

Flight Test Operational Guidance:

A reference provided by the Flight Test Safety Committee (Feb 2017)

Background: Following the fatal mishap involving a Gulfstream GVI (G650) flight test aircraft in Roswell, NM on 2 April 2011, the NTSB in its subsequent investigation recommended that the Flight Test Safety Committee publish and promote flight test operating guidance for manufacturers.

NTSB Safety Recommendation A-12-059: *In collaboration with the Federal Aviation Administration, develop and issue flight test operating guidance for manufacturers that addresses the deficiencies documented in this report¹ regarding flight test operating policies and procedures and their implementation, and encourage manufacturers to conduct flight test operations in accordance with the guidance.*

The NTSB in its report, noted that “The company’s key engineering and oversight errors that led to the accident might have been prevented if the company had (1) better designed the organizational processes used during G650 developmental flight testing, such as those used for workload distribution and sequence of work, (2) codified those processes in a flight test standard operations manual, and (3) trained its personnel on the manual to ensure compliance with the manual’s policies and procedures.” Further, the NTSB noted that existing SOPs were ineffective in “...establishing control gates for key decision points, implementing processes for validating engineering methods, and clearly defining roles and responsibilities for on-site test team members.”

In response to A-12-059, the Flight Test Safety Committee provides the following best-practice recommendations and guidance regarding test team structure, operating procedures, and test execution so that manufacturers and their flight test organizations may use it to develop their SOP and pursue the highest levels of safety.

I. **Test organizations.** Generally speaking, test organizations shoulder the abundance of operational risk for aircraft manufacturers as they perform elevated risk testing, maturing aircraft and systems from cradle-to-grave. Compounding the challenges of day-to-day safe test accomplishment are an abundance of significant schedule pressure and other external factors such as marketing requests, vendor quality issues and production influences to name a few. The effective management of technical risk, program schedule, and test execution help to minimize (or eliminate) latent threats, errors, or omissions that can have catastrophic consequences. Successful management of a flight test organization is about leadership. It is important to have strong leaders with broad test experience, deep technical knowledge of systems-under-test, and formal training in test methods, from detailed planning to sustained operations. Well-documented and mature policies, processes and procedures are vitally important to provide unambiguous

¹ *Crash During Experimental test Flight, Gulfstream Aerospace Corporation GVI (G650, N652GD, Roswell, New Mexico, April 2, 2011, Aircraft Accident Report NTSB/AAR-12/02 (Washington, DC: NTSB, 2012).*
<https://www.nts.gov/investigations/accidentreports/reports/aar1202.pdf>

direction and guidance, but leadership engagement and expectation sets the positive culture in which test teams can operate with sufficient freedom of action and uncompromising discipline. Additionally, flight test representation within the program leadership model can offer tremendous benefits in terms of communication and coordination. Test and Evaluation (T&E) should be part of the overall integrated product/program team from inception, and continue beyond certification for follow-on development and system upgrades. To ensure continuity and continual emphasis of unique flight test challenges, the test organization structure should be periodically reviewed from a holistic program perspective. This will provide sufficient transparency to organizational manning challenges and process drift that can naturally occur as the program progresses.

Recommendation: Conduct an extensive analysis of the test organization using test community experts to design and implement a competent and experienced leadership architecture with knowledgeable technical managers to effectively oversee the test vehicle configuration, maintenance, instrumentation, test planning, team composition, flight scheduling, results reporting, and data analysis; with an eye toward equitable work distribution and a laser focus on risk management. As part of the program organizational structure process, assign veteran tester(s) to participate in the earliest stages of program development. Early involvement in the program allows crucial input on technical maturity concerns, adequate resourcing considerations, and development of an executable integrated master schedule. Test pilots and flight test engineers can add to both the realism of the intended program strategy as well as suggest means to capitalize on efficiencies. Moreover, they can stimulate early identification of test-unique risk scenarios and therefore, should always be included in broader program discussions. Program Management Reviews (PMR) may be an ideal venue to conduct the organizational/process reviews to highlight manning, test vehicle/system, and facility challenges/issues as well as means to spotlight milestone accomplishments. Detailed Test Plan Reviews can also reveal needed resources for safe, efficient and effective testing. Regardless of company/organizational size, appointment of an independent aviation safety officer that reports to upper management can provide unbiased input/oversight and should have the authority to stop testing if safety concerns arise.

II. **Test Team Preparation**. Early test program staffing is a key enabler to commencing the test program with the highest levels of preparation and readiness. Roles and responsibilities should be well-defined, publicly documented (published/announced) and clearly understood. Recruitment and assignment of seasoned flight test personnel should be underpinned with ample training and exposure to the flight test organization's Standard Operating Procedures (SOP) and processes that are integral to a robust Safety Management System (see Section VII). Test training and an effective continuous professional development program are key ingredients to safe and efficient flight test operations.

Recommendation: Conduct a thorough review of flight test processes and functional responsibilities to articulate the work flow in a succinct organizational flight test operating guide or standards manual; preferably well-prior to the commencement of flight test on new programs. Provide indoctrination and continual emphasis on the organization's operating manual to ensure awareness and compliance. An assigned focal point for standardization and training can ensure foundational and continual education/training is not being overlooked or ignored, especially during

the frenetic pace of flight test programs. Provide empowerment to personnel within the flight test organization in accordance with the operational standards manual and expect/reinforce accountability with flight test leadership. Ensure that both periodic and ad hoc reviews, revisions and improvements are incorporated into procedural and process guidance documents.

III. **Test Planning and Risk Management**. Simply put, flight test organizations extract a significant amount of test risk potential through extensive and detailed planning and preparation. Risk management must undoubtedly be the forte of flight test organizations! Professional flight testers should pride themselves on hazard identification and methods to mitigate risk, over and above the sequencing of test events in a logical incremental approach. Rightly, this planning effort should be well-defined and thorough, leveraging industry best-practices and regulatory requirements, feeding critical downstream reviews such as peer test readiness reviews and executive safety review boards as defined in the flight test SOP. The final decision to proceed with elevated risk testing should reside at an executive-level, “grey beard” board to ensure organizational acceptance of the mitigated risk (aka “residual risk”) as well as confidence that the breadth of risk mitigation is adequate to present an acceptable level of risk. Leaders at every level should foster an environment that encourages and requires critical thinking, constructive skepticism and constant emphasis on improvement as part of this process.

Recommendation: Test teams should have a documented test planning document that articulates the test plan approval process, including the technical and safety reviews that ultimately lead to acceptance of the residual risk on behalf of their respective corporate entities. Test plans should be authored by a cognizant flight test engineer and a project test pilot. A risk management plan should also be documented. FAA Order 4040.26² provides an excellent resource to establish or refine flight test risk management as part of organizational test planning guidance and moreover, can facilitate an agreed-upon risk management strategy with program certification regulators. Formal education and training in test planning and risk management is a key enabler to this process (see Section VIII Training and Standards regarding SMS Component 4: Promotion).

Researching lessons learned and reviewing similar test hazard analysis should be a non-negotiable element of the test planning phase. The Flight Test Safety Committee has created a repository for best practice information³ and the NASA-sponsored, Flight Test Safety Database⁴ also contains flight test reference material in the form of a Test Hazard Analysis (THA) search tool. Robust hazard identification and risk management should be conducted by a multi-disciplinary team for all testing events, and test teams should be cautious with minimalizing this process for off-the-shelf plans, ground tests, or perceived “low risk” flight events. Moreover, teams should aggressively pursue new, safer methods to execute test, collect data, and demonstrate

² FAA Order 4040.26B dated 01/31/2012 is available at: <https://www.faa.gov/documentLibrary/media/Order/4040.26B.pdf>

³ The Flight Test Safety Committee is comprised of members from the Society of Experimental Test Pilots (SETP), the Society of Flight Test Engineers (SFTE) and the American Institute for Aeronautics and Astronautics (AIAA). Their charter is intended to promote flight safety, reduce the risk of a mishap, promote risk reduction management and continually improve the profession’s communication and coordination. Best practice information can be found at: <http://www.flighttestsafety.org/best-practices>

⁴ The Flight Test Safety Database was borne from a flight test community need for flight test maneuver descriptions, test hazards, and risk mitigation techniques. The web site also includes a Test Hazard Analysis (THA) search tool. Flight Test Safety Database can be found at: <https://ftsdb.grc.nasa.gov/>

compliance with regulations at every opportunity. Additional lessons learned can be found in technical papers and presentations resident in the archives/databases of the Society of Experimental Test Pilots (SETP)⁵ and Society of Flight Test Engineers (SFTE)⁶.

IV. **Test Preparation.** Individual roles and responsibilities within the test team need to be defined. For many test events, a mix of flight test engineers and flight science technical matter experts may be employed. Defining critical parameter monitoring duties and time-critical communication flow – within and between the test vehicle, safety/photo chase, and the telemetry team – is paramount. Test teams should exploit all available resources to extract risk from the testing prior to flying. Laboratories are an excellent tool to mature systems and discover potential issues with procedures/techniques, as well as constraints due to operating limitations. Simulators afford an environment to conduct dress rehearsals on normal, abnormal and emergency procedures, as well as to refine test techniques. A cautionary note: it is important to document and communicate observations, results and lessons learned in lab and simulation efforts with aircraft test teams. Even seemingly trivial anomalies in these environments can reveal critical flight and procedural information. Appropriate data gathering means (e.g. instrumentation, photo, audio, transcribed notes) also need to be incorporated into the overall test planning process. Frequently, parameters deemed unnecessary for a planned test have ultimately been found necessary for troubleshooting anomalies, or even preventing mishaps.

Offsite test operations require special planning considerations and coordination. Airport infrastructure, airspace and air traffic control might offer an advantageous environment for specific testing events, however, the site evaluation should include the emergency response resources, location(s) and readiness posture of the provider(s). The Flight Test Safety Committee (FTSC) has prepared and published guidance and a checklist for Aircraft Rescue and Fire Fighting (ARFF). This and an aircraft safety equipment ready-reference card are both available on the FTSC web site⁷ as tools to ensure sufficient emergency response readiness for both home-base and offsite operations.

Recommendation: Promote the systemic use of laboratories to the maximum extent practicable to perform comprehensive testing protocols on hardware and software, leading to the issuance of a configuration “safe for flight.” Conduct simulator dress rehearsals as a test team using the approved test plan detailed-method-of-test, emergency, and corrective action procedures. These dress rehearsals also validate the defined test team roles and responsibilities and afford an excellent opportunity to exercise Crew Resource Management (CRM) in a controlled environment. Amend the test plan as required, based on discovery and validation of test plan procedures. Simulation and dress rehearsal “prerequisites” should be included in the test plan and test hazard analysis to lower the overall risk. Simulation and dress rehearsal results should be documented, communicated and reviewed by test teams.

⁵ <http://www.setp.org/>

⁶ <https://www.sfte.org/>

⁷ <http://www.flighttestsafety.org/best-practices>

V. Test Conduct.

A. Test plan compliance and real-time cessation-of-test considerations

“Plan the flight, fly the plan” is a phrase coined by test pilot schools to instill a sense of discipline and restraint into the conduct of test. Test teams must be trusted to stay on script and not improvise. Moreover, conservative decision-making must be pervasive, and if results are not matching expectations/predictions, then a cease-test declaration is appropriate. Individual team members must feel empowered to communicate/transmit this “cease test” without retribution. Phraseology and timeliness are critical. Test teams should clearly define what the call will be and who can issue the command. For example, “terminate” could mean activation of a flight termination package where “abort” stops the test point in progress. The same individual team members must also embrace an absolute obligation to issue an “abort” call if they feel safety margins are in question. Flight test leadership sets this tone within the culture.⁸

Recommendation: Include, as part of the flight test Safety Management System Component 1 (Policy), a discussion about the uniqueness of flight test (from an operational risk perspective), the imperative for testing with precision (to the plan), as well as transparent, non-attributional communication/reporting.

B. Workload and fatigue

Lesson learned: The NTSB, in its investigation of the Gulfstream GVI accident, highlighted the excessive workload shouldered by the principal project FTE. Workload distribution must be actively monitored to preclude the potential for omissions, errors, and fatigue.

Recommendations: Hold flight test managers accountable for subordinate’s volume of work and conduct human factors council meetings⁹ to assess workforce readiness. Incorporate, as part of the flight test SOP, crew duty day limitations that apply to the entirety of the flight test organization. Monitor overtime as a metric, and embrace an acute awareness to the potential of accumulated fatigue as the pace and schedule pressure increase at milestone test events or across persistent testing blocks.

VI. **Test Progression.** During the course of test, it is beneficial to accommodate and include periodic reviews to assess test results following reduction and analysis. These interim “control gate” reviews provide an opportunity for technical subject matter experts to assess whether results are matching predictions (i.e. modeling and simulation), and that prerequisite data analysis is complete before progressing to testing that is dependent upon prior results. For multi-test vehicle programs (usually the norm), synchronizing and sequencing the testing can have

⁸ An excellent resource on building a healthy safety environment can be found here:

<http://www.skybrary.aero/bookshelf/books/233.pdf>

⁹ Human Factors Council (HFC) meetings are well established in military flight organizations to address identified human error causality factors in prior mishaps. In short, a small executive team assesses personnel from a professional characteristic standpoint to implement intervention strategies as necessary. More on this concept can be viewed at:

<https://www.cnatra.navy.mil/pubs/folder2/5420.13F.pdf>

significant efficiency *and* safety implications. Everything from configuration management to results reporting requires focused attention and exceptional coordination to combat tribal knowledge, inadvertent omissions, and wasted effort. For programs that enjoy robust lab and simulator capabilities, the synchronization and communication must include that additional reach-back to ensure relevant discoveries from these resources are expeditiously shared with flightline testers and vice versa. Some anomalous/undesirable results should be expected in the course of a flight test program. When they occur, it is important the reporting process provides expeditious notification followed by accommodation for the test team to stop and assess. Documenting and communicating the results of investigations, technical meetings and subsequent corrective actions/risk decisions ensures transparency as well as content for future reference and learning.

Recommendation: Treat flight test as a “system of systems” that requires seamless communication and coordination from program office, lab facilities, maintenance, and test team. A program operating guide can be helpful to define the reporting relationships and establish the “drumbeat” for periodic reviews on testing progress. Utilize the same program leadership-level flight test expert to gage where gate reviews are strategically necessary in the overall program schedule as well, prove beneficial as a periodic health check of test progression. As program requirements and schedules continue to evolve and mature, so must the timing and potential addition of new reviews based on results, events and/or changing requirements. At the tactical level, incorporate technical “control gate” reviews (essentially “interim data reviews”) as necessary in the test plan to solidify an expectation of the required review and to provide accommodation within the test schedule. These gate reviews are pre-planned and are necessarily different than a “pop-up” reconvene of a safety review board for an unexpected or anomalous test event. The gate review is focused on examining the incremental results of testing (including lab/simulation results) against pre-planned expectations to ascertain deviation from the performance model. A critical event review process, requiring an SRB to reconvene, should also be well-defined as a discrete event.

VII. **Safety Management System (SMS)**. By definition, a Safety Management System is a formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls.¹⁰ Generally, flight test organizations already have existing risk management processes and may even have safety policies in place. Remember, risk management should be the forte of test organizations! Organizing policy, risk management, performance assurance, and safety promotion elements into the four component structure of an SMS is more an administrative exercise than the creation of entirely new safety processes. **The primary challenge is to ensure company top management is fully supportive of the SMS and embraces the necessity of establishing a safety culture which provides the focus and stimulus for continual safety performance improvement.** The culture should encourage and reward reporting, not focus on individual blame. Recognition, promotion and communication of correct risk behaviors are the underpinning of a positive safety culture and are a leadership responsibility.

¹⁰ See FAA Advisory Circular 120-92B (of 1/8/15), *Safety management Systems for Aviation Service Providers* (https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1026670), and *International Civil Aviation Organization (ICAO) Doc 9859, Safety Management Manual 3rd edition – 2013* (<http://www.icao.int/safety/SafetyManagement/Documents/Doc.9859.3rd%20Edition.alltext.en.pdf>)

Commercially available SMS programs are typically designed for established flight departments, and their corresponding auditing protocols are tailored for those types of operations. For business aviation, the International Business Aviation Council (IBAC) created an International Standard for Business Aircraft Operations (IS-BAO)¹¹. This voluntary standard has become popular with Part 91 and 135 operators as a means to stimulate safety improvement, demonstrate a visible means of SMS commitment, and to satisfy international travel regulatory requirements. The Flight Test Safety Committee has created flight test-specific auditing protocols adapted from the IS-BAO and the Safety Management International Collaborative Group (SMICG) SMS Evaluation Tool¹². These continue to be refined as flight test organizations adapt and use the tool to guide SMS development for flight test, and to assess their SMS maturity (a key element in SMS Component 3: Safety Assurance).

The FAA Aircraft Certification Service (AIR) initiated a pilot project in 2014 to feed proposed rulemaking (expected 2018) for Part 21 design and production approval holders, to have an SMS which incorporates the ICAO Annex 19 elements. The Aerospace Industries Association (AIA) and General Aviation Manufacturers Association (GAMA) have jointly developed an industry standard¹³ to assist design and manufacturing organizations to voluntarily implement an SMS. The FAA recognized this standard as satisfying the Annex 19, providing a means to assess an applicant's voluntary SMS program as conforming to the 14 CFR Part 5 intent¹⁴. It is clear; having an SMS is necessary and in the not-to-distant future, an SMS that addresses flight test specific considerations will be required. Consideration should be given to not just having a stand-alone organizational ("stovepipe") SMS, rather, a well-integrated and harmonized system that infuses appropriate safety focus across the product life cycle.

Recommendation: Establish and continually mature a flight test SMS. Secure absolute and uncompromising support from company leadership to embrace safety as part of company strategic values. Consider both internal and external auditing of SMS that is preceded by culture surveying. Pick a flight-test-tailored standard and stay engaged with community safety information sharing and best-practice improvements that are aimed at boosting safety performance within the flight test organization. Cultivate a robust non-attributional reporting culture that feeds a responsive and thorough investigative process that seeks root cause and accommodates human factors¹⁵. Flight test and company leadership must "walk the talk" with regard to following the established safety processes. Overreacting, interrogating individuals or suppressing organizational/supervisory factors of a reporting/investigative process will undermine trust and erode confidence in the safety system. Any finding of culpability should be based on factual information and debated thoroughly at a cross-disciplinary event review team to ensure consistency and sufficient representation for involved individual(s). Sharing of lessons learned

¹¹ <http://www.skybrary.aero/bookshelf/books/1774.pdf>

¹² http://www.flighttestsafety.org/images/Flight_Test_SMS_Audit_Protocols_FTSC_Submission.pdf

¹³ AIA/NAS9927: Safety Management System Practices for Design and Production. Standard can be found here: <http://standards.globalspec.com/std/10015556/aia-nas-nas9927>

¹⁴ https://www.faa.gov/about/initiatives/sms/specifics_by_aviation_industry_type/design_and_manufacturing_organizations/

¹⁵ The Human Factors Analysis and Classification System (HFACS) is one of many investigative taxonomies that can provide further identification of mishap human factor causality.

See: https://www.nifc.gov/fireInfo/fireInfo_documents/humanfactors_classAnly.pdf

should be encouraged through the establishment and sustainment of a non-attribitional safety culture.

VIII. **Training and Standards.** As part of SMS Component 4 (Promotion), safety communication and training is expected to be seamless across the test organization. A horizontally integrated SMS can enable transparency and expeditious flow of safety critical information. Large, multi-vehicle/multi-model test programs can add tremendous complexity to the test organization which can challenge event notification, root cause investigation and corrective action implementation reporting/updating. Leadership in this area is critical.

Flight test workforce education and training should be viewed as a continuum – apprentice to master. Certainly, onboarding a qualified and experienced test force should be a primary objective, but ensuring the team is well-versed on company-specific policies, procedures and methods will avoid confusion, inefficiencies and emotionally-charged friction. A broad management view, promotion and coordination of employee professional development will result in higher workforce performance and morale. Flight test is a unique technical profession with ample opportunity for foundational and continual educational opportunities. Certificate and Masters Degree programs in flight test are available, as well as a menu of short-course and focused training options.¹⁶

Recommendation: Consider application-based, electronic means to disseminate safety information, particularly for large, geographically dispersed programs. Digital signature capabilities allow a rapid means to ensure receipt and acknowledgement across a test force. Establish pre-populated addressee lists to ensure all appropriate contacts are kept informed and actively prevent ad-hoc emailing or sequestering of time-critical test safety information.

As part of new hire indoctrination, provide necessary company-specific/organizational SOP training and SMS familiarization. Ensure all training is documented and tracked. For new acquisitions or transitions, consider enrollment in a flight test certificate or advanced degree program. Operationally-based training such as survival training, egress training (project specific) and aviation physiology training (hypoxia awareness) should be a prerequisite to participation in flight testing. Pilots need to be current and proficient in test techniques and if needed, should be allowed to train and practice in similar aircraft prior to flight testing in new models. These types of training should have a periodicity and trigger “clearance to fly” in the scheduling process. It is a management responsibility to provide sufficient funding and employee attendance opportunity (expectation) for both initial and recurrent training. Moreover, it’s highly advantageous for management to encourage attendance and participation in broader flight test community education opportunities (e.g. short courses in icing tests, pilot induced oscillation, upset recovery, etc. or even long-term courses at accredited institutions or test pilot schools), symposia and

¹⁶ <http://www.fit.edu/programs/8233/ms-flight-test-engineering#.WCyVmNqzVD8>
http://www.navair.navy.mil/nawcad/index.cfm?fuseaction=home.content_detail&key=DCAC2041-1A83-4E1D-AF59-E88D8225EB6C

workshops where lessons learned and best practices are exchanged freely (e.g. the Flight Test Safety Workshop hosted by the Flight Test Safety Committee¹⁷).

Summary: Flight test is a highly challenging and rewarding profession. Tragically, we re-learn lessons that needlessly cost lives, destroy valuable test assets, and jeopardize programs. The production/progress versus safety balance can easily be tipped in a dangerous direction when safety is compromised by inducing excessive schedule pressure, ignoring or suppressing telltale warnings, and/or generally not engaging in proven safety processes or practices. The flight test community prides itself on navigating a spectrum of elevated risk operations to ultimately certify high-performing and safe air vehicles and systems. Participating in flight test community membership organizations such as the Society of Flight Test Engineers (SFTE), Society of Experimental Test Pilots (SETP) and Royal Aeronautical Society (RAeS)¹⁸ affords test professionals an excellent opportunity to exchange best-practice information, and transport critical flight test technical and safety information back to their respective test teams. Consider this a strong recommendation to enhance your organizational SMS safety promotion!

Cultivating and promoting a culture that fosters integrity, esprit de corps, and continual improvement is a persistent leadership challenge. Successful flight test organizations thrive on teamwork and pride in professionalism. Implementing the “mechanical” components of SMS and other flight test processes without focusing on a positive safety culture will likely not yield the results desired, and may unnecessarily expose the flight test organization and parent company to latent threats. The Flight Test Safety Committee welcomes feedback on improving flight test practices and encourages broadly sharing best practices throughout the flight test community.

¹⁷ <http://www.flighttestsafety.org/workshops>

¹⁸ <https://www.aerosociety.com/>

Draft Appendix to SM-0001 Rev B – yet unapproved. Provided as additional reference and example in support of FTSW 2022 related to Safety Policy and Objectives

This appendix provides guidance and examples that can be used to support development of an organizational safety policy and safety objectives in conjunction with Section 6.1.1.1 Safety Policy and Section 6.1.1.2 Safety Objectives. The examples provided are one means, but not the only means to address the noted requirements.

The safety policy and objectives will depend on the nature of the organization’s scope, size and maturity. Although these examples have been provided by large organizations that hold multiple certificates, they are viewed as useful for smaller organizations or single certificate holder organizations to consider.

1.1 Safety Policy [Reference Section 6.1.1.1]

An organization's safety policy is how management formally documents its commitment to safety. It must contain the elements and be managed as outlined in Section 6.1.1.1.

1.2 Safety Policy Examples

Safety Policy: Example 1

- *Large multi-certificate holder organization. [Design / Production / Maintenance / Flight Test Operations]*
- *High-level safety objectives embedded in safety policy. [Ref: Safety Objectives Example 2]*

[Organization’s] objective is to provide the highest standards of safety, quality and service to our customers. We will constantly strive to improve these standards, thereby maintaining our position as a global leader in the manufacture of XXX aircraft and provider of associated services. Outstanding safety performance is critical to the success of our business.

Through our Just Culture, Safety Risk Management, and policy of continuous improvement, we will maximize the inherent safety of our operations by promoting best practices in product and aviation safety to achieve [Organization] high-level product/aviation safety objectives:

- Design and manufacture of safe products
- Superior continued operational safety
- Safe internal flight operations
- Proactive employee participation in product/aviation safety and hazard reporting
- Inherent compliance to processes, procedures and policies associated with the design, manufacture and continued operational safety of [Organization] products
- Comprehensive safety risk management of compliance and conformity assurance processes

The leadership of [Organization] commits to providing the necessary resources to ensure implementation of SMS fundamentals, and will:

- Consult, listen, communicate and respond openly to our staff and customers.
- Ensure personnel competence and accountability. Everyone employed at [Organization] is responsible for operating appropriately and demonstrating compliance with this policy, associated regulatory requirements, and company processes and procedures at all times.
- Actively engage in Safety Risk Management and Safety Assurance activities.
- Openly report all aspects of our safety performance.
- Recognize those who contribute to improve product safety performance.
- Ensure that a Just Culture is maintained at all times.

Company procedures ensure the means to sustain and monitor compliance with local and International Standards, and to ensure that we comply with the safety requirements of the Airworthiness Authorities.

Safety is not the sole responsibility of any single person or department, it involves all employees in the company, and it is the responsibility of all of us to comply with this policy and to strive to improve our safety standards at every opportunity.

This document describes an SMS that complies with current [Civil Aviation Authority] guidelines and regulations. All incorporated documents identified, and every amendment thereto meet the requirements established in this document. The policies and procedures outlined in this document and in all incorporated documents identified herein must be strictly adhered to at all times. In case of conflict between [Civil Aviation Authority] regulations and this Policy, the [Civil Aviation Authority] regulations will prevail.

[END]

Safety Policy: Example 2

- *Large multi-certificate holder organization. [Design / Production / Maintenance / Flight Test Operations]*
- *Safety objectives referenced – but in separate document. [Ref: Safety Objectives Examples 3 & 4]*

[Organization] is committed to the implementation and execution of a world-class Products and Services Safety Program, consistent with [Organization's] Core Values.

[Organization] is committed to the delivery of safe, high-quality products and services by never compromising on safety or quality and through the continuous improvement of all aspects of our activities that affect the safety of our products and services. The mechanism by which [Organization] champions these values and commitment to safety is through implementing and executing a Safety Management System that meets the requirements of the International Civil Aviation Organization (ICAO) Annex 19, "Safety Management".

[Organization] fosters a culture where every employee understands their role in the Product and Services Safety Program and feels empowered to identify and report any issues that they believe could adversely affect the Safety of our Products and Services, without fear of retribution.

The [Organization] SMS Leadership Board has the required competences, means, resources, and authority necessary to implement and execute [Organization] Product and Services Safety Program. The Leadership Board establishes safety objectives, evaluates progress and effectiveness, and holds management accountable for identifying and mitigating risks and impacts.

The [Organization] SMS Leadership Board deploys the necessary resources to implement the Product and Services Safety Program effectively throughout the lifecycle of our products, and provides employees with the information, training and tools required to ensure that product and services safety is a core value.

[Organization] is committed to providing world-class dependable products and services that meet customer expectations and all regulatory requirements. Our commitment to safety supports a spirit of continuous improvement in the design, manufacture and maintenance of our products.

[END]

Safety Policy: Example 3

- *Large multi-certificate holder organization. [Design / Production / Maintenance / Flight Test Operations]*
- *High-level safety objectives [as specific commitments] referenced in safety policy [Ref: Safety Objectives Example 1B]*

In everything we do and in all aspects of our business, we make safety our top priority, strive for first-time quality, and hold ourselves to the highest ethical standards as set forth in our Code of Conduct [Doc No.]. Our Safety Management System ensures that safety, quality and compliance of our products and services for the people who entrust is with their lives when they operate, maintain and fly on our products.

This requires our unyielding commitment to the following:

- We commit to a Safety Management System to advance our goals for safety, quality and compliance.
- We foster a positive safety culture that enables proactive identification and mitigation and risks in order to prevent accidents, injuries or loss of life.
- We ensure all employees understand the requirement to report any safety hazard, incident, or concern.
- We promote a just culture that protects and treats people fairly when they openly report safety, quality and compliance concerns.

- We openly communicate safety actions being taken while appropriately protecting the safety data and safety information driving those actions.
- We clearly define the responsibilities of all employees so that everyone understands their roles in ensuring the safety, quality and compliance of our products and services.
- We eliminate or mitigate potential safety, quality and compliance risks associated with our products and services which must include meeting all applicable requirements and regulations.
- We use actionable key performance metrics and targets that drive continuous improvement of our Safety Management System.
- We allocate sufficient resources [people, processes, tools and training] to supporting this safety policy.
- We ensure all employees understand that we all have a daily obligation to pursue safety, quality and compliance as described in this safety policy.

[END]

Safety Policy: Example 4

- *Large multi-certificate holder organization. [Design / Production / Maintenance]*
- *High-level safety objectives referenced in safety policy [as Principles]. [Ref: Safety Objectives Example 1A]*

This Product Safety Policy overleaf is one of a series of individual policies, contained in a single overall Policies document, endorsed by the organization's General Counsel, and mandatory for all employees. This policy text is an extract from the larger document. The Product Safety Policy is supported by relevant parts of other policies, including the Quality Policy, Speak Up Policy, and Security Policy, and all are supported by a separate Code of Conduct."

PRODUCT SAFETY

A. Policy values

[Organization] provides mission critical products that people's lives depend on. Our commitment to the safety of our products is therefore at the heart of our 'Operate Safely' core value.

Everything we deliver to a customer is our product - hardware, software, services and documentation, whether delivered separately or integrated into systems.

B. Principles

Five principles govern our approach to product safety:

1. Leadership commitment and accountability

Our leaders champion product safety and prioritise it so that safety-related tasks get the right attention, time and resources. We make accountability for product safety clear and ensure people understand what they are accountable for.

2. Level of product safety

We design our products to achieve a high level of safety consistent with their application, always ensuring that we meet or better the relevant company, legal, regulatory and industry requirements. We assess what could go wrong and put controls in place to meet the required safety levels throughout the product lifecycle and reduce the safety risks so far as is reasonably practicable. We evaluate how human and organisational factors can introduce risks to product safety and use our understanding when setting our controls.

3. Maintaining and improving product safety

We are committed to the continuous improvement of product safety and actively engage in setting industry standards and good practice. We measure our performance and rigorously investigate and resolve safety-related issues, systematically embedding the learning from these back into our practices and processes. Everyone is encouraged to report any product safety concerns.

4. Conforming product

Robust quality is an essential building block of product safety and by following our processes we ensure that our products and those of our suppliers conform to their specification.

5. Safety awareness and competence

Everyone who works in [Manufacturer] shares responsibility for product safety and we have to be mindful of the safety implications of our actions. Training is provided so that our people understand the [Manufacturer] Product Safety Policy and processes and can fulfil their collective and personal responsibility.

These principles are the foundation of our Product Safety Management System which is governed by the Company Product Safety Assurance Board.

C. Expectations

Always speak up about a product safety concern if you see one, report it if you have any doubt and remember, we are committed to treating everyone fairly and without prejudice in accordance with Our Code.

Always follow the parts of the [Organization] Management System applicable to your role. You should feel able and supported to perform the tasks assigned to you. If you are being

asked to do something which you do not feel qualified and/or experienced enough to do you should discuss with your manager.

Make sure you attend the Safety Awareness training appropriate to you. For additional guidance, Group Procedures, product safety documents and key contacts please access:

- Product Safety Management System Manual
- Safety and Product Assurance Engine Room

[END]

2.1 Safety Objectives [Reference Section 6.1.1.2]

The following examples are intended to illustrate some of the different approaches to the establishment of safety objectives. In some cases, objectives may directly reflect the expected safety performance of the organization (ie focusing on the contribution to the aviation system); in others, topics of priority or focus are identified, to indirectly improve the safety performance of the organization.

As discussed in Section 6.1.1.2, the objectives identified below are meaningful to the organization, sufficiently consistent with its other forms of internal communication, and ultimately support the improvement of the organization's safety performance. Some of the examples below also show the breakdown of the objectives into specific tasks.

2.2 Safety Objective Examples [Reference Section 6.1.1.2]

Safety Objective: Example 1

- *Large multi-certificate holder organization. [Design / Production / Maintenance]*
- *High-level strategic safety objectives integrated into safety policy [two examples]*

Safety Objective: Example 1A

This organization chose to merge its highest-level overall safety objectives within its product safety policy, and the key section (B - Principles) is reproduced below; the objectives of the organization are identified through the description of its 'principles'. It should be noted that this language is chosen to apply consistently across the organization (it has design, manufacturing and maintenance capability), including its non-aviation activities (ie supporting the 'corporate SMS' approach)

Extract from Safety Policy:

Section B - Principles

1 Leadership commitment and accountability

Our leaders champion product safety and prioritize it so that safety-related tasks get the right attention, time and resources. We make accountability for product safety clear and ensure people understand what they are accountable for.

2 Level of product safety

We design our products to achieve a high level of safety consistent with their application, always ensuring that we meet or better the relevant company, legal, regulatory and industry requirements. We assess what could go wrong and put controls in place to meet the required safety levels throughout the product lifecycle and reduce the safety risks so far as is reasonably practicable. We

evaluate how human and organizational factors can introduce risks to product safety and use our understanding when setting our controls.

3 Maintaining and improving product safety

We are committed to the continuous improvement of product safety and actively engage in setting industry standards and good practice. We measure our performance and rigorously investigate and resolve safety-related issues, systematically embedding the learning from these back into our practices and processes. Everyone is encouraged to report any product safety concerns.

4 Conforming product

Robust quality is an essential building block of product safety and by following our processes we ensure that our products and those of our suppliers conform to their specification.

5 Safety awareness and competence

Everyone who works in [Organization] shares responsibility for product safety and we have to be mindful of the safety implications of our actions. Training is provided so that our people understand the [Organization] Product Safety Policy and processes and can fulfil their collective and personal responsibility.

[END]

Safety Objective: Example 1B

A separate example of a similar approach of integrating high level safety objectives within an organization's safety policy, in this case, establishing 'commitments' with key phrases highlighted:

Extract from Safety Policy:

In everything we do and in all aspects of our business, we make safety our top priority, strive for first-time quality, and hold ourselves to the highest ethical standards as set forth in [reference to separate code of conduct and other sources]. Our Safety Management System ensures the safety, quality and compliance of our products and services for the people who entrust us with their lives when they operate, maintain and fly on our products.

This requires our unyielding commitment to the following:

- We commit to a **Safety Management System** to advance our goals for safety, quality and compliance.

- We foster a **positive safety culture** that enables proactive identification and mitigation of risks in order to prevent accidents, injuries, or loss of life.
- We ensure all employees understand the **requirement to report** any safety hazard, incident, or concern.
- We **promote a just culture** that protects and treats people fairly when they openly report safety, quality and compliance concerns
- We **openly communicate safety actions** being taken while appropriately protecting the safety data and safety information driving those actions.
- We **clearly define the responsibilities** of all employees so that everyone understands their roles in ensuring the safety, quality and compliance of our products and services.
- We **eliminate or mitigate potential safety, quality and compliance risks** associated with our products and services which must include meeting all applicable requirements and regulations.
- We use **actionable key performance metrics and targets** that drive continuous improvement of our Safety Management System.
- We **allocate sufficient resources** (people, processes, tools and training) to supporting this safety policy.
- We **ensure all employees understand** that we all have a daily obligation to pursue safety, quality and compliance as described in this safety policy.

[END]

Safety Objective: Example 2

- *Large multi-certificate holder organization. [Design / Production / Maintenance / Flight Test Operations]*
- *Strategic high-level safety objectives explicitly included as part of safety policy*

This organization chose to separately identify high level/strategic safety objectives within the safety policy, to draw attention to particular areas of intended focus. These are long-standing objectives.

Extract from Safety Policy:

Through our Just Culture, Safety Risk Management, and policy of continuous improvement, we will maximize the inherent safety of our operations by promoting best practices in product and aviation safety to achieve [Organization's] high-level product/aviation safety objectives:

- Design and manufacture of safe products
- Superior continued operational safety
- Safe internal flight operations
- Proactive employee participation in product/aviation safety and hazard reporting
- Inherent compliance to processes, procedures and policies associated with the design, manufacture and continued operational safety of [Organization] products

- Comprehensive safety risk management of compliance and conformity assurance processes

[END]

Safety Objective: Example 3

- *Large multi-certificate holder organization. [Design / Production / Maintenance / Flight Test Operations]*
- *Safety objectives separate from and NOT included in safety policy; supporting tasks developed for objectives.*

This organization created annual safety objectives with associated detailed supporting tasks, appropriate for tracking progress. The organization's safety policy references that safety objectives will be established but does not explicitly outline them.

YEAR : 20XX

	ANNUAL SMS OBJECTIVE	DETAILED SUPPORTING TASK
1	Achieve [regulator] [voluntary] SMS compliance concurrence	<i>1.1 Prepare for and support regulator SMS assessment</i>
2	Assure open and proactive reporting of potential and identified safety hazards from internal and external sources and enterprise-wide responsiveness to proactively assess and address.	<i>2.1 Implement enhanced standard work for potential safety issue read across</i>
		<i>2.2 Implement Safety Concern Reporting system</i>
		<i>2.3 Publish internal news article showcasing new employee hazard reporting system</i>
3	Proactive identification & management of safety significant Items	<i>3.1 Establish criteria, process, and publish key procedural documents</i>
4	Promote continuous improvement in safety culture, processes and products	<i>4.1 Complete baseline survey on safety culture</i>
		<i>4.2 Establish annual SMS training plan</i>
		<i>4.3 Establish annual communications plan</i>
		<i>4.4 Create New SMS Web Page/Site</i>
5	Ensure that employees are aware of the SMS policies, processes, and tools that are relevant to their responsibilities	<i>5.1 Annual review of Safety Policy by all employees</i>
		<i>5.2 Establish SMS training matrix</i>
6	Implement safety risk controls to achieve acceptable risk levels and establish risk level as low as reasonably practicable [ALARP] by balancing safety, operational and customer impact considerations.	<i>6.1 Establish means to monitor effectiveness of mitigations to achieve ALARP.</i>

[END]

Safety Objective: Example 4

- *Large multi-certificate holder organization. [Design / Production / Maintenance / Flight Test Operations]*
- *Safety objectives separate from and NOT included in safety policy; supporting tasks developed for objectives.*

Similar to Example 3, this organization created safety objectives with annual supporting tasks suitable for tracking. Most of the objectives remain the same year after year, with the supporting tasks adapted to planned annual projects and tracking. The safety objectives are aligned with the main four components of the SMS framework to ensure that there is at least one objective against each SMS component.

YEAR : 20XX

SMS Component	SMS Objective	Annual - Detailed supporting tasks / key performance indicators
Safety Policy and Objectives	Ensure product safety policies, procedures, accountabilities and leadership behaviors drive continuous improvement of safety culture	Annual review of safety policy
		Complete product safety culture survey, and analyze results
Safety Risk Management	Assure enterprise-wide responsiveness to, and open reporting of, identified safety hazards	Complete hazard identification training for all employees
		Implement enhanced process for read-across of safety issues
		Establish plan for providing awareness to the “aftermarket” of part functional criticality, where warranted.
	Proactive identification and management of safety critical parts, features and risk controls including design, manufacturing and aftermarket	Establish plan for operator/partner/supplier engagement for SMS collaboration
Assess method to update FMECA / SSA based on service experience for safety critical parts.		
Safety assurance	Achieve readiness for civil aviation authority acknowledgement of fully operational SMS	Prepare for and support SMS assessment by [civil aviation authority]
	Utilization of KPI and audits for monitoring safety performance and	Implement improved timeliness metrics
		Conduct planned audits of key safety processes

	driving continuous improvement of products and processes	
Training and Communication	Ensure that employees are aware of, and adequately trained for, the SMS Policies, processes, and tools that are relevant to their responsibilities	Complete annual employee product safety certification
		Publish annual training plan including key position req'd training
		Publish annual communication plan
		Develop best-in-class Product Safety website

[END]

Safety Objective: Example 5 [“Divisional” Objectives]

- *Large multi-certificate holder organization. [Design / Production / Maintenance]*
- *Short term safety objectives to supplement strategic objectives included in safety policy*

This organization identified items for focus in the coming year for a specific division, divided into three categories, combining both reactive and proactive activity. The local management of the division defined the objectives and agreed them through the division's 'safety board'. These are reviewed each year.

[Year] Priorities		
Dealing with Unsafe Conditions	New Risk Discovery	Safety Management System
Rapid and Effective Containment	<i>[internal 'possible safety issue' report]</i> sentencing completed in 90 days	<i>[Internal framework for assessment of safety control effectiveness/ hazards]</i> emergent findings managed effectively with credible plans to return to 'green' status.
Solutions identified, developed, validated and implemented to plan	Complete product sampling plans (at assembly and component level) and focused periodic safety reviews	Embed <i>[review of recent non-involved accident]</i> learning
Meet <i>[Identified unsafe condition reports]</i> closure targets consistently	'Event reports' and 'product delivery escape reports' resolution.	Conduct pilot studies for expected SMS regulation.

Cumulative risk to 'mature fleet' levels		Incorporate new business unit into design organisation, and establish internal monitoring system
		Deliver digital reporting system for [identified unsafe condition] and 'possible safety issue' reporting.

Safety Policy Statement

A company-wide Aviation Safety Management System (SMS) is the framework in which [organization] will pursue the highest levels of safety for our employees and our customers. By design, the SMS is a managed approach to safety activities across the enterprise with focus on hazard identification and risk mitigation to assure product, occupational and operational safety.

In achieving the SMS objectives, [organization] leaders and managers will:

- Sustain a positive safety culture through decisions and actions that promote safety
- Encourage reporting of hazards, as well as errors and mistakes
- Inform employees about safety, and promote safety as a core value
- Provide financial, personnel, and other resources to sustain an effective **SMS**
- Be receptive to evaluating safety performance and making necessary improvements
- Reinforce importance of regulatory compliance as the foundation of product safety

The [organization] president is the Accountable Executive for the SMS and as such, has ultimate responsibility for resourcing the SMS and achieving acceptable level of safety performance company wide. The Accountable Executive will review this policy statement annually and ensure it is communicated throughout the organization. Other safety responsibilities and processes are detailed in the [organization] Safety Management Manual. This includes identification of Accountable Managers that will execute this Policy, but also relevant objectives and targets within their business unit.

[organization] will manage risk through our safety risk management processes, and by actively controlling risk through deliberate/conservative actions and compliance with published procedures. Product development lifecycle from design to fleet operational use, will leverage the SMS to proactively identify hazards, investigate root cause, implement corrective action(s) and assess effectiveness of mitigations.

In addition to aviation safety risks (i.e., in the operation of an aircraft), [organization] is also focused on occupational safety, creating a work environment conducive to employee personal safety. Employees are encouraged to be observant to potential hazards, stop any unsafe activity and actively file reports. Employees will receive information on lessons learned from safety investigations and corrective actions resulting from SMS risk management processes.

[organization] leadership is committed to sustaining a positive safety culture underpinned by "Just Culture." Just Culture is characterized by a non-retribution policy toward anyone intervening or reporting a perceived unsafe situation, or for self-reporting an unintentional error. Activities involving intentional disregard for applicable regulations, company policies and procedures, illegal activities, and/or drugs or alcohol may be subject to the Progressive Counseling/Corrective Action policy.

[organization] Senior Leadership Team is dedicated to sustaining a culture of commitment-to-safety within an environment where employees feel empowered and trusted. The effectiveness of the SMS depends on all employees sharing a common belief that safety is how [organization] does business every day, and by action, management's drive to continually improve our company safety culture.

//signed//

Accountable Executive

Company XXX Safety Policy

The Executive Management recognizes that an effective program relies on safety as an integral component of the program. An effective Safety Management System (SMS) is vital to the implementation of our safety expectations. Therefore, we are committed to implementing objectives, processes, and procedures to maintaining and improving a fully functional SMS which reflects a positive safety culture throughout XXX.

It is our expectation that all employees and other program participants will execute their responsibilities in a safe and efficient manner which contributes to a positive safety culture in which:

- ✓ There is a commitment to safety over competing goals and demands.
 - ✓ They acknowledge their accountability and act on their individual responsibility for safety.
 - ✓ They trust, use, and rely on the organization's processes for managing safety.
 - ✓ There is good communication in the organization, and personnel continue to learn and develop through training and coaching.
-
- XXX will establish specific safety related objectives and will periodically publish and distribute to all employees those objectives and plans.
 - The safety objectives will be monitored, measured, and tracked to ensure that they are met. All employees and individuals participating in the program have the responsibility to perform their duties and activities in the safest practical manner.
 - XXX is committed to providing the necessary financial, personnel, and other resources to operate safely and establish and maintain a fully functional SMS.
 - XXX is dedicated to establishing a confidential employee (or participant) reporting system to report all hazards, accident, incidents, and safety issues without fear of reprisal.
 - XXX will conduct periodic safety meetings.
 - XXX will publish and maintain a Mishap Response Plan.
 - Activities involving intentional disregard for regulations, company policies and procedures, illegal activities, and/or drugs or alcohol may be subject to disciplinary actions.

Executive management will convey this expectation to all employees and program participants through posting, intranet sites, company publications, and other means to ensure all employees and participants are aware of the company's SMS, their duties and responsibilities, and our safety policy.

This safety policy will be periodically reviewed by Executive Management to ensure it remains relevant and appropriate to the company.

Name

Chief Executive Officer

Flight Test Safety Statement

Company XX Flight Test is committed to providing our employees, contractor/supplier teammates and facility visitors with a safe environment that meets or exceeds operational, occupational and environmental safety standards. The Corporate Safety Management System (SMS) Safety Policy and SMS Culture Policy outline the company commitment to safety and the promotion of a positive (Just) safety culture. However, due to the uniqueness of flight test and the elevated risk common to air vehicle and systems testing, it is appropriate to underscore key safety processes and performance expectations that are foundational to safe and efficient flight testing.

Principal tenants include:

-Execute with precision. We will adequately plan all evolutions with emphasis on hazard identification and risk mitigation across facility, aircraft maintenance/servicing or flying activities. Paramount to flight test success is effective risk management and continual assessment of safety risk controls. Planning, preparation and procedural discipline is our forte, and since we test and develop unproven aircraft and systems, we will be vigilant for potential threats and contribute to the development of clear work instructions and manuals. We will challenge assumptions and maintain a level of inquisitiveness to leave no stone unturned.

-Execute as a team. Safety is a shared responsibility, but it is incumbent upon each individual to actively report hazards or suspect conditions. We will promote a vibrant reporting culture and thoroughly investigate safety issues. Every participant in an evolution is empowered to halt the activity if they feel safety margins are insufficient or are being compromised. Open and transparent communication is vital with the abundance of varied and high-tempo of activities within our area of responsibility. No tribal knowledge!

We – flight test – ensure our products are safe, reliable and meet demanding customer expectations through rigorous and disciplined testing. The flight test organization shoulders an abundance of company operational risk, and the *Company XX* Flight Test Team should embrace this awesome responsibility. With this commitment and pledge to resource, promote and continuously mature an effective safety system in Flight Test, we will safely and efficiently conduct the test mission with professional excellence, conservatism, and unwavering discipline.

//signed Accountable Manager//

§ 5.21 Safety Policy-Assessment and Evaluation

Compliance Assessment

Assessment	Requirement	P	U	How It Was Achieved	Comments
	Assessment	(a) The certificate holder must have a safety policy that includes at least the following:			
(1) The safety objectives of the certificate holder.					
(2) A commitment of the certificate holder to fulfill the organization's safety objectives.					
(3) A clear statement about the provision of the necessary resources for the implementation of the SMS.					
(4) A safety reporting policy that defines requirements for employee reporting of safety hazards or issues.					
(5) A policy that defines unacceptable behavior and conditions for disciplinary action.					
Assessment	Requirement	P	U	How It Was Achieved	Comments
	(b) The safety policy must be signed by the accountable executive described in § 5.25.				
	(c) The safety policy must be documented and communicated throughout the certificate holder's organization				
(c) The safety policy must be documented and communicated throughout the certificate holder's organization.					
Guidance	What To Look For				
	The safety policy must be consistent with the requirements of §5.21. It may be a high level document and does not need to be long and detailed. The organization must establish, document, implement, and maintain its policy, and the processes and procedures that stem from the policy, in a way that works for itself.				
	Present	Unsatisfactory			
A safety policy that includes all applicable requirements, is signed and reviewed regularly by the accountable manager. There is a means in place for the communication of the safety policy. This may be through material available to employees (e.g., posters, websites, documents)	The process or procedure is not present or does not meet the all or a portion of requirement.				

VSMS C Assessment of 16 Sep 2020

§ 5.23 Safety accountability and authority.

Compliance Assessment

Assessment	Requirement	P	U	How It Was Achieved	Comments
	(a) The certificate holder must define accountability for safety within the organization's safety policy for the following individuals:				
	(1) Accountable executive, as described in § 5.25.				
	(2) All members of management in regard to developing, implementing, and maintaining SMS processes within their area of responsibility, including, but not limited to:				
	(i) Hazard identification and safety risk assessment.				
	(ii) Assuring the effectiveness of safety risk controls.				
	(iii) Promoting safety as required in subpart E of this part.				
	(iv) Advising the accountable executive on the performance of the SMS and on any need for improvement.				
(3) Employees relative to the certificate holder's safety performance.					
Assessment	Requirement	P	U	How It Was Achieved	Comments
	(b) The certificate holder must identify the levels of management with the authority to make decisions regarding safety risk acceptance.				
Guidance	What To Look For				
	(a)(1) The certificate holder's policies define accountability for the accountable executive. <i>The accountable executive has the authority to provide sufficient resources for relevant safety improvements. (Note: this links to a 5.25 requirement)</i> <i>The certificate holder's policies require it's management to develop, implement, and maintain SMS processes. (Note: management is required to Coordinate implementation, maintenance, and integration of the SMS throughout the organization as per 5.25(c))</i> (a)(2) and (a)(3) The certificate holder's policies define accountability for each of its management and line employees specific to their roles within the SMS. The organizational functions for which employees have safety accountabilities should be identified in the system description. (b) Levels of Management authorized to make decisions on risk acceptance are defined.				
	Present		Unsatisfactory		
An accountable executive has been appointed with full responsibility and ultimate accountability for the SMS. Levels of Management authorized to make decisions on risk acceptance are defined.		The process or procedure is not present or does not meet the all or a portion of requirement.			

§ 5.25 Designation and responsibilities of required safety management personnel.

Compliance Assessment

Assessment	Requirement	P	U	How It Was Achieved	Comments	
	(a) Designation of the accountable executive. The certificate holder must identify an accountable executive who, irrespective of other functions, satisfies the following:					
	(1) Is the final authority over operations authorized to be conducted under the certificate holder's certificate(s).					
	(2) Controls the financial resources required for the operations to be conducted under the certificate holder's certificate(s).					
	(3) Controls the human resources required for the operations authorized to be conducted under the certificate holder's certificate(s).					
	(4) Retains ultimate responsibility for the safety performance of the operations conducted under the certificate holder's certificate(s).					
Assessment	Requirement	P	U	How It Was Achieved	Comments	
	(b) Responsibilities of the accountable executive. The accountable executive must accomplish the following:					
	(1) Ensure that the SMS is properly implemented and performing in all areas of the certificate holder's organization.					
	(2) Develop and sign the safety policy of the certificate holder.					
	(3) Communicate the safety policy throughout the certificate holder's organization.					
	(4) Regularly review the certificate holder's safety policy to ensure it remains relevant and appropriate to the certificate holder.					
(5) Regularly review the safety performance of the certificate holder's organization and direct actions necessary to address substandard safety performance in accordance with §5.75						
Compliance Assessment (§5.25 continued)						
	Requirement	P	U	How It Was Achieved	Comments	

Assessment	(c) Designation of management personnel. The accountable executive must designate sufficient management personnel who, on behalf of the accountable executive, are responsible for the following:				
	(1) Coordinate implementation, maintenance, and integration of the SMS throughout the certificate holder's organization.				
	(2) Facilitate hazard identification and safety risk analysis.				
	(3) Monitor the effectiveness of safety risk controls.				
	(4) Ensure safety promotion throughout the certificate holder's organization as required in subpart E of this part.				
	(5) Regularly report to the accountable executive on the performance of the SMS and on any need for improvement.				
What To Look For					
Initial Assessment: §5.25(a)					
<ul style="list-style-type: none"> • The accountable executive has the authority to provide sufficient resources for relevant safety improvements. • The accountable executive has ultimate responsibility for operations and safety performance. 					
Present			Unsatisfactory		
An accountable executive has been appointed with full responsibility and ultimate accountability for the SMS.			The process or procedure is not present or does not meet the all or a portion of requirement.		
What To Look For					
Initial Assessment: §5.25(b)					
<ul style="list-style-type: none"> • Ensure the safety policy is signed and implemented • Ensure there is a requirement to communicate the safety policy. • Assess whether the safety objectives are appropriate and relevant to the type of activities being performed by the organization (i.e., design or production). • Ensure there is a requirement to regularly review the safety policy and performance. 					
Present			Unsatisfactory		
An accountable executive has ensured the safety policy has been signed, implemented, and communicated throughout the organization. The safety policy has been regularly reviewed by accountable executive.			The process or procedure is not present or does not meet the all or a portion of requirement.		
What To Look For					
Guidance					

Initial Assessment: §5.25(c)

- Are all the required SMS functions defined and assigned.
- Talk with managers and staff regarding their responsibilities.
- Confirm senior managers are aware of the organization's responsibilities.

Present

The safety responsibilities are clearly defined, designated, and documented.

Designated managers who are responsible for the implementation and maintenance of the SMS has been appointed with a direct reporting line to the accountable executive.

Unsatisfactory

The process or procedure is not present or does not meet the all or a portion of requirement.

§5.51 Applicability					
Compliance Assessment					
Assessment	Requirement	P	U	How It Was Achieved	Comments
	A certificate holder must apply safety risk management to the following:				
	(a) Implementation of new systems.				
	(b) Revision of existing systems.				
	(c) Development of operational procedures.				
(d) Identification of hazards or ineffective risk controls through the safety assurance processes in subpart D of this part.					
Guidance	What To Look For				
	<p>The certificate holder's procedures define when SRM must be performed and ensure that it meets the requirements of §5.51. Examples may include;</p> <ul style="list-style-type: none"> <input type="checkbox"/> Design and Certification System <ul style="list-style-type: none"> 1) Changes to the design review process 2) Implementing a new safety critical design procedure <input type="checkbox"/> Production System <ul style="list-style-type: none"> 1) Opening a new production facility, 2) Initial selection of a supplier, 3) Developing a substantive new manufacturing process, 4) Moving a production facility <input type="checkbox"/> Continued Airworthiness System <ul style="list-style-type: none"> 1) Changes to processes that monitor the field for in-service failures or malfunctions 2) Changes to processes for releasing continued airworthiness information to operators 3) Implementing a new procedure to assess the safety risk of product anomalies <p>Compliance Demonstration for SRM including establishing requirements of §5.53 and §5.55 are incorporated into SRM process.</p>				
		Present	Unsatisfactory		
	Policy/Procedure should identify when SRM should be performed and be consistent with the requirements of §5.51.		The process or procedure is not present or does not meet the all or a portion of requirement.		

Part 5.53 System Analysis and Hazard Identification-Assessment and Evaluation

Compliance Assessment

	Requirement	P	U	How It Was Achieved	Comments
	Assessment	(a) When applying safety risk management, the certificate holder must analyze the systems identified in § 5.51. Those system analyses must be used to identify hazards under paragraph (c) of this section, and in developing and implementing risk controls related to the system under § 5.55(c).			
(b) In conducting the system analysis, the following information must be considered:					
(1) Function and purpose of the system.					
(2) The system’s operating environment.					
(3) An outline of the system’s processes and procedures.					
(4) The personnel, equipment, and facilities necessary for operation of the system.					
(c) The certificate holder must develop and maintain processes to identify hazards within the context of the system analysis.					
Guidance	What To Look For				
	A process to identify hazards by describing and analyzing the §5.51 systems. For D&M, the systems include the product as well as the organization’s operating environment. The system description and analysis provides a basis for understanding possible hazards.				
	Present			Unsatisfactory	
	The organization’s SMS should include processes and procedures to ensure its systems (both products and operating environment) are described and analyzed for use in identifying hazards.			The process or procedure is not present or does not meet the all or a portion of requirement.	

§ 5.55 Safety risk assessment and control.

Compliance Assessment

Assessment	Requirement	P	U	How It Was Achieved	Comments
	(a) The certificate holder must develop and maintain processes to analyze safety risk associated with the hazards identified in § 5.53(c).				
	(b) The certificate holder must define a process for conducting risk assessment that allows for the determination of acceptable safety risk.				
	(c) The certificate holder must develop and maintain processes to develop safety risk controls that are necessary as a result of the safety risk assessment process under paragraph (b) of this section.				
	(d) The certificate holder must evaluate whether the risk will be acceptable with the proposed safety risk control applied, before the safety risk control is implemented.				
Guidance	What To Look For				
	For products, acceptable safety risk should be based on the corresponding regulatory requirements and technical or performance standards. For production, safety risk acceptability is defined by the 14 CFR part 21 requirements for a product to conform to its approved design. There should be a process to develop and implement safety risk controls when the certificate holder determines they are needed.				
	Present	Unsatisfactory			
Procedures exist for conducting risk assessments and determining need for and adequacy of safety risk controls.	The process or procedure is not present or does not meet the all or a portion of requirement.				

§ 5.71 Safety performance monitoring and measurement.

Compliance Assessment

Assessment	Requirement	P	U	How It Was Achieved	Comments	
	(a) The certificate holder must develop and maintain processes and systems to acquire data with respect to its operations, products, and services to monitor the safety performance of the organization. These processes and systems must include, at a minimum, the following:					
	(1) Monitoring of operational processes.					
	(2) Monitoring of the operational environment to detect changes.					
	(3) Auditing of operational processes and systems.					
	(4) Evaluations of the SMS and operational processes and systems.					
	(5) Investigations of incidents and accidents.					
	(6) Investigations of reports regarding potential non-compliance with regulatory standards or other safety risk controls established by the certificate holder through the safety risk management process established in subpart B of this part.					
	(7) A confidential employee reporting system in which employees can report hazards, issues, concerns, occurrences, incidents, as well as propose solutions and safety improvements.					
Requirement	P	U	How It Was Achieved	Comments		
(b) The certificate holder must develop and maintain processes that analyze the data acquired through the processes and systems identified under paragraph (a) of this section and any other relevant data with respect to its operations, products, and services.						
Guidance						
What To Look For						
Procedures require the certificate holder to develop, maintain and analyze processes and systems to acquire data with respect to its operations, products, and services to monitor the safety performance of the organization, in accordance with 5.71.						
Demonstration for Safety Performance and Monitoring to included requirements of §5.73 and §5.75						
Present			Unsatisfactory			
Processes and systems are in place to acquire and analyze data with respect to its design, production and continued airworthiness operations.			The process or procedure is not present or does not meet the all or a portion of requirement.			

§ 5.73 Safety performance assessment.

Compliance Assessment

	Requirement	P	U	How It Was Achieved	Comments
	Assessment	(a) The certificate holder must conduct assessments of its safety performance against its safety objectives, which include reviews by the accountable executive, to:			
(1) Ensure compliance with the safety risk controls established by the certificate holder.					
(2) Evaluate the performance of the SMS.					
(3) Evaluate the effectiveness of the safety risk controls established under § 5.55(c) and identify any ineffective controls.					
(4) Identify changes in the operational environment that may introduce new hazards.					
(5) Identify new hazards.					
(b) Upon completion of the assessment, if ineffective controls or new hazards are identified under paragraphs (a)(2) through (5) of this section, the certificate holder must use the safety risk management process described in subpart C of this part.					
Guidance	What To Look For				
	The certificate holder's procedures should require the data collected under §5.71 is assessed against its safety objectives to evaluate its safety performance. The certificate holder's procedures should determine if the processes are successful in managing risk and the resulting effectiveness of the implemented risk controls, from both a product and organizational perspective.				
	Present		Unsatisfactory		
	Procedures exist for assessing the performance of the SMS against the certificate holder's safety objectives including reviews by the accountable executive.	The process or procedure is not present or does not meet the all or a portion of requirement.			

§ 5.75 Continuous improvement.

Compliance Assessment

Assessment	Requirement	P	U	How It Was Achieved	Comments
	The certificate holder must establish and implement processes to correct safety performance deficiencies identified in the assessments conducted under § 5.73.				
Guidance	What To Look For				
	The certificate holder's procedures require that deficiencies identified under §5.73 are corrected.				
	Present	Unsatisfactory			
A process for correcting safety performance deficiencies is in place.	The process or procedure is not present or does not meet the all or a portion of requirement.				

§ 5.91 Competencies and training.

Compliance Assessment

Assessment	Requirement	P	U	How It Was Achieved	Comments
	The certificate holder must provide training to each individual identified in § 5.23 to ensure the individuals attain and maintain the competencies necessary to perform their duties relevant to the operation and performance of the SMS.				
Guidance	What To Look For				
	1. Review the SMS training plan for individuals (in §5.23) including course content, delivery method and recurrence. 2. Training considers key components of an effective SMS i.e. Hazard identification, Safety Risk Assessment, Effectiveness of Safety Risk Controls and Safety Promotion. 3. Does a process exist to evaluate the competency of persons being trained?				
	Present	Unsatisfactory			
There is a training plan for SMS in place that includes initial and recurrent training. The training covers individual safety duties (including roles, responsibilities and accountabilities) and how the organization's SMS operates. All individuals requiring training are identified and scoped according to their SMS accountability or responsibilities.	The process or procedure is not present or does not meet the all or a portion of requirement.				

§ 5.93 Safety communication.

Compliance Assessment

Assessment	Requirement	P	U	How It Was Achieved	Comments
	The certificate holder must develop and maintain means for communicating safety information that, at a minimum:				
	(a) Ensures that employees are aware of the SMS policies, processes, and tools that are relevant to their responsibilities.				
	(b) Conveys hazard information relevant to the employee's responsibilities.				
	(c) Explains why safety actions have been taken.				
	(d) Explains why safety procedures are introduced or changed.				
Guidance	What To Look For				
	<ul style="list-style-type: none"> • Process exists for determining what safety information is communicated. • Process exists to communicate safety information in accordance with safety/risk priority. • Safety information is easily accessible by anyone in the organization. 				
	Present	Unsatisfactory			
Processes exist that foster open and clear communication, including safety critical information, among employees and management.	The process or procedure is not present or does not meet the all or a portion of requirement.				

§ 5.95 SMS documentation.

Compliance Assessment

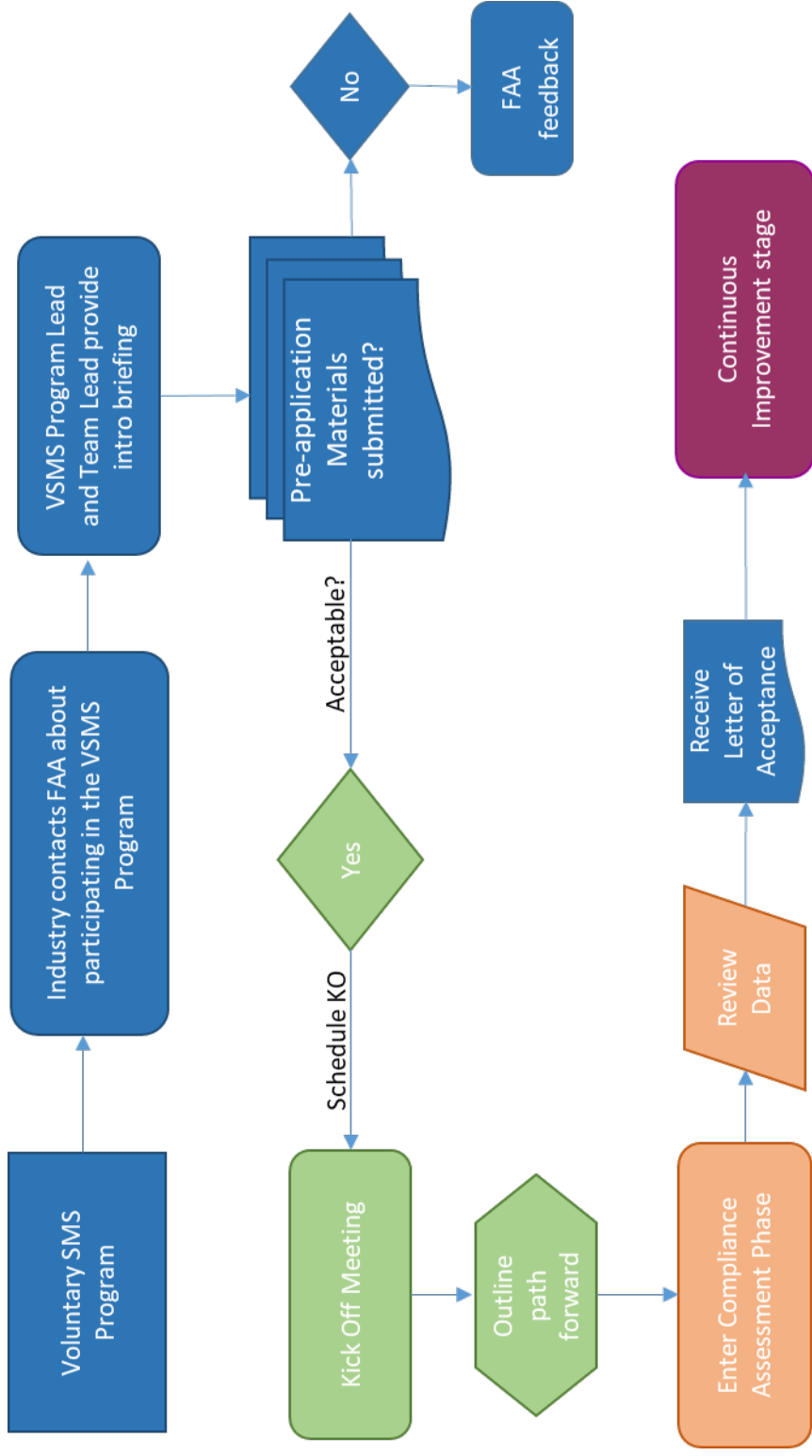
Assessment	Requirement	P	U	How It Was Achieved	Comments	
	The certificate holder must develop and maintain SMS documentation that describes the certificate holder's:					
	(a) Safety policy.					
	(b) SMS processes and procedures.					
Guidance	What To Look For					
	Documentation of an organization's SMS policy, processes and procedures includes the steps involved, methods to be used, and associated criteria, objectives, expected outputs, and outcomes necessary to meet the regulatory requirements. The manner and format of documentation is at the election of the organization. The organization should have a document management system to maintain the documents dealing with these policies, processes, and procedures.					
	Present			Unsatisfactory		
The SMS documentation includes the policies and processes that describe the organization's SMS and processes.			The process or procedure is not present or does not meet the all or a portion of requirement.			

§ 5.97 SMS records.

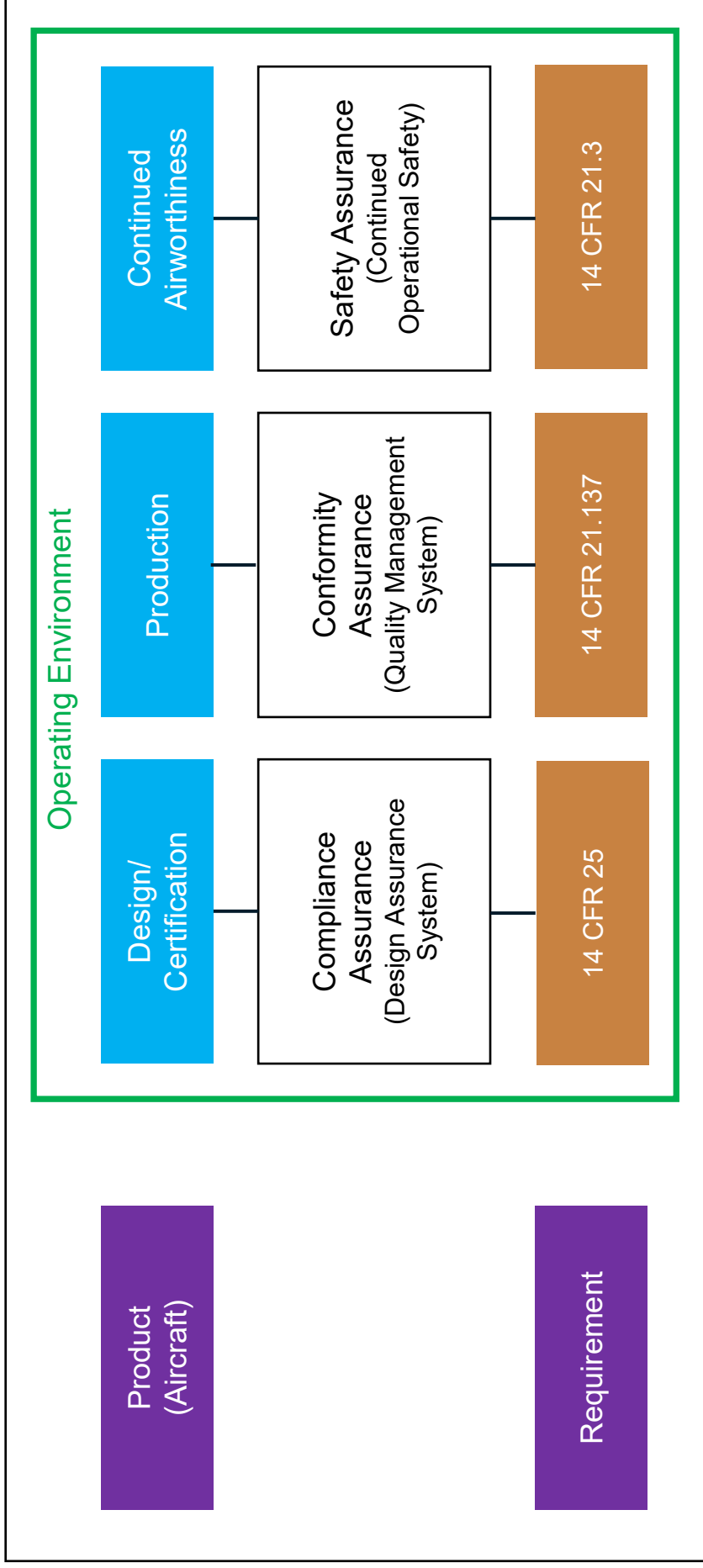
Compliance Assessment

	Requirement	P	U	How It Was Achieved	Comments
	Assessment	(a) The certificate holder must maintain records of outputs of safety risk management processes as described in subpart C of this part. Such records must be retained for as long as the control remains relevant to the operation.			
(b) The certificate holder must maintain records of outputs of safety assurance processes as described in subpart D of this part. Such records must be retained for a minimum of 5 years.					
(c) The certificate holder must maintain a record of all training provided under § 5.91 for each individual. Such records must be retained for as long as the individual is employed by the certificate holder.					
(d) The certificate holder must retain records of all communications provided under § 5.93 for a minimum of 24 consecutive calendar months.					
Guidance	What To Look For				
	The certificate holder's procedures require that SMS records be maintained in accordance with §5.97. <ul style="list-style-type: none"> • (a) SRM records for a long as they are relevant. • (b) SA records for a minimum of 5 years. • (c) SMS training records for individuals for duration of employment. • (d)Records of SMS communications for a minimum of 24 calendar months. 				
	Present		Unsatisfactory		
	The certificate holder's procedures require that SMS records be maintained in accordance with §5.97.		The process or procedure is not present or does not meet the all or a portion of requirement.		

AIR Voluntary SMS Flow



VSMS Systems Description





Why Safety Management Gets Safety Objectives Wrong

Somewhat surprisingly, in [aviation safety management systems](#) (SMS), safety objectives are often quite misunderstood. Experienced safety management may have a slightly misguided understanding of safety objectives.

New safety management will simply ask, *what are safety objectives?* Do you know how to properly describe safety objectives?

Some of the most common errors made with safety objectives are:

- Not understanding relationship between safety goals, objectives, and KPIs;
- Not understanding how to properly write good safety objectives (i.e., using language that is either vague or not measurable); or
- Having too few or an unmanageable number of safety objectives.

Related Articles on Aviation SMS Goals and Objectives

- [How to Create Safety Objectives in Aviation SMS with Examples](#)
- [How to Shape Your Corporate Vision with Aviation Safety Goals and Objectives](#)
- [The Five Elements of ICAO's Safety Policy and Objectives in SMS](#)

If you don't have a solid understanding of safety objectives, and therefore can't properly create a suite of objectives, your safety performance monitoring will absolutely suffer. When safety performance is misguided, you will have a hard time [making good safety decisions](#).

Accountable executives need access to safety objectives to monitor the performance of the SMS. Safety managers work for the accountable executive who is responsible for:

- Making sure the SMS is properly implemented and performing in all areas of the organization; and
- Regularly reviewing organizational safety performance and addressing substandard safety performance.

When accountable executives are unable to monitor the performance of their SMS, their risk for regulatory action increases. This is not how you want to manage your safety program.

What Are Safety Objectives in Aviation SMS

Safety objectives in aviation SMS are the criteria safety programs use to bridge the gap between the operational environment and safety goals and objectives. For any given period of time, safety objectives are also the basis for how safety programs measure safety performance.

In short, creating safety objectives is one of the most important tasks aviation safety managers, safety committees, and/or safety teams will do. Some key attributes you should know about safety objectives are:

- They are built **in response to safety goals** (which are fairly static over time);
- Usually, an organization's safety objectives are **reviewed and updated on a yearly basis**;
- They are the **basis for developing key performance indicators** (KPIs), also called safety performance indicators (SPIs); and
- Safety objectives are **specific and measurable**, and are usually written in single sentence form such as, "Increase hazard reporting 10% over previous year."

The last point is an extremely – and I stress **extremely** – important. For one, it's probably the most common area of safety objectives where safety managers make mistakes. Also, the better safety objectives are defined in sentence form, the better you will be able to:

- Demonstrate to auditors how your objectives tie into safety goals and objectives; and
- Create and track **proper key performance indicators**.

Related Articles on Key Performance Indicators (KPIs) in Aviation SMS

- [What Is a Key Performance Indicator \(KPI\) in Aviation SMS?](#)
- [How to Set and Monitor Key Performance Indicators \(KPIs\) in Existing SMS](#)
- [How to Automate Key Performance Indicator KPI Monitoring](#)

Here's how to create proper safety objectives.

How Safety Objectives Are Created

[Creating safety objectives](#) is done in response to organizational safety goals and objectives. Safety goals are general, high level things your organization would like to accomplish, such as:

- "Develop a [hazard reporting culture](#)."

Each safety goal will have multiple safety objectives that allow your organization to **account** for each goal. In the case of our example goal, some objectives to account for it:

- Increase hazard reporting 10% over previous year;
- Reduce average day for hazard reporting for new employees to less than 14 days;

- Train at least 95% of employees on hazard identification; and
- Reduce distribution of high risk issues by 10%.

These objectives ground the safety goal in the operational environment. They are specific and easily measurable. Some safety goals may have a handful of objectives, and some safety goals will only have one or two objectives.

Difference between Safety Goals and Objectives

Let's briefly look at the difference between safety goals and objectives in a bit more detail. As said in the section above, safety goals are:

- High level, general areas of safety that your organization would like to reach;
- Updated seldom, such as minor updates on a yearly or biennially; and
- Will touch on every level of your safety program, from risk management to safety promotion.

In contrast, safety objectives are:

- Low level, specific areas of safety that your program would like to reach;
- Updated often, such as semi-annually or yearly, with major updates or overhauls (i.e., organizations will commonly have different objectives each year); and
- Each objective is in response to a specific, single goal.

Related Articles on Monitoring Aviation Safety Goals

- [How to Maintain Monthly Aviation SMS Hazard Reporting Goals](#)
- [3 Goal-Setting Tips for Aviation Key Performance Indicators - with Free KPI Resources](#)
- [How to Be Compliant with ICAO Safety Performance Monitoring and Measurement](#)

A good way of understanding the relationship between safety goals and objectives is that a safety goal is a parent to multiple safety objective children.

Examples of Safety Objectives in Aviation Safety

Some examples of common safety objectives that can help you build your own objectives are the following – simply substitute a number where “X” is listed:

- Increase hazard reporting by X% over previous year.
- Decrease average time for closing high risk issues by X number days over previous year;
- Decrease number of internal audit findings by X number over previous year;

- Hold X number of safety meetings;
- Having an average meeting attendance rate of X number;
- Increase number of employees who have received all available training by X%;
- Reduce number of fatigue incidents by X%;
- Increase average score of safety culture survey by X%; and
- Increase number of control measures by X%.

There are many more objectives beyond this, but hopefully this list should give you a good idea of what specific and measurable looks like. You might compare the list above to less effective objectives, which are either NOT measurable or specific like:

- Hold a proper number of meetings to facilitate safety;
- Involve employees more in decision-making; and
- Improve risk management efficiency.

Objectives such as these are either too vague to be measurable, or are a kind of objective which is impossible to measure.

Final Thought: How Safety Objectives Are Measured

The last thing you need to understand is how safety objectives are measured. If you have created quality safety objectives (i.e., specific and measurable), then monitoring those objectives is easy. You simply need to:

- [Create a KPI](#) for each objective;
- Figure out how you are going to acquire KPI for that data; and
- Ensure that you are actually monitoring that KPI.

With aviation risk management software, these are tracked automatically for you. With manual systems such as Excel, you will need to make sure that you update your KPI spreadsheet as you acquire data or analyze data.

At the end of the year, you can review your KPIs, and update your objectives as needed based on how well you achieved success/failure for meeting each objective.

Obviously, spreadsheets are more prone to neglect and error than monitoring safety objectives from an SMS database. Managing an aviation SMS also appears more professional than a spreadsheet. To me, spreadsheets seem like a "home job." In order for the accountable executive to [demonstrate continuous improvement of the SMS](#), your company will need effective tools and processes to undertake [safety performance monitoring and measurement](#) activities.

If I were the accountable executive, I would prefer to have some assurance that I could meet my responsibilities. I would want a commercially available SMS database that manages all the SMS requirements instead of a point solution or an Excel spreadsheet. I just don't place much trust in spreadsheets, especially when you consider all the [SMS documentation requirements](#).

Convinced That You Have A Good Safety Culture?

Robert Sumwalt April 11, 2022



Credit: Llewellyn/Alamy Stock Photo

“What really stands out here is our excellent safety culture,” boasted the senior executive as he sat across the table from me. My eyes probably glazed over as I recalled in my mind something that Dr. James Reason wrote: “It is worth pointing out that if you are convinced that your organization has a good safety culture, you are almost certainly mistaken.... A safety culture is something that is striven for but rarely attained.”

Dr. Reason’s statement is profound in two ways: First, there is no “there” with a safety culture. Instead, striving for a strong safety culture is a continuous journey; there is no destination. Second, the minute you think you have a good safety culture, there’s a tendency to get complacent. We all know that things can bite when complacency sets in.

To counter complacency, one of the five principles of a high reliability organization (HRO) is preoccupation with failure--never getting too comfortable and constantly considering what could go wrong, and most importantly, how to prevent it.

The term *safety culture* was first used in the International Atomic Energy Agency’s report of the 1986 Chernobyl nuclear disaster. Since then, it’s been tossed around by some who wouldn’t know the difference between it and a hole in the ground. Rather than trying to define it, I’ll outline a few key attributes of a healthy safety culture.

Having *top-level management support and commitment* is probably the single most important attribute of a positive safety culture. Someone once asked me what to do if this support wasn't present. My response: "Find another job." Without management support, the prospects of a thriving safety culture are slim to nil.

Unfortunately, there's often a lot of lip service surrounding safety culture. Everyone has a strong safety culture until it interferes with something else. I interviewed for a job with the CEO of a Fortune 500 company. Before accepting the job, I wanted to hear his views on safety. Having heard all the right answers, and I accepted the job. My first day at work, I drove him from the airport to the office. He didn't bother to put on his seat belt. Talk is cheap. Actions and behaviors are what counts.

Another attribute of a healthy safety culture is where employees feel comfortable reporting safety concerns. To create a robust *reporting culture*, the organization needs *trust* and a *just culture*. Without a robust reporting culture, safety problems can go unresolved. To create an atmosphere conducive to reporting, employees need to trust that their confidentiality will be maintained, and they need to know they will not be disciplined, ridiculed, or retaliated against for reporting. Creating a just culture is essential, where employees know that honest errors, when reported promptly and accurately, will not result in discipline. On the other hand, willful violations such as illegal drug use, will have disciplinary consequences. There are some misconceptions surrounding just culture. Contrary to the beliefs of some, a just culture isn't a "get out of jail free" card. There is accountability and when warranted, there is discipline.

Some organizations have developed a non-reprisal policy to encourage reporting, to build trust and to underpin their just culture. Wording that we used when I was running a business aviation department was along the lines of "the company will not use this reporting system to initiate disciplinary proceedings against an employee who discloses, in good faith, a hazard or occurrence involving safety that is the result of conduct which is inadvertent, unintentional or not deliberate." The statement was signed by me, as aviation department manager, and the CEO.

Dr. Reason noted that a key element of ensuring the reporting culture perseveres is to provide feedback to the reporter. "Apart from a lack (or loss) of trust, few things will stifle incident reporting more than the perceived absence of any useful outcome."

After leaving the NTSB, I was called to do some consulting with a large transportation company that had recently completed a safety culture survey. Things didn't look good, and rightfully, the results raised concern with senior leadership. My task was to take a fresh look and report back to leadership. It didn't take long to identify one of the main problems. The term just culture wasn't a familiar one, either by definition or by practice. The organization's approach to safety events--nonfatal but sometimes costly mistakes--was punishment. The result was predictable: employees were afraid to report things and reporting dried up. Trust within the company was lost. A safety culture and a punitive culture cannot coexist.

Organizations with strong safety culture have high degrees of *safety risk awareness and management*. When changes are made, such as implementing new procedures, going into new airports, or introducing new equipment, the organization performs a safety risk assessment. For those risks that are unacceptable, modifications are made to reduce the risk to an acceptable level. There is chronic unease surrounding risks and, as mentioned above, preoccupation with failure.

Finally, beware when someone tells you they have a good safety culture or that safety is their top priority. Whenever I hear these phrases, I want to waive a BS flag. It is usually worn-out rhetoric that has no meaning behind it, and it's oftentimes rolled out to the media following an accident. There will always be competing priorities within a company and managing those priorities (such as finances) are usually what keeps the company in business. However, when making these business decisions, safety must always have a seat at the table. If reducing costs, for example, or improving on-time performance, are being considered, the safety impact of those decisions must be considered. As far as having a strong safety culture or safety being the top priority--tell it to the newspapers after you've had an accident. It just doesn't fly with this former chairman of the NTSB.

Remember--the road to a healthy safety culture is a winding road. It's a continuous journey with hazards lurking behind trees and around curves. When incorporating attributes of a healthy safety culture, you increase your opportunities to travel the journey safely.