, could you please compare the FAA oversight at the FAA prior to the accident versus post-accident, from the IAM's

perspective?

MR. CATLIN: What I do know is we've seen an extensive increase in FAA activity in both Everett and Renton. Prior to the accident, you know, there would be the scheduled audits when I was the quality manager in the 767 program and final body joint, we would see an occasional audit come through our area. But it was nowhere near what it is today.

MR. JOHNSON: From the IAM's point of view, was the FAA oversight at the Renton factory adequate prior to the accident?

MR. CATLIN: I guess from my perspective it would depend on the FAA's responsibility. Boeing is the production approval holder. They are the ones who have submitted their quality manual to the FAA and told the FAA this is how we will build airplanes. The FAA has their audits. They have their oversight responsibilities. But Boeing has the responsibility to uphold their quality system and manage their own company.

Based on what my own experience has seen, I don't know that it is the FAA's responsibility to stand over them and tell them you must do what you promised us you'd do. So based on that, no. I don't know that it was their responsibility to do it. But we needed federal oversight.

MR. JOHNSON: How about currently?

MR. CATLIN: No. And for the same reasons. You know, just as I spoke of earlier with BPI 2573, it's been revised twice this year. The first time, it was revised in January, after the door

plug blowout. It was immediately rejected by the FAA. It was revised again in June of this year, to allow Boeing to allow manufacturing personnel to perform inspections.

I don't know where that investigation is at right now, but it's still there. It's still in the BPI. They still have the authority to do it.

MR. JOHNSON: Follow-up question. From your perspective, what would you recommend changing, from the oversight perspective?

MR. CATLIN: Well, in all of my experience, I've spent a lot of time with the FAA over the last six years. And when you look at what the requirements are in 14 CFR 21-137(a) through (o), they're all requirements. None of them are options. 21-146 requires the Boeing company to maintain the approved quality system. And 14-CFR-21-150 requires Boeing to notify the FAA of any change to their quality system that affects conformity, airworthiness, or inspections. That's the mandate. It's the requirement. It's the federal law.

But when Boeing goes and changes their inspection requirements, and their idea of notifying the FAA is sending notification to them through the -- through our QSO that a change is coming, I don't know that that meets the intent of the requirements.

MR. JOHNSON: Does the IAM have any scheduled discussions with the FAA regarding oversight independent of Boeing?

MR. CATLIN: Scheduled, not that I am aware of. We have

found a seat at that table through hotline activity, through a huge amount of hotline activity. Prior to 2019, the -- as far as I know, the IAM did not have a relationship with the FAA. Since verification optimization in 2019, we've developed a relationship with them.

But we don't meet with them on a regular basis. We don't -- you know, I meet with the FAA probably more than anybody else in the IAM because I'm continually filing hotline reports to this very day.

MR. JOHNSON: Thank you. Mr. Cruz.

MR. CRUZ: Thank you.

Mr. Brown, could you please describe the Spirit process when the FAA and Boeing conduct surveillance audits?

MR. GREG BROWN: Yeah. So Boeing will let us know when the -- this is prior to the incident. Boeing would let us know that the FAA was going to perform an audit, on what day. We'd have an intro meeting, where the FAA would let us know what audits they were going to perform and where. They would perform those audits with Boeing's assistance and our assistance, and we would close with a briefing at the end. Any findings that came out of that audit were given to us by Boeing, and any questions we had for follow-up, we did through Boeing.

MR. CRUZ: So these are scheduled audits. Have the FAA ever done a surprise audit of Spirit Aero Systems?

MR. GREG BROWN: Yes.

MR. CRUZ: Were there any findings based off of those surprise audits, prior to the accident?

MR. GREG BROWN: Yeah. I don't know on the particular audits. I don't know if I can answer that question.

MR. CRUZ: So once again, how were the audits rectified, then, has far as if there were issues?

MR. GREG BROWN: Boeing will issue us a SER, we will address the SER and close it out with Boeing's approval.

MR. CRUZ: And what is a SER again, please?

MR. GREG BROWN: A supplier evaluation report.

MR. CRUZ: So prior to the accident, how often was the FAA doing audits of Spirit?

MR. GREG BROWN: Roughly once a month. They did a total of 18 in 2023.

MR. CRUZ: And were there any findings off of those 18 in 2023?

MR. GREG BROWN: Yes.

MR. CRUZ: And do you know what they are, and can you give us an idea what those were?

MR. GREG BROWN: Yeah. Similar to what you've heard from Boeing, so it was FOD, housekeeping, competency, tooling, things of those nature.

MR. CRUZ: Okay. So Mr. Silva, can you please bring up Exhibit 11V, V as in Victor? Could you please give us a quick history of the version of BPI-1581? What were the significant

changes to the BPI, and why were they changed?

MR. SILVA: Sure. So this slide was generated to give a very high level overview of a revision history over the last ten years. It's not, it was never intended to be a comprehensive listing of all the changes, but it does highlight revisions that we made with FAA commitment, as you see in the upper right hand corner, as well as some notable other changes that we made within the system.

So if you read the chart from left to right, you can see certain items that were added to the BPI or revised to the BPI over time. Roughly here on the screen, you'll see about half of those, and I say half because of the yellow sticky mark is a recent update here in May. And we've had another one since in June of this year. It was also in response to a compliance action, or in this case a voluntary disclosure that we made a commitment to the FAA.

But just at a high level, back in November 2013, we did a major rewrite, added the decision tree, so the Appendix A that folks might be familiar with in terms of the decision tree, pacing through when a removal would be required. We also added another appendix, now Appendix D, or sorry, it says Exhibit D it should, I think -- maybe it's intended to say Appendix D. That listed out certain items that would be exceptions for removals.

As I believe Mr. Catlin discussed, maybe in panel one or two, there were some changes in the 2016 timeframe to switch the okay to remove operation step, first on the 787 program, then on other

programs, to be just the manufacturing operator to do that step, even though there still be other quality inspections throughout the rest of the process.

And then as you see, as we move to the right, most recently the changes that we've made have either been what were intended to be clarifications or more detail that were based on either voluntary or compliance findings. And some cases specific from our own team. So I'll highlight in the lower right hand corner.

In September '22, we made a pretty major change. We had a voluntary disclosure that we submitted on the 767 program related to loose connectors. These were connectors that were being found in the flight line that were loose by some of our inspectors. And one of their beliefs was that folks weren't writing removals when they were loosening up the connectors for troubleshooting.

So we strengthen some of the language around requirements for making sure you do a removal and fill out the removal paperwork whenever you have those kinds of instances. And then, as you note -- as you'll notice, right on the -- right there, in October 2022, we added the long form and short form. And that I believe Ms. Lund spoke to a little bit yesterday in terms of just how we give extra details whenever there's certain retests or other checks required. And then if it's like a seat cushion, we don't check for software, for example.

The sticky note that you see called out there in the middle just really highlights, we had provided an update at the end of

April to meet a commitment to a VDR. And then lastly, the most current revision of the BPI was published in June of this year, 2024. And that's the one where we added quality on the okay to remove, so that's an extra quality check that we have in the process. That actually came out of the SRM as well, as a recommendation.

We strengthened some of the language around engineering support, making sure that engineers could also provide more detailed instructions that was -- as was called out during some of the transcripts that we read as well, to make sure that the details for restoration were better. And then lastly, increasing some of the language around making sure that we had more, more formalized corrective actions when we had unauthorized removals. And all in there.

MR. CRUZ: Thank you. So based off of the data that Boeing and the FAA provided to the NTSB from 2018 to 2023, there were a total of 16 regulatory compliance issues, nine voluntary disclosures, four for the 737, and seven compliance actions for the 737. Similarly from 2018 to 2024, Boeing internal audits and Speak Up reports found issues with the same Boeing process, BPI-1581, with two issues for the 737, seven for the 767, three for the 777, and four for the 787 production lines.

So according to the documents provided to the investigative team, once again, Boeing did a BPSM, root cause analysis was used in each of these cases that seemed ineffective. Why hasn't Boeing

been able to fix the unauthorized removal issues that seem to be persistent in all of the airplane production lines?

MR. SILVA: I would like to add a little bit of more detail in terms of some of those findings from both a voluntary disclosure compliance, and then internal audit.

MR. CRUZ: Sure.

MR. SILVA: In some cases, and we can certainly provide the additional details. In some cases, although the BPI itself was referenced, the corrective action wasn't to the BPI. The corrective action was to around other processes that touch that BPI.

For example, when someone removes a part off the airplane, we need to have what we call work in process control, appropriate labeling and stickering of that part, and storage and segregation until we put it back onto the airplane. But even though it touched the removals process, the corrective action and the internal audit finding was around other parts that interact with the removals process.

One of the things we've certainly learned as we reflect back on looking through all these findings, is a few things, and some of the trends we've talked about earlier, one, that the corrective actions tended to be more localized around the specific topics. So like the example I just gave, the team working out different things for either changing an installation plan or the -- changing the part handling requirements.

But then two, not taking the opportunity, in my opinion, to step back and say, well, hey, where most of our corrective actions are adding and adding and adding to address point specific things, at what point does that complexity start to turn into more of a -- create more of a risk or a hazard. And so with the exercise we've done with the SRM and the feedback that we received from teammates, that's really what's pointing us towards this longer term corrective action of, as Mr. Catlin recommended I believe even yesterday, getting back down to simplifying the BPI, reducing those exceptions, reducing a lot of the complexity, making sure that we still protect for that -- for those steps in the appropriate policies and procedures. But ultimately making the removals BPI itself much easier to be compliant to and followed.

MR. CRUZ: Thank you.

These questions are for the FAA. Does the FAA work program have a specific audit to identify issues with BPI-1581?

MR. KILGROE: No, not a specific.

MR. CRUZ: If not, how does the FAA find these types of issues during the FAA aviation safety inspector surveillance?

MR. KILGROE: During their product audit activities, if they're out on an airplane, observing work happening, that's where it turns up most of the time.

MR. CRUZ: So how does the FAA then determine if this issue is isolated to one production line or multiple production lines?

MR. KNAUP: We would analyze audits across the different

production lines and if the issue was found during our auditing activity on the different production lines, then that would identify it, that it was a issue across the enterprise.

MR. CRUZ: And if it's -- if you do find, what do you guys do to take action of that issue?

MR. KNAUP: So we have a compliance and enforcement process. If we find issues that require it, we -- slide six, if we can bring up slide six of the FAA presentation, it does talk through the compliance and enforcement process, briefly, to help folks. Right.

So the objective of compliance enforcement is to ensure compliance with the statutory and regulatory requirements. So we want to ensure permanent corrective measures are implemented to improve overall safety. We have three different levels that we go through. So the lowest level is a compliance action. If we find an issue, but the applicant is willing and able to correct that issue, then we'll have a compliance action.

Our mid-level action is an administrative enforcement action. So when -- if compliance action does not remediate the problem, so if we do compliance action on an issue and it doesn't work, we can elevate that issue to an administrative enforcement action. And then we do have legal enforcement action. That's required in cases where that it's intentional conduct or reckless conduct, and other mandatory issues to include, you know, repeated non-compliances across the system or a specific area. So we could do

legal enforcement in those cases.

MR. CRUZ: Thank you. So the FAA previously stated that compliance actions are only kept for a limited period of time. How does the FAA analyze past similar findings found in current audits if these previous findings have been removed from its database?

MR. KNAUP: So we do some trend analysis of our various findings based on what we, what we have found and based on the quality system elements that are affected. We also certainly rely on the knowledge of our ASI's to understand and communication that we have across the, you know, the sections now around corrective action implementation, around various audits.

When we get corrective actions proposed from Boeing, that's managed through a meeting that we have with a cross functional team, from all of the different facilities so that they're aware of the corrective actions that are being put in place, and the issues that folks are seeing in the various facilities.

MR. CRUZ: And you said, who does the audit? Is it you and Mr. Kilgroe? Or is it a actual program that does the analysis?

MR. KNAUP: Who does the analysis?

MR. CRUZ: Yeah.

MR. KNAUP: So we have individuals in our staff that, you know, collect that data and provide that info to the folks within our sector.

MR. CRUZ: Okay. Knowing that the information is there for

limited time, how accurate, you know, basically knowing that some of the data may not be there, how accurate is your analysis if some of the data is not there?

MR. KNAUP: Sure. So I mean I think our data is, you know, we keep the trend analysis takes data from before, we may not have the compliance record or the compliance action. But we do have the non-compliances that we found is still available in the ACAIS system. So the compliance action and the corrective actions may not be something we retained from a records perspective, and we can get you the dates on the timing of records retention, but Boeing has that data, and we also have the non-compliances in ACAIS, if we need to reference them.

But our, you know, the way we do our data analytics, which we are, we are trying to improve is continues to build based on our auditing activity.

MR. CRUZ: So when Boeing provides corrective actions for findings to the FAA, how does the FAA analyze the effectiveness of the Boeing problem solving model or root cause analysis to ensure nonconcurrence -- nonrecurrence, I'm sorry.

MR. KNAUP: Yeah. So that goes back to the -- we have a cross functional team of ASI's that review the corrective actions proposed, and then we will do appropriate follow up actions to verify that the corrective actions that have been put in place fix the issue that was identified.

MR. CRUZ: Knowing that the FAA does not have a specific

audit for unauthorized removals in the FAA work program, what has the FAA done to ensure this type of escapement is caught more readily during surveillance of the Boeing certificate?

MR. KNAUP: Yeah. So I think we, our team, understands issues that we are looking at. And so through that communication across our sections, we would go do a product audit where a removal was a part of that product at the various facilities. Right. So we would, you know, if we see this issue in Renton, then in Charleston, when we go to a product audit, we would ensure that it has a removal as part of that product.

And then we would ensure that the corrective action that was put in place because of the issue we found in Renton has been in, you know, put in place in Charleston and we can address it. And that would be part of our -- either our verification process or our adjusting, like our planned audits throughout the fiscal year to ensure we address issues that arise, that we find, you know, previously.

MR. CRUZ: After the accident, the FAA started an enhanced audit of Boeing. During these enhanced audits, has the FAA found any other additional issues with unauthorized removals?

MR. KNAUP: Yes.

MR. CRUZ: If so, can you please provide details if you can? Some are closed, some are open.

MR. KNAUP: So we have open enforcement action around removals, currently. It's an open investigation.

MR. CRUZ: So this is a question that I would like to ask both of you. What keeps you both -- I lost my train of thought. Sorry, it's been a long day. What keeps you both awake at night regarding this particular certificate. Mr. Kilgroe.

MR. KILGROE: The biggest question I have of late, especially considering all that this -- all that has happened since January 5th, is why is it so difficult to sustain a corrective action for the long term and sustain compliance to a process or a work instruction. Those are the three, top three for me.

MR. CRUZ: Mr. Knaup.

MR. KNAUP: I think what keeps me awake is the complexity of the system to ensure that when we evaluate a corrective action, it's applicable across the whole system and it will solve the problem in Everett, Renton, and Charleston, and all of their other facilities. But I think just the complexity keeps me awake and how as we move forward, we're able to find the right balance between having all the details in everything and keeping it in a simple method that allows all of the mechanics to follow the process more closely.

MR. CRUZ: Thank you. So as the FAA, how does the FAA promote safety to Boeing? At Boeing, I should say.

MR. KNAUP: Can you -- sorry, Pocholo, can you repeat the question?

MR. CRUZ: Yeah. How does the FAA promote safety at Boeing?

MR. KNAUP: So I mean, we promote safety through our

compliance activity, you know, through our auditing activity. We also promote safety via the ASAP that we have with IM and Boeing, that's been discussed previously. Our ASI's promote safety on the floor when they're doing audits with the mechanics to ensure that they understand what the requirements are for them to follow.

We promote safety throughout our leadership meetings with Boeing to ensure that they understand how important compliance is to having a safe aircraft. I don't know, Bryan, you want to add anything?

MR. KILGROE: I think Brian's touched on it. You know, we're on the floor or our ASI's are out in the factories, and they are, you know, engaging with the technicians and various other positions, and just promoting a positive safety message. You know, if you see it, report it, et cetera. So that's one of the biggest changes since the accident with our enhanced activities.

MR. CRUZ: Yeah. That's what I was going to come up with secondly. What has the FAA done since the accident to ensure the quality of the airplanes Boeing produced is of high standard?

MR. KILGROE: We now have offices at Everett, Renton, Charleston, and Spirit. You know, the new office locations are Renton and Spirit. We had offices in Everett and Charleston. So but our staff has increased. Folks are on site every day, Monday through Friday. They're on the floor, they're attending tier meetings, 1uality management review meetings. Trying to think what else.

MR. KNAUP: We have a couple of slides. I think slides, I want to say nine and ten talk about our actions. I can walk through them. Bryan hit on a handful of them. So certainly we released an emergency AD. It effectively grounded the domestic fleet. We conducted the six week special audit that we've discussed. That was in Boeing and Spirit's 737 quality system.

We've increased staffing across all of Boeing facilities. And not just inspector staffing, but engineering staffing as well, to support those audits. We have on site visibility, like Bryan mentioned, we have dedicated space within Renton and Spirit. We're visiting, you know, areas or processes that we see as high risk more often, because we have increased staffing, we've have increased involvement with Boeing's internal audit activities to ensure that we understand what they're finding.

That is, you know, certainly an indicator of places potentially we would look, or potentially, it's an indicator of places we don't need to look because Boeing is taking action to solve those problems, and we can look somewhere else. So we look at that both ways.

You can go to the next slide. As Bryan mentioned, we are participating with their employee engagement teams and some of their line walks that they do during the week. We have all of the KPI data that has been a part of the 90 day plan that we look at on a daily basis. We are attending meetings with -- involving Boeing quality, the various tier meetings that were discussed

earlier.

We have done a lot of investigations of hotline and whistleblowers. We have an increased hotline whistleblower. We have an increased number of those reports, and we've also increased our unscheduled auditing activity to include off shift -- off first shift activities. And you know just without, you know, without warning, we'll do audits.

MR. CRUZ: Thank you.

MR. KNAUP: Yep.

MR. BRAZY: Madam Chair, that concludes the questioning from the tech panel at this time.

CHAIR HOMENDY: Thank you very much. We will go ahead and start with the parties. I know I have the timers scheduled for five minutes, but we'll do multiple rounds if needed. So we'll start with ALPA.

MR. JANGELIS: Thank you, Madam Chair.

Earlier there was a slide that was posted showing the BPI-1581, and all the different changes, and just from reading through the research post-accident, found that the document has gone from 28 to 52 pages. Does this concern the FAA considering all these changes in a relatively short period compared to the average airframe life?

MR. KNAUP: Yes, it's a lot of changes in a short amount of time.

MR. JANGELIS: I'd like to follow up with the IAM. Does that

concern you and the rank and file with all those changes as well?

MR. CATLIN: Absolutely. You know, as I spoke of yesterday, you know, we used to have something called required reading, something that allowed our employees, our members, to be able to take time out every Friday, go back and review all the changes to the BPI's. That was done away with back in 2017. Now we have BPI, which is a critical BPI. Whenever you remove a permanently installed part from an airplane, you need to document the fact that you're removing it.

That has now gone from 28 pages to 58 pages, currently. More than doubled in size, and a large portion of that doubling of size is all the reasons why you wouldn't need to write a removal. I'm -- I don't understand why you wouldn't need to write a removal. If you're removing a permanently installed part, you need to document it.

MR. JANGELIS: Thank you.

This question is for the FAA. Please describe the current trends from the FAA's audit findings that you just described.

MR. KNAUP: You said current trends.

MR. JANGELIS: Correct, yes.

MR. KNAUP: Okay. So certainly through our audits, we have seen trends in alleged non-compliances, in FOD, tool control, failure to follow manufacturing process. I think those are the three heavy hitter trends that we've seen through our auditing activity.

MR. JANGELIS: How does that compare to your audit findings prior to Alaska Airlines Flight 1282 flight?

MR. KNAUP: I think the trends are similar. We've done more audits, so we have more findings. The issues that we saw during the six week audit, I guess I should be clear, are similar to trends we saw over a much longer period of time.

MR. JANGELIS: And how did the findings from an audit indicate that the mechanic or inspector doesn't understand or properly follow the installation plan, the IP?

MR. KILGROE: That's identified while an FAA inspector is observing a product audit, or witnessing a job being accomplished. He's following along and when there's a deviation from the IP, then he identifies that.

MR. JANGELIS: I think my question here is for the FAA, how does the FAA promote safety on the floor at Boeing?

MR. KNAUP: Well, so when our ASI's are out there doing audits, they're promoting, you know, I know our ASI's are aware of the Speak Up program within Boeing, so that is something that they certainly mentioned to the mechanics. If there is, you know issues noted or, you know, you know, and things that we are looking at doing as we kind of work through how we're going to do oversight of SMS is exactly how we do more of that. How we do more of that safety promotion while we're on the floor doing our audit.

MR. JANGELIS: Thank you.

My follow up and final question is to the IAM, is to Mr. Catlin. What's your view on this? How do you think the FAA can assist Boeing with safety on the floor?

MR. CATLIN: The FAA needs to be given authority, true authority. In all of my dealings with the FAA, I guess I can sum it up with one investigation, numbered S20220202019. Back on in April of 2022, the FAA performed an investigation. And they substantiated a violation of an order, regulation, or standard of the FAA related to inadequate BPI's, and the lack of manufacturing personnel, education, training skills, or experience to effectively perform their assigned tasks.

That was in April of 2022. In January of 2024, a door plug blew out of the 737-Max at 16,000 feet. The FAA has been aware that there's been problems with Boeing's BPI's. They've been aware that there's been problems with Boeing's training. They've been aware for a long time. They need the authority to do something about it.

MR. JANGELIS: Thank you. No further questions.

CHAIR HOMENDY: Thank you. Alaska Airlines.

MR. TIDWELL: Thank you, Chair.

A couple of questions for you. Let's start with the FAA. You talked about creating your surveillance plan. So your 2023 surveillance plan was created on the previous year's performance data. What did that data show you regarding the Boeing productions facilities and what were your risks?

MR. KILGROE: The national trends for the -- were similar for manufacturing process control, tool control, handling, and storage. However, it's the onsite teams and their knowledge and experience of those locations and what work is happening in those locations that helps them assemble their plan.

MR. TIDWELL: Did those plans change significantly after this failure?

MR. KILGROE: I have not reviewed -- I couldn't tell you from right now. I don't have that in front of me.

MR. KNAUP: I would say yes, we have changed our plans based off of this accident, and certainly the findings from the SAI are findings that we utilize to, you know, adjust our audit plans at other factories. Or you know, other facilities that we monitor to ensure that if we're finding something in Renton, we want to make sure that if that is happening in Charleston or Everett. So yes, we adjust based on what we find throughout the year.

Or like I said, if we have information from our COS activities on the FAA side, or our certification activities, we will adjust our audit schedule.

MR. TIDWELL: Okay. You were talking about your audit plans and most of your audits, it sounds like, are preplanned, pre-notified, and I'm just kind of wondering, I want, I want to hear from both Boeing and the FAA on this. From the Boeing side, when you get notified of an audit coming, do you look at the same big four?

MR. SILVA: And just to clarify, when you say big four, do you mean the --

MR. TIDWELL: Tooling, FOD --

MR. SILVA: The recurrent finding?

MR. TIDWELL: -- housekeeping, documentation.

MR. SILVA: Generally yes, generally yes. And one of the things that we've been working on has, especially since the accident, has been reminding everybody that the FAA really could be on site any given day. So even though we do have planned audits that we can prepare for, or at least in some cases we know of a particular work area or zone that's going to be focused, we have to be audit ready every single day. But we do look at those trends to make sure that those are some of the areas that we focus on with our teams.

MR. TIDWELL: Okay. That's good to hear.

And from the FAA side, how many of your unplanned audits do you do as compared to planned? Has that increased over the past eight months?

MR. KILGROE: Yes. The unplanned activities have increased significantly with inspectors in the factory, with our increasing staff, and out on the floor daily, our unplanned activities have increased significantly.

MR. TIDWELL: Okay.

Real quickly from the SMS side of the world with the FAA, I know there are some of the meetings you participate in. Are you

able to work that into your work plan for your audits, upcoming audits?

MR. KNAUP: Do you mean like where a part of SRM's, can we make --

MR. TIDWELL: SRM, safety meetings, tier ones, I don't know what you guys are involved with, but you should be in.

MR. KNAUP: Yeah. Yeah. So we, not necessarily as part of our audit activity, but kind of part of our daily or ongoing surveillance with our increased staff, we're able to attend significantly more meetings that would help inform us on where we should go audit in each of the factory spaces.

MR. TIDWELL: Okay. Thank you.

Mr. Catlin, one question for you. You talked about your increased exposure and discussions with the FAA. Have you ever been invited to do a floor walk with the FAA?

MR. CATLIN: No.

MR. TIDWELL: Thank you. No further.

CHAIR HOMENDY: Thank you. AFA.

MR. HEIPLE: Well, I was going to ask about SRA's as well. But it's been our experience that healthy SMS requires tremendous amount of manufacturer transparency, or carrier transparency with the FAA, and engagement by the FAA. When things are working well, appropriate FAA subject matter experts are involved in safety risk assessments performed by the carrier. And they attend the safety review boards. So I think Max covered that well.

But this ensures that you're immediately aware of safety hazards that have been identified by the carrier along with the mitigations being implemented, and I think you've referred that might instigate audits. We'd like to hear from you about the level of transparency that you're receiving from both, well, in this case Boeing primarily, as well as any enhancements to reporting programs that you're planning on requesting, coordinating, as a result of required SMS.

MR. KNAUP: Sure. Well, I think I will say in the -- I took this position in July of 2023. I feel like the transparency with Boeing has been good. We have seen increases in that transparency post-accident, especially around data. The data around the KPIs is a really good example of the data that we now see real time, just like they do, which I think is a big step in the right direction for us to have that awareness. You had a second part to your question that I can't remember.

MR. HEIPLE: Enhancements to.

MR. KNAUP: Oh, enhancements. To Speak Up or any other kind of reporting.

CHAIR HOMENDY: Right.

MR. KNAUP: Yeah. I mean, I think one of the enhancements, and it as a recommendation in the Section 103 panel was to increase the number of ASAP's that Boeing has across their facilities. So that's something we are pursuing. Like was mentioned previously, there's ongoing work with the engineering

union to get an ASAP in place for them with Boeing. And certainly as the leader of the oversight of the Boeing ODA, I think that is a big step in the right direction as well to ensure that we, you know, we get that in place as soon as we can.

So I think those are -- and then as we work through, this additional ASAP as appropriate with Boeing, it would be, you know, a way to enhance their Speak Up.

MR. HEIPLE: Speak Up sounds similar to ASAP, but it doesn't sound exactly the same. Do you have a member -- an MOU?

MR. KNAUP: So we do have an MOU with IAM for the tri-party agreement. It utilizes the Speak Up process. There are requirements for the speak -- there are requirements around eligible reports that would go into Speak Up that would lead to the a ASAP ERC with IAM, those being it's an IAM member. The issue is around a regulated process. So it's not in like an ethics or OSHA complaint or whatever. Those issues come in, they're reviewed by the ERC, and like was mentioned previously, recommendations are made, and provided to Boeing.

MR. HEIPLE: So as part of the ERC, does your representative on the Speak Out program have awareness of, and/or input on the development of training for the Speak Up program that would be distributed to employees, and/or the communication about the program?

MR. KNAUP: We haven't as part of the Speak Up -- larger Speak Up, we haven't been involved in the training or promotion of

that. We have been involved, you know, as I have been involved, as the steering committee member of the ASAP on, you know, communication and promotion of the ASAP to IAM membership so that they're aware that when they report stuff into Speak Up, into Speak Up, it will go through the ERC, you know, if it meets these criteria.

MR. HEIPLE: And then I know this is broad, but the FAA has a dual mandate to both regulate and promote commercial based flight industry. How do you balance that in your role, in your oversight role, how do you see that? In 30 seconds.

MR. KNAUP: Okay. So it's a hard balance sometimes, but it is a balance, you know, I think us promoting safety drives a safer system at large, right? And so we -- yes it is a dual mandate, but you know, we worked that through ensuring that the product is safe. And I think the flying public has made it very clear that they demand safety above all else as we move forward, and so that's how we operate.

MR. HEIPLE: Appreciate the response.

CHAIR HOMENDY: Okay. Mr. Gerlach with the FAA.

MR. GERLACH: Thank you, Chair. Some very short questions.

For Boeing and Spirit, it's the same question. So what is the role of ODA in the quality system?

MR. SILVA: So as Member Inman I think alluded to earlier, within the quality system, in the ODA, we have what are called inspection unit members. And they -- they're essentially the FAA.

They are there on behalf of the FAA and act as the FAA to do inspections of products, typically helping with conformity type inspections for either a new design or a change in design that requires an inspection from a unit member. And they also help with ticketing activities for the programs where the FAA is not a delegate of that or has a delegate.

MR. GERLACH: Thank you.

And Spirit.

MR. GREG BROWN: Yeah. So our engineering team is assembled similar to Boeing's, but they have an ODA, we don't. So I would tell you we communicate with them closely on key issues. And because we do hold design, we make sure that everything we're doing Boeing's aware of. So I think it's a pretty closed loop network.

MR. GERLACH: Thank you. And one last question for Spirit. Describe the Boeing internal audits and corrective action process. I think you may have touched on this a little earlier, but -- for Spirit.

MR. GREG BROWN: The question again.

MR. GERLACH: So describe the Boeing internal audits and corrective action process.

MR. GREG BROWN: So Boeing has an onsite team at Spirit. In 2023, I believe they did somewhere in the neighborhood of 95, 96 audits. And in those audits they'll write SER's, supplier evaluation reports. We will work with the Boeing team to come up

with root cause corrective action and implementation. They will either accept or reject those. Once they're accepted, there could be a follow up, but that's the process.

MR. GERLACH: Thank you.

And one for the FAA. Mr. Knaup and Mr. Kilgroe, can you describe the kind of training an ASI receives before they go out into the field?

MR. KNAUP: Yeah. So new ASI's that come to the FAA, there's a two year structured program that our ASI's run through, it's I believe it's over 240 hours of formal training that all of our ASI's go through. They also get on the job training elements as part of that. So they'll go out with the senior ASI, or one of our more experienced ASI's, to learn about the auditing process, apply the formal training that they've learned throughout, you know, to understand how to do our job. So it's -- that's the training process.

MR. GERLACH: Thank you very much. No more questions, Chair.

CHAIR HOMENDY: Thank you. Mr. Holden, with the Machinists Union.

MR. HOLDEN: Thank you, Madam Chair.

My questions are for the FAA. And I kind of want to verify things I heard earlier. It seems Boeing is required to get approval from the FAA for changes to some, but not all BPI's. Is that correct?

MR. KNAUP: That's correct.

MR. HOLDEN: So which types of BPI's is Boeing required to get FAA approval?

MR. KNAUP: I don't have all the -- the list of all of them memorized, but the BPI's that I know require our approval, are around inspections, and around sampling of supplier parts, and conformance.

MR. HOLDEN: Okay.

Does the FAA have access to supplemental writings like D6 documents or BPG's, Boeing process guides?

MR. KILGROE: Very few.

MR. HOLDEN: So if a BPI were changed to a BPG, from a process instruction to a process guide, would you see that anymore?

MR. KILGROE: Most likely not.

MR. HOLDEN: Okay. Even if not required to get approval from the FAA, is the FAA notified of all changes to the BPI's? Are you notified at least?

MR. KILGROE: Yes.

MR. HOLDEN: Do you evaluate those BPI's when you receive them of changes? Or the collateral impacts of what those changes mean on every time you're notified.

MR. KILGROE: Yes, we review the summary.

MR. HOLDEN: Do you ever reach out to those that are impacted by a change to the BPI, the mechanics, the QA, those that are now held accountable to how those are changed to see how they're

impacted?

MR. KILGROE: I have not.

MR. HOLDEN: Why not?

MR. KILGROE: I don't have an answer for you, but I can, I can definitely make it a point to have our team start reaching out when a process is changed.

MR. HOLDEN: ASAP's are meant to benefit all three parties, the company, or the manufacturers should get some protection within that for reporting and enforcement, and it should drive transparency. The union or the workers, they have a benefit of some protection that they can bring things forward and be assured there won't be retaliation, and they have some protection there. And the FAA gets visibility, something that you don't -- It's not built into the system that you automatically have visibility of all the BPI's, and all the changes, and approvals not required. So absent a functioning ASAP, are whistleblowers or hotline reports the only way for the FAA to get visibility of changes to BPI's that improperly shift inspection to mechanic conformance only?

MR. KNAUP: Well, I would say it's not the only way. It is a way. Certainly, our inspectors on the floor can be reached out to directly if there are issues that are seen, or they want, you know, to ensure they are brought up. So that is another way. We do want to have a functioning ASAP with IAM. I think that is the key to getting that visibility, which is what we want from an FAA

perspective. But that is another way for, you know, mechanics to reach out and inform the FAA.

MR. HOLDEN: And the IAM wants that as well and, you know, since I sit on the advisory committee with you, I know I'm not testifying here, but I appreciate the input we've received from the FAA. Without Jim Phoenix, we wouldn't have been this far along. And I think it's worth mentioning that. I'd like to move a little bit, change the topic to the supply chain. Does the FAA have any --

CHAIR HOMENDY: Mr. Holden, can you save that for the next round? Or no?

MR. HOLDEN: Yes, I can.

CHAIR HOMENDY: Okay. Thank you.

MR. HOLDEN: Thank you.

CHAIR HOMENDY: Ms. Meyer.

MS. MEYER: Yes.

CHAIR HOMENDY: With Spirit.

MS. MEYER: Yes.

I just have a question for the FAA. So I'd just like to clarify. What we were talking about before on the ACAIS system. So I just want to make sure I understand. So we talked about the high risk rating of one, right, based on production levels. So does the input to the ACAIS system, does it always put out the minimum score of 18 then, for Boeing site, and the additional plus 15, I think you mentioned Mr. Kilgroe, is that really at the

discretion of the FAA to select that plus number?

MR. KILGROE: Yes. Those were over and above the 18.

MS. MEYER: Sure. But the ACAIS system always puts out the 18 then as a minimum, because they're a score of one based on production levels.

MR. KILGROE: Right. The risk score, yes. That's what you go to the order and based on the score, it tells you what your minimum requirement is.

MS. MEYER: Sure. And then that plus 15 or whatever the FAA decides is the plus number, is that based on another risk tool that you use to determine that? Or just the experience at the local level.

MR. KILGROE: No. Those could be, those could be, those additional audits could have been, could have been done to support hotline and whistleblower investigations, other concerns identified by inspectors, et cetera. So those were unplanned.

MS. MEYER: Okay. Thank you.

MR. KILGROE: Yep. Thank you.

MS. MEYER: That's all, Madam Chair.

CHAIR HOMENDY: Thank you. We'll go back to ALPA.

MR. JANGELIS: I have just one question, Madam Chair.

For the FAA, if a rank and file employee finds that they have a safety issue that they'd like to report to the FAA, is the only route through the hotline, or can they call your office directly, or deal with the members of your office directly?

MR. KNAUP: No, they can, they can reach out to our ASI's, and we'll route that concern appropriately to ensure it gets looked at. So the hotline is a perfectly acceptable way. We investigate every hotline report. But if they reach out to our ASI's, we will take that concern seriously and investigate it appropriately.

MR. JANGELIS: Thank you. No further questions.

CHAIR HOMENDY: Thank you. Alaska.

MR. TIDWELL: Thank you, Chair. A couple of questions.

As we're looking forward to maturing SMS systems and our ASI workforce, when we look at production authorization holders as a whole, and an SMS, that's a different oversight model. Are we ahead on the training? Are we developing something so it's not the normal 240 hours and OJT to look at things differently?

MR. KNAUP: Yeah. So aircraft cert has a different training model for SMS specifically that will be handled by, you know, our folks that will be involved in SMS oversight will be -- go through that. But it is different than what our ASI's do to do quality management oversight.

MR. TIDWELL: Okay. Thank you. I think that's enough for me. Thank you, Chair.

CHAIR HOMENDY: Thank you. Flight attendants, Mr. Heiple.

MR. HEIPLE: Is there a guidance document for part 21 ASAP?

MR. KNAUP: There is not currently a guidance document for part 21 ASAP. So we are, we're working off of the 121 info that

we have.

MR. HEIPLE: Okay. The 66C.

MR. KNAUP: Yep.

MR. HEIPLE: Is one in development.

MR. KNAUP: I am not aware of that, but that's certainly something we can take that question for the record and get you an answer for the record. It's outside of my

CHAIR HOMENDY: Understand.

MR. KNAUP: -- knowledge.

MR. HEIPLE: Important part of SMS so we'll be hopeful to see that.

MR. KNAUP: For sure.

MR. HEIPLE: No more questions, Madam Chair.

CHAIR HOMENDY: All right, thank you. And we'll go to Mr. Gerlach.

MR. GERLACH: Thank you, Chair. We have no more questions.

CHAIR HOMENDY: Alrighty. We're back to Mr. Holden.

MR. HOLDEN: Thank you, Madam Chair. Just a couple more questions.

I really want to touch on the supply chain. And this is for the FAA. Does the FAA have oversight of the quality management system within the supply chain?

MR. KNAUP: We oversee Boeing's quality system and the flow down of their quality system to the suppliers, so we don't oversee, for example, Spirit's quality system. We oversee

Boeing's ability to oversee Spirit's quality system.

MR. HOLDEN: And so that means there could be changes to the inspection process out in the supply chain that you don't have visibility of.

MR. KNAUP: I guess potentially, yes. We would expect Boeing to let us know if those changes did not meet their quality system. And then when we audited, we would find that. But we audit to Boeing, the flow down requirements from the approved Boeing quality system.

MR. HOLDEN: When Boeing grants source inspection authority to the supplier now performing a specific statement of work, whether that's Spirit or any other supplier in the U.S. or across the globe, are you only relying on Boeing to notify you of changes in those processes within the supply chain?

MR. KNAUP: Yes.

MR. HOLDEN: So for example, Spirit's plant in Malaysia or --

MR. KNAUP: So we do auditing activity across the supply base of Boeing. Our audit activity, hopefully, would discover any changes to those suppliers quality systems that don't meet the Boeing requirements. We also review Boeing's internal audit. Their supplier quality internal audits, and ensure that those findings are, you know, corrected as well.

MR. HOLDEN: Okay. Thank you.

Mr. Silva, when the Boeing company goes through changing the quality management system, do you then direct the supply chain to

do the same?

MR. SILVA: Depending on the changes that we're making, we potentially could, yes.

MR. HOLDEN: Did the Boeing company direct the supply chain to remove inspections?

MR. SILVA: No.

MR. HOLDEN: For Spirit. Earlier, in a previous panel it was stated that when Boeing comes up with something that works, we often adopt the same. Did Spirit adopt a change to the quality management system to remove inspections in areas around okay to install, or on close tolerance holes, or face seal, anything related?

MR. GREG BROWN: No.

MR. HOLDEN: Okay, thank you. I have no more questions. Thank you, Madam Chair.

CHAIR HOMENDY: Thank you very much, Mr. Holden. Ms. Meyer.

MS. MEYER: No further questions from Spirit, Madam Chair.

CHAIR HOMENDY: All right. Quick, Alaska.

MR. TIDWELL: No further questions. Thank you, Chair.

CHAIR HOMENDY: And oh, sorry, ALPA.

MR. JANGELIS: No questions, thank you.

CHAIR HOMENDY: AFA.

MR. HEIPLE: No question.

CHAIR HOMENDY: FAA.

MR. KILGROE: No questions, thank you.

CHAIR HOMENDY: IAM.

MR. HOLDEN: No, ma'am.

CHAIR HOMENDY: Spirit.

MS. MEYER: No questions.

CHAIR HOMENDY: Great. We're moving on to the Board of Inquiry.

I'm trying to understand just I'm looking at your certificate management life cycle process, which is in your FAA order. And just trying to understand what types of audits we're talking about. You have an principal inspector audit, you have a supplier control audit, and you have a quality system audit. What audits are you talking about when you're talking about the 18 plus? Or what's the difference between the three?

MR. KILGROE: The principal inspector audits are the 18 plus.

CHAIR HOMENDY: Okay. And so when you do, and you've talked about enhanced audits. What's the difference between principal inspector audits and enhanced audits?

MR. KNAUP: Enhanced auditing, enhanced oversight activity, was just what we -- a term we had used post the accident to discuss additional activities that we would implement. And I would say at this point those are, those are the -- that's the norm now.

CHAIR HOMENDY: So that's the norm now.

MR. KNAUP: Correct.

CHAIR HOMENDY: Okay. So that that doesn't go away.

MR. KNAUP: There is no plan for that to go away.

CHAIR HOMENDY: Okay. And so when you, when you're going to do an audit, you said there's a notice. And did I hear a 30 day notice for Boeing? And did I hear 30 to 60 on supplier? I might have heard that wrong.

MR. KILGROE: So PI audits, we can do no notice.

CHAIR HOMENDY: Sure.

MR. KILGROE: We do give them at least a week notice on Pi audits and sometimes more. Now supplier control audits, per our policy, have a requirement to notify what 30 days prior.

CHAIR HOMENDY: Okay, then I'm going to go back to -- then what's the difference between the different audits?

MR. KILGROE: The Supplier control audit is done at a Boeing supplier.

CHAIR HOMENDY: Okay.

MR. KILGROE: So like we're going to go to Spirit and do a supplier control audit.

CHAIR HOMENDY: Okay.

MR. KILGROE: So we give them 30 days' notice to arrange the logistics to support our activities at that supplier. Spirit's not necessarily a good example because we have folks there on site. But say it was a company that we don't have close personnel to, that we're going to have to make travel arrangements. Boeing's going to send their folks to support us. We may need additional security activities to get on site at the supplier, et

cetera. So that's why the 30 days' notice, so everyone can get organized.

CHAIR HOMENDY: And the quality system audit.

MR. KILGROE: Sixty days.

CHAIR HOMENDY: Sixty days. And what is that?

MR. KILGROE: That is a comprehensive top to bottom audit of the quality system and --

CHAIR HOMENDY: Okay. And then you -- oh, go ahead.

MR. KILGROE: It involves a larger team, so additional inspectors, engineers, potentially flight test as well. So it's a big team so it's for logistics, not only for internal for us, as well as the production approval holder to make arrangements to have the necessary folks to support.

CHAIR HOMENDY: And just briefly, before I go back to principal inspector audits, you said you had people at Spirit. Is this after the accident?

MR. KILGROE: No, we had people --

CHAIR HOMENDY: Okay.

MR. KILGROE: They didn't have a physical space within Spirit before the accident. So the change there is now they have a physical space on site, and we've plussed up one so far.

CHAIR HOMENDY: Okay. So I'm -- this -- I'm trying to understand before I go through the rest of the process. Can you pull up Exhibit 11M, page 387. So Mr. Kilgroe, this is your interview with NTSB. In your position, do you know whether -- do

you oversee -- the Spirit production system does not have a production system. So who in the FAA would oversee Spirit?

Can you scroll down a little? We don't technically oversee Spirit, we oversee Boeing's quality system flow down to Spirit for the production of the articles that they have contracted with Spirit. I'm trying to understand the difference. So could you explain that to me a little bit more?

MR. KILGROE: Right. So with -- I'm trying to think of the best way to explain it. When we do --

CHAIR HOMENDY: You can take that down.

MR. KILGROE: When we do a supplier control audit at Spirit, we're auditing Boeing's oversight of their supplier to ensure that their supplier is building their articles to the design, as well as following their contractual flow down requirements. So Boeing flows down the requirements to Spirit to build their, whether it's a piece part, fuselage, they flow that down to Spirit.

Boeing, as the production approval holder, is responsible to ensure their supplier is doing things per their quality system because Boeing requires them to have one, and then meeting their other identified quality requirements. So we're auditing Boeing's oversight of the supplier.

CHAIR HOMENDY: Okay. And if there's a problem with the supplier, are you -- do you -- does that count on some input from Boeing?

MR. KILGROE: If we, if we have -- if we identify non-

compliances or nonconformances, then Boeing generates what they call a SER, an S-E-R for Spirit to resolve the noncompliance or nonconformance. The FAA generates a compliance action or enforcement action against Boeing for not controlling their supplier.

CHAIR HOMENDY: Okay. And you said for the 18 you do a risk assessment, and you come up with a risk score. Right?

MR. KILGROE: Correct.

CHAIR HOMENDY: And what are the inputs to that? What is the score based on?

MR. KILGROE: It's based on a series of question in the RBRT tool and ACAIS. It starts out with, in the case of Boeing, or a production approval making -- building airplanes or helicopters or engines, how many of those are they building per year. So that's one of the first steps.

CHAIR HOMENDY: Mm-hm.

MR. KILGROE: And then it gets into a series of other questions regarding compliance and enforcement activity, staff turnover, willing and able to work with the FAA. I can't remember the full series of questions, but I can obtain those out of the tool for the record if needed.

CHAIR HOMENDY: That would be really helpful if you would not mind. Thank you. And you said there are some that require notice, doesn't always have to be notice. Before this accident, how many per year would you do with no notice?

MR. KILGROE: I don't have -- I can't -- I don't have a number. I couldn't say. I'd have to go back and look. But our tool really doesn't have a way to capture if it was no notice.

CHAIR HOMENDY: Mm-hm.

MR. KNAUP: I think it's also important to understand, even when we give notice to Boeing or Spirit, our notice is that we're going to be in the Renton facility to do an audit this week. Not we're going to be in flow day ten to look at you installing X, Y, or Z.

CHAIR HOMENDY: Oh no, I understand. There's a sample letter, actually, in your order which states what you're going to be there for.

MR. KNAUP: Right.

CHAIR HOMENDY: The audit is scheduled for a certain day. You'll -- you are going to do an audit of, say, if the supplier complies with a purchase order or quality requirements. And then it has in here who should be present for the audit, who you want to talk to for the audit, so you can have an -- have that scheduled and everybody there.

MR. KNAUP: Right. And just the complexity of the Boeing facilities allows us to -- we say we're going to audit Renton during this week. We don't specify specifically where in Renton, so we might be in wings, or we might be in the final assembly, or we might do preflight. Because of the complexity, there's very little preplanning that can be done by Boeing to ensure they're

ready for where we're going to be. And the same thing can be said for Spirit or any of the Boeing final assembly --

CHAIR HOMENDY: So would you say most of them are noticed?

MR. KNAUP: Most of them have that notice that we're going to be there. The preplanning aspect is incredibly limited for Boeing or Spirit to know we're coming and where we're going to look.

CHAIR HOMENDY: And when you do go and you, you state who should be there, do you ever talk to people say on the factory floor who you didn't say should be there?

MR. KNAUP: For sure.

CHAIR HOMENDY: You just walk up and talk to them, even if --

MR. JANGELIS: Yeah.

CHAIR HOMENDY: -- not planned.

MR. KNAUP: Correct. So the person that is -- we say should be there is the person who goes and gets us, you know, these supplement writing documents that we don't necessarily have access to --

CHAIR HOMENDY: Mm-hm.

MR. KNAUP: -- or ensures we can pull IP planning, but our ASI's can talk to anyone that's on the floor at any time when they're doing an audit, and we do that.

CHAIR HOMENDY: And you do that.

MR. KNAUP: Yes. We do not just talk to the person that's listed on the letter that needs to there.

CHAIR HOMENDY: Okay. I have further questions. But Member

Graham?

MEMBER GRAHAM: Thank you, Chair. I'm going to jump around here a little bit, so hang on.

ASAP for manufacturing, talked about that. You got to tri-party agreement, I assume that's like a typical MOU for an ASAP program.

MR. KNAUP: Yes, but it is the first one that I'm aware of in manufacturing.

MEMBER GRAHAM: Okay.

MR. KNAUP: But it's typical for what you would see in 121 operations.

MEMBER GRAHAM: Sure. Who sits on the event review committee?

MR. KNAUP: There are two individuals from the FAA, two individuals from Boeing, and two individuals from IAM.

MEMBER GRAHAM: Okay. So the IAM is represented.

MR. KNAUP: Correct. Yeah.

MEMBER GRAHAM: Is what you're saying now. Okay.

MR. KNAUP: Yes.

MEMBER GRAHAM: No, that's good to know. That's great. That's who I'd expect to be there. Can you talk a little bit about the specifics of how the FAA monitors Boeing's progress while addressing a item of noncompliance?

MR. KNAUP: So in general, if we have an alleged noncompliance that turns into a compliance action, Boeing is

provided a certain amount of time to present us with a BPSM that we talked about, that includes all of their planned corrective actions. And so our ASI's monitor their non-compliances and compliance actions, ensuring that those BPSM's are provided to us so we can review the corrective action.

MEMBER GRAHAM: Thank you. The FAA runs two programs, right, a hotline and a whistleblower program. Correct?

MR. KNAUP: Yes.

MEMBER GRAHAM: How are those two different?

MR. KNAUP: I think it's where the, where the report comes from. Like --

MEMBER GRAHAM: Can you give me a little bit of specifics like how -- or is that complicated?

MR. KNAUP: I don't think it's that complicated. I just don't know the answer, unfortunately.

MEMBER GRAHAM: Okay. Okay. That's fine.

MR. KNAUP: Yeah.

MEMBER GRAHAM: Could you get us that?

MR. KNAUP: We can get you that for sure.

MEMBER GRAHAM: That's perfectly fine.

MR. KNAUP: Yes.

MEMBER GRAHAM: Okay. I'm good with that. Let's see. I think you testified that you don't believe that all the issues from the voluntary disclosure reporting program are closed. Are there any that are open that you could tell us about and give us

updates or no?

MR. KNAUP: I don't know enough specifics about any of the open cases to give you --

MEMBER GRAHAM: Okay.

MR. KNAUP: -- specifics.

MS. MEYER: Fine.

MEMBER GRAHAM: Mr. Silva, you testified that there are formal voluntary disclosure reports and informal voluntary disclosure reports. Can you describe the difference between the two?

MR. SILVA: Sure. At a high level, formal voluntary disclosures in the back of our business process instruction, we have a kind of guidelines that will give some criteria for determining what would be formal versus informal. Typically informal would be, for lack of better term, one off type scenarios or situations. Nothing that indicates anything systemic.

And then the opposite than formal would be things that could potentially become more systemic, or maybe found more than one case.

MEMBER GRAHAM: Okay. Thank you. Nearly every witness has agreed that Boeing safety culture needs improvement. Does the FAA believe that it conducted effective oversight of Boeing prior to the January 2024 door plug accident?

MR. KNAUP: Yeah. So I think we, the FAA, we believe we conducted effective oversight of the Boeing Company. That safety

culture isn't a compliance thing. We, our job is to ensure compliance to the regulations, and we continue to do that today.

MEMBER GRAHAM: Do you think it's better now, your oversight, is it more effective?

MR. KNAUP: Yes, I do.

MEMBER GRAHAM: Does it need more?

MR. KNAUP: We are always learning on how to get better, so I think we will continuously improve on our oversight of Boeing moving forward.

MEMBER GRAHAM: When do you all have to start auditing the compliance of the SMS for Boeing?

MR. KNAUP: It is, I think it's May of 2027 is the date that it is required. The first step is Boeing submitting an implementation plan. We'll be ready whenever Boeing's ready.

MEMBER GRAHAM: So your inspectors are going through training now for SMS.

MR. KNAUP: Correct. Yes.

MEMBER GRAHAM: Very good. I think my final question here will be for, actually for Boeing, for the IAM, and for the FAA. Tomorrow. Mr. Kelly Ortberg will begin his first day as CEO of Boeing. After two days and I don't know, 20 hours of testimony at this hearing, what is the safety take away that you would like to communicate to Boeing's new CEO. And I'll start with Mr. Silva.

MR. SILVA: I don't know that I had enough time to give all the takeaways, but I would say I would certainly want to impress

upon our new CEO, and from the limited information I've seen around this person's background, what we talked about in the last panel, the importance of promoting and leading by example a strong safety culture, to demonstrate trust, transparency, and treatment.

MEMBER GRAHAM: Very good.

Mr. Catlin, how about you?

MR. CATLIN: I think the one point that I would like to get across to him is the point I made earlier. We are all in this together, and we all need a seat at the table if we want to make this work.

MEMBER GRAHAM: Great. Thank you.

FAA, would you have anything to say since you get to go audit them all the time?

MR. KNAUP: I guess I'll add something. So I think it's important that they ensure their people are empowered to find compliance to the quality system, no matter what that means from a schedule perspective. That they ensure safety, that their people are empowered to do the right thing when no one's looking for safety, and the right thing when a manager is looking for safety. I think those are the things we would, we would want the CEO to ensure that their folks are empowered to do.

MEMBER GRAHAM: Thank you all for your answers and thank you for being witnesses. That's all I have in this section.

CHAIR HOMENDY: Thank you. Member Chapman.

MEMBER CHAPMAN: Thank you, Chair. I thought the questioning

from our team and also from the parties was very good. So I only have just a couple of questions myself.

For the FAA, with the enhanced oversight, do you currently have the personnel and resources, or do you feel comfortable that you will be able to secure the personnel and resources to maintain that enhanced oversight?

MR. KNAUP: Yeah, I think we -- I feel -- I don't think we have them today, but we have the ability or authorization to get the staff that we need to do the oversight we need.

MEMBER CHAPMAN: Thank you. The data we have, and please correct me if I'm wrong in characterizing this data, but the data that we have indicates that during a 12 month period from October 2022 to September 2023, through various audits, 68 at least alleged non-compliances were identified for Boeing, and 27 for Spirit. How does -- just sort of annualized and I don't need precise numbers, but your sense annualized, how does that compare on an annual basis with past years?

MR. KNAUP: I don't have exact numbers. I think it's probably similar to previous years.

MEMBER CHAPMAN: You don't have a sense that there's -- that it represents some sort of a surprising increase, for example.

MR. KNAUP: I don't believe it was an anomaly based on, you know, a handful of years before.

MEMBER CHAPMAN: And again, just your sense of this. With those sorts of numbers, what percentage or what number might be

relatively routine matters versus more serious matters that require further investigation, or further action on the part of FAA?

MR. KNAUP: Right. Yeah. There certainly are significant you know, a variation in the severity of the findings that we have and their effect on -- potential effect on safety. The majority are of the less severe nature, and I will say we do have open enforcement actions related to some of those findings that are ongoing where we are continuing to either work with Boeing on corrective actions for those findings or verify that the corrective actions for those findings are implemented and effective.

MEMBER CHAPMAN: Thank you very much. Thanks to our witnesses. Thanks to our team, did a great job. And thanks to all the parties and all of you out there who have put up with the heat here today. Thanks.

CHAIR HOMENDY: Member Inman.

MEMBER INMAN: Thank you, Madam Chair.

Regarding, Brian on the left. Sorry. You were talking about your organizational design, but you also have ODA. Is that correct?

MR. KNAUP: Correct. We have oversight responsibility for the Boeing, GE, and Pratt and Whitney ODA'S.

MEMBER INMAN: How many people is that total?

MR. KNAUP: How many people does --

MEMBER INMAN: Within that entire structure.

MR. KNAUP: So we have around 20 people assigned to oversight of the Boeing ODA, less for the GE and Pratt and Whitney, they're smaller ODA's.

MEMBER INMAN: How many people are in the ODA of Boeing?

MR. KNAUP: Oh.

MEMBER INMAN: That you're 20 are managing?

MR. KNAUP: Oh. Well, Boeing has a little over 1,000 unit members, engineering and inspection unit members, along with other regular -- regulatory administrative staff that are part of the ODA unit.

MEMBER INMAN: Is that underneath your decision tree, organizational chart?

MR. KNAUP: Correct. It is.

MEMBER INMAN: So that's at least -- we started with 50, right? But that's -- you have responsibility over the 1,200, 1,500.

MR. KNAUP: Yeah, there's a lot of people that were responsible for doing oversight of at Boeing, for sure, yes.

MEMBER INMAN: So just a couple of questions about that. I guess in general. Are they -- are a lot of these covered under PASS, the Union?

MR. KNAUP: Our inspectors?

MEMBER INMAN: Yes.

MR. KNAUP: Our ASIS are covered under PASS. Our engineers

are covered under NATCA from a union perspective within the FAA.

MEMBER INMAN: Okay. So there's been a lot of discussion regarding that contract negotiation that's been ongoing and specifically around telework, and the two day. FAA originally tried to go to three day, or excuse me six days per pay period, so it would have been three days per week.

MR. KNAUP: Sure.

MEMBER INMAN: And moved back from that saying they're trying to get the right culture. And it appears just in the last day or two, they come to an agreement on the two days per week. Can you talk me through, you were talking about being in the -- on the floor in the places. How does telework in this current arrangement after COVID affect -- are your people in the office or are they at home, are they walk in the floor? And these are just your direct reports, not the thousand.

MR. KNAUP: Yeah, yeah. So the direct FAA employees that we have doing audits are in the factory doing audits. So they don't telework, you know, two days a week or four days of pay period, they're in the factory doing audits.

MEMBER INMAN: So the telework policies are not a hindrance to your activities right now.

MR. KNAUP: They are not. Our employees go where they need to go when they need to go there. And it's not an issue that we have had to deal with at all.

MEMBER INMAN: Does it make it hard for recruitment whenever

you say you actually have to come into a job site?

MR. KNAUP: I know we have not had an issue with the recruitment. There are a lot of people that want to come and work for the FAA to, you know, I think they believe in the mission that we have.

MEMBER INMAN: Same way with the NTSB. Good. Okay. Let me just clarify something in the resume portion. Earlier, whenever we listed you in the program, it said Lakewood, California.

MR. KNAUP: For sure, yep.

MEMBER INMAN: That's where your residence, or your office location is.

MR. KNAUP: Correct, yes.

MEMBER INMAN: And so do you typically commute to these different offices in these different areas? How many, out of a month period, can you give me a breakdown of where you're at or what you're doing besides two days of hearings here.

MR. KNAUP: For sure. Yeah. So I traveled probably two weeks out of the month. I've been to Seattle 11 times since the beginning of the year for weeks at a time. So I am -- my job is obviously I have oversight of a number of different production approval holders. And so I work to be in all of the places as much as I can.

I am stationed in California. It actually provides a separation so I get a better perspective over all of that that I'm doing, as opposed to if you're in Seattle, you know, I would, you

know, there's a potential that I would lose sight of Charleston or Spirit. So being away occasionally actually is --

MEMBER INMAN: It's hard to have your kid on the same T-ball league whenever you're trying to do enforcement.

MR. KNAUP: That's right. Yeah, that's right.

MEMBER INMAN: Okay, fair enough. Am I correct though, in also reading the bio, you moved into this role of AIR-580 in July?

MR. KNAUP: Correct. I took this current position in July of 2023.

MEMBER INMAN: 2023?

MR. KNAUP: Correct.

MEMBER INMAN: Okay. It was left off about 2023. I didn't know which year it was.

MR. KNAUP: Oh, sorry. Yeah.

MEMBER INMAN: Just making sure.

MR. KNAUP: Sorry 2023.

MEMBER INMAN: Okay. That's --

MR. KNAUP: Almost just over a year now.

MEMBER INMAN: Okay. So I'm just going to go back to a quick, and I've touched on oxygen canisters a couple of times. I know the flight attendants appreciate that I think, but did FAA, did you get a Boeing alert that they had been receiving operator pre-inspection, predelivery, or pre-revenue reports of these issues?

MR. KNAUP: I believe, and I'm not the expert here, that came

in through the COSP, our continued operational safety process. I am not an expert on this specific issue or, honestly, the COSP process itself, so I do not know how that came in through our system off the top of my head.

MEMBER INMAN: Is that a potential disconnect of what operators are seeing before they bring them into revenue?

MR. KNAUP: We get a lot of in service feedback that supports our COSP process. Boeing is required to provide that data to the FAA and our COSP engineering staff review all of the in service feedback that Boeing receives, and then we process it through our process to ensure an AD is written as, you know, as needed.

MEMBER INMAN: Does COSP pass that off to the inspectors?

MR. KNAUP: Yes. So we sit in the normal FAA COSP boards, we have folks in our branch that sit in those, and we identify issues in COSP that could be from quality and then we will, if, you know, if Boeing hasn't provided that info to us, we would go to them and ask what's going on.

MEMBER INMAN: Okay. So Lloyd earlier had mentioned that he doesn't believe you have the authority to do your job. Everyone's got an opinion, that's fair. But the, you know, coming out of the FAA Reauthorization Bill and the Aircraft Certification Bill, which were enhancements in that regard, if you need it, what let's say what else could you be given as an enforcement beyond what you have right now that would get -- give you even better granularity or appreciation besides arrest powers.

MR. KNAUP: We certainly don't want that. That's for other organizations. I don't know. I was, I was very intimately involved in how the FAA enacted a number of the acts or requirements around the ODA in my previous role. I thought those have -- I've seen those make a difference in how the FAA has, you know, made progress with the ODA to ensure that we meet all of those requirements. Off the top of my head, I can't think of specific quality system legislation that would enhance our ability. So I guess I wouldn't want to say something off the top of my head.

MEMBER INMAN: Okay. Well, that that's interesting. It's going to lead me to my next question. I'm going to preface it a little bit because as we discussed earlier, I was at the department during the Max crashes. And there was about two weeks after the second crash, the Secretary of Transportation wanted a briefing on certain items, and we asked two FAA people to come and do some briefings. In fact, one of them in this room today.

But by them offering real and unvarnished information that wasn't moved up through the FAA chain, one of those employees was threatened with being fired a couple of times. Now they haven't been, we're lucky. And I'm not saying that happened to you, but who prepped you for today's hearing in the FAA organization, and this is the Brian and Bryan. Who prepped you in this hearing, who did you work with, the murder board, who gave you what your talking points were?

MR. KNAUP: Yeah. I mean, I think the folks that are at our witness table are the folks that prepped us for this hearing.

MEMBER INMAN: Anybody else in the FAA in management and oversight?

MR. KNAUP: Yeah, I mean, so my boss, certainly, you know helped with that. And there were other folks within AIR that helped ensure, I guess, provided experience that have been on this, you know, done this before.

MEMBER INMAN: Not their first rodeo.

MR. KNAUP: That's right, yes.

MEMBER INMAN: Okay. Well, being on the other side of that, I guess and I'm not trying to put you in a tough situation, but were there topics or areas which you were asked to diminish or to stray or stay away from? I noticed earlier to Member Graham, you said you didn't have any details about the -- currently the issues that were recurring. I'm just using that as an example.

MR. KNAUP: Sure. No, I can -- no, I wasn't. I you know, I'm here to give my -- what I know, you know, and the complete facts that I have. That was -- that did not happen.

MEMBER INMAN: Bryan two, you're not off the hook.

MR. KILGROE: No, sir. I think if I said --

MEMBER INMAN: Who prepped you?

MR. KILGROE: The same group of people.

MEMBER INMAN: Okay.

MR. KILGROE: And if I was the one who said that, you know, I

just, I can't recall that off the top of my head. I'm -- I will get you whatever you would like to know.

MEMBER INMAN: I think that sometimes leadership, depending on whether it's political or career, oftentimes wants a certain message out or doesn't want another message out. I'm trying to inquire about it. But obviously, you have the opportunity with our party representatives at some point, if you do have anything, I would encourage you to have that conversation. Not saying that there was any, but it's part of the normal process of prepping witnesses for hearings and testimony.

Madam Chair, I think --

CHAIR HOMENDY: Thank you.

MEMBER INMAN: -- if I can just say thanks to the investigative and Doctor -- he's looking away. Great line of questioning today. Very informative for everyone. The entire team did a wonderful job, but I learned some things today. So for everybody, I know it's been a tough job. We appreciate all their work.

CHAIR HOMENDY: Thank you. Although I'm not done yet.

MEMBER INMAN: All right.

CHAIR HOMENDY: So on -- I just want to pick up where I left off on the process for audits. So I had a question in the factual, it states our factual for manufacturing, it states should noncompliance issues be documented by the audits, the FAA exercised prosecutorial discretion when using compliance,

administrative, and legal enforcement actions to ensure that all regulated entities conform their conduct to statutory and regulatory requirements.

So you have noncompliance actions which I've seen listed for Renton, ten alleged non-compliances for document control, inspection, inspection and testing, manufacturing. My question is, can you talk about what is a corrective action plan versus enforcement, traditional enforcement?

MR. KILGROE: Yeah. So we start at the bottom. It could be an informal corrective action, so we are walking through the factory and maybe we found a piece of FOD on the floor, picked it up, threw it away. To capture that, we do an informal. It was a one off. If we continue walking through the factory and find FOD everywhere we look, then we're going to go to a compliance action.

Now when we generate the compliance action, Boeing will do their investigation, root cause, proposed solution, and then implemented solutions, what they call their BPSM. They will provide that corrective action plan to the ASI. The ASI will conduct his review and then we have what we call a BPSM clearinghouse that we get together once a week as a management team, seniors, and also our engineers.

And we -- the ASI presents the BPSM to the group and makes a recommendation, and if we concur, we advise, and if we don't, we note why. And then it'll go back to Boeing for further work if needed. If we accept it, then he sends a letter of acceptance of

their plan. Boeing will execute. When they have completed executing the implementation plan, they will do their corrective action, corrective action verification, and then we will go conduct our corrective action verification. If that's all satisfactory, it will close the case.

CHAIR HOMENDY: So there's some back and forth between the two between -- I'm just trying to understand the process between Boeing and FAA at that point.

MR. KILGROE: Yes.

CHAIR HOMENDY: Okay. And so how do you determine when, okay, we're not going to do a corrective action. We're moving towards a traditional enforcement. What's the decision making on the, on the line there?

MR. KILGROE: That decision comes down to the severity and repetitive nature of the findings.

CHAIR HOMENDY: And say prior to the accident, you know, on an annual basis, how many corrective actions versus traditional enforcement would you have?

MR. KNAUP: I'll answer that. So we have, currently we have 16 open enforcement actions with the Boeing company.

CHAIR HOMENDY: As a result of this, or something else?

MR. KNAUP: No, no. Complete, in totality today.

CHAIR HOMENDY: Okay.

MR. KNAUP: Eight of those are post-accident enforcement actions, and eight of those are actions that encompass a timeframe

from 2020 till now of open cases. I would say that pre-accident, we had on average four to six enforcement cases with Boeing.

CHAIR HOMENDY: Four to six in what time period?

MR. KNAUP: Each year.

CHAIR HOMENDY: Each year.

MR. KNAUP: Yes.

CHAIR HOMENDY: And then compliance -- or corrective action plan?

MR. KNAUP: Compliance, well, so everything gets a corrective action plan.

CHAIR HOMENDY: Okay.

MR. KNAUP: Even enforcement cases.

CHAIR HOMENDY: Okay.

MR. KNAUP: But compliance actions, a round number is 100.

CHAIR HOMENDY: Okay. And when you do enforcement and there is a fine, is there a settlement process at some point between Boeing and FAA?

MR. KNAUP: I think it depends on the enforcement action. We work with our AGC counterparts. But yes, there are times where there's a settlement as well.

CHAIR HOMENDY: Mm-hm. Okay. And are there standards for that type of settlement?

MR. KNAUP: I believe there are, but that is beyond my knowledge. So --

CHAIR HOMENDY: Appreciate it.

MR. KNAUP: I certainly could get that answer for you.

CHAIR HOMENDY: And no, I appreciate that.

MR. KNAUP: Yep.

CHAIR HOMENDY: Okay. I think I'm going to end my questions. Do you have further questions, do you? Oh, we got four minutes. But I want to see if the technical panel has any follow up questions to our questions.

MR. CRUZ: We do not, ma'am.

CHAIR HOMENDY: Are you sure? I saw a little discussion down here.

MR. CRUZ: No, we don't. We don't.

CHAIR HOMENDY: Okay. All right. Do you have any -- a bit of administrative discussion you want to have?

MR. BRAZY: I do when we get to the adding exhibits or not.

CHAIR HOMENDY: Okay.

MR. BRAZY: Right after that, I'd like to have 60 seconds, please.

CHAIR HOMENDY: Okay. Great. Well -- and the parties are okay with no more questions from the parties, all right. So that concludes our last panel for the investigative hearing. And so again on behalf of my fellow board members, we greatly thank the witnesses. I want to thank all the parties, and certainly I want to thank the investigative team who did an excellent job. It's certainly a lot of work for everyone in preparing for investigative hearings.

This information is crucial for conducting our investigation. It provides us facts that we need to help then move into, at some point, analysis phase. Although we may have additional fact gathering. But I want to thank you, and certainly I want to thank my fellow board members and the staff for all their work in preparing for this. And for the massive amounts of ice and chocolate that Member Inman provided throughout the course of the last two days.

As a reminder, your -- each of the parties to the investigation have signed a party agreement that lays out the rules of conduct, which remains in effect throughout the investigation. So appreciate your continued cooperation on that. And now I will turn it over to Mr. Johnson to talk about exhibits.

All right. According to Mr. Johnson, we have three exhibits. This would require glasses. The 2015 Boeing FAA settlement agreement, the 2015 settlement agreement deferred penalties, and Boeings policy on lateral transfers. Any objections to those? No. Okay. So those will be added to the exhibits.

The record, of course, will remain open for additional materials that were requested during the hearing, and the transcript will be made available to the parties and witnesses electronically within seven days. Any corrections to the transcript must be sent to the hearing officer by September 6th.

Mr. Brazy.

MR. BRAZY: Thank you, Madam Chair. In addition to the

exhibits that were just added to the docket, we also had a number of requests for clarifications or answers on questions today that were promised. There were some from Member Inman during panel three to Boeing, Spirit, and the FAA. There were some from Chair Homendy on panel four to Boeing with regard to ASI audits and inspections.

Member Graham asked for Mr. Knaup to provide some follow up information about what's a hotline versus a whistleblower. And I think that's a high level summary. Does anyone have any other recollections besides those?

CHAIR HOMENDY: The FAA was going to get me the questions that lead into their risk assessment.

MR. BRAZY: Jon remembers that one as well. When we get those answers, we will of course add those to the docket. The other item that I wanted to mention was a question, a common question that came up during the breaks to me from many of the folks in the room. And that was what if I have questions after the hearing or what if I have questions for topics that were not covered in the hearing. And I know that we mentioned at length on both -- opening of both mornings, the opportunity to provide submissions. Obviously, those still count.

However, the investigation is still ongoing, and we have not done our technical review yet. So the point during an accident investigation where we make sure that there's no further facts to gather is at that technical review. We'd like to have that

information before that day, which hasn't been scheduled yet, if we can. So the way to route those questions or requests for information are through your party coordinator who will communicate with the accident investigation group, onto which they were assigned.

I can't give you a due date yet. When we announce the public hearing, that's the date after which we will not gather anymore facts. Technical review, excuse me. But we'd like to have them beforehand so we can get ready for that meeting, and we'll discuss that with you. So the route to ask questions that come up after the hearing or happen to be on topics not covered by the hearing, or through your party coordinator prior to technical review. Is that clear? Thank you.

CHAIR HOMENDY: Thank you. In addition to -- oh, go.

MR. BRAZY: I'm sorry. Heather was raising her hand. I didn't see.

MS. MEYER: Yeah, sorry. I just had one other question, Madam Chair. Was Member Brown, did he have some additional questions that some of us were going to have to answer or no?

CHAIR HOMENDY: Possibly.

MS. MEYER: Okay.

CHAIR HOMENDY: We will find out more. So go ahead and expect some, but his special assistant is going to work that through the Mr. Brazy.

MS. MEYER: Okay.

CHAIR HOMENDY: And communicate with each of you.

MS. MEYER: All right, perfect. Thank you.

CHAIR HOMENDY: Okay. Thank you very much for that reminder. All right. Again, I want to extend our gratitude to everyone here, but also to Mr. Brazy, our hearing officer, John Lovell, our investigator in charge for this investigation, and all the staff. But I also want to once again thank -- this is a team, a team effort. The office of the Chief Financial Officer, the Office of Chief Information Officer, General Counsel, Managing Director, Aviation Safety, of course, Research and Engineering, Safety Recommendations and Communications.

I'd also specifically like to thank Deidre Estes, James Anderson, Brett Johnson, Eric Grosoff (ph.), Jake Marshall, Rochelle McAllister, Carl Perkins, Chris Blumberg, Miriam Vaughan (ph.), certainly Darlene Hatchet (ph.), Brian Curtis, and Dana Schultz, all of which ran around today trying to figure out how to deal with our heat situation. There is -- we will be opening an investigation into that matter as confirmed on Twitter.

So okay. Thank you very much. Thank you. Appreciate all your time, all your efforts. We stand adjourned.

(Whereupon, the hearing in the above-entitled matter was concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:	ALASKA AIRLINES BOEING 737-9 MAX LEFT MID-EXIT DOOR PLUG SEPARATION NEAR PORTLAND, OREGON ON JANUARY 5, 2024
ACCIDENT NO.:	DCA24MA063
PLACE:	Washington, D.C.
DATE:	August 7, 2024

was held according to the record, and that this is the original, complete, true and accurate transcript which has been transcribed to the best of my skill and ability.

Andrew Hirsch
Transcriber