



# **SAFETY MANAGEMENT SYSTEM (SMS) ASSURANCE GUIDE**

**For:**

**Safety Management System (SMS) Pilot Project  
Participants and Voluntary Implementation of  
Organization SMS Programs**

**Federal Aviation Administration  
Flight Standards Service - SMS Program Office**

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## 1. Introduction

Flight Standards Service (AFS) developed this Safety Management System (SMS) Assurance Guide to assess the design and performance of aviation service providers' SMS programs. The Assurance Guide is intended to be used whether the aviation service providers themselves conduct the assessments – in internal audits and evaluations – or whether other third parties (FAA, DOD, Industry Associations, Consultant Auditors, etc) conduct the assessments. The guide is organized like the Flight Standards SMS Framework, which shares structure and organization with the SMS Framework developed by the International Civil Aviation Organization (ICAO). The SMS Framework and this SMS Assurance Guide embody the requirements expressed in FAA Order VS 8000.367, *Safety Management System Requirements*, Appendix B.

**A. Scope.** This Assurance Guide is a tool to assist aviation service providers (air carriers, airlines, maintenance repair organizations, air taxi operators, corporate flight departments, repair stations, and pilot schools, etc.) in applying the Flight Standards SMS Framework.

This Assurance Guide, like the SMS Framework, is not mandatory and is not a regulation. Aviation service providers develop and implement SMSs voluntarily.

While the Federal Aviation Administration (FAA) encourages each aviation service provider to develop and implement an SMS, these systems are not substitutes for compliance with federal regulations and all other certificate requirements.

**B. Applicability.** This Assurance Guide applies to both certificated and non-certificated aviation service providers that want to develop and implement an SMS. The United States does not currently require certificate holders to have an SMS. However, the FAA views the objectives and expectations in the Flight Standards SMS Framework, and therefore this Assurance Guide, as the minimum set of criteria for an aviation service provider to develop and implement an efficient and functional SMS; Aviation Service Providers' may establish more requirements, or stricter requirements.

The Assurance Guide will also help aviation service providers compare their current processes and procedures with their potential or needed processes and procedures in accordance with a SMS (called a Gap Analysis) and will help aviation service providers perform subsequent assessments of SMS programs for the SMS Pilot Projects (SMSPP).

## 2. SMS System Expectations

This SMS Assurance Guide includes performance objectives, design expectations and bottom line assessments for each SMS Framework element or process: These expectations are based on the SMS Framework and are considered to be essential expectations of a robust SMS.

- **Performance Objectives** represent the objective outcomes needed for the particular SMS Framework element or process under evaluation. In other words, *at a minimum, what should the aviation service provider expect this element or process be able to do?*
- **Design Expectations** represent organizational structure and characteristics that, if properly implemented, should provide the system outcomes identified in the performance objectives. In other words, *what might the aviation service provider do to get this element or process to perform the way it should?*
- **Bottom Line Assessments** restate the performance objectives as questions. The “bottom line” of each element or process is essentially, *were the design expectations in the aviation service provider’s SMS implemented, and did they result in the desired outcomes?*

**A. System Attributes.** The six system attributes, first applied in the Air Transportation Oversight System (ATOS), form the basis for many SMS expectations. The Design Expectations outlined later in this guide are each tagged (at the end of each italicized reference) with one or more system attributes, using the representative letter(s) detailed below.

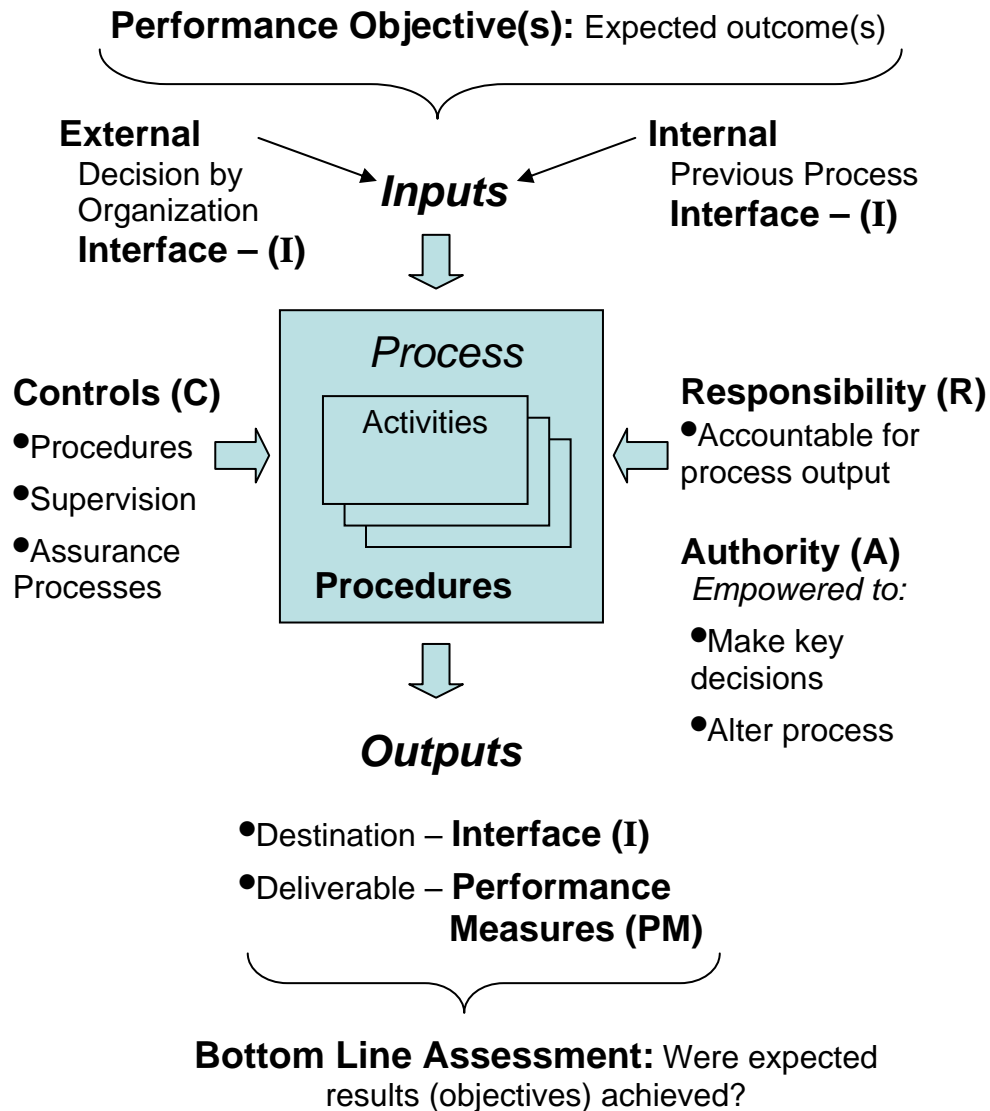
The tagged attributes may be described as:

- **(R) - Responsibility:** who is accountable for management and overall quality of the process (planning, organizing, directing, controlling) and its ultimate accomplishment.
- **(A) - Authority:** who can direct, control, or change the process, as well as who can make key decisions such as risk acceptance. This attribute also includes the concept of empowerment.
- **(P) - Procedures:** ISO-9000-2005 defines “procedure” as “a specified way to carry out an activity or a process” – procedures translate the “what” in goals and objectives into “how” in practical activities (things people do).
- **(C) - Controls:** in this context, controls are elements of the system, including hardware, software, special procedures or procedural steps, and supervisory practices designed to keep processes on track to achieve their intended results.
- **(I) - Interfaces:** this aspect includes examining such things as lines of authority between departments, lines of communication between employees, consistency of procedures, and clearly delineating lines of responsibility between organizations, work units, and employees. Interfaces are the “Inputs” and “Outputs” of a process.
- **(PM) - Process Measures:** are ways to provide feedback to responsible parties that required actions are taking place, required outputs are being produced, and expected outcomes are being achieved.

**B. Process Approach to System Assessment.** The ISO 9000-2005 Quality Management System (QMS) provides a useful definition of “process”, [an] “interrelated set of activities that transform inputs into outputs.” Thus, a process is, essentially, a set of things that people at the aviation service provider do to achieve a desired result.

This Assurance Guide describes the objectives and expectations for an aviation service provider’s SMS in the same form as the work process flow diagram (shown below in Figure (1)). That is, inputs from a previous process are followed by the process owner designation, procedures to be followed, outputs to the next process, controls to ensure desired output, and finally performance measures to ensure consistent results. The figure also shows the relationship of the six attributes discussed above in a generic work flow process. The next section will go into more detail about the application of the attributes to system design and assessment.

**Figure 1 - Work Flow Process Diagram**



## **C. System Attributes Applied to SMS.**

The text below addresses the six attributes as applied to SMS processes in more detail.

### **1) Responsibility and Authority**

Management and individual employee accountability, and therefore responsibility and authority, are fundamental to management of safety. These concepts are integrated into the Flight Standards SMS Framework. Specifically, Element 1.2 establishes expectations for top management, other management officials, and all employees of the aviation service provider.

SMS Framework Element 1.3 establishes an expectation for a person of responsibility to oversee an aviation service provider's SMS development, implementation, and operation. This person does not bear the principal responsibility for safety management. The managers of the "line" operational functions, from middle management to frontline managers and supervisors, manage the operations in which risk is incurred. These managers and supervisors are, therefore, the "owners" of the SMS.

The provisions of SMS Framework Element 1.2 which defines responsibilities for definition and documentation of aviation safety responsibilities, applies to all components, elements, and processes. Therefore, it is expected that responsibility and authority be defined and documented for each process. As discussed above, this is especially important with interfaced processes that cut across organizational lines. These responsibility and authority attributes are marked with (R/A).

### **2) Procedures**

The design expectations that are noted with (P) as procedures, derive directly from the design expectations of the Flight Standards SMS Framework. These expectations are indicators of well-designed SMS processes. The aviation service provider should specify their own procedures for these items in the context of their unique operational environment, organizational structure, and management objectives.

### **3) Controls**

Organizational process controls are typically defined in terms of special procedures, supervisory and management practices, and processes. Many controls are inherent features of the Flight Standards SMS Framework. Such practices as continuous monitoring, internal audits, internal evaluations, and management reviews (all parts of the safety assurance component) are identified as controls (C) within the design expectations. Additionally, other practices such as documentation, process reviews, and data tracking are identified within specific elements and processes.

### **4) Process Measures**

A basic principle of safety assurance is that fundamental processes be measured so that management decisions can be data-driven. The general expectations for the Policy Component 1.0, specify that SMS outputs be measured and analyzed. These measurements and analyses are

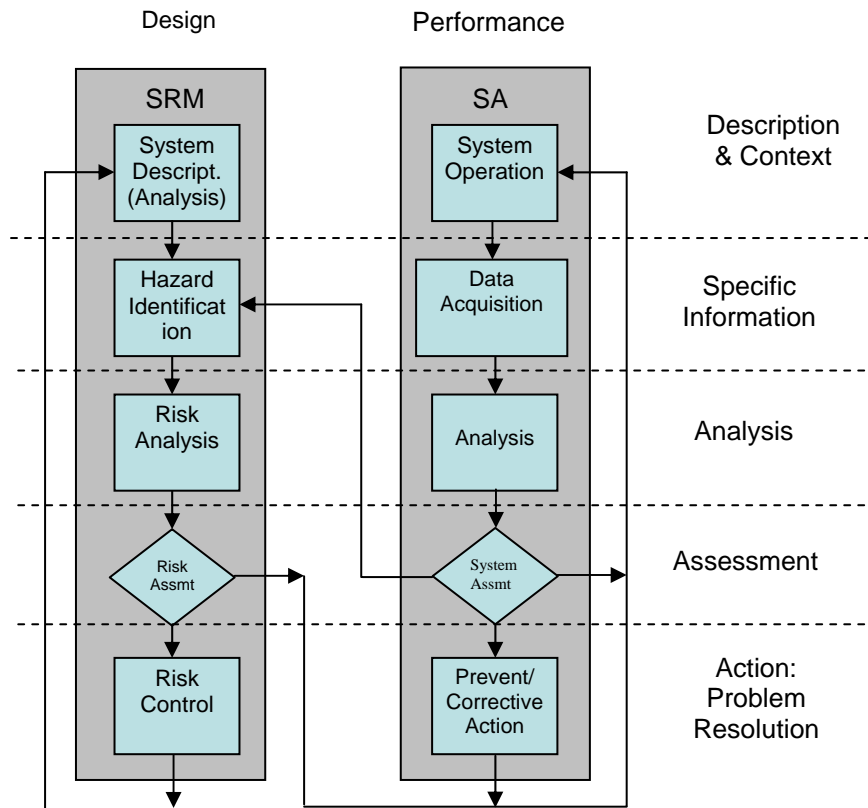


accomplished in Component 3.0, Safety Assurance. Outputs of each process should, therefore, be identified for assurance during Component 3.0 activities. For example, these outputs should be subject to continuous monitoring, internal audits, and internal evaluation. Performance measure attributes are annotated with (PM).

**5) Interfaces**

This aspect includes examining such things as lines of authority between departments, lines of communication between employees, consistency of procedures, and clearly delineating lines of responsibility between organizations, work units, and employees. Interfaces are the *inputs* and *outputs* of a process.

**D. Interfaces in Safety Risk Management and Safety Assurance.** Safety Risk Management (SRM) and Safety Assurance (SA) are the key functional processes of the SMS. They are also very interactive. The flowchart in Figure 2 below may be useful to help visualize these interactions. The interface attribute concerns the input-output relationships between the activities in the processes. This is especially important where interfaces between processes involve interactions between different departments, contractors, etc. Assessments of these relationships should pay special attention to flow of authority, responsibility and communication, as well as procedures and documentation.



**Figure 2 - Safety Risk Management and Safety Assurance**

See narrative text for each box below

## 1) Safety Risk Management (SRM)

**a. System Description and Task Analysis** – The first step in SRM is system description and task analysis. Here, the analysis need only to be as extensive as needed to understand the processes in enough detail to develop procedures, design appropriate training curricula, to identify hazards, and to measure performance.

**b. Hazard Identification** – Next, we look at the processes and play “What if?” What could go wrong with our processes, under typical or abnormal operational conditions that could be considered hazardous?

**c. Risk Analysis** – Based on the analysis in the hazard identification step, we determine the injury and damage potential of the events related to the hazards in terms of likelihood of occurrence of the events and severity of resulting consequences.

**d. Risk Assessment** – Risk assessment is a decision step based on combined severity and likelihood. Is the risk acceptable? Where potential severity is low or if likelihood is low or well mitigated with existing controls, we may be done and ready for operation. If not, we’ll need to move to the next step, designing risk controls.

**e. Risk Control** – If the risk assessment is unacceptable, we will need to design risk controls. Most often, these entail either new processes or equipment, or changes to existing ones. We then look at the system with the proposed control in place to see if the level of risk is now acceptable. We’ll stay in this design loop until we determine that the proposed operation, change, etc. can be mitigated to allow operations within an acceptable level of risk.

**Note:** If successful, we’re done with SRM and ready for operation. It’s essential here to note that we need to update any related system documentation to reflect the risk control.

## 2) Safety Assurance (SA)

**a. System Operation** – Monitoring and management of these risk controls will be one of the most important steps in safety assurance.

**b. Data Acquisition** – Next, we’ll need to collect a variety of data to test the controls. This data ranges from continuous monitoring (e.g. dispatch procedures), to periodic auditing and to employee reporting systems that fill in the gaps. It also includes investigations to learn from our shortcomings and failures.

**c. Analysis** – As in SRM, we will need to analyze the data in terms of performance objectives and to determine root causes of any shortfalls. We'll also be on the lookout for any new conditions that we haven't seen before and any unexpected results of system performance.

**d. System Assessment** – The assessment process is where we make decisions. If the assessment results are satisfactory, we continue in the checking, analyzing, and assessment loop where we continuously affirm that we're getting what we want.

**e. Preventive/Corrective Action** – If we don't get what we want, we'll need to correct the system. This does not require the same level of detail that we used in initial design. Many times, the corrective action needed is straightforward.

**Note:** Occasionally employees are doing everything that we expected but it just isn't working to control the level of risk. There are many reasons for this such as, the possibility the conditions have changed so that the original control no longer is appropriate. This can occur because of changes in contracts, changes to airports, new equipment, changing demographics of employee hiring pools or a variety of new conditions. Regardless, we've identified a new and/or an uncontrolled hazard so we need to return to the SRM process to re-design the system aspects (e.g. new procedures, training, etc.) or develop new controls.

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### 3. Functional Expectations

**A. Performance-Based Orientation.** The following sections contain the expectations for each component of the SMS. The term “function” refers to “what” is expected to be incorporated into each process (e.g., human tasks, software, hardware, procedures, etc.) rather than “how” the function is accomplished by the system. This makes for a more performance-based system and allows for a broad range of techniques to be used to accomplish the performance objectives. This, in turn, maximizes scalability while preserving standardization of results across the aviation service provider communities.

**B. Components, Elements, and Processes.** Functional expectations are organized in terms of the four SMS Components described in ICAO and AVS documents, the twelve elements of the ICAO Framework, and an additional layer – “processes” – that allows several of the elements to be broken down into more topically-focused areas of interest.

**C. Levels of Assessment.** Each Component, Element and Process is broken down into performance objectives, design expectations, and a bottom-line assessment, as described earlier.

**D. Process Flow and Attributes.** Each design expectation section is organized to model a process flow, reflecting an ‘input-activity-output’ structure. Each individual design expectation is tagged with one or more of the system attributes: Responsibility/Authority (R/A), Interfaces (I), Procedures (P), Process Measures (PM), and, where applicable, Controls (C).

**NOTE: Within the context of this document, the term “*aviation service provider*” refers to any organization providing aviation services. The term includes certificated and non-certificated aviation organizations, aviation service providers, air carriers, airlines, maintenance repair organizations, air taxi operators, single pilot operators, corporate flight departments, repair stations, pilot schools, approved training organizations that are exposed to safety risks during the provision of their services, and organizations responsible for type design and/or the manufacturer of aircraft. The term *aviation service provider* is interchangeable with the term *organization* and *service provider* within this document.**

**NOTE: To ensure conformity with the performance objectives and design expectations outlined in this Assurance Guide, documentation or “objective evidence” of processes will be recorded for validation by the oversight organization (CMT, CMO, FSDO, or CHDO) and/or the SMS Implementation Support Team (IST). Objective evidence may be in the form of physical or electronic documents, manuals, training material, records, written correspondence (email, memo, etc.), organizational charts, meeting minutes, and/or interviews/observations conducted by the oversight organization/IST. Documentation of all SMS processes is a policy expectation of the SMS Framework, Component 1.0 b (2) (a).**

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## Component 1.0 Safety Policy and Objectives

### Policy: General Expectations

#### Performance Objective

The organization will develop and implement an integrated, comprehensive SMS for its entire organization and will incorporate a procedure to identify and maintain compliance with current safety-related legal, regulatory, and other statutory requirements.

<b>Design Expectations</b>
<b><i>Management Accountability</i></b>
The organization will clearly identify who is responsible for the quality of the organizational management processes (name, position, organization). Procedures will also define who is responsible for accomplishing the process. Reference: <i>SMS Framework 1.2 b, (3)</i> (R/A)
<b><i>Procedure: Scope - Air Operators</i></b>
Does the organization’s SMS include the complete scope and life cycle of the organization’s systems, including -
Flight operations? Reference: <i>SMS Framework: 1.0 b, (1) (a) (1)</i> (P)
Operational control (Dispatch/Flight Following)? Reference: <i>SMS Framework: 1.0 b, (1) (a) (2)</i> (P)
Maintenance and inspection? Reference: <i>SMS Framework: 1.0 b, (1) (a) (3)</i> (P)
Cabin safety? Reference: <i>SMS Framework: 1.0 b, (1) (a) (4)</i> (P)
Ground handling and servicing? Reference: <i>SMS Framework: 1.0 b, (1) (a) (5)</i> (P)
Cargo handling? Reference: <i>SMS Framework: 1.0 b, (1) (a) (6)</i> (P)
Training? Reference: <i>SMS Framework: 1.0 b, (1) (a) (7)</i> (P)
<b><i>Procedure: Scope - Separate Aviation Maintenance Service Organizations</i></b>
Does the organization’s SMS include the complete scope and life cycle of the organization’s systems, including -
Parts/materials? Reference: <i>SMS Framework: 1.0 b, (1) (b) (1)</i> (P)

<p>Resource management (tools and equipment, personnel, and facilities)? <i>Reference: SMS Framework: 1.0 b, (1) (b) (2) (P)</i></p>
<p>Technical data? <i>Reference: SMS Framework: 1.0 b, (1) (b) (3) (P)</i></p>
<p>Maintenance and inspection? <i>Reference: SMS Framework: 1.0 b, (1) (b) (4) (P)</i></p>
<p>Quality control? <i>Reference: SMS Framework: 1.0 b, (1) (b) (5) (P)</i></p>
<p>Records management? <i>Reference: SMS Framework: 1.0 b, (1) (b) (6) (P)</i></p>
<p>Contract maintenance? <i>Reference: SMS Framework: 1.0 b, (1) (b) (7) (P)</i></p>
<p>Training? <i>Reference: SMS Framework: 1.0 b, (1) (b) (8) (P)</i></p>
<p><b><i>Procedure: Management</i></b></p>
<p>Does the organization require the SMS processes to be -</p>
<p>Documented? <i>Reference: SMS Framework: 1.0 b, (2)(a) (P)</i></p>
<p>Monitored? <i>Reference: SMS Framework: 1.0 b, (2) (b) (P)</i></p>
<p>Measured? <i>Reference: SMS Framework: 1.0 b, (2) (c) (P)</i></p>
<p>Analyzed? <i>Reference: SMS Framework: 1.0 b, (2) (d) (P)</i></p>
<p><b><i>Procedure: Promotion of Positive Safety Culture</i></b></p>
<p>Does the organization promote a positive safety culture as in Safety Promotion Component 4.0 b? <i>Reference: SMS Framework 1.0 b, (4)(a) (P)</i></p>
<p><b><i>Procedure: Quality Policy</i></b></p>
<p>Does top management ensure that the organization’s quality policy, if present, is consistent with (or not in conflict with) it’s SMS? <i>Reference: SMS Framework 1.0 b, (4) (b) (P)</i></p>
<p><b><i>Procedure: Safety Management Planning</i></b></p>
<p>Does the organization establish and maintain measurable criteria that accomplish the objectives of its Safety Policy? <i>Reference: SMS Framework 1.0 b, (4) (e) (PM)</i></p>



<p>Does the organization establish and maintain a safety management plan to describe methods for achieving the safety objectives set forth in its Safety Policy? <i>Reference: SMS Framework 1.0 b, (4) (g) (PM)</i></p>
<p><b><i>Procedure: Regulatory Compliance</i></b></p>
<p>Does the organization ensure the SMS complies with legal and regulatory requirements? <i>Reference: SMS Framework 1.0 b, (4) (c) (P)</i></p>
<p>Does the organization identify current FAA policy, legal, regulatory and statutory requirements applicable to the SMS? <i>Reference: SMS Framework 1.0 b, (4) (d) (P)</i></p>
<p><b><i>Outputs and Measures</i></b></p>
<p>Does the organization ensure all SMS outputs are -</p>
<p>Recorded? <i>Reference: SMS Framework 1.0 b, (3)(a) (I/P)</i></p>
<p>Monitored? <i>Reference: SMS Framework 1.0 b, (3) (b) (I/P)</i></p>
<p>Measured? <i>Reference: SMS Framework 1.0 b, (3) (c) (I/P)</i></p>
<p>Analyzed? <i>Reference: SMS Framework 1.0 b, (3) (d) (I/P)</i></p>
<p>The organization will periodically measure performance objectives and design expectations of the general Safety Policy Component. <i>Reference: SMS Framework note at 3.1.3 &amp; SMS Framework 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b><i>Controls</i></b></p>
<p>Does the organization establish and maintain supervisory and operational controls to ensure procedures are followed for safety-related operations and activities? <i>Reference: SMS Framework 1.0 b, (4) (f) (C)</i></p>

**Bottom Line Assessment**

Has the organization developed and implemented an integrated, comprehensive SMS for its entire organization and incorporated a procedure to identify and maintain compliance with current safety-related, regulatory, and other requirements?

## Element 1.1 Safety Policy

### Performance Objective

Top management will define the organization’s Safety Policy and convey its expectations and objectives to its employees.

<b>Design Expectations</b>
<b><i>Management Accountability</i></b>
Does top management define the organization’s Safety Policy? Reference: <i>SMS Framework 1.1 b, (1)</i> (P/R/A)
<b><i>Procedure</i></b>
Does the organization’s Safety Policy include the following -
A commitment to implement and maintain the SMS? Reference: <i>SMS Framework 1.1 b, (2)(a)</i> (P)
A commitment to continuously improve the level of safety? Reference: <i>SMS Framework 1.1 b, (2) (b)</i> (P)
A commitment to managing safety risk? Reference: <i>SMS Framework 1.1 b, (2) (c)</i> (P)
A commitment to comply with all applicable regulatory requirements? Reference: <i>SMS Framework 1.1 b, (2) (d)</i> (P)
A commitment to encourage employees to report safety issues without reprisal, as per SMS Framework Employee Reporting and Feedback System Process 3.1.6? Reference: <i>SMS Framework 1.1 b, (2) (e)</i> (P)
Clear standards for acceptable behavior for all employees? Reference: <i>SMS Framework 1.1 b, (2) (f)</i> (P)
Is the Safety Policy documented? Reference: <i>SMS Framework 1.1 b, (2)(i)</i> (P)
<b><i>Outputs and Measures</i></b>
Does the Safety Policy provide guidance to management on setting safety objectives? Reference: <i>SMS Framework 1.1 b, (2) (g)</i> (I)
Does the Safety Policy provide guidance to management on reviewing safety objectives? Reference: <i>SMS Framework 1.1 b, (2) (h)</i> (I)
Does the organization ensure the Safety Policy is communicated, with visible management endorsement, to all employees and responsible parties? Reference: <i>SMS Framework 1.1 b, (2)(j)</i> (I)
Does the organization ensure the Safety Policy is reviewed periodically to verify it remains

relevant and appropriate to the organization? <i>Reference: SMS Framework 1.1 b, (2)(k) (I)</i>
Does the organization identify and communicate management and individuals' safety performance responsibilities? <i>Reference: SMS Framework 1.1 b, (2) (l) (I/R/A)</i>
The organization will periodically measure performance objectives and design expectations of the Safety Policy Element. <i>Reference: SMS Framework note at 3.1.3 &amp; SMS Framework 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>

**Bottom Line Assessment**

Has top management defined the organization's Safety Policy and conveyed the expectations and objectives of that policy to its employees?

## Element 1.2 Management Commitment and Safety Accountabilities

### Performance Objective

The organization will define, document, and communicate the safety roles, responsibilities, and authorities throughout its organization.

<b>Design Expectations</b>
<b><i>Management Accountability</i></b>
Does the organization ensure top management has the ultimate responsibility for the SMS? <i>Reference: SMS Framework 1.2 b, (1) (R/A)</i>
Does the organization’s top management provide the resources needed to implement and maintain the SMS? <i>Reference: SMS Framework 1.2 b, (2) (P/R/A)</i>
Does the organization define levels of management that can make safety risk acceptance decisions as described in Component 2.0, b, (4) (c)? <i>Reference: SMS Framework 1.2 b, (4) (P/R/A)</i>
<b><i>Procedure/Output/Measure</i></b>
Does the organization ensure that aviation safety-related positions, responsibilities, and authorities are -
Defined? <i>Reference: SMS Framework 1.2 b, (3)(a) (P)</i>
Documented? <i>Reference: SMS Framework 1.2 b, (3) (b) (P)</i>
Communicated throughout the organization? <i>Reference: SMS Framework 1.2 b, (3) (c) (P)</i>
The organization will periodically measure performance objectives and design expectations of the Management Commitment and Safety Accountabilities Element. <i>Reference: SMS Framework note at 3.1.3 &amp; SMS Framework 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>

### Bottom Line Assessment

Has the organization defined, documented, and communicated the safety roles, responsibilities, and authorities throughout the organization?

### Element 1.3 Key Safety Personnel

#### Performance Objective

The organization will appoint a management representative to manage, monitor and coordinate the SMS processes throughout its organization.

<b>Design Expectations</b>
<b><i>Management Responsibility/Procedure</i></b>
Did top management appoint a member of management who, irrespective of other responsibilities, will be responsible for and authorized to -
<p>Ensure that SMS processes are established, implemented, and maintained?  <i>Reference: SMS Framework 1.3 b, (1)(a) (R/A/P)</i></p>
<p>Report to top management on the performance of the SMS and what needs to be improved?  <i>Reference: SMS Framework 1.3 b, (1) (b) (R/A/I/P)</i></p>
<p>Ensure the organization communicates its safety requirements throughout the organization?  <i>Reference: SMS Framework 1.3 b, (1) (c) (R/A/I/P)</i></p>
<b><i>Outputs and Measures</i></b>
<p>Does the organization ensure that Key Safety Personnel positions, responsibilities, and authorities are communicated throughout the organization?  <i>Reference: SMS Framework 1.2 b, (3) (c) (I/R/A)</i></p>
<p>The organization will periodically measure performance objectives and design expectations of the Key Safety Personnel Element 1.3.  <i>Reference: SMS Framework note at 3.1.3 &amp; SMS Framework 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>

#### Bottom Line Assessment

Has the organization appointed a management representative to manage, monitor and coordinate the SMS processes throughout its organization?

## Element 1.4 Emergency Preparedness and Response

### Performance Objective

The organization will develop and implement procedures that it will follow in the event of an accident, incident or operational emergency to mitigate the effects of these events.

<b>Design Expectations</b>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Emergency Preparedness and Response Process and associated documentation. Procedures will also define who is responsible for accomplishing the process. Reference: <i>SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization establish procedures across all operational departments as expected in Safety Policy and Objectives Component 1.0 b, (1)(a) or (b), to -
Identify hazards which have potential for accidents, incidents or operational emergencies? Reference: <i>SMS Framework 1.4 b, (1) (P)</i>
Coordinate and plan the organization’s response to accidents, incidents or operational emergencies? Reference: <i>SMS Framework 1.4 b, (2) (P)</i>
Execute periodic exercises of the organization’s emergency response procedures? Reference: <i>SMS Framework 1.4 b, (3) (P)</i>
<b><i>Outputs and Measures</i></b>
The organization will: <ul style="list-style-type: none"> <li>(1) identify interfaces between the emergency response functions of different operational elements of the organization, and</li> <li>(2) periodically measure performance objectives and design expectations of the Emergency Preparedness and Response Element.</li> </ul> Reference: <i>(1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>

### Bottom Line Assessment

Has the organization developed and implemented procedures that it will follow in the event of an accident, incident or operational emergency to mitigate the effects of these events?

## Element 1.5 SMS Documentation and Records

### Performance Objective

The organization will have documented safety policies, objectives, procedures, a document/record management process, and a management plan that meet organizational safety expectations and objectives.

<b>Design Expectations</b>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Documentation and Records Process. Procedures will also define who is responsible for accomplishing the process. Reference: <i>SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure: Document Contents</i></b>
Does the organization establish and maintain, in paper or electronic format, information to describe the following -
Safety policies? <i>Reference: SMS Framework 1.5 b, (1)(a) (P)</i>
Safety objectives? <i>Reference: SMS Framework 1.5 b, (1) (b) (P)</i>
SMS expectations? <i>Reference: SMS Framework 1.5 b, (1) (c) (P)</i>
Safety procedures and processes? <i>Reference: SMS Framework 1.5 b, (1) (d) (P)</i>
Accountabilities, responsibilities and authorities for safety-related procedures and processes? <i>Reference: SMS Framework 1.5 b, (1) (e) (P)</i>
Interactions and interfaces between safety-related procedures and policies? <i>Reference: SMS Framework 1.5 b, (1) (f) (P)</i>
SMS outputs? <i>Reference: SMS Framework 1.5 b, (1) (g) (P)</i>
<b><i>Procedure: Document Quality</i></b>
Does the organization require all documentation be -
Legible? <i>Reference: SMS Framework 1.5 b, (3)(a) (1) (P)</i>

<p>Dated (with the dates of revisions)? <i>Reference: SMS Framework 1.5 b, (3)(a)(2) (P)</i></p>
<p>Readily identifiable? <i>Reference: SMS Framework 1.5 b, (3)(a) 3 (P)</i></p>
<p>Maintained in an orderly manner? <i>Reference: SMS Framework 1.5 b, (3)(a)(4) (P)</i></p>
<p>Retained for a specified period as determined by the organization? Note: Under voluntary implementation of the SMS, the SMS records system does not require FAA approval. <i>Reference: SMS Framework 1.5 b, (3)(a)5 (P)</i></p>
<p><b><i>Procedure: Document Management</i></b></p>
<p>Does the organization control all documents to ensure -</p>
<p>They are easily located? <i>Reference: SMS Framework 1.5 b, (3) (b) 1 (P)</i></p>
<p>They are periodically reviewed? <i>Reference: SMS Framework 1.5 b, (3) (b) 2 (a) (P)</i></p>
<p>They are revised as needed? <i>Reference: SMS Framework 1.5 b, (3) (b) 2 (b) (P)</i></p>
<p>Authorized personnel approve them for adequacy? <i>Reference: SMS Framework 1.5 b, (3) (b) 2 (c) (P)</i></p>
<p>Does the organization ensure that all current document versions are available at all locations where essential SMS operations are performed? <i>Reference: SMS Framework 1.5 b, (3) (c) (P/C)</i></p>
<p>Does the organization ensure that obsolete documents are either removed as soon as possible, or that they are not used accidentally? <i>Reference: SMS Framework 1.5 b (3) (d) (P/C)</i></p>
<p><b><i>Outputs and Measures</i></b></p>
<p>Has the organization maintained their safety management plan in accordance with the objectives and expectations contained within this Element? <i>Reference: SMS Framework 1.5 b, (2) (I/P)</i></p>
<p>Does the organization ensure SMS records are -</p>
<p>Identified? <i>Reference: SMS Framework 1.5 b, (4)(a) (1) (P)</i></p>
<p>Maintained? <i>Reference: SMS Framework 1.5 b, (4)(a) (2) (P)</i></p>
<p>Disposed of? <i>Reference: SMS Framework 1.5 b, (4)(a) (3) (P)</i></p>



<p>Legible?  <i>Reference: SMS Framework 1.5 b, (4) (b) (1) (P)</i></p>
<p>Easy to identify?  <i>Reference: SMS Framework 1.5 b, (4) (b) (2) (P)</i></p>
<p>Traceable to the activity involved?  <i>Reference: SMS Framework 1.5 b, (4) (b) (3) (P)</i></p>
<p>Easy to find?  <i>Reference: SMS Framework 1.5 b, (4) (c) (1) (P)</i></p>
<p>Protected against damage?  <i>Reference: SMS Framework 1.5 b, (4) (c) (2) (A) (P)</i></p>
<p>Protected against deterioration?  <i>Reference: SMS Framework 1.5 b, (4) (c) (2) (b) (P)</i></p>
<p>Protected against loss?  <i>Reference: SMS Framework 1.5 b, (4) (c) (2) (c) (P)</i></p>
<p>Annotated with record retention times?  <i>Reference: SMS Framework 1.5 b, (4) (d) (P)</i></p>
<p>The organization will periodically measure performance objectives and design expectations of the Documentation and Records Element.  <i>Reference: SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>

**Bottom Line Assessment**

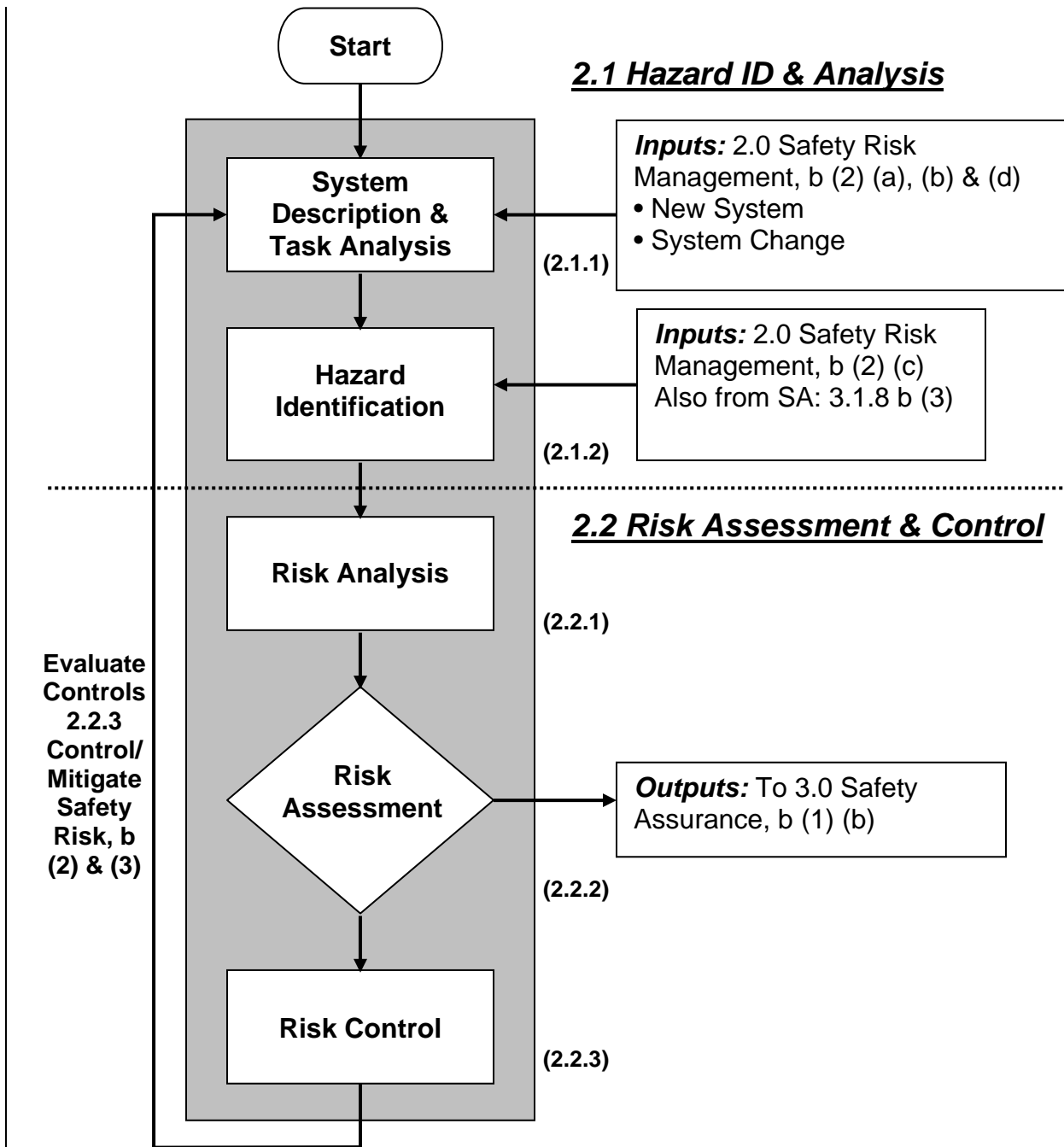
Has the organization clearly defined and documented (in paper or electronic format) safety policies, objectives, procedures, and document/record maintenance processes and established, implemented, and maintained a safety management plan that meets the safety expectations and objectives?

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## Component 2.0 Safety Risk Management Flow

The Safety Risk Management flow diagram (below) is annotated with the Framework element/process numbers and other notes. They will help the user visualize the Framework in terms of a process flow with attending interfaces and perhaps more clearly understand the component/element/process expectations.

Figure 3 - Safety Risk Management Flow



## Component 2.0 Safety Risk Management

### General Expectations

#### Performance Objective

The organization will develop processes to understand the critical characteristics of its systems and operational environment and apply this knowledge to identify hazards, analyze and assess risk and design risk controls.

<b>Design Expectations</b>
<b><i>Input</i></b>
The organization will identify inputs (interfaces) for this Component obtained from the critical expectations of its systems and operational environment. Reference: <i>SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Safety Risk Management Process. Procedures will also define who is responsible for accomplishing the process. Reference: <i>SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization’s SMS, at a minimum, include the following processes -
System description and task analysis? Reference: <i>SMS Framework 2.0 b, (1) (a) (P)</i>
Hazard Identification? Reference: <i>SMS Framework 2.0 b, (1) (b) (P)</i>
Safety Risk Analysis? Reference: <i>SMS Framework 2.0 b, (1) (c) (P)</i>
Safety Risk Assessment? Reference: <i>SMS Framework 2.0 b, (1) (d) (P)</i>
Safety Risk Control and Mitigation? Reference: <i>SMS Framework 2.0 b, (1) (e) (P)</i>
Does the organization’s SMS processes apply to -
Initial designs of systems, organizations, and/or products? Reference: <i>SMS Framework 2.0 b, (2) (a) (P)</i>
The development of operational procedures? Reference: <i>SMS Framework 2.0 b, (2) (b) (P)</i>

<p>Hazards that are identified in the safety assurance functions (described in Safety Assurance Component 3.0, b)?  <i>Reference: SMS Framework 2.0 b, (2) (c) (P)</i></p>
<p>Planned changes to operational processes?  <i>Reference: SMS Framework 2.0 b, (2) (d) (P)</i></p>
<p>Does the organization establish feedback loops between assurance functions described in the Continuous Monitoring Process 3.1.1 b, to evaluate the effectiveness of safety risk controls?  <i>Reference: SMS Framework 2.0 b, (3) (P)</i></p>
<p>Does the organization define acceptable and unacceptable levels of safety risk (for example, does the organization have a safety risk matrix)?  <i>Reference: SMS Framework 2.0 b, (4) (a) (P)</i></p>
<p>Does the organization’s safety risk acceptance process include descriptions of the following -</p>
<p>Severity levels?  <i>Reference: SMS Framework 2.0 b, (4) (b) (1) (P)</i></p>
<p>Likelihood levels?  <i>Reference: SMS Framework 2.0 b, (4) (b)(2) (P)</i></p>
<p>Level of management that can make safety risk acceptance decisions in accordance with Element 1.2 b (3)?  <i>Reference: SMS Framework 2.0 b, (4) (c) (P/R/A)</i></p>
<p>Does the organization define acceptable risk for hazards that will exist in the short-term while safety risk control/mitigation plans are developed and implemented?  <i>Reference: SMS Framework 2.0 b, (4) (d) (P)</i></p>
<p><b><i>Outputs and Measures</i></b></p>
<p>The organization will:</p> <ul style="list-style-type: none"> <li>(1) identify interfaces between the Safety Risk Management Component (this Component) and the Safety Assurance Component (3.0), and</li> <li>(2) periodically measure performance objectives and design expectations of the safety risk management component.</li> </ul> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b><i>Controls</i></b></p>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the Safety Risk Management Component (2.0).</li> </ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2 b (1)&amp;(2)</i></p>

**Bottom Line Assessment**

June 1, 2010

SMS Assurance Guide - Revision 3  
Component 2.0 Safety Risk Management

Has the organization developed processes to understand the critical characteristics of its systems and operational environment and applied this knowledge to the identification of hazards, risk analysis and risk assessment, and the design of risk controls?

## Element 2.1 Hazard Identification and Analysis

### Process 2.1.1 System Description and Task Analysis

#### Performance Objective

The organization will describe and analyze its systems, operations, and operational environment to gain an understanding of critical design and performance factors, processes, and activities to identify hazards.

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) for the System Description and Task Analysis process will be obtained from the Safety Risk Management Component 2.0 b, (2). <i>Reference: SMS Framework 2.0 b, (2) (I).</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the System Description and Task Analysis Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization develop system descriptions and task analysis to the level of detail necessary to -
Identify hazards? <i>Reference: SMS Framework 2.1.1 b, (1)(a) (P)</i>
Develop operational procedures? <i>Reference: SMS Framework 2.1.1 b, (1) (b) (P)</i>
Develop and implement risk controls? <i>Reference: SMS Framework 2.1.1 b, (1) (c) (P)</i>
<b><i>Outputs and Measures</i></b>
The organization will: (1) identify interfaces between the system description and task analysis function (this process) and the Hazard Identification Process 2.1.2 below, and (2) periodically measure performance objectives and design expectations of the System Description and Task Analysis Process (2.1.1). <i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>

***Controls***

The organization will ensure that:

- (1) procedures are followed for safety-related operations and activities, and
- (2) they periodically review supervisory and operational controls to ensure the effectiveness of the System Description and Task Analysis Process (2.1.1).

*Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b (1) & (2) (C)*

**Bottom Line Assessment**

Has the organization analyzed its systems, operations and operational environment to gain an understanding of critical design and performance factors, processes, and activities to identify hazards?



## Process 2.1.2 Identify Hazards

### Performance Objective

The organization will identify and document the hazards in its operations that are likely to cause death, serious physical harm, or damage to equipment or property in sufficient detail to determine associated level of risk and risk acceptability.

<b>Design Expectations</b>
<b><i>Input</i></b>
<p>Inputs (interfaces) for the Hazard Identification Process will be obtained from the System Description and Task Analysis Process 2.1.1, to include a new hazard identified from the Safety Assurance Component 3.0, failures of risk controls due to design deficiencies found in the System Assessment Process 3.1.8 (b)(3), and/or from any other source.</p> <p><i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i></p>
<b><i>Management Responsibility</i></b>
<p>The organization will clearly identify who is responsible for the quality of the Hazard Identification Process. Procedures will also define who is responsible for accomplishing the process.</p> <p><i>Reference: SMS Framework 1.2 b, (3) (R/A)</i></p>
<b><i>Procedure</i></b>
<p>Does the organization identify hazards for the entire scope of each system, as defined in the system description?</p> <p><b>Note:</b> While it is recognized that identification of every conceivable hazard is impractical, aviation service providers are expected to exercise due diligence in identifying and controlling significant and reasonably foreseeable hazards related to their operations.</p> <p><i>Reference: SMS Framework 2.1.2 b, (1)(a) (P)</i></p>
<p>Does the organization document the identified hazards?</p> <p><i>Reference: SMS Framework 2.1.2 b, (1) (b) (P)</i></p>
<p>Does the organization have a means of tracking hazard information?</p> <p><i>Reference: SMS Framework 2.1.2 b, (2)(a) (P)</i></p>
<p>Does the organization manage hazard information through the entire Safety Risk Management Process?</p> <p><i>Reference: SMS Framework 2.1.2 b, (2) (b) (P)</i></p>
<b><i>Outputs and Measures</i></b>
<p>The organization will:</p> <ul style="list-style-type: none"> <li>(1) identify interfaces between this process and the Analysis of Safety Risk Process (2.2.1, below), and</li> <li>(2) periodically measure performance objectives and design expectations of the Hazard Identification Process.</li> </ul>

<i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>
<b>Controls</b>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Hazard Identification Process. <i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i>

**Bottom Line Assessment**

Has the organization identified and document the hazards in its operations that are likely to cause death, serious physical harm, or damage to equipment or property in sufficient detail to determine associated level of risk and risk acceptability?

## Element 2.2 Risk Assessment and Control

### Process 2.2.1 Analyze Safety Risk

#### Performance Objective

The organization will determine and analyze the severity and likelihood of potential events associated with identified hazards and will identify risk factors associated with unacceptable levels of severity or likelihood.

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) for this process will be obtained from the Hazard Identification Process (2.1.2). <i>Reference: SMS Framework 1.5 b, (1) (f) (I).</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Safety Risk Analysis Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization’s safety risk analysis functions include -
Analysis of existing safety risk controls? <i>Reference: SMS Framework 2.2.1 b, (1)(a) (P)</i>
Triggering mechanisms? <i>Reference: SMS Framework 2.2.1 b, (1) (b) (P)</i>
Safety risk of a reasonably likely outcome from the existence of a hazard? <i>Reference: SMS Framework 2.2.1 b, (1) (c) (P)</i>
Does the organization’s reasonably likely outcomes from the existence of a hazard, include estimations of the following -
Likelihood? <i>Reference: SMS Framework 2.2.1 b, (1) (c) 1 (P)</i>
Severity? <i>Reference: SMS Framework 2.2.1 b, (1) (c) 2 (P)</i>
<b><i>Outputs and Measures</i></b>
The organization will: (1) identify interfaces between the risk analysis functions (this process) and the Risk Assessment Process 2.2.2, below), and (2) periodically measure performance objectives and design expectations of the Risk

<p><b>Analysis Process.</b></p> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b><i>Controls</i></b></p>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"><li>(1) procedures are followed for safety-related operations and activities, and</li><li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the Analysis of Safety Risk Process.</li></ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

Has the organization determined and analyzed the factors related to the severity and likelihood of potential events associated with identified hazards and identified factors-associated with unacceptable levels of severity or likelihood?

**Process 2.2.2 Assess Safety Risk**

**Performance Objective**

The organization will assess risk associated with each identified hazard and define risk acceptance procedures and levels of management that can make safety risk acceptance decisions.

<b>Design Expectations</b>
<i><b>Input</b></i>
Inputs (interfaces) for this process will be obtained from the Safety Risk Analysis Process 2.2.1 in terms of estimated severity and likelihood. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<i><b>Management Responsibility</b></i>
The organization will clearly identify who is responsible for the quality of the Safety Risk Assessment Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<i><b>Procedure</b></i>
Does the organization analyze each hazard for its safety risk acceptability using their safety risk acceptance process as described in the SMS Framework Safety Risk Management Component 2.0, b, (4)? <i>Reference: SMS Framework 2.2.2 b, (P)</i>
<i><b>Outputs and Measures</b></i>
The organization will: <ul style="list-style-type: none"> <li>(1) identify interfaces between the risk assessment functions (this process) and the Control/Mitigate Safety Risk Process 2.2.3. below, and</li> <li>(2) periodically measure performance objectives and design expectations of the Safety Risk Assessment Process.</li> </ul> <i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>
<i><b>Controls</b></i>
The organization will ensure that: <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the Safety Risk Assessment Process.</li> </ul> <i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i>

**Bottom Line Assessment**

Has the organization assessed risk associated with each identified hazard and defined risk acceptance procedures and levels of management that can make safety risk acceptance decisions?

**Process 2.2.3 Control/Mitigate Safety Risk**

**Performance Objective**

The organization will design and implement a risk control for each identified hazard for which there is an unacceptable risk, to reduce risk to acceptable levels. The potential for residual risk and substitute risk will be analyzed before implementing risk controls.

**NOTE:** Although Process 2.2.3 is very similar to the Preventive/Corrective Action Process 3.3.1, the primary differences are:

- Process 2.2.3 is used during the design of a system (often looking to the future) or in the redesign of a non-performing system where system requirements are being met, however the system is not producing the desired results.
- Process 2.2.3 is also used when new hazards are discovered during the safety assurance process that was not taken into account during initial design.
- Process 3.3.1 is used to develop actions to bring a non-performing system back into conformance to its design requirements.

<b>Design Expectations</b>
<i><b>Input</b></i>
Inputs (interfaces) for the Control/Mitigation Safety Risk process will be obtained from the Safety Risk Assessment Process 2.2.2. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<i><b>Management Responsibility</b></i>
The organization will clearly identify who is responsible for the quality of the Control/Mitigate Safety Risk Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b>Procedure</b>
Does the organization have a safety risk control/mitigation plan for each hazard with unacceptable risk? <i>Reference: SMS Framework 2.2.3 b, (1) (P/C)</i>
Are the organization’s safety risk controls -
Clearly described? <i>Reference: SMS Framework 2.2.3 b, (2)(a) (P)</i>
Evaluated to ensure that the expectations have been met? <i>Reference: SMS Framework 2.2.3 b, (2) (b) (P)</i>
Ready to be used in their intended operational environment? <i>Reference: SMS Framework 2.2.3 b, (2) (c) (P)</i>

<p>Documented?  <i>Reference: SMS Framework 2.2.3 b, (2) (c) (P)</i></p>
<p>Does the organization ensure that substitute risk will be evaluated when creating safety risk controls and mitigations?  <i>Reference: SMS Framework 2.2.3 b, (3) (P/C)</i></p>
<p><b><i>Outputs and Measures</i></b></p>
<p>The organization will:</p> <ul style="list-style-type: none"> <li>(1) identify interfaces between the risk control/mitigation functions (this process) and the Safety Assurance Component 3.0, specifically 3.1.1 thru 3.1.6, below, and</li> <li>(2) periodically measure performance objectives and design expectations of the risk Control/Mitigate Safety Risk Process.</li> </ul> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b><i>Controls</i></b></p>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the safety risk control process.</li> </ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

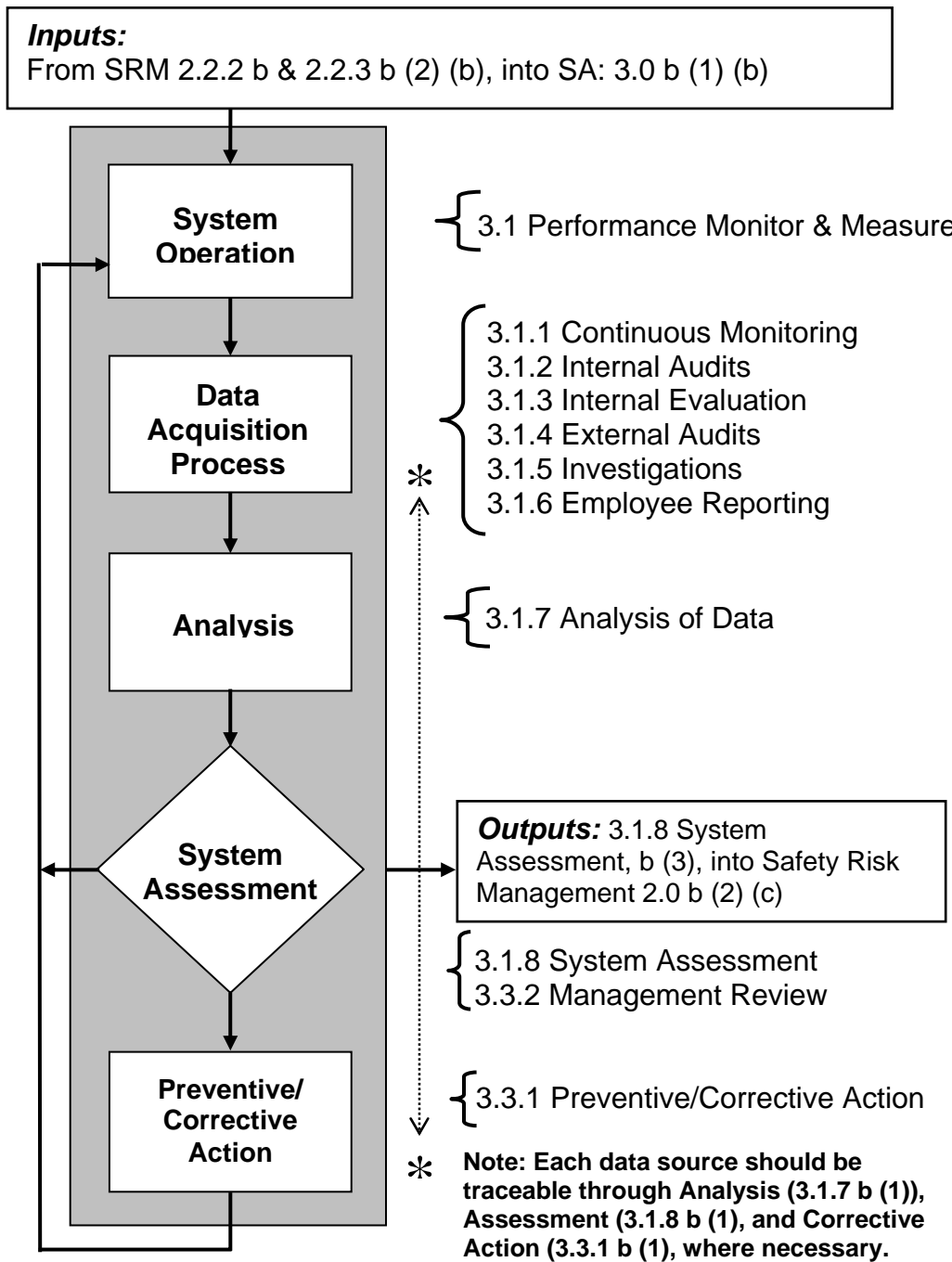
Has the organization designed and implemented a risk control for each identified hazard for which there is unacceptable risk, to reduce to acceptable levels the potential for death, serious physical harm, or damage to equipment or property? Has the residual or substitute risk been analyzed before implementing any risk control?



### Component 3.0: Safety Assurance Flow

The Safety Assurance flow diagram (below) is annotated with the SMS Framework element/process numbers and other notes. They will help the user visualize the Framework in terms of a process flow with attending interfaces and perhaps more clearly understand the component/element/process expectations.

Figure 4 - Safety Assurance Flow



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## Component 3.0 Safety Assurance: General Expectations

### Performance Objective

The organization will monitor, measure, and evaluate the performance of their systems to identify new hazards, measure the effectiveness of risk controls, (to include preventative and corrective actions) and ensure compliance with regulatory requirements.

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) for this component will be obtained from the Safety Risk Management Component 2.0. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Safety Assurance Component. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization monitor their systems and operations to -
Identify new hazards? <i>Reference: SMS Framework 3.0 b, (1)(a) (P)</i>
Measure the effectiveness of safety risk controls? <i>Reference: SMS Framework 3.0 b, (1) (b) (P)</i>
Ensure compliance with regulatory requirements applicable to the SMS? <i>Reference: SMS Framework 3.0 b, (1) (c) (P)</i>
Is the organization’s safety assurance function based upon a comprehensive system description and task analysis as described in Process 2.1.1, System Description and Task Analysis? <i>Reference: SMS Framework 3.0 b, (1) (d) (P)</i>
Does the organization collect the data necessary to demonstrate the effectiveness of its -
Operational processes? <i>Reference: SMS Framework 3.0 b, (2)(a) (P)</i>
The SMS? <i>Reference: SMS Framework 3.0 b, (2) (b) (P)</i>
<b><i>Outputs and Measures</i></b>
The organization will identify interfaces between the data acquisition processes (3.1.1 to 3.1.6) and -
The system assessment process (2.2.2) <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>

<p>The hazard identification process (2.1.2)  <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i></p>
<p>The organization will periodically measure performance objectives and design expectations of the Safety Assurance Component.  <i>See note at 3.1.3 &amp; SMS Framework 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b>Controls</b></p>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the Safety Assurance Component.</li> </ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

Has the organization monitored, measured, and evaluated the performance of their systems to identify new hazards, measure the effectiveness of risk controls, (to include preventative and corrective actions) and ensured compliance with regulatory requirements?

### Element 3.1 Safety Performance Monitoring and Measurement

**NOTE:** To a large extent, controls are built into the design of the Flight Standards SMS Framework. A general expectation of the Policy Component (3.0) is that SMS outputs will be “*recorded, monitored, measured, and analyzed*” (1.0 b, (3)). The internal evaluation function of the Safety Assurance Component calls for evaluations “*at planned intervals*” of SMS conformance to objectives and expectations (3.1.3 b, (1)).

Each of the outputs will also have a method of measurement specified by the organization in accordance with the Policy Component 1.0 b, (2) “*SMS processes will be...measured...*” Measures need not be quantitative where this is not practical. All that will be expected is some method of providing objective evidence of the attainment of the expectation.

There is a relationship between controls and process measures. That is, the internal evaluation process is the method of controlling the processes, through the associated data collection, analysis, assessment, and corrective action processes. The individual outputs are the content of the process measures.

Finally, management reviews are the means of making sure that the appropriate levels of responsibility and authority are brought into the process and that management can be accountable in a proactive way, rather than an after-the-fact attribution.

Table 1 below is a complete set of outputs, as a minimum expectation, for the content of internal evaluations of each process area.

**Table 1 - SMS Outputs**

<b>Process</b>	<b>Reference</b>	<b>Output Expectation</b>
<b><i>Component 1.0 - Safety Policy and Objectives</i></b>		
<i>This table does not apply to the first component</i>		
<b><i>Component 2.0 - Safety Risk Management</i></b>		
2.1.1 System Description/Task Analysis	2.1.1b(1)	System descriptions for following situations:
	2.0b(2)(a)	<ul style="list-style-type: none"> <li>• Initial designs of systems, organizational procedures, and products</li> </ul>
	2.0b(2)(b)	<ul style="list-style-type: none"> <li>• Development of operational procedures</li> </ul>
	2.0b(2)(d)	<ul style="list-style-type: none"> <li>• Planned Changes</li> </ul>
2.1.2 Identify Hazards	2.1.2b(1)b	Hazards documented
	2.1.2b(2)(a)	Hazards tracked
2.2.1 Analyze Safety Risk	2.2.1b(1)(c)	Assignment of severity and likelihood for each hazard (as documented in 2.1.2)
2.2.2 Assess Safety Risk	2.2.2b(1)	Assessment of risk acceptability for each hazard (as documented in 2.1.2)
2.2.3 Control/Mitigate Safety Risk	2.2.3b(1)	Risk control/mitigation plans for each hazard with an unacceptable risk (as assessed in 2.2.2)
<b><i>Component 3.0 - Safety Assurance</i></b>		
3.1.1 Continuous Monitoring	3.1.1	Objective evidence of monitoring activities in accordance with company policy
3.1.2 Internal Audit by Operational Departments	3.1.2b(5)(b)(1)	Plans
	3.1.2b(5)(b)(3) & (4)	Reports/records
3.1.3 Internal Evaluation	3.1.3b(3)(d)(2)(a)	Plans
	3.1.3b(3)(d)(2)(c) & (d)	Reports/records
3.1.4 External Auditing of the SMS	3.1.4	Objective evidence of external audit findings (e.g., International Air Transport Association Operational Safety Audit (IOSA), International Business Aviation Council (IS-BAO), Air Charter Safety Foundation (ACSF), and Federal Aviation Administration (FAA))
3.1.5 Investigations	3.1.5b(1)	Data collected (e.g. records, reports) for investigations of:
	3.1.5b(1)(a)	<ul style="list-style-type: none"> <li>• Incidents</li> </ul>
	3.1.5b(1)(b)	<ul style="list-style-type: none"> <li>• Accidents</li> </ul>
	3.1.5b(1)(c)	<ul style="list-style-type: none"> <li>• Potential regulatory violations (e.g., Voluntary Disclosure Reporting Program (VDRP) records)</li> </ul>
3.1.6 Employee Reporting and Feedback System	3.1.6b(1)	Evidence of system (e.g. report file, log, database)

<b>Process</b>	<b>Reference</b>	<b>Output Expectation</b>
(ERS)		
	3.1.6b3)	Evidence of monitoring of ERS data for hazards
	3.1.6b(4)	Evidence of analysis of ERS data
3.1.7 Analysis of Data	3.1.7b 3.1.7b(1)	Objective evidence of analysis processes for each data type
3.1.8 System Assessment	3.1.8b(4)	Records of system assessments
3.3.1 Preventive/Corrective Action	3.3.1b(1)	Corrective action plans
	3.3.1b(5)	Records of disposition and status of corrective actions
3.3.2 Management Review	3.3.2b(1)	Objective evidence of management reviews (e.g., minutes, log)
<b><i>Component 4.0 - Safety Promotion</i></b>		
4.1.1 Personnel Expectations (Competence)	4.1.1b(1)	Documented competency requirements in accordance with 1.2 b(3) & 1.3b(1)
4.1.2 Training	4.1.2b(1)	Plans/requirements
	4.1.2b(3)	Records
	4.1.2b(4)	Reviews

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### Process 3.1.1 Continuous Monitoring

#### Performance Objective

The organization will monitor operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance.

<b>Design Expectations</b>
<b>Input</b>
Inputs (interfaces) for this process will be obtained from the Risk Assessment Process 2.2.2, Risk Control/Mitigation Process 2.2.3, System Assessment Process 3.1.8 or Preventive/Corrective Action Process 3.3.1. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b>Management Responsibility</b>
The organization will clearly identify who is responsible for the quality of the Continuous Monitoring Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b>Procedure</b>
Does the organization monitor operational data (e.g., duty logs, crew reports, work cards, process sheets, and reports from the employee safety feedback system specified in Process 3.1.6) to -
Determine whether it conforms to safety risk controls (described in Process 2.2.3)? <i>Reference: SMS Framework 3.1.1 b, (1)(a) (P)</i>
Measure the effectiveness of safety risk controls (described in Process 2.2.3)? <i>Reference: SMS Framework 3.1.1 b, (1) (b) (P)</i>
Assess SMS system performance? <i>Reference: SMS Framework 3.1.1 b, (1) (c) (P)</i>
Identify hazards? <i>Reference: SMS Framework 3.1.1 b, (1) (d) (P)</i>
Does the organization monitor products and services from contractors? <i>Reference: SMS Framework 3.1.1 b, (2) (P)</i>
<b>Outputs and Measures</b>
The organization will: (1) identify interfaces between these continuous monitoring functions and the Analysis of Data Process 3.1.7 below, and

<p>(2) periodically measure performance objectives and design expectations of the Continuous Monitoring Process.</p> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b>Controls</b></p>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"><li>(1) procedures are followed for safety-related operations and activities, and</li><li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the Continuous Monitoring Process.</li></ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

Has the organization monitored operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance?

### Process 3.1.2 Internal Audits by Operational Departments

#### Performance Objective

The organization will perform regularly scheduled internal audits of its operational processes, including those performed by contractors, to verify safety performance and evaluate the effectiveness of safety risk controls.

<b>Design Expectations</b>
<b>Input</b>
Inputs (interfaces) for this process will be obtained from the Control/Mitigate Safety Process 2.2.3. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b>Management Responsibility</b>
The organization will clearly identify who is responsible for the quality of the Internal Auditing Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b>Procedure:</b>
Does the organization’s line management ensure regular internal audits of safety-related functions of the organization’s operational processes (production system) are conducted? <b>Note:</b> The internal audit is a primary means of output measurement under Component 1.0, b, (3) (c) and (4) (e). <i>Reference: SMS Framework 3.1.2 b, (1) (P)</i>
<b>Procedure: Auditing of Contractors</b>
Does the organization’s line management ensure regular audits are conducted of safety-related departmental functions which are performed by subcontractors? <i>Reference: SMS Framework 3.1.2 b, (1) (P)</i>
<b>Procedure: Objectives of Audits</b>
Does the organization conduct regular audits to -
Determine conformity to safety risk controls? <i>Reference: SMS Framework 3.1.2 b, (2)(a) (P)</i>
Assess safety risk controls’ performance? <i>Reference: SMS Framework 3.1.2 b, (2) (b) (P)</i>
<b>Procedure: Audit Planning</b>
Does the organization’s audit program planning take into account -
Safety criticality of the processes to be audited?

<i>Reference: SMS Framework 3.1.2 b, (3)(a) (P)</i>
Results of previous audits? <i>Reference: SMS Framework 3.1.2 b, (3) (b) (P)</i>
<b><i>Procedure: Audit Program Management</i></b>
Does the organization define -
Audits, including -
Criteria? <i>Reference: SMS Framework 3.1.2 b, (4)(a) (1) (P)</i>
Scope? <i>Reference: SMS Framework 3.1.2 b, (4)(a) (2) (P)</i>
Frequency? <i>Reference: SMS Framework 3.1.2 b, (4)(a) (3) (P)</i>
Methods? <i>Reference: SMS Framework 3.1.2 b, (4)(a) (4) (P)</i>
How the auditors will be selected? <i>Reference: SMS Framework 3.1.2 b, (4) (b) (P)</i>
How they will ensure that auditors do not audit their own work? <i>Reference: SMS Framework 3.1.2 b, (4) (c) (P)</i>
<b><i>Procedure: Documentation</i></b>
Does the organization define -
Internal audit responsibilities? <i>Reference: SMS Framework 3.1.2 b, (5)(a) (P)</i>
Expectations for -
Planning audits? <i>Reference: SMS Framework 3.1.2 b, (5) (b) 1 (P)</i>
Conducting audits? <i>Reference: SMS Framework 3.1.2 b, (5) (b) 2 (P)</i>
Reporting results? <i>Reference: SMS Framework 3.1.2 b, (5) (b) 3 (P)</i>
Maintaining records? <i>Reference: SMS Framework 3.1.2 b, (5) (b) 4 (P)</i>
Auditing contractors and vendors? <i>Reference: SMS Framework 3.1.2 b, (5) (b) 5 (P)</i>
<b><i>Outputs and Measures</i></b>
The organization will:

<p>(1) identify interfaces between the Internal Audits of Operational Departments Process and the Analysis of Data Process 3.1.7 below, and</p> <p>(2) periodically measure performance objectives and design expectations of the Internal Audits of Operational Departments Process.</p> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b>Controls</b></p>
<p>The organization will ensure that:</p> <p>(1) procedures are followed for safety-related operations and activities, and</p> <p>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the Internal Audit of Operational Departments Process.</p> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

Has the organization performed regularly scheduled internal audits of its operational processes, including those performed by contractors, to determine the performance and effectiveness of risk controls?

### Process 3.1.3 Internal Evaluation

#### Performance Objective

The organization will conduct internal evaluations of the SMS and operational processes at planned intervals to determine that the SMS conforms to its objectives and expectations.

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) for this process will be obtained from the Risk Assessment Process 2.2.2 or Control/Mitigate Safety Risk Process 2.2.3. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Internal Evaluation Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization ensure internal evaluations of operational processes and the SMS are conducted at planned intervals, to determine that the SMS conforms to objectives and expectations? <b>Note:</b> Sampling of SMS output measurement is a primary control under Component 1.0, b, (3) (c) and (4) (e). <i>Reference: SMS Framework 3.1.3 b, (1) (P)</i>
Does the organization’s planning of the internal evaluation program take into account -
Safety criticality of the processes being evaluated? <i>Reference: SMS Framework 3.1.3 b, (2)(a) (P)</i>
Results of previous evaluations? <i>Reference: SMS Framework 3.1.3 b, (2) (b) (P)</i>
<b><i>Procedure: Program Contents</i></b>
Does the organization define -
Evaluations, including -
Criteria? <i>Reference: SMS Framework 3.1.3 b, (3) (a) 1 (P)</i>
Scope? <i>Reference: SMS Framework 3.1.3 b, (3) (a) 2 (P)</i>
Frequency?

<i>Reference: SMS Framework 3.1.3 b, (3) (a) 3 (P)</i>
Methods? <i>Reference: SMS Framework 3.1.3 b, (3) (a) 4 (P)</i>
Processes used to select the evaluators? <i>Reference: SMS Framework 3.1.3 b, (3) (b) (P)</i>
<b><i>Procedure: Documentation</i></b>
Does the organization’s document procedures include -
Evaluation responsibilities? <i>Reference: SMS Framework 3.1.3 b, (3) (c)(1) (P)</i>
Requirements for -
Planning evaluations? <i>Reference: SMS Framework 3.1.3 b, (3) (c) 2 (a) (P)</i>
Conducting evaluations? <i>Reference: SMS Framework 3.1.3 b, (3) (c) 2 (b) (P)</i>
Reporting results? <i>Reference: SMS Framework 3.1.3 b, (3) (c) 2 (c) (P)</i>
Maintaining records? <i>Reference: SMS Framework 3.1.3 b, (3) (c) 2 (d) (P)</i>
Evaluating contractors and vendors? <i>Reference: SMS Framework 3.1.3 b, (3) (c) 2 (e) (P)</i>
<b><i>Procedure: Scope</i></b>
Does the organization’s evaluation program include an evaluation of the operational departments described in SMS Framework Safety Policy Component 1.0 b, (1) & (2)? <i>Reference: SMS Framework 3.1.3 b, (4) (P)</i>
<b><i>Procedure: Independence of Evaluators</i></b>
Does the organization ensure the person or organization performing evaluations of operational processes are independent of the process being evaluated? <i>Reference: SMS Framework 3.1.3 b, (5) (P)</i>
<b><i>Outputs and Measures</i></b>
The organization will: <ul style="list-style-type: none"> <li>(1) identify interfaces between this process and the Analysis of Data Process 3.1.7 below, and</li> <li>(2) periodically measure performance objectives and design expectations of the Internal Evaluation Process.</li> </ul> <i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>
<b><i>Controls</i></b>

The organization will ensure that:

- (1) procedures are followed for safety-related operations and activities, and
- (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Internal Evaluation Process.

*Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k; 3.1.3 b, (1); 3.3.2, b, (1) & (2) (C)*

**Bottom Line Assessment**

Has the organization conducted internal evaluations of the SMS and operational processes at planned intervals to determine that the SMS conforms to its objectives and expectations?



**Process 3.1.4 External Auditing of the SMS**

**Performance Objective**

The organization will include the results of assessments performed by oversight organizations, and other external audit results, in its data analysis.

<b>Design Expectations</b>
<i><b>Input</b></i>
Inputs (interfaces) for this process will be obtained from the Control/Mitigate Safety Risk Process 2.2.3 and from the FAA and/or other external agencies. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<i><b>Management Responsibility</b></i>
The organization will clearly identify who is responsible for the quality of the External Auditing Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<i><b>Procedure</b></i>
Does the organization ensure it includes the results of oversight organization audits, and other external audit results, in the analyses conducted under SMS Framework Analysis of Data Process 3.1.7? <i>Reference: SMS Framework 3.1.4 b, (P/I)</i>
<i><b>Outputs and Measures</b></i>
The organization will: <ul style="list-style-type: none"> <li>(1) identify interfaces between this process and the Analysis of Data Process 3.1.7 below, and</li> <li>(2) periodically measure performance objectives and design expectations of the External Auditing Process.</li> </ul> <i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>
<i><b>Controls</b></i>
The organization will ensure that: <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the External Auditing Process.</li> </ul> <i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i>

**Bottom Line Assessment**

Has the organization included the results of audits performed by oversight organizations, and other external audit results, in its analysis of data?

### Process 3.1.5 Investigation

#### Performance Objective

The organization will establish procedures to collect data and investigate incidents, accidents, and instances of potential regulatory non-compliance to identify potential new hazards or risk control failures.

<b>Design Expectations</b>
<b>Input</b>
Inputs (interfaces) for this process will be obtained from the Control/Mitigate Safety Risk Process 2.2.3 and as needed upon occurrence of events. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b>Management Responsibility</b>
The organization will clearly identify who is responsible for the quality of the Investigation Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b>Procedure</b>
Does the organization ensure it collects data on -
Incidents? <i>Reference: SMS Framework 3.1.5 b, (1)(a) (P)</i>
Accidents? <i>Reference: SMS Framework 3.1.5 b, (1) (b) (P)</i>
Potential regulatory non-compliance? <i>Reference: SMS Framework 3.1.5 b, (1) (c) (P)</i>
Does the organization ensure that procedures are established to investigate -
Accidents? <i>Reference: SMS Framework 3.1.5 b, (2) (a) (P)</i>
Incidents? <i>Reference: SMS Framework 3.1.5 b, (2) (b) (P)</i>
Instances of potential regulatory non-compliance? <i>Reference: SMS Framework 3.1.5 b, (2) (c) (P)</i>
<b>Outputs and Measures</b>
The organization will: (1) identify interfaces between this process and the Analysis of Data Process 3.1.7 below, and (2) periodically measure performance objectives and design expectations of the

<p><b>Investigation Process.</b></p> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b><i>Controls</i></b></p>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"><li>(1) procedures are followed for safety-related operations and activities, and</li><li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the Investigation Process.</li></ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

Has the organization established procedures to collect data and investigate incidents, accidents, and instances of potential regulatory non-compliance that occur to identify potential new hazards or risk control failures?

### Process 3.1.6 Employee Reporting and Feedback System

#### Performance Objective

The organization will establish and maintain a confidential Employee Safety Reporting and Feedback System. Data obtained from this system will be monitored to identify emerging hazards and to assess performance of risk controls in the operational systems.

<b>Design Expectations</b>
<b>Input</b>
Inputs (interfaces) for the Employee Reporting and Feedback System will be obtained from employees. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b>Management Responsibility</b>
The organization will clearly identify who is responsible for the quality of the Employee Reporting and Feedback Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b>Procedure</b>
Has the organization established and maintained a confidential Employee Reporting and Feedback System as in Component 4.0 b, (1) (e), Safety Promotion? <i>Reference: SMS Framework 3.1.6 b, (1) (P)</i>
Does the organization ensure employees are encouraged to use the Safety Reporting and Feedback System without fear of reprisal and to encourage submission of solutions/safety improvements where possible? <i>Reference: SMS Framework 3.1.6 b, (2) (P)</i>
Does the organization ensure data from the Safety Reporting and Feedback System is monitored to identify emerging hazards? <i>Reference: SMS Framework 3.1.6 b, (3) (P)</i>
Does the organization ensure the data collected in the Employee Reporting and Feedback System is included in the analyses conducted under SMS Framework Analysis of Data Process 3.1.7? <i>Reference: SMS Framework 3.1.6 b, (4) (P)</i>
<b>Outputs and Measures</b>
The organization will: <ul style="list-style-type: none"> <li>(1) identify interfaces between this process and the Analysis of Data Process 3.1.7 below, and</li> <li>(2) periodically measure performance objectives and design expectations of the Employee Reporting and Feedback Process.</li> </ul>

<i>Reference: (1) SMS Framework 1.5 b, (1) (f): (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>
<b>Controls</b>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Employee Reporting and Feedback Process. <i>Reference: (1) SMS Framework: 1.0 b, (4) (f): (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i>

**Bottom Line Assessment**

Has the organization established and maintained a Confidential Employee Safety Reporting and Feedback System? Are the data obtained from this system monitored to identify emerging hazards and to assess performance of risk controls in the operational systems?

**Process 3.1.7 Analysis of Data**

**Performance Objective**

The organization will analyze the data described in SMS Framework Processes 3.1.1 thru 3.1.6, to assess the risk controls’ performance and effectiveness in the organization’s operational processes and the SMS, and to identify root causes of deficiencies and potential new hazards.

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) for this process will be obtained from the data acquisition processes 3.1.1 thru 3.1.6. Reference: <i>SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Analysis of Data Process. Procedures will also define who is responsible for accomplishing the process. Reference: <i>SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization analyze the data that it collects to demonstrate the effectiveness of -
Risk controls in the organization’s operational processes (SMS Framework Safety Policy Component 1.0 b, (1) (a) & (b))? Reference: <i>SMS Framework 3.1.7 b, (1) (a) (P)</i>
The organization’s SMS? Reference: <i>SMS Framework 3.1.7 b, (1) (b) (P)</i>
Does the organization ensure it analyzes the data it collects to identify root causes of deficiencies and potential new hazards and evaluate where improvements can be made in the organization’s -
Operational processes (SMS Framework Safety Policy Component 1.0 b, (1) (a) & (b))? Reference: <i>SMS Framework 3.1.7 b, (2) (a) (P)</i>
The SMS? Reference: <i>SMS Framework 3.1.7 b, (2) (b) (P)</i>
<b><i>Outputs and Measures</i></b>
The organization will: (1) identify interfaces between this process and the System Assessment Process 3.1.8 below, and (2) periodically measure performance objectives and design expectations of the Analysis of Data Process. Reference: <i>(1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3</i>

<i>b, (1) (PM/I)</i>
<b><i>Controls</i></b>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Analysis of Data Process. <i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i>

**Bottom Line Assessment**

Has the organization analyzed the data described in SMS Framework Processes 3.1.1 thru 3.1.6 to assess the risk controls’ performance and effectiveness in the organization’s operational processes and the SMS and to identify root causes of deficiencies and potential new hazards?



**Process 3.1.8 System Assessment**

**Performance Objective**

The organization will perform an assessment of the safety performance and effectiveness of risk controls, conformance to SMS expectations as stated herein, and the objectives of the safety policy.

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) for this process will be obtained from the Analysis of Data Process 3.1.7. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the System Assessment Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization assess the performance and effectiveness of the -
Safety-related functions of operational processes (Safety Policy Component 1.0 b, (1)(a)) against their requirements? <i>Reference: SMS Framework 3.1.8 b, (1)(a) (P)</i>
SMS against its objectives and expectations? <i>Reference: SMS Framework 3.1.8 b, (1) (b), (P)</i>
Does the organization record system assessments that result in a finding of -
Conformity or nonconformity with existing safety risk controls and/or SMS expectations, including regulatory requirements applicable to the SMS? <i>Reference: SMS Framework 3.1.8 b, (2) (a) &amp; (b) (P)</i>
New hazards found? <i>Reference: SMS Framework 3.1.8 b, (2) (c) (P)</i>
<b><i>Outputs and Measures</i></b>
Does the organization use the Safety Risk Management (Component 2.0) if risk assessment and risk control performance indicates -
That new hazards or potential hazards have been found? <i>Reference: SMS Framework 3.1.8 b, (3) (a) (I)</i>
That the system needs to be changed? <i>Reference: SMS Framework 3.1.8 b, (3) (b) (I)</i>
Does the organization maintain records of assessments in accordance with the requirements of

<p>SMS Documentation and Records Element 1.5?  <i>Reference: SMS Framework 3.1.8 b, (4) (P/I)</i></p>
<p>The organization will identify interfaces between the system assessment function and -</p>
<p>The hazard identification function (2.1.2, Identify Hazards Element)  <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i></p>
<p>The preventive and corrective action function (3.3.1, Preventive/Corrective Action Element)  <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i></p>
<p>The organization will periodically measure performance objectives and design expectations of the System Assessment Process.  <i>Reference: SMS Framework note at 3.1.3 &amp; SMS Framework 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b>Controls</b></p>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the System Assessment Process.</li> </ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

Has the organization assessed risk controls’ performance and effectiveness, conformance with SMS requirements, and the objectives of the Safety Policy?

### Element 3.2 Management of Change

#### Performance Objective

The organization’s management will identify and determine acceptable safety risk for changes within the organization that may affect established processes and services by new system design, changes to existing system designs, new operations/procedures, or modified operations/procedures.

<b>Design Expectations</b>
<b>Input</b>
Inputs (interfaces) for this process will be obtained from proposed changes to systems, processes, procedures, or organizational structures. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b>Management Responsibility</b>
The organization will clearly identify who is responsible for the quality of the Management of Change Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b>Procedure</b>
Does the organization ensure it does not implement any of the following until the level of safety risk of each identified hazard is determined to be acceptable for -
<p>New system designs? <i>Reference: SMS Framework 3.2 b, (1) (a) (P)</i></p>
<p>Changes to existing system designs? <i>Reference: SMS Framework 3.2 b, (1) (b) (P)</i></p>
<p>New operations or procedures? <i>Reference: SMS Framework 3.2 b, (1) (c) (P)</i></p>
<p>Modifications to existing operations or procedures? <i>Reference: SMS Framework 3.2 b, (1) (d) (P)</i></p>
<b>Outputs and Measures</b>
<p>The organization will:</p> <ul style="list-style-type: none"> <li>(1) ensure that this process is interfaced with the SRM process (System Description and Task Analysis 2.1.1), and</li> <li>(2) periodically measure performance objectives and design expectations of the Management of Change Process.</li> </ul> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>

***Controls***

The organization will ensure that:

- (1) procedures are followed for safety-related operations and activities, and
- (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Management of Change Process.

*Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) & (2) (C)*

**Bottom Line Assessment**

Has the organization's management assessed risk for changes within the organization that may affect established processes and services by new system designs, changes to existing system designs, new operations/procedures or modified operations/procedures?

### Element 3.3 Continuous Improvement

#### Performance Objective

The organization will promote continuous improvement of its SMS through recurring application of SRM (Component 2.0), SA (Component 3.0), and by using safety lessons learned and communicating them to all personnel.

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) for this process will be obtained through continuous application of Safety Risk Management (Component 2.0), Safety Assurance (Component 3.0) and the outputs of the SMS, including safety lessons learned. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Continual Improvement Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization continuously improve the effectiveness of the SMS and of safety risk controls through the use of the safety and quality policies, objectives, audit and evaluation results, analysis of data, corrective and preventive actions, and management reviews? <i>Reference: SMS Framework 3.3 b, (1) (P)</i>
Does the organization develop safety lessons learned and - <i>Reference: SMS Framework 3.3 b, (2) (P)</i>
Use safety lessons learned to promote continuous improvement of safety? <i>Reference: SMS Framework 3.3 b, (2)(a) (P)</i>
Ensure that safety lessons learned are communicated to all personnel? <i>Reference: SMS Framework 3.3 b, (2) (b) &amp; 4.2 (P)</i>
<b><i>Outputs and Measures</i></b>
The organization will: (1) ensure that trend analysis of safety and quality policies, objectives, audit and evaluation results, analysis of data, and corrective and preventive actions are interfaced with Management Review Process 3.3.2, below), and (2) periodically measure performance objectives and design expectations of the Continual Improvement Process.  <i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>

<b><i>Controls</i></b>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Continuous Improvement Process. <i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i>

**Bottom Line Assessment**

Has the organization promoted continuous improvement of its SMS through recurring application of Safety Risk Management (Component 2.0), Safety Assurance (Component 3.0), and by using safety lessons learned and communicating them to all personnel?

### Process 3.3.1 Preventive/Corrective Action

#### Performance Objective

The organization will take preventive and corrective action to eliminate the causes or potential causes of nonconformance identified during analysis, to prevent recurrence.

**NOTE:** Although Process 2.2.3 (Control/Mitigate Safety Risk) is very similar to Process 3.3.1, the primary differences are:

- Process 2.2.3 is used during the design of a system (often looking to the future) or in the redesign of a non-performing system where system requirements are being met, but the system is not producing the desired results.
- Process 2.2.3 is also used where new hazards are discovered during Safety Assurance that was not taken into account during initial design.
- Process 3.3.1 is used to develop actions to bring a non-performing system back into conformance to its design requirements.

<b>Design Expectations</b>
<b><i>Inputs</i></b>
Inputs (interfaces) for this process will be obtained from System Assessments (Process 3.1.8) with findings of non-performing risk controls. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Preventive/Corrective Action Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization develop the following -
Preventive actions for identified potential nonconformities with risk controls? <i>Reference: SMS Framework 3.3.1 b, (1) (a) (P)</i>
Corrective actions for identified nonconformities with risk controls? <i>Reference: SMS Framework 3.3.1 b, (1)(b) (P)</i>
Does the organization consider safety lessons learned in the development of -
Preventive actions? <i>Reference: SMS Framework 3.3.1 b, (2) (a) (P)</i>
Corrective actions? <i>Reference: SMS Framework 3.3.1 b, (2)(b) (P)</i>
Does the organization take necessary preventive and corrective action based on the findings of

<p>investigations?  <i>Reference: SMS Framework 3.3.1 b, (3) (P)</i></p>
<p>Does the organization prioritize and implement preventive and corrective actions in a timely manner?  <i>Reference: SMS Framework 3.3.1 b, (4) (P)</i></p>
<p><b><i>Outputs and Measures</i></b></p>
<p>Does the organization keep and maintain records of the disposition and status of preventive and corrective actions according to established record retention policy?  <i>Reference: SMS Framework 3.3.1 b, (5) (PM/I)</i></p>
<p>The organization will:</p> <ul style="list-style-type: none"> <li>(1) identify interfaces between this process and the Continuous Monitoring Process 3.1.1 above, and</li> <li>(2) periodically measure performance objectives and design expectations of the Preventive and Corrective Action Process.</li> </ul> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b><i>Controls</i></b></p>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the Preventive and Corrective Action Process.</li> </ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

Has the organization taken preventive or corrective actions to eliminate the causes of non-conformances, identified during analysis, to prevent recurrence?



### Process 3.3.2 Management Review

#### Performance Objective

Top management will conduct regular reviews of the SMS to assess the performance and effectiveness of an organization’s operational processes and the need improvements.

<b>Design Expectations</b>
<b><i>Input</i></b>
<p>Inputs (interfaces) for this process will be obtained from the outputs of Safety Risk Management (Component 2.0) and Safety Assurance (Component 3.0) activities including –</p> <ul style="list-style-type: none"> <li>Hazard identification (Process 2.1.2)</li> <li>Risk analysis (severity and likelihood) (Process 2.2.1)</li> <li>Risk assessments (Process 2.2.2)</li> <li>Risk control/mitigation plans (Process 2.2.3)</li> <li>Results of analysis of data (Process 3.1.7)</li> </ul> <p><i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i></p>
<b><i>Management Responsibility</i></b>
<p>The organization will clearly identify who is responsible for the quality of the Management Review Process. Procedures will also define who is responsible for accomplishing the process.</p> <p><i>Reference: SMS Framework 1.2 b, (3) (R/A)</i></p>
<b><i>Procedure</i></b>
<p>Does top management conduct regular reviews of the SMS, including the outputs of the Safety Risk Management Processes, the outputs of the Safety Assurance Processes, and safety lessons learned?</p> <p><i>Reference: SMS Framework 3.3.2 b, (1)(a), (b) &amp; (c) (P)</i></p>
<p>Does top management include in its reviews of the SMS, an assessment of the need for improvements to the organization’s operational processes and the SMS?</p> <p><i>Reference: SMS Framework 3.3.2 b, (2) (a) &amp; (b) (P)</i></p>
<b><i>Outputs and Measures</i></b>
<p>The organization will keep records of the disposition and status of management reviews according to the organization’s record retention policy?</p> <p><i>Reference: SMS Framework 1.5 b, (3)(a)(5) (I)</i></p>
<p>The organization will:</p> <ul style="list-style-type: none"> <li>(1) identify interfaces between this process and the Hazard Identification Process (2.1.2, above) and Preventive and Corrective Action Process (3.3.1, above), and</li> <li>(2) periodically measure performance objectives and design expectations of the Management Review Process.</li> </ul> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3</i></p>

<i>b, (1) (PM/I)</i>
<b><i>Controls</i></b>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the Management Review Process.</li> </ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

Has top management conducted regular reviews of the SMS, including outputs of Safety Risk Management (Component 2.0), Safety Assurance (Component 3.0), and lessons learned? Has management reviews included assessing the performance and effectiveness of an organization’s operational processes and the need for improvements?

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## Component 4.0: Safety Promotion

### Safety Promotion: General Expectations

#### Performance Objective

Top management will promote the growth of a positive safety culture and communicate it throughout the organization.

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) will be identified between top management and organizational personnel. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Safety Promotion Component (4.0). Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure/Output/Measure</i></b>
Does top management promote the growth of a positive safety culture through -
Publication of top management’s stated commitment to safety to all employees? <i>Reference: SMS Framework 4.0 b, (1)(a) (P/I)</i>
Visible demonstration of their commitment to the SMS? <i>Reference: SMS Framework 4.0 b, (1) (b) (P/I)</i>
Communication of the safety responsibilities for the organization’s personnel? <i>Reference: SMS Framework 4.0 b, (1) (c) (P/I)</i>
Clear and regular communication of safety policy, goals, expectations, standards, and performance to all employees of the organization? <i>Reference: SMS Framework 4.0 b, (1) (d) (P/I)</i>
An effective employee reporting and feedback system that provides confidentiality? <i>Reference: SMS Framework 4.0 b, (1) (e) (P/I)</i>
Use of a safety information system that provides an accessible efficient means to retrieve information? <i>Reference: SMS Framework 4.0 b, (1) (f) (P/I)</i>
Allocation of resources essential to implement and maintain the SMS? <i>Reference: SMS Framework 4.0 b, (1) (g) (P/I)</i>
The organization will periodically measure performance objectives and design expectations of the Safety Promotion Component.

<i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>
<b>Controls</b>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Safety Promotion Component. <i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i>

**Bottom Line Assessment**

Has top management promoted the growth of a positive safety culture and communicate it throughout the organization.

**Element 4.1 Competencies and Training**

**Process 4.1.1 Personnel Expectations (Competence)**

**Performance Objective**

The organization will document competency requirements for those positions identified in Element 1.2 b, (3) and 1.3 and ensure those requirements are met.

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) for this process will be identified between top management and the key safety personnel referenced in Management Commitment and Safety Accountabilities Element 1.2 b, (3) & Key Safety Personnel Element 1.3. <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the Personnel Expectations Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization identify the competency requirements for safety-related positions identified in Management Commitment and Safety Accountabilities Element 1.2 b, (3) & Key Safety Personnel Element 1.3? <i>Reference: SMS Framework 4.1.1 b, (1) (P)</i>
<b><i>Outputs and Measures</i></b>
Does the organization ensure that the personnel in the safety-related positions identified in Management Commitment and Safety Accountabilities Element 1.2 b, (3) & Key Safety Personnel Element 1.3 meet the documented competency requirements of Personnel Expectations Process 4.1.1 b, (1)? <i>Reference: SMS Framework 4.1.1 b, (2) (P)</i>
The organization will periodically measure performance objectives and design expectations of the Personnel Expectations Process. <i>Reference: SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i>
<b><i>Controls</i></b>
The organization will ensure that: <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the personnel qualification and training process.</li> </ul>

*Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) & (2) (C)*

**Bottom Line Assessment**

Has the organization documented competency requirements for those positions identified in Management Commitment and Safety Accountabilities Element 1.2 b, (3) and Key Safety Personnel Element 1.3 and ensured those requirements were met?

## Process 4.1.2 Training

### Performance Objective

The organization will develop, document, deliver and regularly evaluate training necessary to meet competency requirements of Process 4.1.1 b (1).

<b>Design Expectations</b>
<b><i>Input</i></b>
Inputs (interfaces) for the Training Process will be obtained through the outputs of the SMS and the documented competency expectations of Personnel Expectations Process 4.1.1 b, (1) <i>Reference: SMS Framework 1.5 b, (1) (f) (I)</i>
<b><i>Management Responsibility</i></b>
The organization will clearly identify who is responsible for the quality of the SMS Training Process. Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i>
<b><i>Procedure</i></b>
Does the organization’s training meet the competency expectations of Personnel Expectations Process 4.1.1 b, (1) for the personnel in the safety-related positions identified in Management Commitment and Safety Accountability Element 1.2 b, (3) & Key Safety Personnel Element 1.3? <i>Reference: SMS Framework 4.1.2 b, (1) (P)</i>
Does the organization consider scope, content, and frequency of training required to meet and maintain competency for those individuals in the positions identified in Management Commitment and Safety Accountability Element 1.2 b, (3) and Key Safety Personnel 1.3. <i>Reference: SMS Framework 4.1.2 b, (2) (P)</i>
Does the organization’s employees receive training commensurate with their -
Position level within the organization? <i>Reference: SMS Framework 4.1.2 b, (3) (a) (P)</i>
Impact on the safety of the organization’s products or services? <i>Reference: SMS Framework 4.1.2 b, (3) (b) (P)</i>
Does the organization maintain training currency by periodically -
Reviewing the training? <i>Reference: SMS Framework 4.1.2 b, (4)(a) (P)</i>
Updating the training? <i>Reference: SMS Framework 4.1.2 b, (4) (b) (P)</i>



<p><b><i>Outputs and Measures</i></b></p>
<p>The organization will maintain records of required and delivered training.  <i>Reference: SMS Framework 1.5 b, (4) (I)</i></p>
<p>The organization will:</p> <ul style="list-style-type: none"> <li>(1) identify interfaces between safety lessons learned and the training functions, as well as the interfaces between the training functions and the delivery of training deemed to be necessary to meet competency requirements of (4.1.1 b, 1, above), and</li> <li>(2) periodically measure performance objectives and design expectations of SMS Training Process.</li> </ul> <p><i>Reference: (1) SMS Framework 1.5 b, (1) (f); (2) SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>
<p><b><i>Controls</i></b></p>
<p>Does the organization ensure that safety-related training media is periodically reviewed and updated for target populations?  <i>Reference: SMS Framework 3.3.2 b, (2) and 4.1.2 b, (4) (C)</i></p>
<p>The organization will ensure that:</p> <ul style="list-style-type: none"> <li>(1) procedures are followed for safety-related operations and activities, and</li> <li>(2) they periodically review supervisory and operational controls to ensure the effectiveness of the SMS Training Process.</li> </ul> <p><i>Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) &amp; (2) (C)</i></p>

**Bottom Line Assessment**

Has the organization developed, documented, delivered and regularly evaluated training necessary to meet to meet competency expectations of the Personnel Expectations Process 4.1.1 b, (1).

**Element 4.2 Communication and Awareness**

**Performance Objective**

Top management will communicate the output of its SMS to its employees, and will provide its oversight organization access to SMS outputs in accordance with established agreements and disclosure programs.

<b>Design Expectations</b>
<b><i>Input</i></b>
<p>Inputs (interfaces) for this process will be obtained from the outputs of Safety Risk Management (2.0) and Safety Assurance (3.0) Components, including-</p> <ul style="list-style-type: none"> <li>Hazard identification (2.1.2)</li> <li>Risk severity and likelihood (2.2.1)</li> <li>Risk assessments (2.2.2)</li> <li>Risk control/mitigation plans (2.2.3)</li> <li>Safety lessons learned</li> <li>Results of analysis of data (3.1.7)</li> </ul> <p>Reference: <i>SMS Framework 1.5 b, (1) (f) &amp; 3.3 b, (2) (I)</i></p>
<b><i>Management Responsibility</i></b>
<p>The organization will clearly identify who is responsible for the quality of the Communication and Awareness Process. Procedures will also define who is responsible for accomplishing the process.</p> <p>Reference: <i>SMS Framework 1.2 b, (3) (R/A)</i></p>
<b><i>Procedure/Output/Measure</i></b>
<p>Does the organization ensure it communicates outputs of the SMS, rationale behind controls, preventive and corrective actions and ensure awareness of SMS objectives to its employees?</p> <p>Reference: <i>SMS Framework 4.2 b, (1) (P/PM/I)</i></p>
<p>Does the organization ensure it provides its oversight organization access to the outputs of the SMS in accordance with established agreements and disclosure programs?</p> <p>Reference: <i>SMS Framework 4.2 b, (2) (P/PM/I)</i></p>
<p>Does the organization interface with other organization’s SMSs to cooperatively manage issues of mutual concern?</p> <p>Reference: <i>SMS Framework 4.2 b, (3) (P/PM/I)</i></p>
<p>The organization will periodically measure performance objectives and design expectations of the Communication and Awareness Process.</p> <p>Reference: <i>SMS Framework note at 3.1.3 &amp; 1.0 b, (2) (c) and (3) (c); 3.1.3 b, (1) (PM/I)</i></p>

***Controls***

The organization will ensure that:

- (1) procedures are followed for safety-related operations and activities, and
- (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Communication and Awareness Process.

*Reference: (1) SMS Framework: 1.0 b, (4) (f); (2) SMS Framework 1.1 b, (2) k); 3.1.3 b, (1); 3.3.2, b, (1) & (2) (C)*

**Bottom Line Assessment**

Has top management communicated the output of its SMS to employees and provided its oversight organization access to SMS outputs in accordance with established agreements and disclosure programs?