FAA Aviation Safety

REPORT TO CONGRESS:

Annual Safety Incident Report

Fifth Annual Submission

FAA Reauthorization Act of 2018 (Pub. L. No. 115-254) – Section 325

Executive Summary

The Federal Aviation Administration (FAA) provides this fifth submission of its Annual Safety Incident Report to Congress regarding Title 14 of the Code of Federal Regulation (14 CFR) part 121 airline safety oversight in accordance with the requirement under Section 325 of the FAA Reauthorization Act of 2018 (the Act).[1] This report, which covers Fiscal Year (FY) 2023,[2] describes the FAA's primary safety oversight process, known as the Safety Assurance System (SAS), which is used to monitor the safety of the National Airspace System (NAS).

This report also includes detailed information on how the FAA utilizes risk-based decision-making (RBDM) to build on current safety management principles and address certificate holder safety risks. RBDM requires tools to data mine all facets of information available. Tools mentioned in this report include the SAS, the Interim Certificate Holder Priority Index (ICPI), Risk Profile Assessment Tool (RPAT), Service Difficulty Reporting (SDR), the Emergency Operations Network (EON), the Voluntary Disclosure Reporting Program (VDRP), the Program Tracking and Reporting Subsystem (PTRS), Pilot Deviation (PD) data, enforcement and compliance actions, and the Quality Management System. These tools provide a comprehensive data package that covers various aspects of oversight of operations under part 121 such as:

- Monitoring organizational trends and maintenance issues;
- Tracking accidents and incidents in near real-time;
- Supporting voluntary reporting; and
- Identifying the need for additional inspection items covered by existing regulations.

FAA aviation safety inspectors (ASI) monitor part 121 air carriers on a continuous basis. Each air carrier is subject to recurrent reviews of the performance of its safety programs. During the period covered in this report, the FAA's planned inspection results did not warrant any cases where the timelines for recurrent reviews were advanced.

[1] Public Law 115-254

[2] October 1, 2022 – September 30, 2023

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Legislative Mandate

Section 325 of the Act requires:

(a) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, and annually thereafter for 5 years, the Administrator, shall submit to the appropriate committees of Congress a report regarding part 121 airline safety oversight.

(b) CONTENTS.—The annual report shall include—

(1) a description of the Federal Aviation Administration's safety oversight process to ensure the safety of the traveling public;
(2) a description of risk-based oversight methods applied to ensure aviation safety, including to comment - specific issues addressed in the year preceding the report that in the determination of the Administrator address safety risk; and
(3) in the instance of specific reviews of air carrier performance to safety regulations, a description of cases where the timelines for recurrent reviews are advanced.

The content of this report fulfills the requirements of Section 325. Additionally, the reporting requirement under Section 315 of the FAA Modernization and Reform Act of 2012,[3] which requires that the FAA annually submit a report on the Flight Standards Evaluation Program (FSEP) to Congress, falls within and is subsumed by this report. Thus, the content previously provided in accordance with the FSEP reporting requirement now is provided through this Section 325 report.

Safety Oversight Process

The FAA's primary oversight system is the Safety Assurance System (SAS). SAS is an oversight tool used to perform certification and surveillance, and to ensure continued operational safety inspections for all commercial operations. SAS includes policy, processes, and associated software that aids the Agency in resource and oversight planning. SAS does not represent a separate safety standard and does not impose additional requirements on certificate holders.

The FAA implemented SAS to standardize the oversight of certificate holders or applicants under 14 CFR parts 121, 135, and 145. SAS is based on system safety principles, safety attributes, and risk management to identify hazards and prevent loss of life, equipment, and other property. The design of SAS is based on the following three roles:

1. **Initial Certification -** The role of Initial Certification is to assess whether applicants can conduct business in compliance with the applicable regulations.
2. **Continued Operational Safety (COS)** - The role of COS includes the functions of routine surveillance and certificate management. The purpose of this function is to assess a certificate holder's ongoing compliance with regulatory standards and management of risk.
3. **Assurance Support** - The role of Assurance Support is to keep the SAS program current and complete, which includes maintaining Data Collection Tools (DCT), automation version control, and feedback.

Air carriers have a statutory duty to provide service with the highest degree of safety in the public interest. SAS is a means by which the FAA determines whether air carriers fulfill that duty. SAS supports the

[3] Public Law 112-95 (Feb. 14, 2012)

implementation of official policy designed to ensure that air carriers, other business organizations, and individuals comply with regulations and other safety controls that apply to them.

The FAA uses SAS in meeting five primary responsibilities to ensure safety.

1. Verify that an applicant seeking certification from the FAA can operate safely and comply with the regulations and standards before issuing a certificate and approving or accepting programs.[4]
2. Conduct periodic reviews to verify that a certificate holder continues to meet regulatory requirements when the operating environment changes.
3. Validate the performance of a certificate holder's approved and accepted programs for the purpose of COS.
4. Identify regulatory noncompliance or safety issues and validate the effectiveness and timeliness of associated corrective action.
5. If a noncompliance or safety issue exists, use the most effective means to return an individual or entity that holds an FAA certificate, approval, authorization, license, or permit to full compliance and to prevent recurrence.

These responsibilities, as well as information on SAS policy, concepts, and principles, are outlined in FAA Order 8900.1, Volume 10 of the Flight Standards Information Management System.[5]

Risk-Based Oversight Methods

The FAA has adopted several strategic goals under Risk-Based Decision-Making (RBDM) to ensure safety in the NAS.[6] RBDM is the use of consistent, data-informed approaches to enable the FAA to make smarter, system-level, risk-based decisions. It emphasizes the review of safety data to integrate the assessment of risk into decision-making processes; enabling informed decision making. These goals build on current safety management principles and proactively address emerging safety risks. The FAA is taking advantage of the growing availability of safety data and the development of powerful analytical tools that will integrate safety risk into decision-making processes. Specifically, the FAA is developing policies, procedures, and systems to collect safety-related data in a consistent way across the Agency and throughout the aerospace industry. Additionally, the FAA is leveraging industry's use of safety management principles and exchanging safety management lessons learned and best practices for using this data to make informed, proactive safety decisions based on identified risks. The FAA will continue to evolve the oversight model to target resources to the highest level of risk, improve standardization and data access, and incorporate risk model interoperability to enhance decision-making across the Agency.

Integrated Oversight Philosophy

The FAA Integrated Oversight Philosophy identifies principles for evolving the safety oversight systems to better position the FAA to meet the challenges of a rapidly evolving U.S. aerospace system. The philosophy supports RBDM by leveraging the use of consistent, data-informed approaches to enable the FAA to make smarter, system-level, risk-based decisions.

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[4] Approval is granted by letter, by a stamp of approval, by the issuance of OpSpecs/MSpecs/TSpecs/LOA, or by some other official means of conveying approval. Acceptance of an operator's proposal may be accomplished by various means, including a letter, or by taking no action, which indicates there is no FAA objection to the proposal. available at https://drs.faa.gov/browse/excelExternalWindow/DRSDOCID1958176267202307072224456.0001

[5] Dynamic Regulatory System- Volume 10: Safety Assurance System Policy and Procedure, Chapter 1, January 6, 2022, *available at* https://drs.faa.gov/browse/excelExternalWindow/DRSDOCID1958176267202307072224456.0001

[6] FAA Strategic Plan, FY 2019-2022, *available at* https://www.faa.gov/about/plans_reports/media/FAA_Strategic_Plan_Final_FY2019-2022.pdf

Integrated Oversight Philosophy applies to the safety oversight programs of all FAA organizations that have regulatory oversight responsibilities. The policy embraces many interdependent principles including RBDM, Safety Management Systems, the FAA Compliance Program, and voluntary safety reporting programs. The FAA recognizes that safety oversight programs are an integral part of the safety culture. Evolving those programs and the FAA's oversight model supports the movement toward a safety management framework that collectively helps to define the safety culture.

Addressing Safety Risk with RBDM

The FAA continues to maintain the Interim Certificate Holder Priority Index (ICPI), a safety performance and risk factor analysis model. The ICPI is a methodology that evaluates certificate holder safety performance and risk factors to help prioritize part 121, 135, and 145 certificate holders for oversight planning and resource allocation purposes.

The FAA created a centralized website, with more than 1,000 reports and analytical products, to serve as a "one-stop-shop" resource to assist internal stakeholders with information needed to support RBDM and certificate oversight efforts. The FAA Flight Standards analytical community provides in-depth analytical products upon request to internal stakeholders across the Agency. To date, information systems and categories analyzed have included SAS, SDR, EON, VDRP, PTRS, PD data, enforcement and compliance actions, and Quality Management System (QMS) data.

Interim Certificate Holder Priority Index (ICPI)

Flight Standards maintains a safety performance and risk factor analysis methodology known as the ICPI. The ICPI methodology analyzes certificate holder safety performance levels and risk factors for oversight planning and resource allocation purposes. In FY 2019, the FAA introduced the ICPI in phases within the air carrier and general aviation communities.

The ICPI provides a standardized, objective capability for evaluating and prioritizing part 121, 135, and 145 certificate holders based on their safety performance levels and risk factor exposure. It replaces the capabilities of the Safety Performance Analysis System (SPAS) Trend Monitoring Index, Surveillance Priority Index, and Repair Station Analysis Model, which have become obsolete and unusable for prioritization of certificate holders following the implementation of SAS. The ICPI evaluates data in four component subject areas:

- Safety Performance History (Accidents/Incidents/Occurrences/Pilot Deviations/Enforcements);
- Negative Surveillance (AAA Results in SAS);
- Certificate Holder Assessment Tool (CHAT) Risk Indicators (Risk indicators selected by the principal inspector (PI) in SAS CHAT); and
- "Uncertainty" (Lack of recent surveillance, PI changes, age of certificate).

The ICPI algorithm simulates the logical thought processes that an inspector, analyst, or other safety official would apply when evaluating certificate holder safety performance levels, surveillance results, and other risk factors to prioritize certificate holders for surveillance.

Through continuous improvement, the ICPI has provided additional features and improvements. In FY 2023, the ICPI added:

- Flagging Certificate Holders by CFR Part Ranking Percentile.
- PDF Report Generation (Note: It uses a new technique after server updates made the old method of generating PDFs obsolete.)

There were many other updates which were not new features. ICPI consumes data from many data sources and depends on other software packages/modules. Hence, it may need to be updated if any of them change significantly.

Risk Profile Assessment Tool (RPAT)

The PI, Training Center Program Manager (TCPM), or Certification Project Manager (CPM) uses the RPAT to analyze the Certificate Holder Index (CHI) and the Assessment Priority Index (API) which assist with Risk-Based Decision Making (RBDM) and the prioritization of assessments in SAS. The RPAT uses a series of visual reports to help the PI and management understand the API and CHI values associated with a certificate holder. These include:

1. CHI List View. Provides the Risk Profile user with a means to compare multiple CHIs across peer groups and 14 CFR parts.
2. CHI Details View. A Tableau report that breaks down the CHI by component and factor to assist the PI in understanding how they contribute to the CHI. This report also provides an indicator when the risk model has changed.
3. CHI Scorecard. Provides a detailed breakdown of the CHI value at the component and factor levels and provides a list of the specific events that contribute to the “Safety Performance History” risk factors.
4. API List View. Provides the Risk Profile user with a means to compare the APIs of all assessments.
5. API Details View. Displays a breakdown of the API by component. It also includes historical API values and trend information.
6. API Scorecard. Provides a detailed breakdown of the factors that contribute to the API for each assessment.

Similarities and Differences between the ICPI and RPAT CHI Models

While some may question why Flight Standards uses more than one risk quantification model, it is quite common for scientific and analytic functions to utilize multiple models in forecasting, planning, and other decision-making processes. For example, meteorologists around the world use a variety of different models in their efforts to forecast the weather and predict storm tracks. RPAT CHI and ICPI each provide value and will be available to AFS users to support risk-based decision making.

The RPAT CHI and the ICPI’s default “Additive” model have a similar conceptual framework and the two models generate their results from many of the same data sets. Because of these similarities, the relative risk levels and associated priority placements generated by the two models may often be very comparable. However, the data inputs of the RPAT CHI and ICPI are not identical, and the risk quantification algorithms of the two models are built around distinctly different thought processes and assumptions.

Certificate Holder Evaluation Process (CHEP)

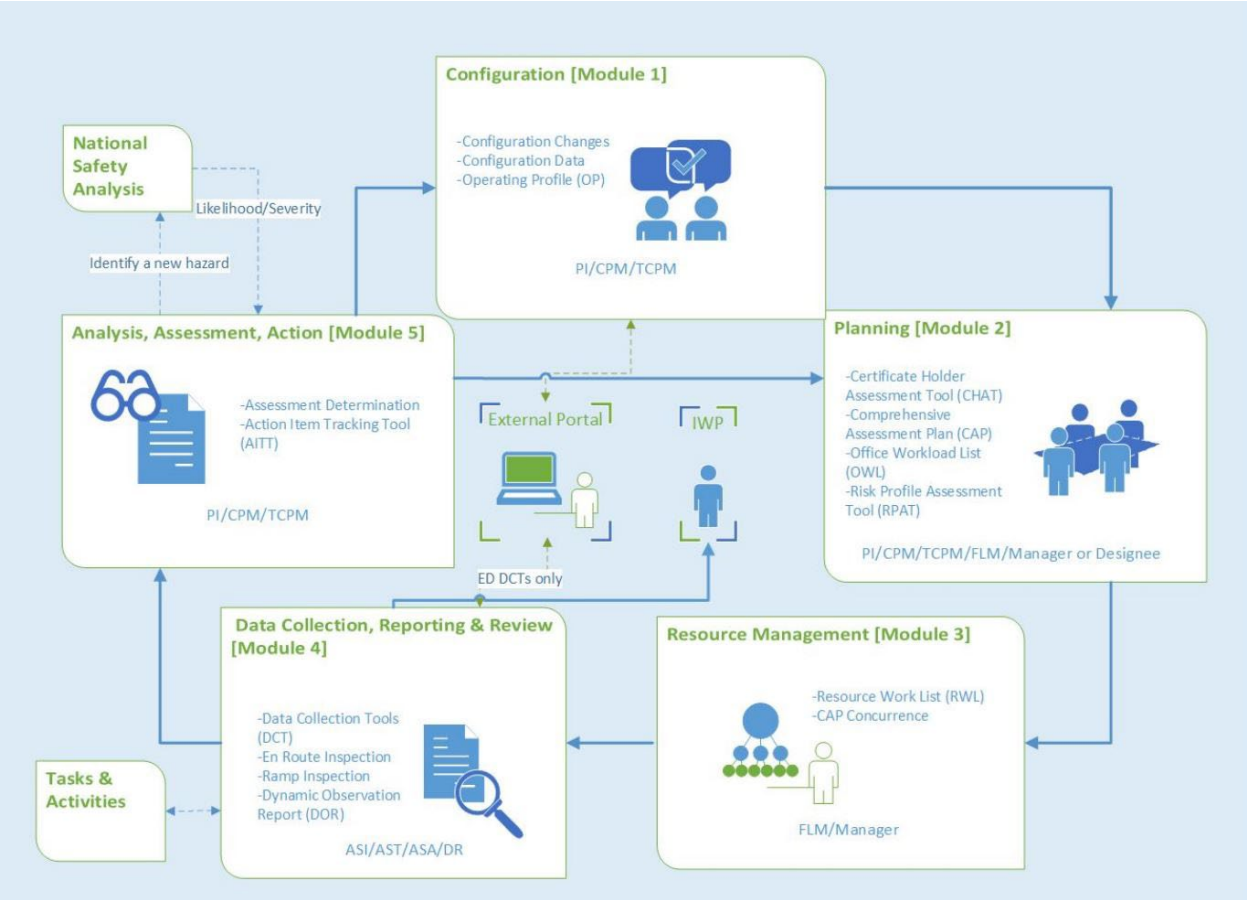
The FAA uses CHEP at the national, divisional, and office levels to evaluate 14 CFR parts 121, 135, and 145 certificate holders. This process may also be used to evaluate 14 CFR parts 141, 142, and 147 certificate holders at the divisional and office levels. The CHEP provides Flight Standards with standard policies and procedures to evaluate part 121, 135, and 145 certificate holders. The CHEP is conducted in accordance with FAA Order 8900.1[7] and is administered through the Certification and Evaluation Program Office (CEPO) of the Safety Analysis and Program Division. The CHEP provides an in-depth look at the certificate holder's systems and has three primary goals:

1. Verify that the certificate holder's systems and sub-systems comply with applicable requirements.
2. Evaluate whether the certificate holder is operating at the highest possible degree of safety in the public interest in accordance with Title 49 of the United States Code § 44701(d).
3. Identify hazards and assess risks and provide documentation for the Certificate Management Team (CMT) to mitigate associated risks.

Using the SAS Oversight Model presented in Figure 1, the National CHEP team validates regulatory compliance and records the results in the SAS database. Analysis and assessment results are based on the data collected and recorded in Module 4, Data Collection. In Module 5, Analysis Assessment Action, the CMT takes the appropriate action to address noncompliance, including referring the case to the FAA's Office of the Chief Counsel for legal enforcement action if appropriate.

[7] Dynamic Regulatory System- Volume 10: Safety Assurance System Policy and Procedure, Chapter 8, January 6, 2022, *available at* https://drs.faa.gov/browse/excelExternalWindow/DRSDOCID1300212210202306161824 25.0001

Figure 1: SAS Oversight Model



With the increased availability of data for RBDM, the National CHEP Team has the option to modify the review schedule to evaluate high-risk certificate holders in accordance with RBDM. The CEPO reviews various databases when scheduling evaluations for National CHEPs. The databases reviewed by CEPO include facts concerning accidents and incidents, enforcement activities, pilot deviations, past assessments, financial condition, and other information. This review might flag certificate holders deemed to be 'higher risk' and could cause the National CHEP Team to alter its scheduling priority.

The National CHEP Team provides the FAA with the following:

- An independent evaluation of air carrier compliance;
- Standardization of the oversight process;
- Alerts for a system malfunction;
- Identification of potential regulatory noncompliance; and
- Data on Element Design Assessment (EDA) and Element Performance Assessment (EPA) results that can be trended.

National CHEP Team Assessments and Accomplishments

In FY 2023, the FAA conducted four part 121 CHEP assessments, completing both design and performance assessments. Also, during FY 2023, the CHEP schedule again changed as certificate holders revamped operations.

Assessment Determination Value (ADV) Scoring Process

CHEPs are scored based on the ADV scoring process. An outcome of the SAS business process is the ADV score. In order to generate an ADV score, the FAA uses SAS Analysis, Assessment, and Action (AAA) procedures and tools to make a bottom-line assessment to determine whether the certificate holder's system design meets the standards for acceptance (for EDAs) and to determine whether the certificate holder's system performs in a way that it controls hazards (for EPAs).

The AAA process uses data collected by the ASI to determine whether the certificate holder or applicant's systems are designed and perform in a manner that results in regulatory compliance by the certificate holder or applicant, and whether safety risk is being managed to an acceptable level. The PI, TCPM, or CPM may use data from other sources to help make the assessment. The AAA process requires the PI/TCPM/CPM to determine and document the appropriate course of action based on the result of the analysis and assessment.

Per FAA Order 8900.1, Volume 10, the PI uses the AAA process to analyze data, evaluate the design and performance of the certificate holder's system, and assess whether to approve, accept, or reject a certificate holder's or applicant's programs. The PI documents this determination and any associated PI action.

If no unfavorable responses exist, the automation defaults to an assessment determination of "0G." The PI may add comments in the justification field. If unfavorable responses exist, the PI considers the safety impact, likelihood, regulatory compliance, and justification. Safety impact is based on the PI's estimation of the worst reasonable outcome that may result from the unfavorable findings. Likelihood is determined based on the PI's estimate of how frequently failures similar to those identified during data collection will recur. The PI determines whether any of the findings involve regulatory noncompliance.

The PI determines if action, including action to address regulatory noncompliance, is required. If the PI determines that the certificate holder's performance or design meets the guidance and regulatory requirements, the PI closes the assessment and approves or accepts the program. If the PI determines that the certificate holder's performance or design does not meet the requirements, then the PI may plan future EPAs, EDAs, or Custom Data Collection Tools (DCT) prior to approving the program.

If the action is a compliance action, the certificate holder conducts a root cause analysis and determines any corrective actions. The PI evaluates the appropriateness/validity of the certificate holder's corrective action and verifies that the actions have been implemented fully and are effective.

If the appropriate action is not a compliance action, the PI may: adjust the priority order of the Comprehensive Assessment Plan (CAP); add an EPA or EDA; add a Custom DCT; notify the certificate

holder; initiate enforcement action per FAA Order 2150.3,[8] FAA Compliance and Enforcement Program, as amended; amend or remove an Operations Specification (OpSpec); convene a System Analysis Team (SAT); identify a new hazard (request National Safety Analysis (NSA) support); or initiate the Risk Management Process.

For an EDA or EPA, once the bottom-line assessment is complete, the assessment is accepted or rejected and assigned a numerical ADV score from 0 to 7, as indicated in the PA and DA determination tables (Table 1 and Table 2). These tables were created to assist PIs/CPMs with identifying assessment determination options and affirmation status, safety impact, and likelihood descriptions, and to determine whether action is required. The difference between the PA and DA determination options is that a moderate safety impact with remote likelihood results in an assessment determination of four yellow (4Y) for PAs and four orange (4O) for DAs. The FAA conducts the planning of corrective actions under the standards of a SAS business module. Table 3 shows the ADV scores assigned in CHEP assessments in FY 2023.

Table 1: Performance Assessment Determination Value Scores (FY 2023)

PA Determination Value	Regulatory/ Nonregulatory	Performance Affirmation Status	Description	Action Required?
7R (Seven Red)	Nonregulatory	Performance Not Affirmed	Discrepancies observed which had a significant safety impact and are likely to recur frequently.*	Yes
7R (Seven Red)	Regulatory			
6O (Six Orange)	Nonregulatory	Performance Not Affirmed	Discrepancies observed which had a moderate safety impact and are likely to recur frequently* or which had a significant safety impact and are likely to recur occasionally.*	Yes
6O (Six Orange)	Regulatory			
5O (Five Orange)	Nonregulatory	Performance Not Affirmed	Discrepancies observed which had a moderate safety impact and are likely to recur occasionally* or which had a significant safety impact and have a remote likelihood of recurring.	Yes
5O (Five Orange)	Regulatory			
4Y (Four Yellow)	Nonregulatory	Performance Affirmed with Mitigation	Discrepancies observed which had a moderate safety impact and have a remote likelihood of recurring.	Yes
4Y (Four Yellow)	Regulatory			

[8] FAA Order 2150.3C FAA Compliance and Enforcement Program, September 18, 2018 *available at* https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.information/documentid/1034329

PA Determination Value	Regulatory/ Nonregulatory	Performance Affirmation Status	Description	Action Required?
3Y (Three Yellow)	Nonregulatory	Performance Affirmed with Mitigation	Discrepancies observed which had a minor safety impact and are likely to recur frequently.*	Yes
3Y (Three Yellow)	Regulatory			
2Y (Two Yellow)	Nonregulatory	Performance Affirmed with Mitigation	Discrepancies observed which had a minor safety impact and are likely to recur occasionally.*	Yes
2Y (Two Yellow)	Regulatory			
1G (One Green)	Nonregulatory	Performance Affirmed with Mitigation	Discrepancies observed which had a minor safety impact and have a remote likelihood of recurring.	Yes
1G (One Green)	Regulatory			
0G (No Findings)	Nonregulatory	Performance Affirmed	No Discrepancy Observed	No

Table 2: Design Assessment Determination Value Scores (FY 2023)

Design Assessment Determination Value	Regulatory Compliance	Design Affirmation Status	Description	Action Required?
7R (Seven Red)	Nonregulatory	Design Not Accepted/Approved	Discrepancies observed which had a significant safety impact and are likely to recur frequently.*	Yes
7R (Seven Red)	Regulatory			
6O (Six Orange)	Nonregulatory	Design Not Accepted/Approved	Discrepancies observed which had a moderate safety impact and are likely to recur frequently* or which had a significant safety impact and are likely to recur occasionally.*	Yes
6O (Six Orange)	Regulatory			
5O (Five Orange)	Nonregulatory	Design Not Accepted/Approved	Discrepancies observed which had a moderate safety impact and are likely to recur occasionally* or which had a significant safety impact and have a remote likelihood of recurring.	Yes
5O (Five Orange)	Regulatory			
4O (Four Orange)	Nonregulatory	Design Not Accepted/Approved	Discrepancies observed which had a moderate safety impact	Yes

Design Assessment Determination Value	Regulatory Compliance	Design Affirmation Status	Description	Action Required?
4O (Four Orange)	Regulatory		and have a remote likelihood of recurring.	
3Y (Three Yellow)	Nonregulatory	Design Accepted/Approved	Discrepancies observed which had a minor safety impact and are likely to recur frequently.*	Yes
3Y (Three Yellow)	Regulatory	Design Not Accepted/Approved		
2Y (Two Yellow)	Nonregulatory	Design Accepted/Approved	Discrepancies observed which had a minor safety impact and are likely to recur occasionally.*	Yes
2Y (Two Yellow)	Regulatory	Design Not Accepted/Approved		
1G(One Green)	Nonregulatory	Design Accepted/Approved	Discrepancies observed which had a minor safety impact and have a remote likelihood of recurring.	Yes
1G (One Green)	Regulatory	Design Not Accepted/Approved		
0G (No Findings)	Nonregulatory	Design Accepted/Approved	No Discrepancy Observed	No

* “Frequent” or “Occasional” likelihoods may indicate a systemic hazard. Design assessment determination is based on the potential impact the design discrepancies could have on performance.

Table 3: ADV Scores Assigned in FY 2023 CHEP Assessments**

ADV Score	Element Design Assessments		Custom Design Assessments	
	Number of Elements	Percent of EDAs	Number of Elements	Percent of Customs
0 Green	0	0.00%	0	0.00%
1 Green	2	28.57%	0	0.00%
2 Yellow	0	0.00%	0	0.00%
3 Yellow	0	0.00%	3	60.00%
4 Yellow	1	14.29%	1	20.00%
5 Orange	3	42.86%	0	0.00%
6 Orange	1	14.29%	1	20.00%
7 Red	0	0.00%	0	0.00%
Total	**7**	**100.00%**	**5**	**100.00%**

ADV Score	Element Performance Assessments		Custom Performance Assessments	
	Number of Elements	Percent of EPAs	Number of Elements	Percent of Customs
0 Green	13	13.98%	1	8.33%
1 Green	5	5.38%	2	16.67%
2 Yellow	15	16.13%	0	0.00%
3 Yellow	17	18.28%	2	16.67%
4 Yellow	9	9.68%	2	16.67%
5 Orange	16	17.20%	0	0.00%
6 Orange	12	12.90%	3	25.00%
7 Red	6	6.45%	2	16.67%
Total	**93**	**100.00%**	**12**	**100.00%**

**Figures on Table 3 are rounded to the nearest hundredth.

Actions Taken as a Result of CHEP Findings

The FAA addresses any CHEP element scored 1 through 7 and ensures any associated risk is mitigated to an acceptable level. Listed below are some possible compliance and enforcement actions taken, in general order of most serious to less serious:

- Initiation of Legal Enforcement Action: A legal enforcement action may be initiated if a certificate holder has conducted or is conducting operations contrary to applicable statutes and FAA

regulations and the criteria in Order 2150.3[9], as amended, indicates that legal enforcement action is required or warranted. A legal enforcement action may result in a suspension or revocation of a certificate or in a civil penalty action, depending on the circumstances.

- Administrative Action: An administrative action is used to address regulatory noncompliance when compliance action will not remediate noncompliance and ensure future compliance, and legal enforcement action is not required under Order 2150.3[10], as amended. An example of an administrative action is a Letter of Correction, which memorializes a specific agreement between the FAA and the regulated entity of corrective action taken or to be taken by the entity.
- Compliance Action: A compliance action is a non-enforcement response to regulatory noncompliance. A compliance action is taken when the entity is both willing and able to regain compliance, and when legal enforcement or administrative action is not required or warranted. An example of a compliance action would be changes to an operator's procedural manuals. A non-regulatory compliance action may be taken to address safety concerns that do not rise to the level of regulatory noncompliance.

Listed below are some additional potential actions that the FAA can take, continuing in general order of more serious to less serious:

- Custom DCT: A Custom DCT allows data collection activities to be requested by principal inspectors to evaluate and collect data on specific areas of immediate concern outside of the normal assessment schedule. There were 17 Custom DCTs that were initiated as a result of CHEP findings.
- Planning of Additional EPA, EDA, or System or Subsystem Performance Assessment (SPA): Inspection activities not previously scheduled can be added to the CMT work plan to provide additional surveillance of particular areas of concern.
- Notification to Certificate Holder: Particular findings of the assessment process can be formally transmitted to the certificate holder. The FAA continues to find CHEP assessments to be a valuable addition to the part 121 air carrier oversight program. The CHEP program provides additional technical expertise that helps the FAA identify issues that are difficult to recognize at the local office level. The CHEP program provides senior FAA management with an additional oversight tool.

Analytical Support Functions

The Flight Standards analyst community provides safety intelligence to support the FAA's risk-based decisions, actions, priorities, and assessment of system performance. This community includes industry product and service providers for which Flight Standards has oversight responsibility. The Flight Standards analyst community's work provides the data in support of making informed policy decisions that support strategic and everyday decision-making functions.

Analytical support includes data reporting, data analysis, data modeling, and the development of automated data displays to improve RBDM. In addition, SPAS is an application that provides Flight Standards inspectors, managers, and analysts with access to more than two dozen safety databases, enabling stakeholders to evaluate data under routine as well as non-routine scenarios and make informed decisions.

[9] FAA Order 2150.3C FAA Compliance and Enforcement Program, September 18, 2018, *available at* https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.information/documentid/1034329
[10] Ibid

National Safety Analysis

The FAA established the NSA process to record investigative analysis and risk assessment associated with new hazards reported from the field through the SAS. As such, the NSA provides analytical support and coordinates risk management efforts for new hazards or safety issues identified within the aviation community overseen by Flight Standards. A new hazard is one where the associated risk is not adequately controlled by current directives or where safety risk controls do not exist to effectively mitigate risk. The hazard may be associated with a systemic or a potentially systemic system safety issue that may apply to multiple certificate holders. Within SAS, PIs/CPMs have the ability to identify and record a new hazard as a "Request National Level Hazard Analysis", which engages the analytical community and subject matter experts within the Agency for a review of the new hazard.

In FY23 the NSA received four new entries.

Safety Assurance System *(SAS) New Hazard Analysis and Risk Assessments*

In accordance with processes established within SAS, analysts provide coordinated hazard analysis and risk assessment services to CMT PIs and other officials who identify a potential new hazard when conducting oversight. Hazard identification is a key component of the SAS. PIs can identify safety issues throughout the SAS process. When a new hazard is identified, PIs may add the action "Request National Level Hazard Analysis" during the CHAT; Data Collection; or the AAA process. These processes enable a PI to request national-level support to address a safety issue.

The Safety Performance Analysis System (SPAS) Modernization Project

Since 1997, SPAS has served as the Flight Standards primary data analysis tool. However, rapid advances in information technology and significant changes in Flight Standards oversight processes have strained SPAS and limited the system's ability to meet its users' needs. Recognizing this fact, in 2019 Flight Standards launched a project to re-engineer SPAS and modernize its capabilities for data access and analysis.

The SPAS Modernization project is a comprehensive effort to upgrade the system to a more sustainable technology architecture and to improve its analytical capabilities. The modernized system is being implemented in a phased deployment cycle consisting of three primary releases during 2023 and 2024.

In conjunction with the development and implementation of the modernized SPAS application, AFS-930 and AFB-540 collaborated to create a new eLearning Management System (eLMS) course to help users become familiar with the new SPAS system. The new course, *SPAS Modernization Overview* describes the background of the SPAS modernization effort and provides detailed instruction on how to navigate the new SPAS application and how to use the system's features.

The SPAS legacy system will continue to be available until the modernized system is fully deployed. Users are encouraged to continue using the legacy system to obtain information that is not yet available in the modernized SPAS.

Safety Data and Analysis Team (SDAT)

The SDAT is an FAA team that focuses on improving the quality and efficiency of data analysis across the FAA. The Safety Analysis Program Office continues to support the SDAT with analytical leadership

and deep knowledge of Flight Standards, Aviation Safety, and FAA data and information systems. In FY 2023, the SDAT provided many important and valuable accomplishments, including:

- Continuing the UAS Use Case - The SDAT relied on our Decision to Data (D2D) framework as we continued to develop a UAS Use Case. The D2D framework was instrumental in demonstrating the value of bringing together the right data at the right time through a repeatable process, followed by translating analytical results into actionable information supporting high-level goals and milestones. Our use case will inform the FAA's regulatory approach as we move toward a future where drones are fully integrated into the NAS utilizing a Beyond Visual Line of Sight (BVLOS) approach.
- Contributing to the Drone Safety Performance Measures Working Group - The SDAT supported the development of drone safety measures. The recommended measures will ensure that the FAA is able to fully support and help realize the numerous benefits associated with the fast-paced and innovative drone industry while ensuring continued safety across all areas of the NAS.
- Optimizing Safety Data and Information Sharing - The SDAT reviewed access to safety data across the FAA and developed actionable steps to decrease the time from the identification of a data need to the ability to incorporate the needed data in analytical work. The SDAT recommends applying the optimized process utilized within the Enterprise Information Management (EIM) Data Governance Center (DGC) as widely as possible. Enabling more efficient access to safety data across the Agency supports quicker responses and facilitates the inclusion of all relevant data when analyzing safety issues, directly supporting more holistic and well-developed analyses and increased safety across the NAS.
- Hosting Presentations from Leaders across the Agency - The SDAT hosted presentations from safety and analytical leaders across the FAA on important topics including data strategy, system safety, data governance, risk and analytical tools, and data access and management. Bringing together experts from across the FAA encourages the adoption of new and innovative ideas and best practices throughout the Agency.

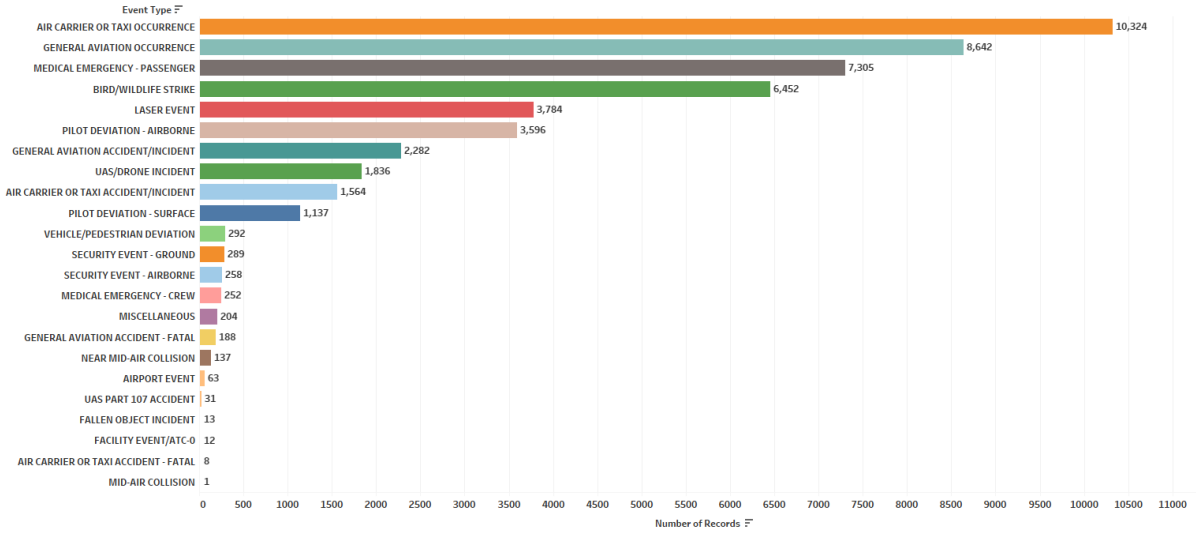
As we continue to advance aviation safety in this age of cutting-edge innovation, the SDAT will now be known and operate under the new title, the Safety Community of Interest (S-COI). During FY2024, the S-COI looks to lead several efforts to further advance the FAA's safety intelligence and safety culture.

Continuous Monitoring and Trend Analysis of Operational Safety Events

The FAA's Regional Operations Centers receive reports of approximately 3,200 aviation safety events each month. Flight Standards has initiated a proactive, continuous monitoring program, which reviews and analyzes operational safety events reported through the EON Daily Report Application on a regularly scheduled basis. This continuous monitoring and analysis program provides early identification of emerging performance patterns so that Flight Standards can identify and correct conditions causing any unsafe performance pattern.

Figure 2 provides information on the total number of EONs events categorically. The events shown include only those events reported through the EONs for part 121 activities; Figure 2 does not provide a tally of all events that may have occurred in the NAS. This data is current as of September 30, 2023.

Figure 2: EONs Events for FY 2023



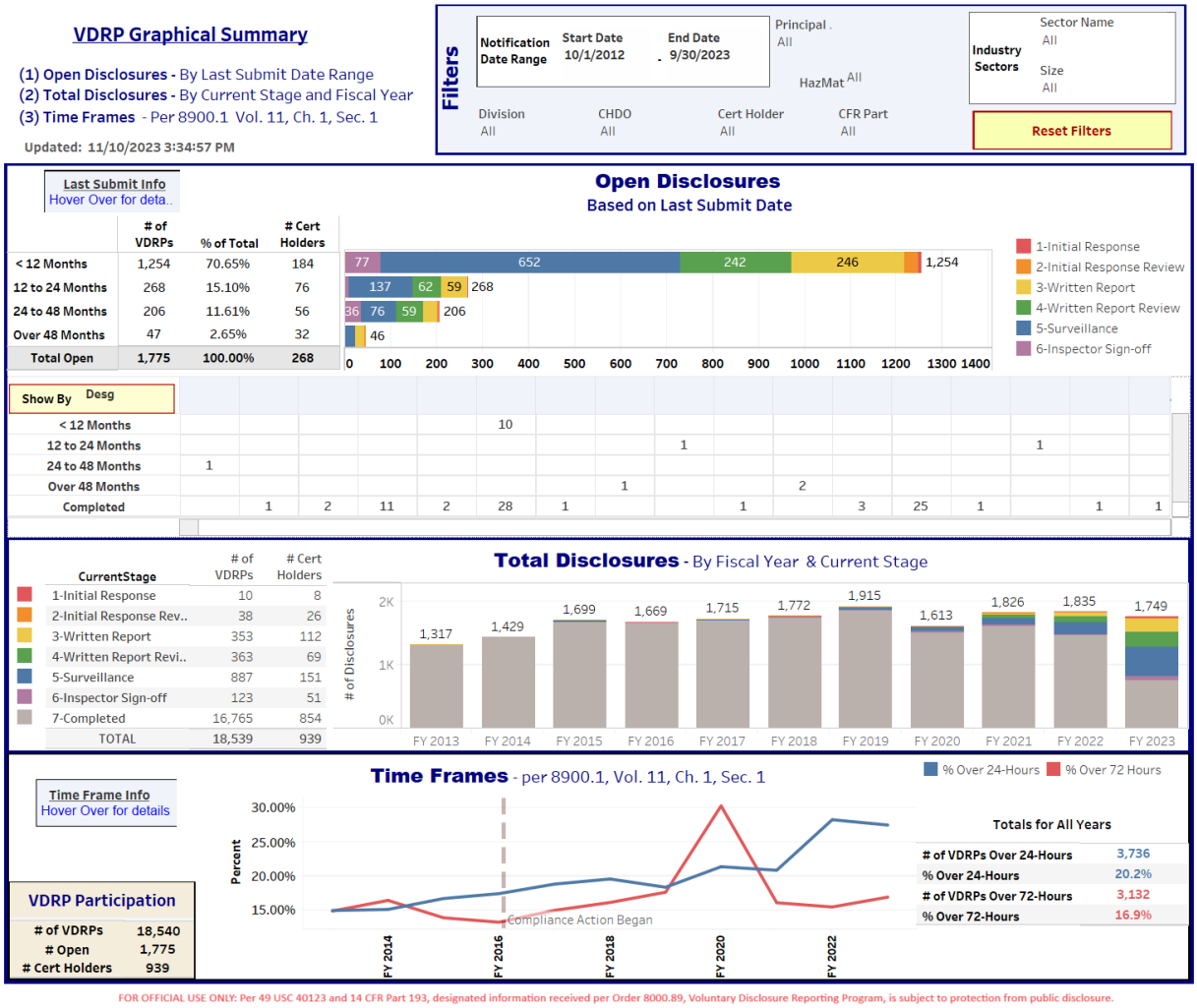
Monitoring of the Voluntary Disclosure Reporting Program (VDRP)

The primary purpose of the VDRP is to identify and correct issues of noncompliance or safety. Certificate holders are not required to participate in the VDRP. Initiation of VDRP is indicative of the participant's willingness to identify instances of regulatory noncompliance. When regulatory noncompliance is identified, participants are expected to correct their own issues and develop long-term comprehensive fixes. Ultimately, the FAA intends for this program to foster safe operating practices and encourage a positive safety culture.

The FAA created a VDRP analysis tool to help analyze data at the national and CMT level. Figure 3 presents an example of the output of the VDRP analysis tool through the end of FY 2023. The tool is used to:

- Provide Flight Standards users with a standardized interactive method for analyzing VDRP;
- Visualize and understand data patterns within VDRP; and
- Support CMTs' ability to include VDRP data in their oversight plans.

Figure 3: Example VDRP Graphical Summary



SAS Analysis, Assessment & Action (AAA) Summary & Monitor Report

SAS incorporates five business process modules for the initial certification and continued operational safety of certificate holders and applicants. PIs use the analysis and assessment process to make informed decisions about a certificate holder's operating system. Within the SAS AAA, PIs have numeric scoring options to capture a bottom-line assessment of certificate holder performance, based on the data collected from DCTs and other available information.

For each of the SAS Peer Groups, Flight Standards has created two dashboards that average the AAA results across the certificate holders, peer groups, and other parameters. The dashboards allow decision-makers to focus on deteriorating areas quickly and determine whether an action plan is required. Thus, the decision-makers or PIs can save available time and resources by closely examining surveillance records associated with the highest assessment scores. Figure 4 shows one example of a SAS Peer Group Dashboard where a PI or manager quickly can compare year over year if assessment scores are trending in a certain way.

Figure 4: Example SAS Peer Group Dashboard

AAA Summary Peer Group A (14 CFR Part 121)

mlf_l..	mlf_name	criticality	FY 2021 Q2	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1	FY 2023 Q2	FY 2023 Q3	FY 2023 Q4
3.3	Flight Planning and Monitoring	H	1.469	1.214	1.543	1.500	1.571	1.423	1.559	1.107	1.750	1.414	1.375
3.3.1	(OP) Operational Control	H	2.833	2.000	1.375	1.636	2.000	1.143	1.250	2.250	2.000	1.750	1.000
3.3.2	(OP) Dispatch / Flight Release	H	3.143	2.222	1.545	1.429	1.929	1.000	1.143	2.429	1.833	1.750	1.000
3.3.3	(OP) Flight / Load Manifest / Weight and Balance Procedures	H	1.563	1.426	1.276	1.083	1.368	1.385	1.000	3.429	2.000	1.417	1.300
3.3.4	(OP) MEL / CDL / NEF Procedures	H	1.800	1.294	1.222	1.000	1.125	1.500	1.667	1.600	1.111	1.625	1.125
3.3.5	(OP) Extended Operations (ETOPS)	H	1.150	1.000	1.000	1.000	1.000	2.000	1.000	2.400	1.167	2.333	1.200
4.1	Training & Qualification	L	3.333	1.857	1.750	1.875	1.444	1.750	1.000	1.222	1.000	2.333	1.500
4.1.1	(AW) RII Personnel	L	1.600	1.857	1.000	2.286	2.000	1.857	1.000	2.000	1.000	1.400	1.333
	(AXH) HM Training of Maintenance Providers / Stores	L	1.000	1.000	1.400	2.000	1.500	1.800	1.167	1.000	1.333	1.000	1.444
4.1.2	(AW) Maintenance Certificate Requirements	L	1.750	1.615	2.250	1.737	1.400	1.909	1.833	1.167	1.000	1.333	1.714
4.1.3	(AW) Maintenance Training Programs	L	1.571	1.533	2.059	2.529	1.929	1.882	3.333	2.000	2.400	1.800	1.300
4.2	Maintenance Planning and Monitoring	H	2.343	2.412	1.923	1.889	3.146	2.500	1.952	2.564	2.242	1.966	1.484
4.2.1	(AW) Maintenance/Inspection Requirements	H	3.083	2.508	1.738	2.094	1.979	1.727	2.468	2.451	1.813	2.585	1.743
	(AXH) HM COMAT Shipping	H	2.000	1.000	1.444	2.400	1.857	2.462	1.400	1.667	1.357	2.000	2.000
4.2.2	(AW) Maintenance/Inspection Schedule	H	1.789	1.575	1.158	1.667	1.178	1.500	1.531	1.043	1.273	1.308	1.030

Reviews of Air Carrier Performance to Safety Regulations

Flight Standards compiles and analyzes selected sets of safety data from FAA data sources including SAS, CHAT, SDR, EON, VDRP, and PTRS regarding various certificate holders. The purpose of these analyses is not to provide a comprehensive safety assessment of a particular certificate holder, but rather to provide a broad overview of safety data that may assist a CMT in working with the certificate holder to optimize their safety management practices.

These insights from an objective examination of available data support CMTs and certificate holders in their ongoing efforts to maximize the effectiveness of each certificate holder's safety programs at all levels of the operation. The FAA continuously supports the safe introduction of new technologies and programs as the NAS environment evolves.

Conclusion

The SAS expands the FAA's oversight beyond regulatory compliance. SAS supports the implementation of FAA policy, which is designed to ensure that air carriers, operators and agencies operate at the highest level of safety, thus ensuring the safety of the traveling public. Some of the enhancements to SAS during FY 2023 are outlined below.

The FAA continues to improve safety oversight of the NAS by leveraging automation to assist ASIs in the field. This year the SAS was completely migrated to the FAA IT Cloud to provide a more resilient platform for sustainment and incremental improvement. Ten Integrated Product Teams (IPTs) continued their work, further enhancing the SAS capabilities to increase FAA safety oversight and productivity for ASIs. The focus of the work is to expand safety information exchange outside traditional channels. The intent is to integrate with other Lines of Business (LOBs) and programs involved in safety oversight domestically,

and with international counterparts. The first enhancement released this year involved migrating the Enhanced Flight Standards Automation System (eFSAS) capability into the SAS thereby reducing the number of systems the ASIs use to enter information. The second enhancement developed was a SAS mobile application (SAS Mobile) that allows SAS users to use FAA-furnished smart phones to enter data and photos directly into the SAS when they are working off-site and at remote sites. Testing was completed in fiscal year 2023, and the SAS Mobile capability was released December 4, 2023. Additional SAS enhancements are planned for incremental release at the pace of approximately two capabilities per year. This deployment tempo will allow SAS users to take advantage of the capabilities sooner.

The FAA remains committed to developing programs and systems that increase the sharing of safety data among FAA organizations, industry, and international partners to better identify aviation-related hazards and to mitigate associated safety risks.