

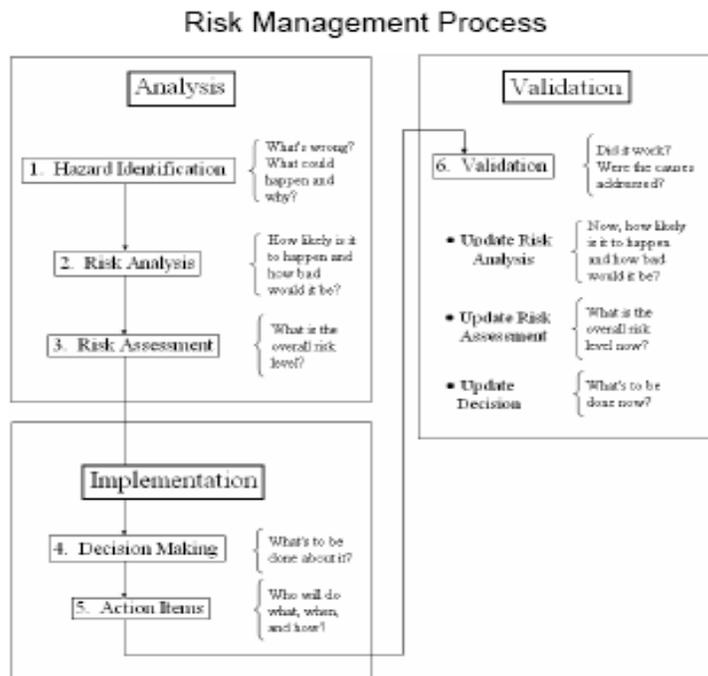
VOLUME 10 RISK MANAGEMENT

CHAPTER 1 AIR TRANSPORTATION OVERSIGHT SYSTEM

Risk Management Process (RMP)

10-1. INTRODUCTION. The purpose of the Flight Standards Service's Risk Management Process is to provide Certificate Management Teams (CMTs) with an effective means to oversee the certificate holder's management of identified hazards and the risk posed by those hazards. Hazards are situations, concerns, or other problems that have been evaluated in terms of risk. Analysis consists of three elements of the system safety process: Hazard identification, risk analysis, and risk assessment. A database of hazards, along with linkages to underlying Air Transportation Oversight System (ATOS) data and planning tools, will be part of the ATOS automation toolset. At the end of the risk assessment procedure, the output of the process is a set of hazards and associated potential consequences, along with information on risk factors involved and an assessment of the level of risk severity and likelihood. This information will be provided to the decision-making process for the formulation of an action plan. The ATOS Risk Management Process has six major steps, as illustrated in figure 10-1, and described in the following paragraphs.

Figure 10 – 1, Risk Management Process Flow Chart



10-2. WHEN TO USE THE RISK MANAGEMENT PROCESS. You may use the Risk Management Process to address any hazard that the principal inspector (PI) decides is significant enough to justify intensive analysis and tracking. Systemic hazards are often good candidates for this process. The PI determines when it is appropriate to use the Risk Management Process to address an identified hazard.

10-3. STEP 1: HAZARD IDENTIFICATION. The first step of the Risk Management Process is identification of a hazard and the potential consequences of that hazard. The purpose of hazard identification is to describe “What’s wrong” with the certificate holder’s operation. To complete the hazard identification step, CMT members must describe the conditions or circumstances in the certificate holder’s operating environment or in its operating systems that could lead to an unplanned or undesired event. CMT members must also identify the potential consequences that could result if the hazard were not addressed.

A. Identify the Hazard. All members of the CMT should be alert for potential hazards and bring them to the attention of the PI. PIs will determine which issues will be entered into the risk management process (RMP).

1) PIs may also use the RMP, if in their judgment; an issue is significant enough to justify intensive analysis and tracking.

2) Additionally, the output of the tools in this order, Volume 6, Chapter 2, Section 18, Evaluation of Air Carrier’s Management of Significant Changes, may identify the need for use of the RMP.

3) PIs may also use other processes for addressing the hazard (EPI “Inspector Action” block, Program Tracking and Reporting System (PTRS), Aviation Safety Action Program (ASAP) documents, Enforcement Investigative Report (EIR), etc.).

4) Without conducting a complete analysis, PIs may also notify the air carrier of hazards that they deem to be isolated or minor.

5) The Operations Research Analyst (ORA) will continuously monitor available data sources to identify events, trends, or patterns that indicate potential safety problems. The ORA will review issues that are already entered into the automation system to avoid duplication and to identify any issues that may be related.

B. Describe the Hazard. The PI will prepare a short statement describing the hazard. Emphasis should be on identifying and then managing systemic issues versus isolated findings. A hazard is defined as a “condition, event, or circumstance that could lead to or contribute to an unplanned or undesired event.” Write a description of the hazard in a narrative format that includes the relevant facts such as who, what, how often, and where. The descriptive information will be used later to evaluate the effectiveness of action taken to mitigate the risk associated with the hazard.

C. Evaluating Potential Consequences. The PI or designated representative, with ORA support, evaluates the hazard condition for potential consequences.

- 1) The purpose of hazard identification is to determine “Why are things going wrong?” with the certificate holder’s operation, especially its systems.
- 2) To complete the hazard identification step, CMT members must identify the potential consequences that could result if the hazard were not addressed. The potential consequences should address human error, equipment failure, or process breakdown that will be the direct result if the hazard is left alone.
- 3) The potential consequence will guide you when you select the severity value of the risk associated with the hazard.

10-4. STEP 2: RISK ANALYSIS. The second step in the RMP is risk analysis. Risk is described in terms of severity, likelihood, and factors affecting each of them. The ORA and other CMT members analyze hazards to identify factors that affect the severity of the potential consequence and the likelihood of the consequence actually occurring. The air carrier may be able to provide data or other information to help identify risk factors affecting the hazard. Risk analysis answers the question “How likely is it to happen and how bad would it be if it did happen?”

A. Risk Factors. Identification of risk factors assists in risk assessment and provides specific targets for action plans. CMT members must identify the factors that are causing or contributing to the hazard’s occurrence.

- 1) The risk factors identify what must later be fixed or controlled in order to reduce the level of risk and will be used to help determine the “Likelihood” value. Factors are typically situational factors (specific make-model of airplanes, specific locations, etc.) or deficiencies in design or performance related to safety attributes (e.g., missing procedures or procedures not complied with).
- 2) An effective action plan should address risk factors by eliminating them or by reducing their impact.
- 3) If present, these factors may affect the severity of the potential consequence and the likelihood of the consequence actually occurring.

B. Severity and Likelihood Values. CMT members determine the severity of the potential consequence, the likelihood of that consequence occurring if the hazard is left alone.

- 1) **Severity Value.** Severity is assessed along the levels in the standard Flight Standards Certification and Surveillance Division (AFS-900) risk matrix (High, Medium, and Low). Severity assessments are produced using a combination of available data and expert judgment. Severity is defined using the following scale:

a) **High**—Potential loss (or breakdown) of an entire system or subsystem, accident, or serious incident.

b) **Medium**—Potential moderate damage to an aircraft, partial breakdown of an air carrier system, violation of regulations or company rules.

c) **Low**—Potential poor air carrier performance or disruption to the air carrier.

2) **Likelihood Value.** Likelihood is assessed along the levels in the standard AFS-900 risk matrix (Frequent, Probable, Occasional, and Remote). Likelihood assessments are produced using a combination of available data and expert judgment. Likelihood values are defined as follows:

a) **Frequent**—Continuously experienced.

b) **Probable**—Will occur often.

c) **Occasional**—Will occur several times.

d) **Remote**—Unlikely, but can reasonably be expected to occur.

10-5. STEP 3: RISK ASSESSMENT. The third step in the Risk Management Process is risk assessment. The overall level of risk is one consideration in determining how much of a priority should be placed on ensuring the certificate holder addresses the hazard and its risk factors. This assessment is provided to assist the PI in decisionmaking, FAA action planning, and evaluation of air carrier actions.

A. Risk Matrix. CMT members use the information from Risk Analysis to determine the overall level of risk using the following risk matrix:

Table 10 – 1, Risk Matrix

Risk Matrix			
Likelihood	Severity		
	High	Medium	Low
Frequent	1	3	5
Probable	2	6	8
Occasional	4	9	11
Remote	7	10	12
Overall Risk Assessment Legend: 1-3 (Red) = High Overall Risk 4-9 (Yellow) = Medium Overall Risk 10-12 (Blue) = Low Overall Risk			

B. Air Carrier Notification. After the risk assessment step, the PI should inform the air carrier of the hazard and associated risk factors. PIs determine the scope and specific content of any information made available to the air carrier about the hazard. Any information included is intended to help the air carrier determine the appropriate action for the hazard.

10-6. STEP 4: DECISIONMAKING. Decisionmaking answers the question “What’s to be done about it?” To complete the decision making step, CMT members must decide: if action needs to be taken to eliminate the hazard to reduce the level of risk; if the certificate just needs to be monitored, or; if the responsibility for getting the hazard mitigated needs to be transferred to some other Flight Standards or Federal Aviation Administration (FAA) organization.

A. Risk Management Process. The PI uses the RMP to ensure that the certificate holder addresses hazards forwarded from the analysis process and other sources based on:

- Analysis outcome;
- Local, regional, or national considerations;
- Timeliness of required actions; and
- Any other unique factors.

B. Select Approach. The PI/designated person selects one of the following three approaches for ensuring the certificate holder manages its risks. If the selected approach is “Monitor” or “Transfer,” the PI may close the RMP following the procedures listed later in this section.

1) Monitor. When the PI/designated person determines that no additional action is needed, the CMT continues to monitor the hazard through the normal ATOS surveillance. Use monitor as an approach when the risk level is within normally expected limits, and no surveillance is required beyond that normally conducted under the Comprehensive Surveillance Plan (CSP).

2) Transfer. When corrective action for the hazard is beyond the CMT’s authority, the PI/designated person can allocate the authority, responsibility, and accountability for taking action to the appropriate Federal Aviation Administration (FAA) organization. Use “transfer” to track recommendations such as rule changes, new or revised airworthiness directives (AD), policy changes, and FAA safety recommendations.

3) Mitigate. When action is needed to ensure that the certificate holder eliminates hazards or reduces risk levels, the supporting information from the Analysis process or other sources may help the PI/designated person determine the most appropriate mitigating strategies.

a) Mitigation is usually carried out by the certificate holder with CMT oversight. Sometimes, the CMT may use mitigation strategies that do not involve the certificate holder such as reevaluating certificate holder programs approvals, authorizations, deviations and exemptions,

or amending or revoking the certificate holder's authority to conduct all or part of an operation, or initiating an enforcement action).

b) Mitigation can also be carried out in partnership, as with a System Analysis Team (SAT).

C. Document Rationale. The PI or designated person describes the reason for selecting the approach.

10-7. STEP 5: IMPLEMENTATION. Implementation answers the question "Who will do what, when and how?" To complete the implementation step, CMT members must identify the actions they need to take to effectively oversee the certificate holder's mitigation of the hazard. They then, of course, must carry out these oversight actions.

A. Develop Action Items. The PI or designated person describes the action items and identifies personnel resources necessary to ensure that the certificate holder manages the identified risks.

1) Action Items describe what, how, where, and when an action should be done. Action items should be relevant to the selected approach and any actions the certificate holder takes to manage the identified risk. RMP action items should include any follow up surveillance activities and data collection required to sufficiently document the completion of the action items and validation of the RMP outcome.

2) Monitor" Action Items—Continue with normal ATOS surveillance.

3) "Transfer" Action Items—Record the steps taken to transfer the issue to the appropriate FAA organization. The PI/designated person may decide to conduct followup activities to follow up on the status of the issue.

4) "Mitigate" Action Items—Mitigation is usually carried out by the certificate holder with CMT oversight. However, sometimes the CMT may use mitigation strategies that do not involve the certificate holder. Mitigating strategies may include:

a) Reevaluate the certificate holder's programs, approvals, authorization, deviations, and exemptions.

b) Amend or revoke the certificate holder's authority to conduct all or part of its operation.

c) Initiate an enforcement investigation.

d) Convene a SAT. The SAT process is a collaborative effort in which the certificate holder, other non-FAA entities, and the FAA work together to determine causes and recommend possible solutions. It also ensures that feedback concerning actions is provided to applicable parties as part of the information sharing process.

B. Identify FAA Resources. The PI or designated person recommends who or which technical specialty (operations, cabin safety, dispatch, airworthiness, or avionics) should perform each action item.

1) If the recommended person does not report directly to the PI, the PI will coordinate with the person's supervisor.

2) The PI or designated person documents any FAA resource shortfalls that could impact the accomplishment of the RMP. The PI uses the process in Volume 6, Chapter 12, Section 3, Surveillance Resource Management, to address resource shortfalls.

C. Review and Approve. After the PI approves the RMP, it is released for implementation.

1) The PI will review the analysis information and implementation plan submitted by the designated person (DP), including any attached documents. When revisions are necessary, feedback will be given to the DP on specific changes needed.

2) Prior to approving the plan, the PI will coordinate with the supervisors of CMT members identified in the plan but who do not report to the PI to ensure the supervisor concurs with his/her participation.

3) When the plan is acceptable, and any needed supervisory concurrence has been received, the PI approves the plan.

D. Perform Activities. Once the RMP has been approved, and the supervisors of the persons requested to complete the action items have indicated their concurrence, via the IWP process, work may begin on those action items. Each identified CMT member performs and reports their assigned action items.

E. Monitor RMP Progress. Throughout the course of the RMP, the PI/designated person monitors the progress of the action items to determine if it is time to move on to validation. You can move on to validation when:

- All action items are completed; and
- There are current data on hand that indicate the action plan has positively affected the hazard, including its risk factors.

NOTE: When sufficient current data are not available additional data collection activities should be accomplished (e.g., retarget the Comprehensive Surveillance Plan (CSP), Safety Attribute Inspection (SAI) or Element Performance Inspection (EPI), Dynamic Observation Report (DOR), Constructed Dynamic Observation Report (ConDOR).

10-8. STEP 6: VALIDATION. Validation answers the question "Did it work?" To complete