

UNITED STATES SENATE

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS

STAFF MEMORANDUM TO MEMBERS OF THE SUBCOMMITTEE

September 24, 2024

New Details of Boeing's Safety Failures and Pressure to Prioritize Profits

## MEMORANDUM

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To: PSI Members  
From: PSI Majority Staff  
Date: September 24, 2024  
Re: New Details of Boeing’s Safety Failures and Pressure to Prioritize Profits

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On March 19, 2024, the Permanent Subcommittee on Investigations (“PSI” or “the Subcommittee”) initiated an inquiry into Boeing’s safety culture and practices, following whistleblower allegations that Boeing has taken shortcuts in the assembly of 787 and 777 aircraft.<sup>1</sup> As part of this inquiry, the Subcommittee requested records and information from Boeing and the Federal Aviation Administration (“FAA”), including information about the FAA’s oversight of Boeing and its investigation into whistleblower allegations.<sup>2</sup> This memorandum presents new information based on documents the Subcommittee has obtained from the FAA and Boeing during its ongoing investigation and is being provided to Members in advance of the Subcommittee’s September 25, 2024, hearing with FAA Administrator Michael Whitaker, the third hearing in the Subcommittee’s ongoing inquiry.<sup>3</sup>

Among other findings, new documents obtained by the Subcommittee reveal that:

- **Boeing personnel continue to feel pressure to prioritize speed of production over quality.** In a May 2024 employee survey, the company found: Only 47% percent of respondents answered favorably to the statement, “Schedule pressures do not cause my team to lower our standards.”
- **Boeing continues to struggle to ensure its employees are adequately trained and appropriately resourced for their work.** During a special audit conducted in January and February 2024, the FAA recorded 23 examples “where employees failed to follow processes or lacked proficiency.” The FAA added that numerous instances of noncompliance showed, “a lack of competence and ability of the employee to perform their job and assigned tasks.”

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<sup>1</sup> Letter from Sens. Richard Blumenthal and Ron Johnson, Permanent Subcomm. on Investigations, to David Calhoun, CEO, Boeing (Mar. 19, 2024), <https://www.hsgac.senate.gov/wp-content/uploads/2024.3.19-PSI-Letter-to-Boeing-CEO-David-Calhoun.pdf>.

<sup>2</sup> Letter from Sens. Richard Blumenthal and Ron Johnson, Permanent Subcomm. on Investigations, to Michael Whitaker, Adm’r, Fed. Aviation Admin. (Mar. 19, 2024), <https://www.hsgac.senate.gov/wp-content/uploads/2024.3.19-PSI-Letter-to-FAA-Administrator-Michael-Whitaker.pdf>.

<sup>3</sup> *Examining Boeing’s Broken Safety Culture: Firsthand Accounts: Hearing Before the Permanent Subcomm. on Investigations of the S. Comm. on Homeland Sec. and Governmental Affs.*, 118th Cong. (2024), <https://www.hsgac.senate.gov/subcommittees/investigations/hearings/examining-boeings-broken-safety-culture-firsthand-accounts/>; *Boeing’s Broken Safety Culture: CEO Dave Calhoun Testifies: Hearing Before the Permanent Subcomm. on Investigations of the S. Comm. on Homeland Sec. and Governmental Affs.*, 118th Cong. (2024), <https://www.hsgac.senate.gov/subcommittees/investigations/hearings/boeings-broken-safety-culture-ceo-dave-calhoun-testifies/>.

- **Boeing continues to fail to ensure that nonconforming parts are appropriately documented, stored, and dispositioned so that they are not installed on aircraft.** The FAA’s special audit found an “absence of process control for scrap articles that left the secure Material Review Segregation Area until rendered unusable” in two areas used to store nonconforming parts.
- **Boeing’s quality inspection procedures and the FAA’s review of those procedures continue to raise questions about the qualifications and independence of individuals performing inspections.** In some fabrication and sub-assembly aspects of Boeing’s production in Puget Sound and Salt Lake City, Utah, facilities, **Boeing personnel are allowed to inspect the quality of their own work.** The FAA acknowledged to the Subcommittee that manufacturing personnel inspecting the quality of their own work **appeared to pose an inherent conflict of interest.**

Given the depth and history of Boeing’s safety deficiencies, its lack of candor with the FAA,<sup>4</sup> and the Agency’s reactive regulatory posture, the newly released information raises questions about the effectiveness of the FAA’s oversight of the company.

## **FAA OVERSIGHT OF BOEING PRODUCTION**

The FAA oversees aircraft manufacturers, including Boeing, to ensure they meet the requirements of the production certificate issued by the FAA and, ultimately, to ensure the safety of the flying public.<sup>5</sup> Audits are a key compliance component of the FAA’s certificate management program.<sup>6</sup> The Agency’s audits examine Boeing’s production quality and safety practices, which can reveal small problems, such as an FAA inspector noticing debris on the factory floor, or broader systemic deficiencies, such as those involving qualification and training of personnel, unclear manufacturing policies and procedures, and nonconforming aircraft parts.<sup>7</sup> Facilities deemed high

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<sup>4</sup> See H.R. COMM. ON TRANSP. & INFRASTRUCTURE, MAJORITY STAFF, FINAL COMMITTEE REPORT: THE DESIGN, DEVELOPMENT & CERTIFICATION OF THE BOEING 737 MAX, at 13 (Sept. 2020), <https://democrats-transportation.house.gov/imo/media/doc/2020.09.15%20FINAL%20737%20MAX%20Report%20for%20Public%20Release.pdf> (describing a “culture of concealment” at Boeing).

<sup>5</sup> FED. AVIATION ADMIN., ORD. 8120.23A, paras. 2-2, 2-3 (Mar. 6, 2017), [https://www.faa.gov/documentLibrary/media/Order/Order\\_8120.23A\\_change\\_1.pdf](https://www.faa.gov/documentLibrary/media/Order/Order_8120.23A_change_1.pdf).

<sup>6</sup> *Id.* para. 2-1.

<sup>7</sup> See generally *id.*; NAT’L TRANS. SAFETY BD., INTERVIEW OF JAMES M. PHOENIX, RETIRED MANAGER BOEING CERTIFICATE OFFICE, FAA, at 603-04, Docket No. SA-543, Exhibit 11M, [https://data.nts.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20\(1\)\\_Redacted1.pdf](https://data.nts.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20(1)_Redacted1.pdf) (“Q. And do you know what types of issues that the inspectors were finding with regards

risk, including the Renton, Washington, factory where the 737 MAX is built, undergo at least 18 principal inspector audits per year.<sup>8</sup> Although the FAA is not required to provide advance notice of these audits, it typically gives Boeing one to two weeks' notice.<sup>9</sup> In addition to regular, ongoing audits of Boeing and its suppliers, special audit items (“SAI”) examinations are conducted when FAA senior management determines that an item, process, or area requires specific focus.<sup>10</sup>

## SCHEDULE PRESSURE LOWERS STANDARDS

An internal Boeing survey obtained by the Subcommittee reveals employee concerns that go directly to the heart of whether Boeing’s safety culture has improved in the months since the door plug incident or the years since the two 737 MAX crashes. The previously non-public survey responses, collected in mid-May 2024, show that many machinists still feel pressured to prioritize production speed over quality. Boeing concluded that the survey of approximately 2,100 manufacturing personnel indicates, “**Schedule pressure is still significant.**”<sup>11</sup>

A summary of the survey results was submitted to the FAA as an exhibit accompanying Boeing’s comprehensive safety plan and is attached as Attachment 1. The summary compiles responses from managers and frontline manufacturing personnel, both of whom highlight schedule pressure as a foremost concern. **Only 47% of respondents answered favorably to the statement, “Schedule pressures do not cause my team to lower our standards.”**<sup>12</sup> Although managers’

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to the Renton facility? A. Everything. And it wasn’t just Renton, I mean, Charleston, Everett, Renton, they all have their idiosyncrasies because of the different models, but I think that generally you could walk into any facility and have findings and typically, you know, the ones that we saw all the time were [Foreign Object Debris], tool control, compliance with the instruction, procedures, you know, just all across the board, you name it.”] [hereinafter “NTSB Interview of James Phoenix”].

<sup>8</sup> See NAT’L TRANS. SAFETY BD., INTERVIEW OF BRYAN KILGROE, MANAGER OF AIR-582 AIRPLANE OVERSIGHT SECTION, FAA, at 369, Docket No. SA-543, Exhibit 11M, [https://data.nts.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20\(1\)\\_Redacted1.pdf](https://data.nts.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20(1)_Redacted1.pdf) [hereinafter “NTSB Interview of Bryan Kilgroe”].

<sup>9</sup> FAA Briefing to PSI Staff (July 25, 2024). The FAA indicated that advance notice of routine audits often is necessary to ensure that audits can begin and end timely and that materials and persons are accessible to the auditors when needed.

<sup>10</sup> See FED. AVIATION ADMIN., ORD. 8120.23A, paras. 2-3, 4-17 (Mar. 6, 2017), [https://www.faa.gov/documentLibrary/media/Order/Order\\_8120.23A\\_change\\_1.pdf](https://www.faa.gov/documentLibrary/media/Order/Order_8120.23A_change_1.pdf). For ease of reference, this memorandum refers to the FAA’s Special Audit Items examination of Boeing and Spirit’s 737 MAX production, the findings of which the FAA reported to Boeing in letter file number EIR2024NM420001, as “the special audit.”

<sup>11</sup> Overview: Safety & Quality Employee Follow-up Survey (May 2024), BOEING\_PSI\_01701435 at BOEING\_PSI\_01701438, Attachment 1 [hereinafter “Boeing Employee Survey”].

<sup>12</sup> *Id.*, Attachment 1.

survey responses were generally more positive, the “[p]ressure to meet schedule [was] relatively consistent for both Managers and individual contributors. . . .”<sup>13</sup>

Not only do the survey responses show that machinists still experience pressure to sacrifice quality, the fact that so many respondents perceived schedule pressure at a time when the FAA capped Boeing’s production of the 737 MAX to 38 aircraft per month emphasizes the extent to which schedule pressure may have impacted safety in years past, including in 2018, when Boeing produced up to 52 airplanes per month.<sup>14</sup>

## TROUBLING FINDINGS OF FAA’S SPECIAL AUDIT OF 737 MAX PRODUCTION

Previously non-public details of the FAA’s 2024 special audit findings reveal the extent of troubling production problems, including Boeing’s struggle to adequately train and equip manufacturing personnel, thoroughly document and control nonconforming parts, and conduct adequate quality inspections. These findings demonstrate an ongoing and persistent struggle by the FAA to ensure that Boeing is maintaining the highest safety standards across its manufacturing facilities.

Following the blowout of a door plug from Alaska Airlines flight 1282 on January 5, 2024, the FAA conducted an SAI examination of Boeing and supplier Spirit AeroSystems’ (“Spirit”) production of the Boeing 737 MAX.<sup>15</sup> The special audit took place between January 8 and February 15, 2024, at Boeing’s 737 factory in Renton, Washington, and Spirit’s factory in Wichita, Kansas.<sup>16</sup> The SAI examination was a 6-week audit, performed by about 35 FAA personnel, for which Boeing was provided approximately 48 hours’ notice.<sup>17</sup> According to the FAA, the special audit “went above and beyond FAA’s standard inspection process.”<sup>18</sup> In February 2024, after completion of the special audit, FAA Administrator Michael Whitaker directed Boeing to develop a comprehensive plan to remedy the special audit’s findings and improve quality and safety;

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<sup>13</sup> *Id.* at BOEING\_PSI\_01701439, Attachment 1.

<sup>14</sup> See Press Release, *FAA Halts Boeing MAX Production Expansion to Improve Quality Control, Also Lays Out Extensive Inspection and Maintenance Process to Allow Boeing 737-9 MAX Aircraft to Return to Service*, FAA (Jan. 24, 2024), <https://www.faa.gov/newsroom/faq-halts-boeing-max-production-expansion-improve-quality-control-also-lays-out-extensive>; Press Release, *Boeing Sets New Airplane Delivery Records, Expands Order Backlog*, Boeing (Jan. 8, 2019), <https://boeing.mediaroom.com/2019-01-08-Boeing-Sets-New-Airplane-Delivery-Records-Expands-Order-Backlog> (“Boeing increased production of the popular 737 in the middle of 2018 to 52 airplanes per month.”).

<sup>15</sup> *Updates on Boeing 737-9 Max Aircraft*, Fed. Aviation Admin. (March 4, 2024), <https://www.faa.gov/newsroom/updates-boeing-737-9-max-aircraft>.

<sup>16</sup> Letter from Director for Integrated Certificate Management Division, Aircraft Certification Service, FAA, to Elizabeth Lund, Senior Vice President of Commercial Airplanes Quality, Boeing, March 7, 2024, File No. EIR2024NM420001 (on file with the Subcommittee) [hereinafter “SAI Letter”].

<sup>17</sup> FAA Briefing to PSI Staff (July 25, 2024).

<sup>18</sup> *Updates on Boeing 737-9 Max Aircraft*, Fed. Aviation Admin. (Aug. 7, 2024), <https://www.faa.gov/newsroom/updates-boeing-737-9-max-aircraft>.

Boeing submitted that plan to the FAA in May 2024 and publicly released an Executive Summary of it.<sup>19</sup>

A March 7, 2024, FAA letter to Boeing obtained by the Subcommittee contains the special audit's numerous findings.<sup>20</sup> The 116-page letter details 21 Spirit allegations of noncompliance and 97 Boeing allegations of noncompliance that span "issues in Boeing's manufacturing process control, parts handling and storage, and product control."<sup>21</sup> As explained below, several of the FAA's special audit findings evidence patterns of problems consistent with whistleblower concerns communicated to the Subcommittee and National Transportation Safety Board ("NTSB") evidence in the Alaska Airlines 1282 investigation. These troubling and recurring safety deficiencies raise questions about the FAA's ability to oversee the quality and safety of Boeing aircraft through effective and lasting enforcement.

#### **a. Boeing struggles to train and equip manufacturing personnel**

Boeing's manufacturing personnel are a critically important driver of aircraft quality and safety.<sup>22</sup> Public reporting and Boeing's manufacturing unions, Districts 751 and W24 of the International Association of Machinists and Aerospace Workers (IAM), have recently called attention to the significant difficulty the company has encountered with hiring, training, and equipping the machinists who engage in the complex work of assembling aircraft.<sup>23</sup> New evidence from the NTSB's investigation of the door plug incident highlights the concerns that FAA officials have regarding Boeing's ability to train and maintain its workforce. One FAA manager who oversees Boeing told the NTSB that his biggest concern with Boeing's production quality systems is the talent and skills the company lost over the course of the pandemic.<sup>24</sup> Another former FAA official told the NTSB that "[Boeing] struggle[s] to hire people. . . and then they struggle to. . . get people trained to have the level of skill necessary to build an airplane, which is a really high level

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<sup>19</sup> *Updates on Boeing 737-9 Max Aircraft*, Fed. Aviation Admin. (Feb. 28, 2024), <https://www.faa.gov/newsroom/updates-boeing-737-9-max-aircraft>; BOEING SAFETY & QUALITY PLAN EXECUTIVE SUMMARY, [https://www.boeing.com/content/dam/boeing/boeingdotcom/safety/Safety-and-Quality-Plan\\_Executive%20Summary-5-30-2024.pdf](https://www.boeing.com/content/dam/boeing/boeingdotcom/safety/Safety-and-Quality-Plan_Executive%20Summary-5-30-2024.pdf) (last visited Sept. 20, 2024).

<sup>20</sup> See generally SAI Letter.

<sup>21</sup> *Updates on Boeing 737-9 Max Aircraft*, Fed. Aviation Admin. (Mar. 4, 2024), <https://www.faa.gov/newsroom/updates-boeing-737-9-max-aircraft>.

<sup>22</sup> See *Boeing's Broken Safety Culture: CEO Dave Calhoun Testifies, Hearing Before the Permanent Subcomm. on Investigations of the S. Comm. on Homeland Sec. and Governmental Affs.*, 118th Cong. (2024), (Written Testimony of David L. Calhoun), <https://www.hsgac.senate.gov/wp-content/uploads/Calhoun-Testimony.pdf>.

<sup>23</sup> See Sharon Terlep, *Boeing's Urgent Mission to Train Thousands of Rookies How to Build an Airplane*, WALL ST. J. (June 10, 2024), <https://www.wsj.com/business/airlines/boeing-planes-safety-jobs-training-ef6873e6>.

<sup>24</sup> NTSB Interview of Bryan Kilgroe at 366.

of skill.”<sup>25</sup> Boeing has acknowledged some of these difficulties and vowed to improve training as part of its comprehensive improvement plan.<sup>26</sup>

The FAA’s fact-finding and interviews conducted as a part of the special audit led the Agency to conclude that Boeing was failing to adequately train machinists:

*During this audit, the FAA conducted multiple interviews with Boeing personnel where competence in training, skills, and experience for employees to effectively perform their assigned tasks was a serious concern. During this audit, the FAA recorded 23 examples. . . where **employees failed to follow processes or lacked proficiency**. Numerous noncompliances found and recorded by the FAA during this special audit show **a lack of competence and ability of the employee to perform their job and assigned tasks**. Additionally, The FAA reviewed Boeing’s root cause statements for recorded FAA compliance actions over the last three years and found “employee proficiency, failing to follow processes” as the highest percentage of causal factors of noncompliance at Boeing. **[Boeing Commercial Aircraft] does not assure that people performing work affecting conformity to requirements have the competence to perform their job. Boeing is failing to ensure many of their employees have the appropriate education, training, skills, or experience to effectively perform their assigned tasks.**<sup>27</sup>*

#### **b. Boeing fails to provide mechanics appropriate tools**

The FAA’s special audit findings show that frontline manufacturing personnel sometimes lacked the tools necessary for a given production task, sometimes leading them to rely on unauthorized and improvised means to perform critical work. The FAA identified several instances where the installation plans that guide mechanics’ work failed to identify the appropriate tool for a necessary step in the prescribed process.<sup>28</sup> For example, the FAA noted, “[Installation Plan] does not contain or provide a tool or tools to complete [the numbered step]. One or more tooling options

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<sup>25</sup> See NTSB Interview of James Phoenix at 639.

<sup>26</sup> See NAT’L TRANS. SAFETY BD., INTERVIEW OF ELIZABETH LUND, SENIOR VICE PRESIDENT, QUALITY, Boeing, at 40-41, 100, <https://data.nts.gov/Docket/Document/docBLOB?ID=17466430&FileExtension=pdf&FileName=11N%20Manufacturing%20Records%20and%20Human%20Performance%20Attachment%2013%20-%20Boeing%20Executive%20Interview%20Transcripts-Rel%20with%20FOD-Rel.pdf> (“As we did this large [post-COVID] hiring event – this large hiring over a period of a couple years our workforce changed then because number 1 is the quantity of employees we hired and number 2, I think the number of our employees coming to us with previous aerospace experience really reduced. . . after COVID with this rapid hiring we got more and more people with no aerospace experience whatsoever.”); BOEING SAFETY & QUALITY PLAN EXECUTIVE SUMMARY 6, [https://www.boeing.com/content/dam/boeing/boeingdotcom/safety/Safety-and-Quality-Plan\\_Executive%20Summary-5-30-2024.pdf](https://www.boeing.com/content/dam/boeing/boeingdotcom/safety/Safety-and-Quality-Plan_Executive%20Summary-5-30-2024.pdf) (last visited Sept. 20, 2024).

<sup>27</sup> Alleged Noncompliance 70, SAI Letter at 107.

<sup>28</sup> See e.g., Alleged Noncompliance 1, SAI Letter at 34.

should be provided to obtain the required measurements.”<sup>29</sup> Another finding describes the use of an improvised measuring device used to check a gap between two components:

*To check the gap the mechanic opened his wallet and produced a 1” segment of 12” scale that he uses to make this measurement as it is hard to use a 6” scale to make this measurement. **This tool is mechanic made, unauthorized, uncalibrated, unmarked, not inventoried or stored. The mechanic has admitted to using this tool for at least 3 years. When asked how other door mechanics take this measurement, he stated they all do the same. I asked the QA inspector if he has witnessed this measurement with this tool and he stated yes. Additionally, the mechanic has been training his trainee and has been passing on this unvalidated legacy knowledge of improper measurements. Boeing quarantined the 1” scale segment. This is another blatant issue of institutional legacy knowledge being utilized. The mechanic stated that they have brought up that they do not have the correct tool to make this measurement with no resolution.***<sup>30</sup>

The special audit documented multiple instances of employees alleging that company leaders failed to act to address their concerns. Mechanics described the lack of resolution for issues involving appropriate installation tools, as described in the previous example, and for issues with written installation plans: one mechanic identified a reference to the wrong section in a plan, he told the FAA he “brought this up to his leadership to be fixed and **has been told by leadership and planning that they don’t have time to fix the [Installation Plan].**”<sup>31</sup> These issues also extended to inspections. Despite being unable to obtain a necessary measurement because of floor configuration, one mechanic was observed marking an operation as complete, without a short stamp or nonconformance report, because it “gets checked at the final door check.”<sup>32</sup> The individual told the FAA that “**this has been brought to the attention of leadership with no resolution.**”<sup>33</sup>

A separate and internal Boeing survey of 737 employees from spring of 2024 suggests many machinists may be familiar with the kinds of training and tool problems identified in the FAA’s special audit.<sup>34</sup> According to a summary of the results, **36% of respondents provided neutral or unfavorable answers to the statement, “I am provided the training I need to maintain quality standards.”**<sup>35</sup> When considering the availability of necessary resources, **37% of respondents provided neutral or unfavorable answers to the statement, “I have the tools and materials I need to successfully complete my work.”**<sup>36</sup>

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<sup>29</sup> Alleged Noncompliance 1, SAI Letter at 34.

<sup>30</sup> Alleged Noncompliance 8, SAI Letter at 48.

<sup>31</sup> Alleged Noncompliance 4, SAI Letter at 43.

<sup>32</sup> Alleged Noncompliance 5, SAI Letter at 44.

<sup>33</sup> *Id.*

<sup>34</sup> See Boeing Employee Survey at BOEING\_PSI\_01701438, Attachment 1.

<sup>35</sup> *Id.*, Attachment 1.

<sup>36</sup> *Id.*, Attachment 1.



### **c. Systemic failure to document and control nonconforming parts**

The FAA’s special audit findings from 2024 reinforce Boeing’s systemic failure to document and control nonconforming parts. In particular, several special audit findings cite instances of Boeing struggling to effectively secure, accurately document, and appropriately disposition nonconforming parts.

The tracking and disposition of aircraft parts that do not conform to their quality or design specifications is heavily regulated, and criminal penalties apply to knowing or intentional falsification, concealment, or materially fraudulent misrepresentation in connection with records documenting the disposition of aircraft parts.<sup>37</sup> Aircraft manufacturers are required to maintain a written quality system that includes “[p]rocedures to ensure that only products or articles that conform to their approved design are installed on a type-certificated product. These procedures must provide for the identification, documentation, evaluation, segregation, and disposition of nonconforming products and articles. Only authorized individuals may make disposition determinations.”<sup>38</sup> Aircraft manufacturer quality systems must also prescribe “[p]rocedures to ensure that discarded articles are rendered unusable.”<sup>39</sup> At Boeing, when parts are deemed “nonconforming,” they are marked with a red tag or red paint and stored in a secure area of the factory called the Material Review Segregation Area (“MRSA”).<sup>40</sup> As discussed in PSI’s June 17, 2024 Preliminary Memorandum to Members, when procedures for controlling nonconforming aircraft parts are not effectively implemented, an aircraft manufacturer incurs an elevated risk of nonconforming parts being installed on aircraft, potentially leading to failure of the nonconforming component.<sup>41</sup>

Whistleblower reports, FAA enforcement actions, and recent FAA officials’ testimony before the NTSB indicate that Boeing continues to struggle with systemic mismanagement of nonconforming parts. As the Subcommittee reported on June 17, whistleblower Sam Mohawk alleged widespread and persistent nonconforming part mismanagement that risks nonconforming parts being installed on production aircraft at Boeing’s Renton, Washington, facility.<sup>42</sup> Whistleblowers Merle Meyers and John Barnett raised similar concerns about nonconforming

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<sup>37</sup> See 14 C.F.R. § 21.137; 18 U.S.C. § 38.

<sup>38</sup> 14 C.F.R. § 21.137(h)(1).

<sup>39</sup> *Id.* § 21.137(h)(2).

<sup>40</sup> See Complaint (AIR2-21), *Mohawk v. Boeing Co.*, 2 (U.S. Dep’t of Lab. Occupational Safety and Health Admin., June 11, 2024), Attachment 1, Memorandum from the Permanent Subcomm. on Investigations to Subcomm. members (June 17, 2024), <https://www.hsgac.senate.gov/wp-content/uploads/2024.06.17-PSI-Majority-Staff-Memorandum.pdf>; *Warning Bells with Ed Pierson, Episode 20: Sacred Parts?* (Sept. 19, 2024) <https://www.edpierson.com/podcast> (explaining the tracking, isolation, and disposition of nonconforming parts).

<sup>41</sup> See Barnett Dep. Vol. 2, *Barnett v. Boeing Co.*, 2021-AIR-00007, 13, 17 (U.S. Dep’t of Lab. Mar. 7, 2024), Attachment 4, Memorandum from the Permanent Subcomm. on Investigations to Subcomm. members (June 17, 2024), <https://www.hsgac.senate.gov/wp-content/uploads/2024.06.17-PSI-Majority-Staff-Memorandum.pdf>.

<sup>42</sup> Memorandum from the Permanent Subcomm. on Investigations to Subcomm. members 3 (June 17, 2024), <https://www.hsgac.senate.gov/wp-content/uploads/2024.06.17-PSI-Majority-Staff-Memorandum.pdf>.

parts mismanagement at Boeing's Everett, Washington, and Charleston, South Carolina, facilities.<sup>43</sup> In 2013, the FAA proposed a \$2.75 million fine against Boeing stemming from the installation of nonconforming fasteners on 777 aircraft.<sup>44</sup> In 2021, the FAA settled several enforcement actions against Boeing, requiring the company to pay at least \$17 million in penalties, in part for installing nonconforming wing components on 178 of its 737 MAX aircraft.<sup>45</sup> And, in August 2024, three nonconforming components were found in aircraft that were delivered to customers.<sup>46</sup> Similarly, FAA officials identified ongoing risks and problems related to nonconforming parts in testimony before the NTSB's inquiry into the Alaska Airlines 1282 incident.<sup>47</sup>

According to the FAA's special audit findings, within two MRSA facilities at Boeing's Renton, Washington, facility, the FAA's special audit found an "**absence of process control for scrap articles** that left the secure Material Review Segregation Area until rendered unusable."<sup>48</sup> The FAA alleged: "**No process was identified that details the requirements for the Reclamation area to control scrap articles until rendered unusable.**"<sup>49</sup> The FAA also faulted Boeing's procedures for "not provid[ing] requirements to ensure discarded products are rendered unusable as stated in [Boeing's Quality Manual]."<sup>50</sup> Within the same MRSA areas, the FAA noted parts that "did not have a defective part reorder tag...or an attached copy of the scrap

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<sup>43</sup> *Id.* at 4-7.

<sup>44</sup> Dominic Gates, *Boeing parts issues continue*, SEATTLE TIMES, July 27, 2013, at A7, <https://plus.lexis.com/api/permalink/f5c6cdd8-8a2a-42a5-be20-3a176f2a7127/?context=1530671&federationidp=Q6FT9956370>; U.S. FAA proposes \$2.75 mln quality control fine on Boeing, REUTERS (July 26, 2013), <https://www.reuters.com/article/business/u-s-faa-proposes-2-75-mln-quality-control-fine-on-boeing-idUSDEE96P0GA/>.

<sup>45</sup> Press Release, *Boeing to Pay at Least \$17 Million to Settle Enforcement Cases on 737*, FAA (May 27, 2021), <https://www.faa.gov/newsroom/boeing-pay-least-17-million-settle-enforcement-cases-737?newsId=26144>.

<sup>46</sup> Kristin Goodwillie, *Problematic parts discovered in several Boeing passenger planes*, KING5 (Aug. 8, 2024), <https://www.king5.com/article/tech/science/aerospace/boeing/problematic-parts-discovered-boeing-passenger-planes-renton/281-ffec885-aa8d-4c37-9d6b-bb1507a518a1>.

<sup>47</sup> See e.g., NAT'L TRANS. SAFETY BD., INTERVIEW OF CHARLES PRIOR, FAA SENIOR AVIATION SAFETY INSPECTOR, FAA, at 736, Docket No. SA-543, Exhibit 11M, [https://data.ntsb.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20\(1\)\\_Redacted1.pdf](https://data.ntsb.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20(1)_Redacted1.pdf) ("Q. . . . What are the other areas besides FOD that you're finding that have systemic findings? A. There's handling and storage of finished product, what we call the material review board cages, they call them MRC cages, where they have product that's awaiting a disposition from engineering. So, they're required to control those nonconforming parts. That's another area."); NAT'L TRANS. SAFETY BD., INTERVIEW OF JESSE CANTU, SENIOR AVIATION SAFETY INSPECTOR, FAA, at 242-43, Docket No. SA-543, Exhibit 11M, [https://data.ntsb.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20\(1\)\\_Redacted1.pdf](https://data.ntsb.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20(1)_Redacted1.pdf) ("We have risk for parts that are being received to the Boeing Company which I understand is supplier quality but there are escapements that are occurring that are making it to the ticketing operations that we're finding.").

<sup>48</sup> Alleged Noncompliance 9, SAI Letter at 49.

<sup>49</sup> Alleged Noncompliance 9, SAI Letter at 49.

<sup>50</sup> Alleged Noncompliance 10, SAI Letter at 49.

[Nonconformance Record].”<sup>51</sup> Another finding identified at least one MRSA, specifically a “tool cabana” within the Renton facility, was “**not locked with labeled part stored inside.**”<sup>52</sup> In another tool cabana, “MRSA parts [were] **improperly marked [with] defective parts tag.**”<sup>53</sup> Several of the alleged nonconformances, the FAA explained, conflict with Boeing’s own procedures, which require “Nonconforming product [to be] identified, documented, evaluated, dispositioned and segregated whenever practical; otherwise it [must be] controlled to preclude unintended use or installation on [an aircraft in production].”<sup>54</sup>

The FAA’s review of certain Boeing procedures identified deficiencies that point to more systemic nonconforming part-related problems. For example, the FAA found that at least one procedure for reallocating parts from one aircraft in production to another aircraft production did not require personnel to make sure that the part in question was not deemed nonconforming.<sup>55</sup> As the FAA explained, “**there’s a process gap in BPI-3224**” because it includes “**no requirement to check and verify non-conformances on parts planned to be reallocated.**”<sup>56</sup> In another case, the FAA noted two procedure documents “**do not correctly reflect the [regulatory] requirements** for approval of minor changes to type design” in the event of minor nonconforming products.<sup>57</sup> Further, after interviewing several Material Review Board (MRB) engineers, responsible for determining the disposition of nonconforming products, the FAA “**determined that the MRB engineers lacked a comprehensive understanding**” of regulatory requirements and “**were not qualified to perform a major/minor classification** of the non-conformances encountered during airplane production.”<sup>58</sup>

The FAA’s special audit also found instances when Boeing procedures appeared to violate federal regulations requiring document retention. Thorough and accurate documentation plays a key role in effectively managing nonconforming parts.<sup>59</sup> To this end, federal regulations require that “[q]uality and manufacturing business records for the articles and/or products that Boeing is authorized to produce. . . must be maintained for a minimum of a calendar year+10 years. . . .”<sup>60</sup> But during its audit of one MRSA area at the Renton facility, the FAA found that at least one “scrap nonconformance record. . . could not be retrieved” despite the requirement that the record be “retained per Boeing Quality Manual.”<sup>61</sup> Upon further inquiry, the FAA determined that “**Boeing Process Instruction (BPI)-1199 incorrectly allows Quality [personnel] to delete a quality**

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<sup>51</sup> Alleged Noncompliance 9, SAI Letter at 49.

<sup>52</sup> Alleged Noncompliance 11, SAI Letter at 64.

<sup>53</sup> Alleged Noncompliance 11, SAI Letter at 64.

<sup>54</sup> Requirement 9, SAI Letter at 48.

<sup>55</sup> See Alleged Noncompliance 57, SAI Letter at 97.

<sup>56</sup> Alleged Noncompliance 57, SAI Letter at 97.

<sup>57</sup> Alleged Noncompliance 76, SAI Letter at 113.

<sup>58</sup> Alleged Noncompliance 61, SAI Letter at 100.

<sup>59</sup> See 14 C.F.R. § 21.137(h)(1) (Nonconforming product and article control “procedures must provide for the identification, documentation, evaluation, segregation, and disposition of nonconforming products and articles.”).

<sup>60</sup> Requirement 2, SAI Letter at 40; see 14 C.F.R. § 21.137(k).

<sup>61</sup> Alleged Noncompliance 2, SAI Letter at 40.

record. . . .”<sup>62</sup> Thus, according to the FAA, BPI-1199 violated federal regulations requiring document retention by allowing personnel to delete some records before the expiration of their prescribed retention period.

**d. Quality inspections may not always be performed by qualified and independent personnel**

The FAA’s special audit findings revealed ongoing failures to ensure that quality inspections are performed consistently by qualified and independent personnel.

Quality inspections are legally mandated and critical to the safe manufacturing and performance of airplanes.<sup>63</sup> FAA regulations require aircraft manufacturers to maintain a quality management system “that ensures that each product and article conforms to its approved design and is in a condition for safe operation.”<sup>64</sup> Among other requirements, that system must include “[p]rocedures for inspections and tests” and “[p]rocedures for documenting the inspection and test status . . . .”<sup>65</sup> Importantly, after manufacturers establish and secure FAA approval for those procedures, they are required to “[m]aintain the quality system in compliance with” those established procedures.<sup>66</sup> Those procedures usually involve employees on quality teams performing inspections and, ultimately, formally signing off once they are comfortable that work on the aircraft is completed correctly and in conformance (called “acceptance”).<sup>67</sup> Because each airplane produced must conform to the FAA-approved design, quality inspections are crucial to mitigating the risk that manufacturers could sell airplanes that vary from the approved design in potentially unsafe ways.<sup>68</sup>

Problems with Boeing’s quality inspections date back years. The FAA identified quality inspection deficiencies at Boeing as early as 2017.<sup>69</sup> As the Subcommittee reported on June 17, Boeing appears to have implemented a series of actions to reduce the burden and time of aircraft quality inspections, including by eliminating 900 quality inspectors in 2019 and 2020.<sup>70</sup> According to the FAA, under the program called “Verification Optimization,” Boeing assigned quality inspections to manufacturing personnel that, although not part of Boeing’s quality department,

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<sup>62</sup> Alleged Noncompliance 2, SAI Letter at 40.

<sup>63</sup> See 14 C.F.R. § 21.137 (requiring that an aircraft manufacturer’s quality system include “[p]rocedures for inspections and tests used to ensure that each product and article conforms to its approved design”).

<sup>64</sup> *Id.*

<sup>65</sup> *Id.* § 21.137(a), (g).

<sup>66</sup> 14 C.F.R. § 21.146(b).

<sup>67</sup> Dominic Gates, *Boeing Overhauls Quality Controls: More High-Tech Tracking but Fewer Inspectors*, SEATTLE TIMES (Jan. 20, 2019), <https://www.seattletimes.com/business/boeing-aerospace/boeing-overhauls-its-quality-controls-more-high-tech-tracking-but-fewer-inspectors/>.

<sup>68</sup> See *supra*, note 63.

<sup>69</sup> See Memorandum from the Permanent Subcomm. on Investigations to Subcomm. members 8-13, *supra* note 4242.

<sup>70</sup> *Id.* at 10.

received “the equivalent level” of training as quality inspectors.<sup>71</sup> In May 2024, an FAA official told the NTSB that, when Boeing initially sought to remove quality inspections, “the FAA spent time telling [Boeing] we don’t care who inspects, we just want it inspected,” but personnel newly-assigned to perform inspections “were not at the same level of skill as their predecessors.”<sup>72</sup> Another FAA official told the NTSB that Boeing’s actions to eliminate quality inspectors and inspections in 2019 and 2020 “could have been impactful” to “the safety or quality of the airplane that’s being produced.”<sup>73</sup>

Between 2017 and 2021, the FAA rejected Boeing’s efforts to allow unauthorized personnel to perform quality inspections.<sup>74</sup> Notably, the FAA’s 2021 letter to Boeing emphasized the importance of firsthand information collection by quality inspectors: “If the quality organization does not witness the functional test, then it cannot verify the accuracy of the information collected.”<sup>75</sup>

The FAA told the Subcommittee that, in response to the 2021 FAA letter highlighted in the Subcommittee’s June 17 preliminary memo, Boeing completed FAA-approved corrective action that resolved the alleged deficiencies, including the FAA’s prior allegations that quality inspections were being performed by unauthorized personnel.<sup>76</sup> Since the FAA’s involvement, Boeing has established a risk assessment process that its quality organization must follow before assigning inspections to manufacturing personnel, the outcome of which must receive secondary approval.<sup>77</sup> In short, the FAA told the Subcommittee that, with respect to assignment of quality inspections, it “didn’t identify any subversion of the rules.”<sup>78</sup> Thus, the FAA told the Subcommittee that no action

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<sup>71</sup> FAA Briefing to PSI Staff (July 25, 2024).

<sup>72</sup> NAT’L TRANS. SAFETY BD., INTERVIEW OF MIKE HAGER, FRONTLINE MANAGER, AIRPLANE OVERSIGHT SECTION AIR-582(A), at 319-20, Docket No. SA-543, Exhibit 11M, [https://data.ntsb.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20\(1\)\\_Redacted1.pdf](https://data.ntsb.gov/Docket/Document/docBLOB?ID=17367826&FileExtension=pdf&FileName=11M%20Manufacturing%20Records%20and%20Human%20Performance%20-%20Attachment%2012%20FAA-Rel%20(1)_Redacted1.pdf).

<sup>73</sup> NTSB Interview of Bryan Kilgroe at 391.

<sup>74</sup> Memorandum from the Permanent Subcomm. on Investigations to Subcomm. members 12, *supra* note 4242.

<sup>75</sup> *Id.*

<sup>76</sup> FAA Briefing to PSI Staff, July 25, 2024; Lori Aratani, *Senators Press Boeing CEO on Safety, Production Breakdowns*, WASH. POST (June 18, 2024), <https://www.washingtonpost.com/transportation/2024/06/18/boeing-ceo-testifies-senate-safety/> (“The agency Tuesday said the company began correcting the inspection deficiencies and certified that Boeing resolved them last year.”). At least one Boeing senior executive has admitted, with respect to “verification optimization” (a program wherein Boeing “went about removing [quality] inspections”), “We are undoing much of what was done there is what I will say, we have undone it, and I don’t think that we appropriately controlled and looked at all the risks when they did it.”). NAT’L TRANS. SAFETY BD., INTERVIEW OF ELIZABETH LUND, SENIOR VICE PRESIDENT, QUALITY, Boeing, at 76-77, <https://data.ntsb.gov/Docket/Document/docBLOB?ID=17466430&FileExtension=pdf&FileName=11N%20Manufacturing%20Records%20and%20Human%20Performance%20Attachment%2013%20-%20Boeing%20Executive%20Interview%20Transcripts-Rel%20with%20FOD-Rel.pdf>.

<sup>77</sup> FAA Briefing to PSI Staff (July 25, 2024).

<sup>78</sup> FAA Briefing to PSI Staff (July 25, 2024).

was taken with respect to aircraft in service that underwent inspections carried out by non-quality personnel during manufacturing.<sup>79</sup>

The special audit found ongoing flaws within Boeing's inspection procedures. For example, the FAA found that one quality record "did not contain a conformance determination by a quality inspector" but rather "only contained operation blocks for the machinists to apply a stamp or stamps."<sup>80</sup> According to the manager of the shop that produced that record, "**the shop did not have a quality inspector.**"<sup>81</sup>

The findings also allege that the Boeing Process Instruction (BPI) document that outlines the procedure for performing quality inspections, BPI-2573, permits individuals other than authorized personnel to perform quality inspections or collect data that contribute to those inspections.<sup>82</sup> The FAA alleged:

*FAA review of BPI-2573 found section 3.3 states in part: "data collection may be performed by separate functions in place of the Authorized Personnel". FAA a review [sic] of BPI-2573 found this writing does not define or describe what a separate function is or how it could be used in place of the Authorized Personnel. The FAA requested clarity from the Boeing Company on the definition of the term "separate functions" in BPI-2573. Boeing could not provide a definition or acceptable explanation for the statement "data collection may be performed by separate functions in place of the Authorized Personnel" to the FAA. BPI-2573 section 3.3 circumvents PRO-5103 Section H and Section 2.3 by enabling undefined separate functions to be used in place of Authorized Personnel to perform inspections and tests to make conformance decisions to ensure the processes, products, or services conform to established requirements and FAA-approved Product Definition Data.*<sup>83</sup>

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<sup>79</sup> FAA Briefing to PSI Staff (July 25, 2024).

<sup>80</sup> Alleged Noncompliance 75, SAI Letter at 113. According to the IAM, one Boeing installation plan reviewed by the NTSB as part of its Alaska Airlines 1282 investigation similarly allows for manufacturing personnel (rather than quality personnel) to perform approval of conformance to the approved design. See *NTSB Investigative Hearing - Alaska Airlines flight 1282 (Day 2)*, at 3:54:20, YouTube, <https://www.youtube.com/watch?v=EZuO2dtGVXo>; NAT'L TRANS. SAFETY BD., BOEING INSTALLATION PLAN INSTALLATION OF INSULATION BLANKETS SEC 46 - LEFT, FAA, at 3, Docket No. SA-543, Exhibit 11-S, [https://data.nts.gov/Docket/Document/docBLOB?ID=17466599&FileExtension=pdf&FileName=NTSB%20Public%20Docket%20Request%20-%20IP%20Install%20Blankets%20Sec46%20LH\\_Redacted\\_print-Rel.pdf](https://data.nts.gov/Docket/Document/docBLOB?ID=17466599&FileExtension=pdf&FileName=NTSB%20Public%20Docket%20Request%20-%20IP%20Install%20Blankets%20Sec46%20LH_Redacted_print-Rel.pdf) ("WHEN STAMPING THIS [Installation Plan] COMPLETE, MANUFACTURING IS CONFORMING THE AIRPLANE TO APPROVED DESIGN.").

<sup>81</sup> Alleged Noncompliance 75, SAI Letter at 113.

<sup>82</sup> Alleged Noncompliance 69, SAI Letter at 106-07.

<sup>83</sup> Alleged Noncompliance 69, SAI Letter at 106-07.

Boeing subsequently revised BPI-2573, issuing a new version on June 17, 2024. The FAA told the Subcommittee that it approved Boeing’s June 17 revision of BPI-2573.<sup>84</sup> The revision does not appear to clearly address the substance of FAA’s concern—that the document could enable someone other than authorized personnel to perform inspections and tests.

The January 30, 2024, version of BPI-2573 reviewed by the FAA in March 2024, states:

*When performing an inspection, data collection may be performed by separate functions in place of the Authorized Personnel. In these instances, the transfer of data to the Authorized Personnel is the act of ‘obtaining evidence.’<sup>85</sup>*

The revised June 17, 2024, version of the same document states:

*Authorized Personnel can obtain evidence from data collected by other personnel, including, but not limited to mechanics and the utilization of specialized equipment, (e.g., CAMS, Automation Drilling -Diameter Probe, Bond and Ground Resistance).<sup>86</sup>*

A notation in the revised version suggests that the new language does not necessarily modify the substance of the provision in question. It explains that “[t]his administrative revision [was made] for data collection clarity.”<sup>87</sup> Moreover, it is not clear how Boeing’s revised language aligns with Boeing’s procedures defining the responsibility of the “Quality” department to “[a]ssign or delegate responsibility to perform inspections or tests to Authorized Personnel.”<sup>88</sup> According to IAM, the ambiguity of language used in the current version of BPI-2573 and prior versions allow unauthorized personnel to perform quality inspections.<sup>89</sup>

The special audit’s concern with reassignment of quality inspections also raises questions about whether the FAA sets sufficient expectations for inspector independence, a problem raised

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<sup>84</sup> FAA Briefing to PSI Staff 9 (July 25, 2024).

<sup>85</sup> Business Process Instruction BPI-2573, Jan. 30, 2024, BOEING\_PSI\_01699766 at BOEING\_PSI\_01699773 (on file with the Subcommittee).

<sup>86</sup> Business Process Instruction BPI-2573, June 17, 2024, BOEING\_PSI\_01699795 at BOEING\_PSI\_01699802 (on file with the Subcommittee).

<sup>87</sup> *Id.* at BOEING\_PSI\_01699796 (on file with the Subcommittee).

<sup>88</sup> Procedure PRO-5103, Jan. 27, 2024, BOEING\_PSI\_01699860 at BOEING\_PSI\_01699864 (on file with the Subcommittee).

<sup>89</sup> See *NTSB Investigative Hearing - Alaska Airlines flight 1282 (Day 2)*, at 3:17:00, YouTube (Aug. 7, 2024), <https://www.youtube.com/watch?v=EZuO2dtGVXo> (Mr. Catlin: “The inspections were put back on but there was nothing done to address the airplanes that were built without the inspections. Now, today. . .are we going to see this happen again? It’s in the process right now. BPI-2573 has been revised twice this year to add a note into 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 . . .”).

by whistleblowers including John Barnett.<sup>90</sup> The FAA told the Subcommittee that in some fabrication and sub-assembly aspects of Boeing’s production in Puget Sound and Salt Lake City, Utah, facilities, **Boeing personnel are allowed to inspect the quality of their own work.**<sup>91</sup> The FAA acknowledged that manufacturing personnel inspecting the quality of their own work **appeared to pose an inherent conflict of interest**, but that “if you have the right controls around the training and surveillance, it could also be successful.”<sup>92</sup> Similarly, in certain circumstances at its 787 production facility in Charleston, South Carolina, Boeing allows mechanics that have special training to sign-off on the quality of the work of fellow mechanics.<sup>93</sup> The FAA told the Subcommittee that such inspections are conducted only when necessary, such as during a holiday period when more quality inspectors are taking vacation leave.<sup>94</sup>

#### **e. Boeing’s procedures are not consistent with FAA notice requirements**

The FAA’s special audit findings also highlight one procedural deficiency that could have contributed to FAA’s lack of insight into Boeing’s production system prior to the door plug incident.<sup>95</sup> The findings alleged that Boeing procedures did not sufficiently require Boeing to inform the Agency of changes that could impact inspections. According to the special audit findings, the language in Boeing’s Quality Manual did not sufficiently require the company to “immediately notify the FAA, in writing, of any change that may affect the inspection, conformity, or airworthiness of its product or article[,]” as required by regulation.<sup>96</sup> Specifically, “The addition of the word ‘documentation changes’ in the [Boeing Quality Manual] Section 7.5.2 changes the intent of 14 CFR § 21.150 of ‘any change that may affect the inspection’ to only document changes that may affect the inspection of the product need FAA notification.”<sup>97</sup> Contrary to Boeing’s policy, the regulatory requirement to immediately notify the FAA of changes “applies to the Quality System as a whole and not to the documents or writings alone.”<sup>98</sup>

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<sup>90</sup> See Barnett Dep. Vol. 1, Barnett v. Boeing Co., 2021-AIR-00007, 51-52 (U.S. Dep’t of Lab. Mar. 7, 2024), Attachment 3, Memorandum from the Permanent Subcomm. on Investigations to Subcomm. members (June 17, 2024), <https://www.hsgac.senate.gov/wp-content/uploads/2024.06.17-PSI-Majority-Staff-Memorandum.pdf>.

<sup>91</sup> FAA Briefing to PSI Staff (July 25, 2024).

<sup>92</sup> FAA Briefing to PSI Staff (July 25, 2024).

<sup>93</sup> FAA Briefing to PSI Staff (July 25, 2024).

<sup>94</sup> FAA Briefing to PSI Staff (July 25, 2024).

<sup>95</sup> See *FAA Aviation Manufacturing Oversight: Hearing Before the S. Comm. on Com., Sci., and Transp.*, 118th Cong. (2024), <https://plus.cq.com/doc/congressionaltranscripts-8032691?0> (Mr. Whitaker: “Let me also acknowledge that the FAA should have had much better visibility into what was happening at Boeing before January 5th.”).

<sup>96</sup> See 14 C.F.R. § 21.150(b).

<sup>97</sup> Alleged Noncompliance 43, SAI Letter at 86-87.

<sup>98</sup> Alleged Noncompliance 43, SAI Letter at 86-87.



# Attachment 1

# Exhibit 39



# Overview: Safety & Quality Employee Follow-up Survey




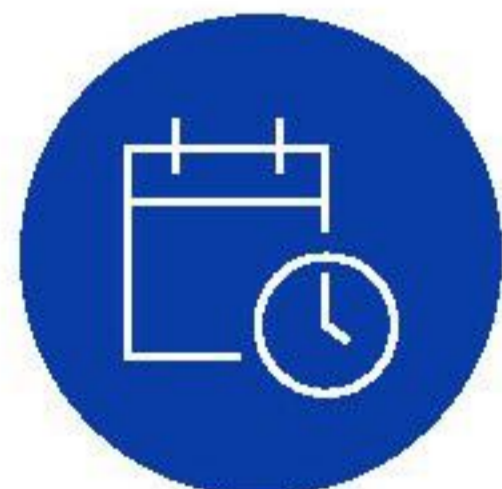

FAA report out

May 2024

# Overview: Safety & Quality Employee Follow-up Survey

## Key survey information

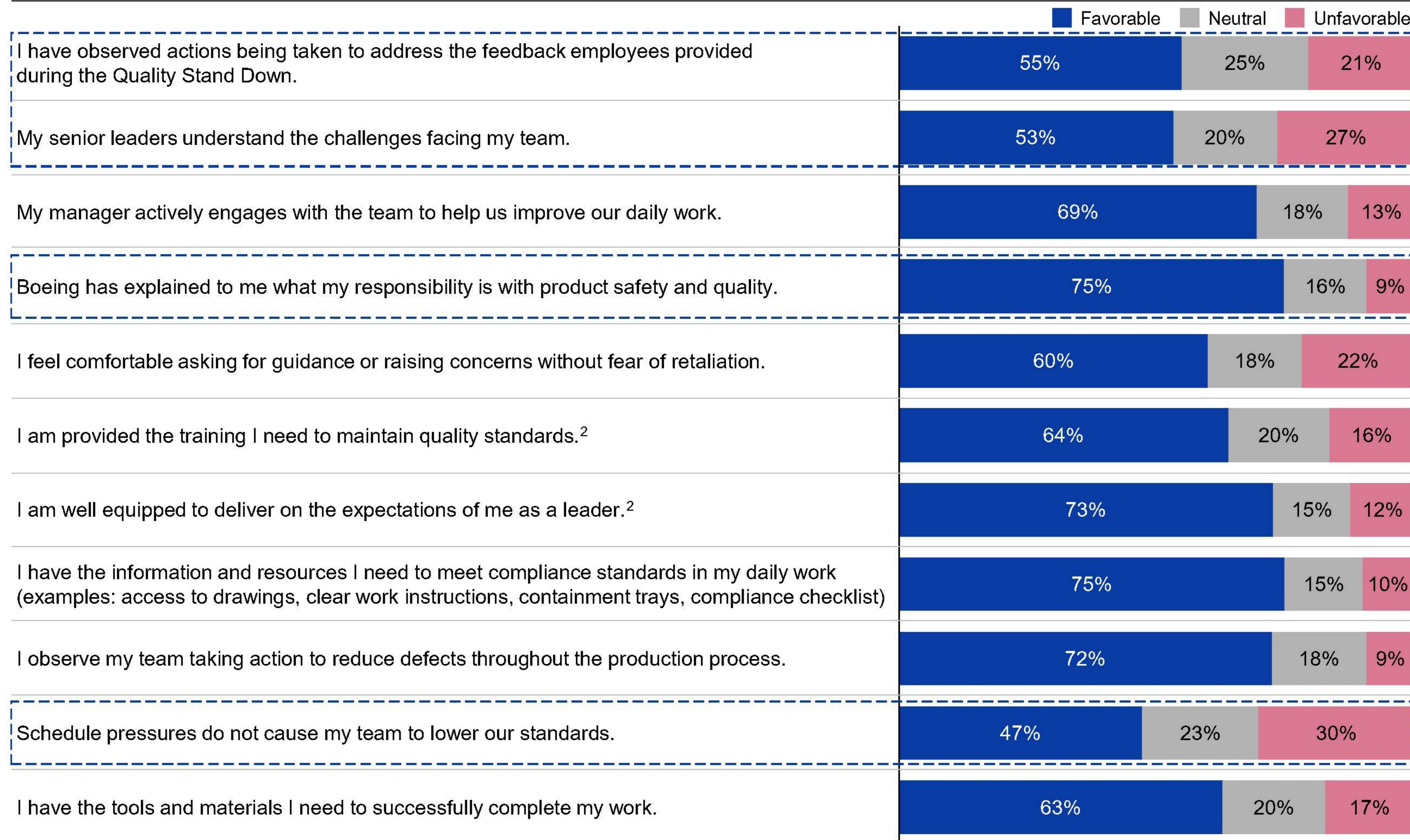
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	<b>Objectives:</b>	<ul style="list-style-type: none"><li>• Gauge employee perception of how Boeing is improving post Quality Stand Downs (QSDs)</li><li>• Continue to engage with shop floor employees and managers to gather their feedback</li></ul>
	<b>Target audience:</b>	<ul style="list-style-type: none"><li>• Individual contributors and managers within the Manufacturing, Quality, and Fulfillment organizations across BCA</li></ul>
	<b>Deployment plan:</b>	<ul style="list-style-type: none"><li>• BCA-wide to all sites at least 90 days after initial QSD (initial survey launch with 737)</li><li>• Survey sent via Boeing emails; employees can access the survey via computers at their desks or shared computers on shop floor and complete during their shift</li></ul>
	<b>Survey questions:</b>	<ul style="list-style-type: none"><li>• <b>10 questions</b> that address key areas from QSD feedback and the Comprehensive Product Safety &amp; Quality Plan (CPS&amp;QP)</li><li>• <b>1 open-ended question</b> for additional feedback</li></ul>
	<b>Cadence:</b>	<ul style="list-style-type: none"><li>• To be <b>repeated quarterly</b> for next 12-18 months</li></ul>

# Safety & Quality Employee Follow-up Survey

☐ Key takeaways

Overall survey results for 737<sup>1</sup>; % of respondents



1. Safety and Quality Employee Follow-up Survey included all shop floor team members and leaders for the Manufacturing, Quality, and Fulfillment orgs.  
2. Training survey questions were split by respondent type (individual contributor vs. manager); only a subset of the overall pop. surveyed responded to these questions

## Survey details

Total population surveyed was **~10,000 employees** across Manufacturing, Quality, and Fulfillment orgs; overall survey **response rate was ~21%**

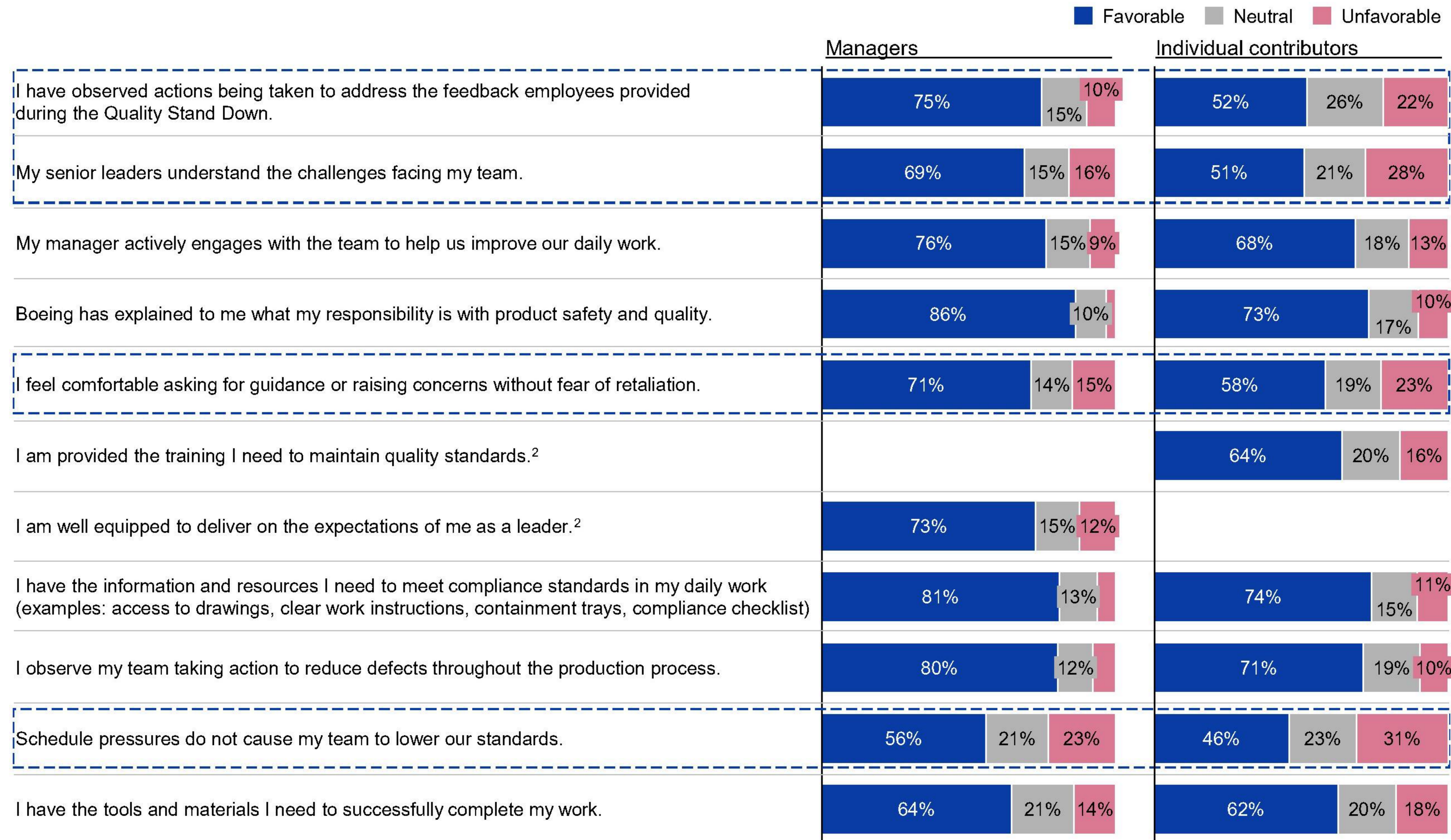
## Key takeaways

- **~55% of employees agreed that actions are being taken** to address QSD feedback
- **Management engagement remains a challenge** with ~50% of employees feeling managers understand challenges facing teams
- **~75% of employees understand their responsibility** as it relates to product safety and quality
- **Schedule pressure is still significant**, with <50% of employees stating it does not cause teams to lower standards

# Safety & Quality Employee Follow-up Survey

Key takeaways

## Overall survey results by Mgr. & Individual Contributors for 737<sup>1</sup>; % of respondents



### Survey details

**Managers:** total population of ~800 with a response rate of ~35%

**Individual contributors:** total population of ~9,000 with a response rate of ~20%

### Key takeaways

- There is a substantial difference between managers and individual contributors on 2 topics
  - Managers are ~25% more positive on the actions taken to address feedback from QSDs
  - Managers are ~20% more positive on senior leaders understanding teams' challenges
- Individual contributors are ~15% less comfortable raising concerns
- Pressure to meet schedule is relatively consistent for both Managers and Individual contributors at ~50% agreement

1. Safety and Quality Employee Follow-up Survey included all shop floor team members and leaders for the Manufacturing, Quality, and Fulfillment orgs.  
2. Training survey questions were split by respondent type (individual contributor vs. manager); only a subset of the overall pop. surveyed responded to these questions



## Next steps

- **Collaborate with 737 program** to complete detailed survey analysis and develop initiatives to action target areas for improvement
- Develop **survey launch plan for next sites** including 777 and first phase of Fabrication sites
- Continue to **aggregate and evaluate BCA wide** survey response data
- **Repeat Safety and Quality survey every quarter** to assess on-going progress made in actioning Quality Stand Down feedback