OmniSMS®

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Event Investigation Guide

See the document: ***Working with Omni Manuals***
for guidance and editing instructions

Revision: 6

20 April 2018

Serial Number: _____

Assigned to: _____ Position: _____

AIRCRAFT N _____ (if applicable) Date of Assignment: _____

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Record of Revisions

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Insert all revisions immediately.

Record a brief description of the revision, effective date and the initials of the person inserting the revision.

Revision	Description of Change	Revision Effective Date	Revision Inserted By
Original	Original Issuance	16 June 2009	N/A
1	Alignment with SMS Manual / Definitions	20 September 2011	PMS
2	Integration of HFACs	15 January 2013	PMS
3	Revised HFACs alignment / checklists	05 September 2014	PMS
4	Revised terminology, SOL procedures, inclusion of cause-and-effect diagram	11 November 2014	PMS
5	Alignment with OmniSMS® method of root cause analysis	20 March 2018	PMS
6	Alignment with OmniSMS® application updates	20 April 2018	PMS
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			

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List of Effective Pages

Revision No. 6

Effective Date: 20 April 2018

PAGE.	REV. NO.	EFFECTIVE DATE.
RECORD OF REVISIONS		
1	6	20 April 2018
2	6	20 April 2018
LIST OF EFFECTIVE PAGES		
3	6	20 April 2018
4	6	20 April 2018
TABLE OF CONTENTS		
5	6	20 April 2018
6	6	20 April 2018
1. INTRODUCTION		
1-1	6	20 April 2018
1-2	6	20 April 2018
1-3	6	20 April 2018
1-4	6	20 April 2018
2. INVESTIGATIVE POLICY AND SCOPE		
2-1	6	20 April 2018
2-2	6	20 April 2018
2-3	6	20 April 2018
2-4	6	20 April 2018
2-5	6	20 April 2018
2-6	6	20 April 2018
2-7	6	20 April 2018
2-8	6	20 April 2018
2-9	6	20 April 2018
2-10	6	20 April 2018
2-11	6	20 April 2018
2-12	6	20 April 2018

PAGE.	REV. NO.	EFFECTIVE DATE.
3. ACCIDENT CAUSES		
3-1	6	20 April 2018
3-2	6	20 April 2018
4. INVESTIGATION OF NON-REPORTABLE EVENTS		
4-1	6	20 April 2018
4-2	6	20 April 2018
4-3	6	20 April 2018
4-4	6	20 April 2018
4-5	6	20 April 2018
4-6	6	20 April 2018
4-7	6	20 April 2018
4-8	6	20 April 2018
4-9	6	20 April 2018
4-10	6	20 April 2018
5. INVESTIGATION OF AIRCRAFT ACCIDENTS		
5-1	6	20 April 2018
5-2	6	20 April 2018
5-3	6	20 April 2018
5-4	6	20 April 2018

Your Company Acceptance:

FAA / CAA Acceptance:

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Event Investigation Guide

Table of Contents

Event Investigation Guide

1. Introduction

1.1 USE OF THIS GUIDE

1.1.1 BACKGROUND

(A) Modern safety management systems (SMS) depend on the identification of hazards in order to manage safety risks. Similarly, quality management systems (QMS) identify nonconformances as an essential component of quality assurance. Your Company discovers many of these hazards and nonconformances through the use of proactive processes, such as internal audits and evaluations.

(B) Nonconformances are also reported through YCO's confidential reporting system (SMS Manual Section 6). So are hazards that include **events** such as injuries, damage to equipment, service delays or interruptions, and occurrences (which can range from inconsequential to an incident or accident).

(C) When these hazards and nonconformances are identified, the event investigation process is applied in order to discover root causes.

(D) Boeing's MEDA Users Guide defines an 'event' as: "…an unexpected, unintended, or undesirable occurrence that interrupts normal operations." This guide uses a broader definition of *event* which, in addition to the above, also includes:

(1) result in an unwanted consequence; and

(2) to certain unwanted consequences.

(E) Good examples of include:

(1)

(2)

Note:
See the YCO SMS Manual for definitions of terms used herein

1.1.2 PURPOSE OF THIS GUIDE

(A) The purpose of this Event Investigation Guide (EIG) is to assist YCO personnel in their investigations of these events, and in their use of the OmniSMS application.

(B) Regardless of whether an event is inconsequential or is classified as an incident or accident, event investigation should include data acquisition and reconstruction of the event. Analysis should identify contributing factors and causal factors (root causes). Recommendations are then proposed on the basis of this analysis. Ultimately, risk controls and corrective actions are implemented to reduce risk and prevent reoccurrence.

(C) Various processes are utilized to accomplish an investigation, including interviewing of personnel, controlled sharing of information, risk analysis, and root cause analysis. To help prepare someone to carry out an investigation, the remainder of this Guide includes information regarding:

(1) Accident causes;

(2) Policies and objectives;

(3) Investigative methods and procedures;

(4) Root cause analysis;

(5) Investigation of aircraft accidents.

1.2 SYSTEM DESIGN

1.2.1 A SYSTEMIC APPROACH TO INVESTIGATION

(A) Specific safety events may be indicative of deeper weaknesses within Your Company. But this can only be determined if structured data is utilized to identify frequent related failures within specific functional areas, processes, and departments.

(B) For instance, a large number of human errors in maintenance may indicate underlying organizational problems in shift allocations or in team organization, rather than a number of unrelated instances of individual failure. Similarly, a large number of continuing technical failures may indicate underlying acquisitions and/or maintenance problems rather than a more specific set of deficiencies in a particular piece (or type) of equipment.

(C) The OmniSMS application contains structured data sets that enable investigators to associate the causal factors of system failure with or external providers. During investigation, these associations are created as causal factors are identified. Trends in similar causal factors within the organization then become readily apparent as data is accumulated.

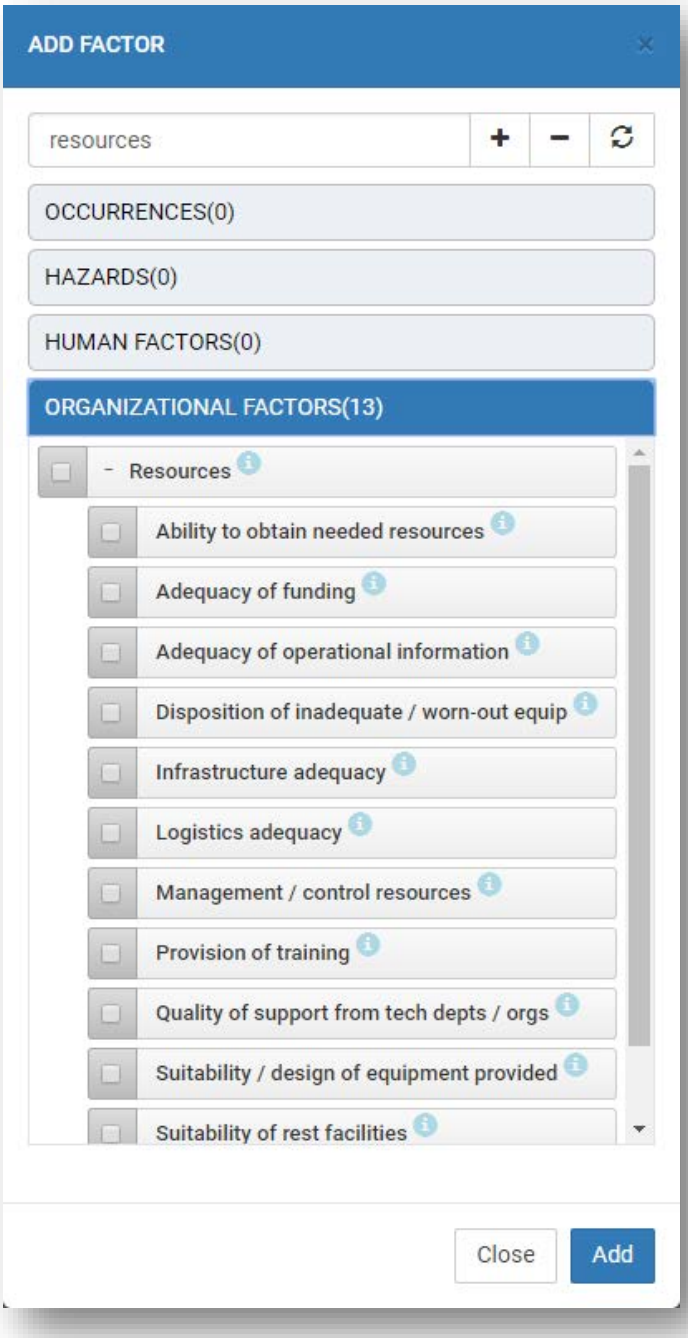
(D) Data pertaining to contributing and causal factors is structured within OmniSMS using a comprehensive set of four taxonomies:

(1) Occurrences;

(2) Hazards;

(3) Human Factors;

(4) Organizational Factors.



1.2.2 ACTIVE AND LATENT FAILURES

(A) Latent failures are deficiencies in a system that do not lead directly to an event. For example, the inability of personnel in the field to obtain needed resources (e.g., parts / supplies) is a latent failure. This latent failure would not impact YCO's ability to provide safe services until a component or part is needed, and operational pressures contribute to a decision to not replace the component, which subsequently fails. *Component failure is the trigger that exposes the latent system deficiency.*

Note:
All four taxonomies are simultaneously searchable using common aviation terms

1.2.3 BARRIERS AND DEFENSES

(A) A systemic view must also take into account the role of barriers and defenses in an event or occurrence. OmniSMS incorporates **Event Risk classification**[1] into the investigation process in order to identify the barrier that prevented an event from escalating into an accident scenario, and to further identify barriers which remained in place.

(B) To do this, three taxonomies are provided within the OmniSMS application:

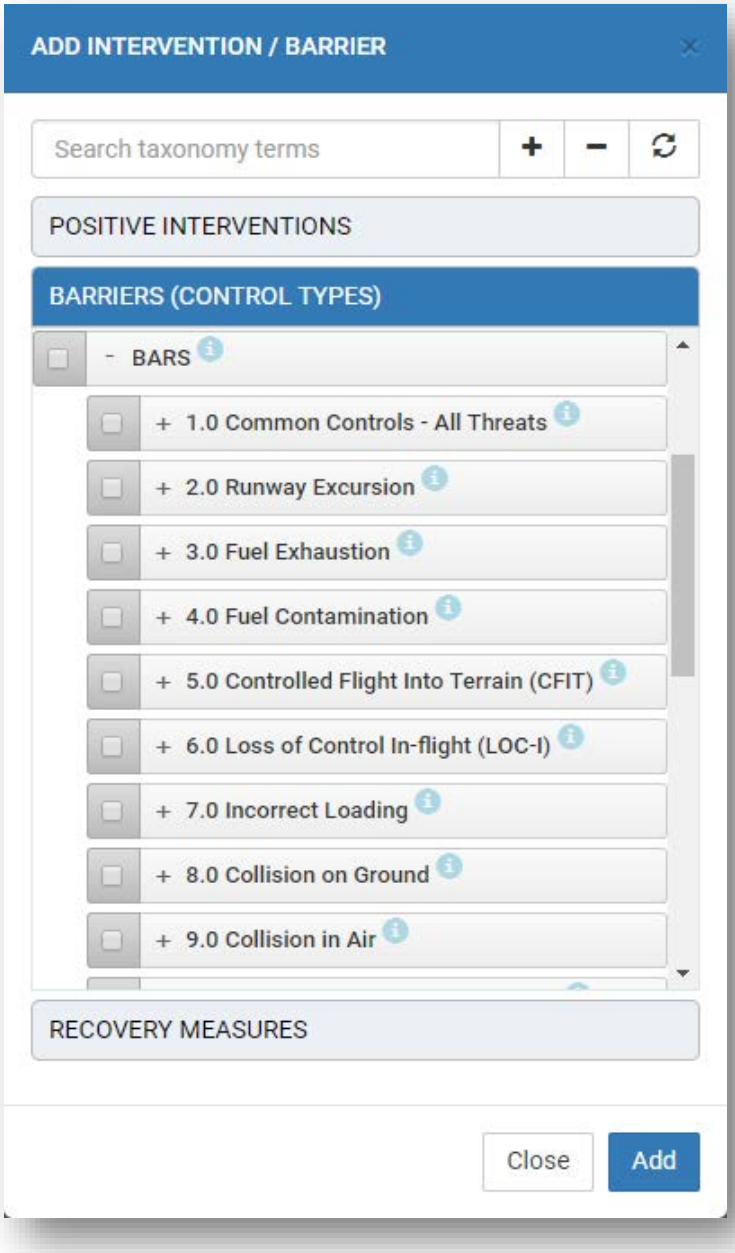
(1) Positive Interventions;

(2) Barriers (Control Types);

(3) Recovery Measures.

(C) Included in the *Barriers* taxonomy is Flight Safety Foundation's *Basic Aviation Risk Standard (BARS)* which groups barriers and controls by threat.

(D) Like the four *Factors* taxonomies described above, these taxonomies are also simultaneously searchable using common aviation terms.



1.2.4 WHEN DOES AN EVENT BEGIN?

(A) It can often be difficult to identify the scope or extent of an event investigation. When does an event or occurrence really begin?

(B) For instance, an electrical failure inflight may be traced back to improper procedures in the use of ground power. But the procedures in question were developed in conjunction with an earlier major alteration of the ship's electrical system. These errors in system design and supporting documentation illustrate that many events have deep organizational causes.

(C) The investigation process must therefore examine the immediate symptoms of a failure to uncover the deeper causes. This involves reconstructing the way in which barriers were avoided or overcome by unsafe acts, workplace factors and organizational problems.

1.2.5 INVESTIGATION OUTPUTS

(A) Proper use of this guide supports identification of the root causes of unwanted events, recommendations for improvement, and development of effective corrective action plans. Data relationships within OmniSMS for trend analysis are also created, by associating causal factors and risk controls with functional areas, processes, and departments. These data relationships are further utilized in searches for existing controls, hazard register drill-down, and the **system assessment** process (Ref. **SMS Manual Paragraph 3.2.1**).

1. Source: ARMS Methodology for Operational Risk Assessment v 4.1 March 2010 - ARMS Working Group

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2. Investigative Policy and Scope

2.1 POLICY

2.1.1 NON-PUNITIVE REPORTING POLICY

Interface – SMS Manual Section 6: Confidential Reporting System

(A) Your Company strongly desires to learn from all incidents, occurrences and errors made, in order to improve our systems and enhance safety. YCO therefore maintains a non-punitive reporting policy to promote and encourage the uninhibited open and honest sharing of information.

(B) Personnel who report irregularities, errors, damage and other events are encouraged to participate openly and honestly in the investigation process, without the need to protect or "cover" for a co-worker who has made an error. If the error was unintentional and not made due to malicious intent, carelessness, or a lack of professionalism, YCO management's reaction will be non-punitive.

(C) If errors involve a violation of regulations, YCO management will make every effort to protect employees involved from certificate action and civil penalties by assisting with ASRS and/or ASAP reporting, and by developing voluntary disclosures to Civil Aviation Authorities that emphasize organizational deficiencies rather than individual blame. This course of action protects both the company and the individuals involved in the violation.

Note:
Company submission of a voluntary disclosure that identifies organizational deficiencies is one of the best ways to protect individual employees from certificate action by regulatory authorities.

2.1.2 CONFIDENTIALITY

(A) When managers and other YCO employees are called upon to investigate minor events such as an irregularity, injury, hazard, error, nonconformance, or non-reportable occurrence, the event may be discussed only with other YCO managers.

(B) If the event is an aircraft accident, all information relative to the accident should be treated as highly sensitive and held in strictest confidence; no information should be given to any employee or other person. "Heat of the moment" statements may be admissible as evidence in court trials involving liability, even though they may be hearsay.

(C) Company representatives may be invited by Civil Aviation Authorities to provide technical information and expertise during a formal accident investigation, or may be working independently when investigating non-reportable occurrences. In any case, YCO investigators shall not speculate or offer opinions or theories regarding the cause of an accident to any person or persons.

(D) It is YCO company policy and in the best interest of all concerned to decline responses to questions that seek an expression as to the cause of any accident. All communications with regard to an accident / incident or other emergency will come from senior management only, and all inquiries should be referred to either the appropriate Civil Aviation Authorities or YCO senior management for response.

2.2 OBJECTIVES

2.2.1 TIMELY INVESTIGATIONS

(A) Investigations of accidents and serious incidents, or an event resulting in any person's injury or illness, should be initiated within 24 hours after the occurrence. If it becomes apparent that more than 72 hours will be required to investigate the occurrence, notify the Director of Safety and follow up frequently with reports of the status of the investigation until results can be entered into the OmniSMS application.

2.2.2 IDENTIFICATION OF BARRIERS

Interface – SMS Manual Paragraph 2.4: Event Risk Classification

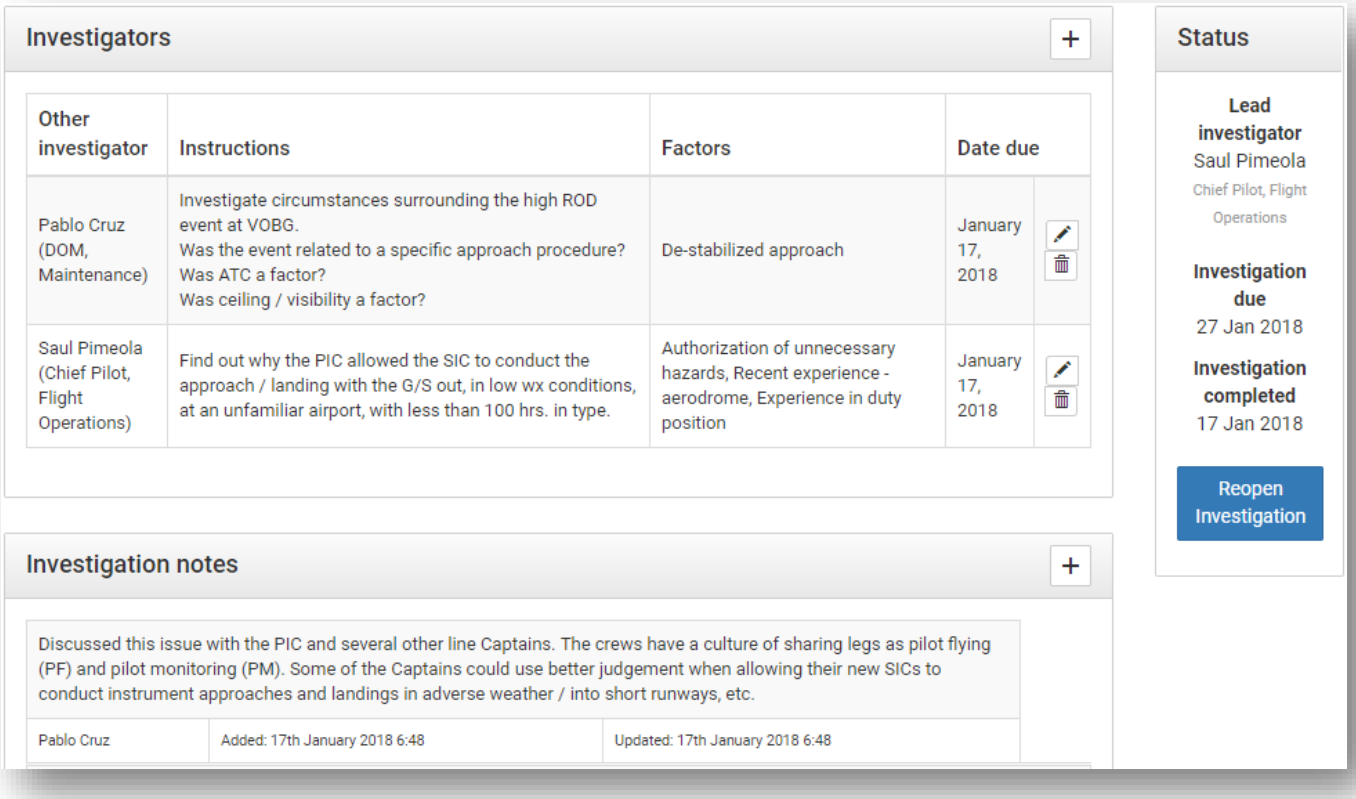
(A) When investigating events with significant accident potential, one objective of YCO event investigation efforts is to identify and analyze the interventions, barriers and controls that prevented the reported event from escalating into an accident. Analyzing these barriers provides a more accurate assessment of the likelihood of an incident or accident scenario being realized.

2.2.3 APPLICATION OF RISK MANAGEMENT

(A) Risk management is performed in accordance with guidance contained in **Section 2: Risk Management** of the SMS Manual. The risk management process produces risk assessments, identification of contributing and causal factors, implementations of new risk controls, corrective actions to ineffective risk controls, and assessments of substitute and residual risk.

2.2.4 IDENTIFICATION OF CONTRIBUTING FACTORS

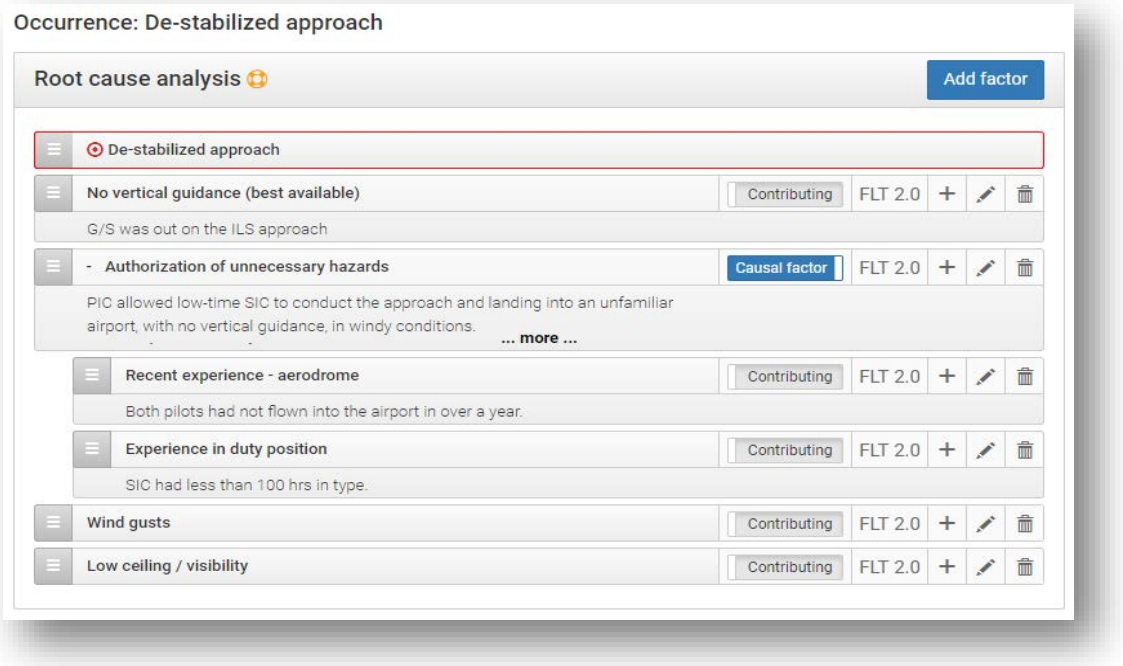
(A) During the risk management process, contributing factors supports 'branched' investigations, whereby it is possible to identify a contributing factor (e.g., a system/component failure) and then request an investigator to discover why the system failed. Effective analysis requires that investigators be subject matter experts in the operational processes involved, with knowledge of the inner workings of the organization / department. A department manager who 'owns' the applicable process is best suited to perform a branched investigation.



Investigator's instructions and investigation notes (forum panel) within OmniSMS

2.2.5 IDENTIFICATION OF CAUSAL FACTORS / ROOT CAUSES

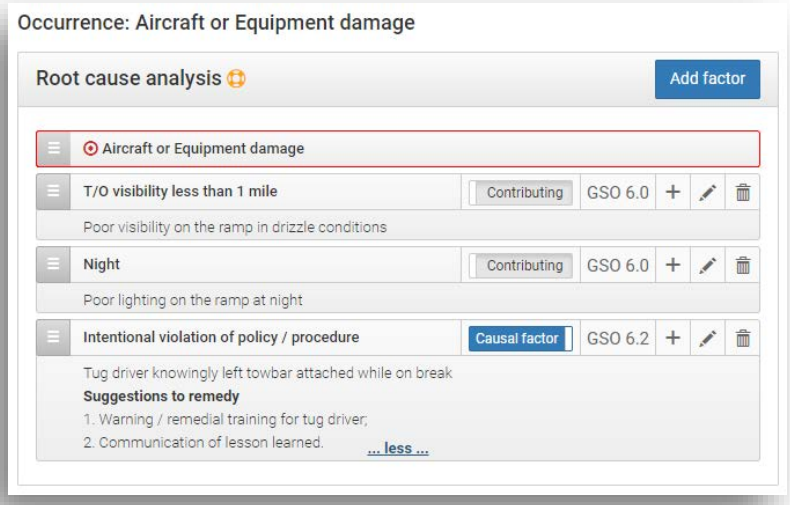
(A) Careful analysis of the various contributing factors, together with the application of '5 why' analysis as described in Paragraph 4.5.1, should lead to identification of latent conditions and root causes of the event. This is the "why" phase of the investigation, wherein the various factors / causes are individually explored to discover other associated causal factors, and ultimately, one or more root causes.



Contributing and causal factors identified in OmniSMS

2.2.6 INVESTIGATORS' RECOMMENDATIONS

(A) In addition to identifying causal factors, a successful investigation should document recommendations for ways in which identified causal factors can be mitigated. These recommendations may be found in 3 places:



(1) When a contributing factor is made causal, the investigator can provide **suggestions to remedy** directly below the causal factor itself in the *Root cause analysis* panel;

(2) For multi-departmental 'branched' investigations, other investigators can use the **Investigation notes** forum on the *Investigation* tab of each report to record their interviews, observations, and recommendations regarding the factors they investigated;

(3) When closing the investigation, the Lead investigator summarizes these recommendations. The summary is thereafter displayed on the *CAP* tab for easy reference during corrective action plan development.

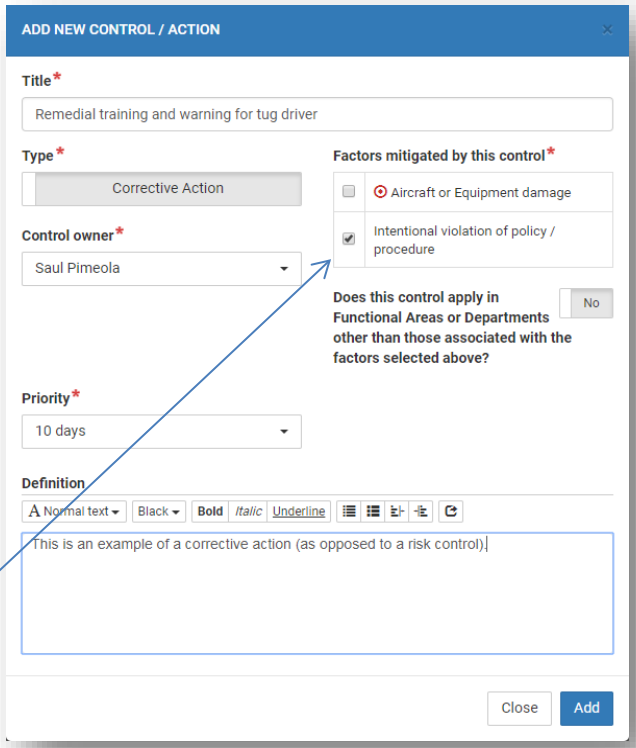
2.2.7 RISK CONTROLS & CORRECTIVE ACTIONS

(A) Development of effective risk controls (which may include corrections to risk controls which are not performing satisfactorily), are a primary output of the investigation process. Risk controls management, and other improvements to identified human, organizational and system deficiencies.

(B) Corrective actions 'fix' the immediate problem, but do nothing to control process outputs or prevent recurrence of an event. Examples of corrective actions include correction of an erroneous document, clean-up, damage repair, re-work of an installation error, etc.

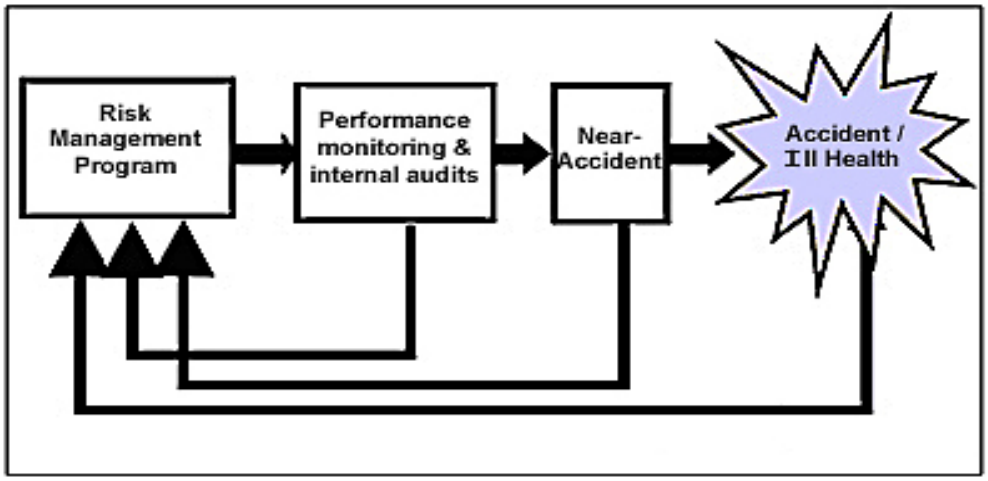
(C) Regarding personnel, corrective actions may include in those instances where employee carelessness or willful disregard of safety rules or YCO procedures results in an accident, incident, or other event.

(D) Disciplinary action should be considered anytime an employee exhibits conduct which shows a lack of professionalism or concern for safe operating procedures, even if no accident results.



Example of a corrective action to address an intentional violation of policy / procedure

(E) Proposed risk controls, corrective actions and comprehensive fixes are being implemented. In the event of disagreement as to causes or solutions, the matter will be resolved by the Safety Committee or the appropriate risk-decision authority.



How investigation outputs become inputs for safety risk management

2.2.8 DISSEMINATION OF LESSONS LEARNED

(A) Investigation results may be disseminated throughout the organization as **safety lessons learned** to appropriate managers and personnel using various methods of communication as set forth in the YCO **SMS Manual.** Each lesson learned should provide some background or frame of reference, and include contributing factors, as well as a description of any causal factors and latent conditions which contributed to the event.

(B) When properly redacted and de-identified, lessons learned may also be shared with other operators, regulators and the aviation industry in general.

2.3 SCOPE OF INVESTIGATIONS

Interface: SMS Manual Section 3, Paragraph 3.1.7

2.3.1 INVESTIGATION OF ACCIDENTS, INCIDENTS, AND NEAR-ACCIDENTS

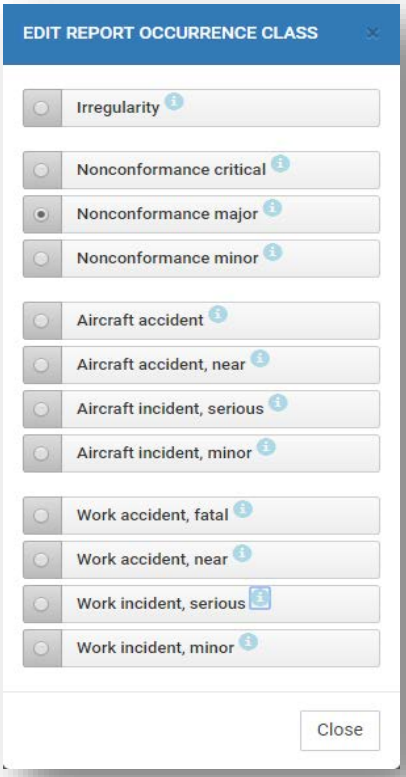
(A) Your Company investigates all reported occurrences which result in injuries, or in which damage to aircraft, equipment or property occurs. Depending on the amount(s) of damage, number of persons injured and severity of injuries, each event is classified during the investigation process as:

(1) An aircraft accident;

(2) A serious aircraft incident;

(3) A minor aircraft incident;

(4) A work-related incident or accident.



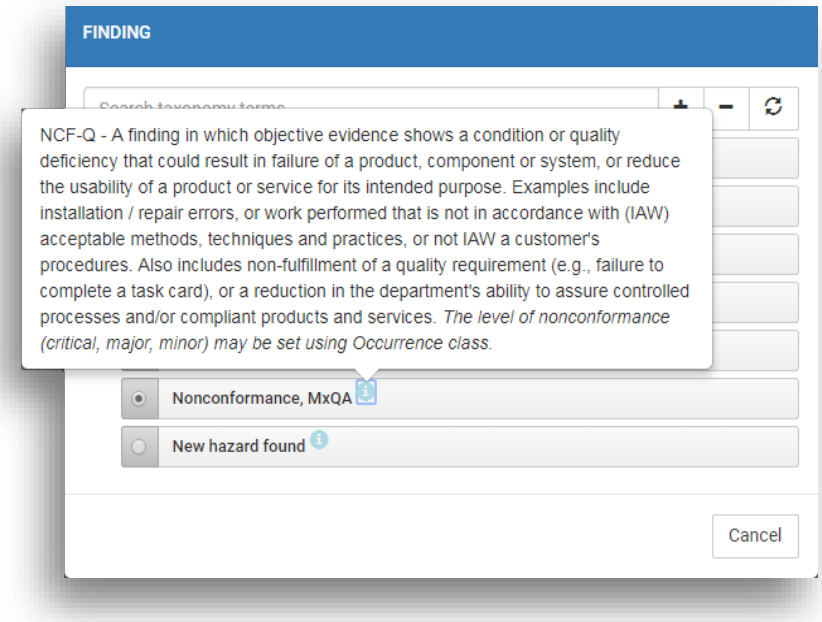
(B) Setting the **Occurrence Class** within a Report in the OmniSMS application provides data input for high-level safety performance indicators (KPIs).

(C) Near-accidents are also investigated and given the same emphasis as an actual event. They are “free” lessons learned, in that system deficiencies and gaps in system defenses may be identified without suffering the costs of an accident or injury.

(D) Investigations are performed in order to determine contributing factors, causal factors, and latent conditions which may have contributed to the event.

Note:
Accident / incident investigation is considered a reactive safety management process. Event investigation can also be a proactive process, however, when it is applied to irregularities, non-conformances, precursor events, and errors / violations.

2.3.2 IRREGULARITIES AND NONCONFORMANCES



(A) Your Company investigates:

(1) Reported irregularities;

(2) Reported n

(B) These events may occur on the ground or in flight, and may or may not involve aircraft. include:

(1) Maint. QA nonconformances;

(2) Other quality nonconformances;

(3) Nonconformances with risk controls.

(C) *Risk control non-conformances* are findings in which objective evidence shows that a risk control is not conforming to its intended design, is not effective, or the targeted process is not conforming to the control.

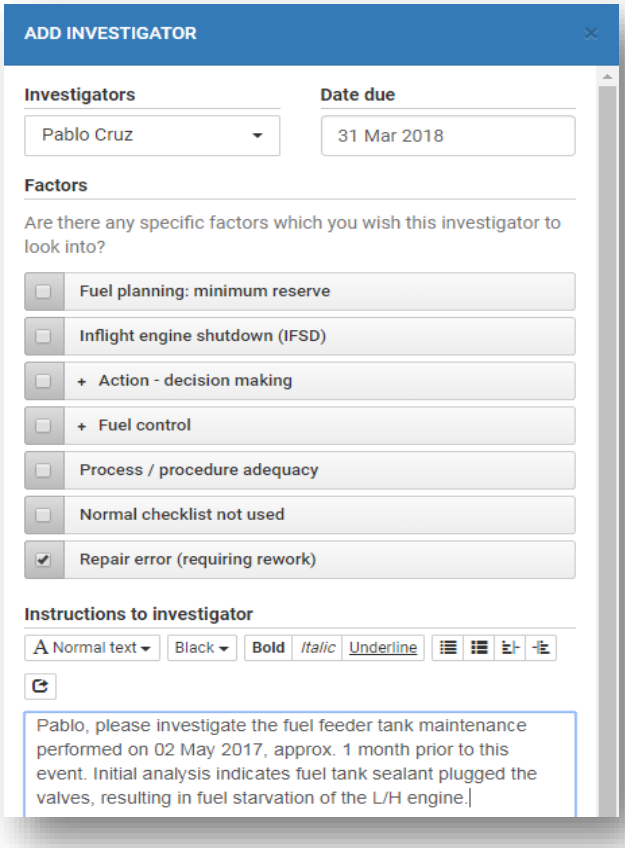
2.3.3 ERRORS AND VIOLATIONS

(A) **Errors.** Your Company investigates reports of errors made during flight operations, cabin operations, maintenance, ramp/line service, and in other functional areas and processes as defined by administrators.

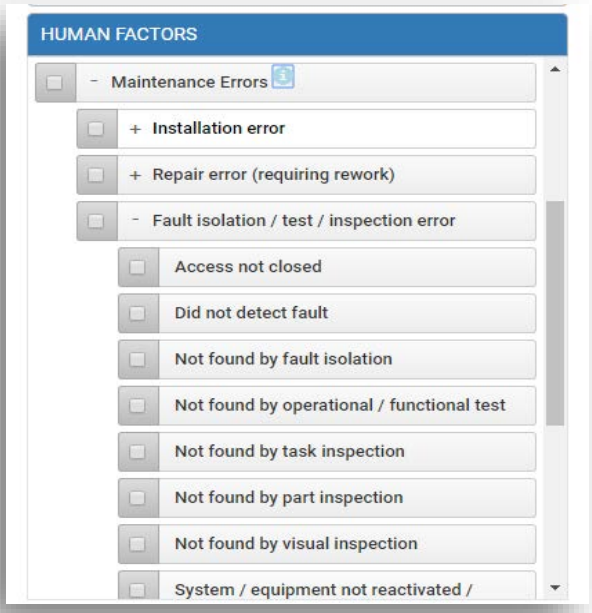
(B) Errors often occur on the ground and in flight, but they are typically captured and promptly resolved before an event occurs. However, when an error remains uncaptured and contributes to an event, the investigation process is initiated.

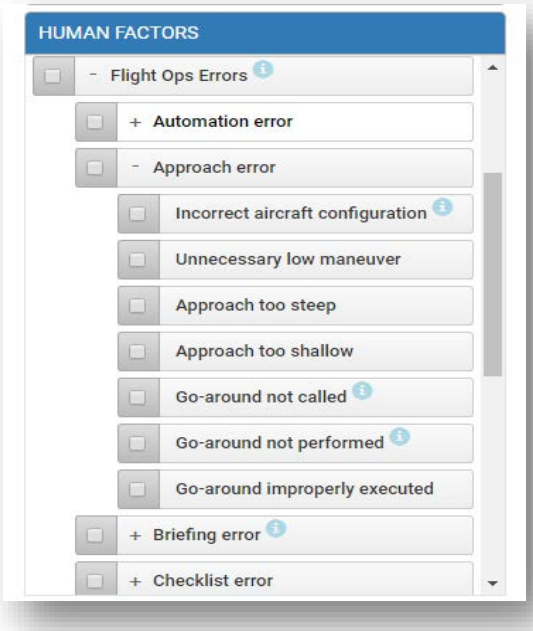
(C) Errors may be reported, or they may be discovered during LOSA observations. They may also be revealed

(D) For example, a flight interruption may be reported due to a system/component failure, and the Director of Flight Ops (DFO) is designated as the Report 'owner'. By default, the report owner is also the lead investigator. Preliminary investigation reveals the failure to have been caused by a maintenance error, so a branched investigation request is created by the DFO, and an investigator from the maintenance department (typically the department manager or QA manager) investigates the contributing and causal factors surrounding the maintenance error.



(E) **Error taxonomies.** OmniSMS utilizes error taxonomies with practical terms to which aviation managers can relate. The *Maintenance Errors* taxonomy uses terms such as “Repair error” “Access not closed” and “System not reactivated” which are clear, concise, and structured for use in trend analysis. The *Flight Ops Errors* taxonomy is similarly arranged and is well suited for both LOSA observations and event investigation.





(F) **Violations.** Your Company investigates both regulatory violations and violations of policy / procedure, in all functional areas. Both types of violations may be used as safety performance indicators (KPIs).

(G) Regulatory violations may be designated by administrators as MOR events, and the orange triangle will appear whenever the term is selected from the *Occurrences* taxonomy.

(H) **Violations taxonomies.** OmniSMS provides detailed taxonomies of these two types of violations, complete with explanations of each sub-type.

A 'work-around' is performed in a specific situation when an individual, crew or team lacks the necessary information / tools / equipment / conditions to complete a task or mission. In these cases the consequences and risk of violating published policies or procedures are recognized, consciously assessed and honestly determined by the individual, crew or team to be the best course of action.

If a person has not followed a work process or procedure that he/she should have, it's important to determine whether most other people are doing the same thing in the same situation. This is referred to as *normalized deviation*, or a 'norm', *Examples:* Crew members routinely not following SOPs; Documented procedure—most people in the same situation do not follow the written process or procedure; Undocumented procedure—most people in the same situation do the procedure from memory, from their 'black book', or from another uncontrolled source of information.

(I) When a violation has been determined to be a causal factor in an event, it is further associated with a and department. These associations permit managers to see in which violations are occurring. They also provide data input for during internal evaluations. See the YCO **SMS Manual Paragraph 3.2.1** for the system assessment process.

(J) Instances of potential regulatory non-compliance are often indicative of latent conditions or system deficiencies which, if conditions are right, could recur elsewhere at another time and potentially lead to an accident.

(K) Investigations of policy / procedure violations also frequently identify latent conditions. If such a violation is unintentional, risk controls may be missing to assure the desired process output. If the violation is a work-around and/or determined to be normalized deviation, organizational factors are often revealed (such as guidance, training, or supply problems), since most people are well-intentioned and usually have good reasons for violating a rule.

(L) Errors and violations offer valuable lessons learned. Reports involving violations should be de-identified and shared with appropriate employee groups, including investigation results and corrective action plans. They should also be incorporated into job-specific training curricula. is created to ensure the continued safety of YCO's complex aviation system.

2.3.4 INVESTIGATION OF ASAP REPORTS

Interface: SMS Manual Section 6, Paragraph 6.5: Aviation Safety Action Program

(A) **Reporting of violations.** Violations are sometimes reported, or they may be discovered during event investigation. When reporting a violation into the OmniSMS application, reporters may choose to designate their report as an ASAP submission.

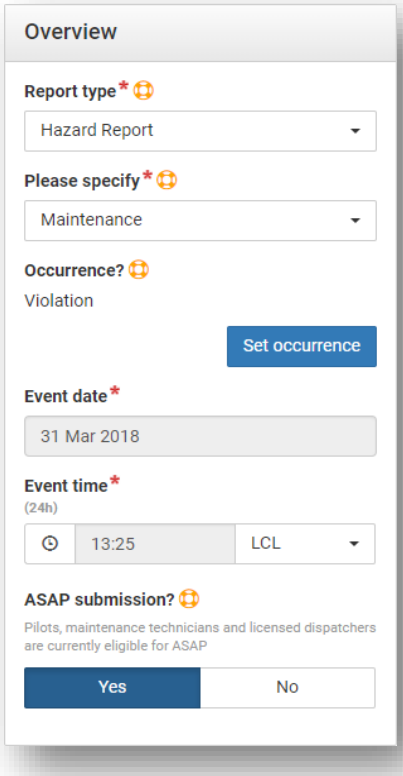
(1) ASAP reporters can login with their account credentials, or they may access the reporting form using YCO's anonymous reporting interface and generic password. Regardless of how the reporting form is accessed, if the report is designated as an ASAP submission, the reporter must include his or her name. *The system will not accept an ASAP report without the reporter's name provided.*

(2) ASAP reporters select **Hazard Report** and then specify the group to which a report notification will be sent (e.g., Air Safety group, Maintenance group, etc.).

(3) It is not necessary to set an occurrence. The date and time of the report submission is automatically captured by the system. If the reporter sets an occurrence (or simply selects the term: "Violation" the reporter must then select an event date and time.

(4) Safety administrators may

Overview panel of the submitted report. If an occurrence is set, a date and time must also be provided.



Note:

If an occurrence has already been reported and an associated ASAP report is being submitted after-the-fact, it is recommended .

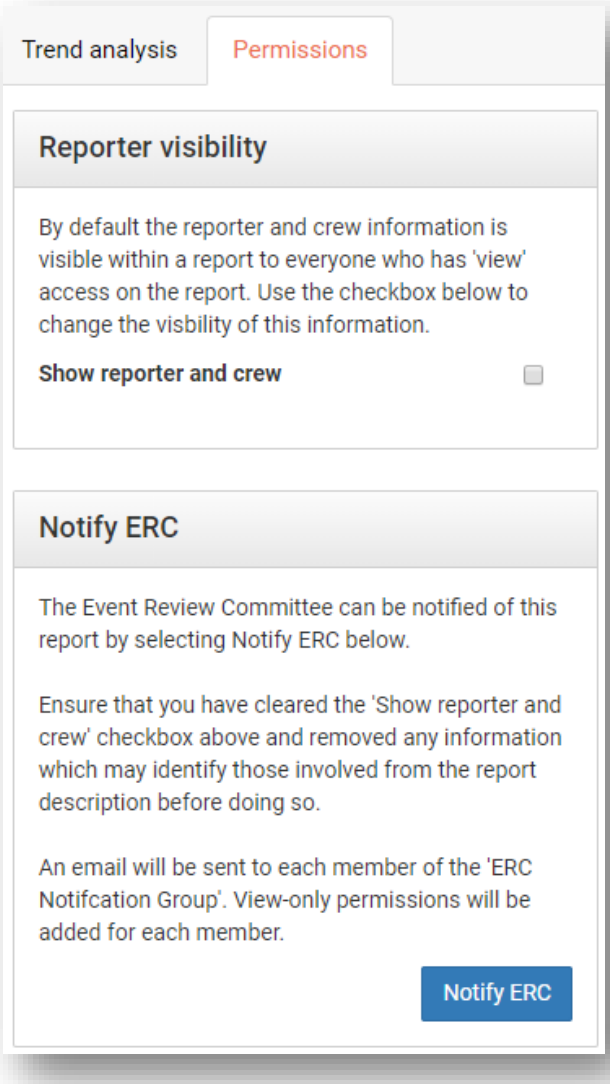
(B) The Report is managed like any other hazard or occurrence report, until such time as the Event Review Committee (ERC) is to be notified:

(1) Under the ASAP Report's *Permissions* tab, an administrator may de-select the "Show reporter and crew" checkbox to hide the identities of these people within the report. Only safety admins have access to the *Permissions* tab.

(2) The report should be carefully reviewed and redacted, to assure no information remains that could identify individuals.

(3) The ERC may then be notified of the ASAP report by selecting the "Notify ERC" command.

(4) ERC members will receive a notification email with a link to the report. ERC members have view-only permission by default. Edit permission may also be given to individual members by an administrator under the *Permissions* tab.



(C) **Violations discovered during event investigation.** For violations discovered during investigation of a reported event, covered individuals may be given an opportunity to submit an ASAP report, which is then associated with the original reported event.

(D) For example, a pilot may report a runway incursion occurrence, which the PIC designates as an ASAP submission. Department managers in the report notification group who are notified of the report can take immediate action to mitigate risk if necessary, perform risk analysis and assessment, and begin their investigation(s) as they see fit.

(1) During the investigation, if it becomes apparent the SIC may have also violated a regulation, the SIC may be given an opportunity to submit a timely ASAP report into OmniSMS.

(2) After submission of the SIC's ASAP report, under the *Ownership* tab of the SIC's report, the report is made a 'child' of the (PIC's) original occurrence report.

(3) Within the original occurrence report, investigation notes are recorded and contributing / causal factors identified.

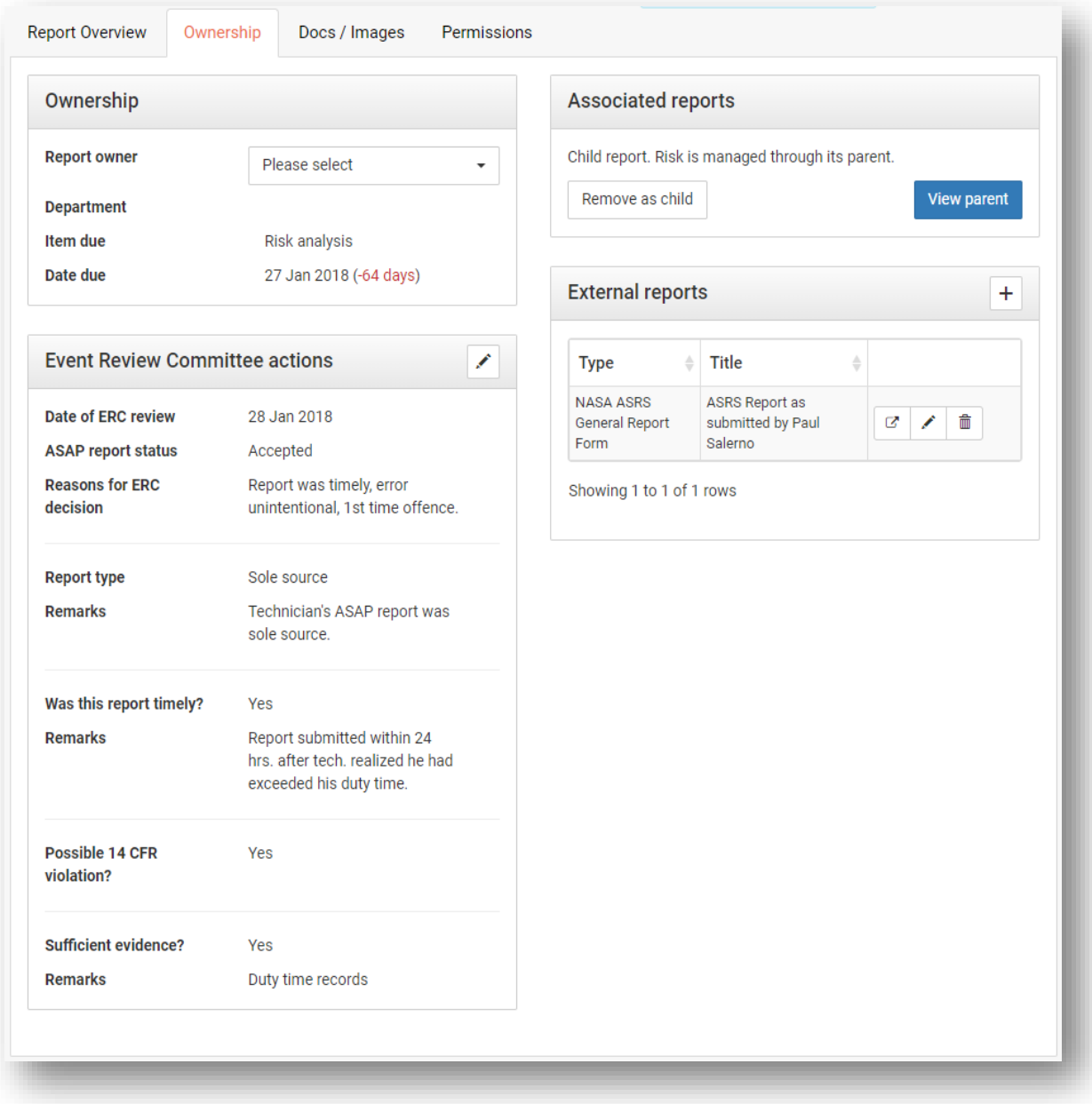
(4) Event Review Committee actions

Note:
The investigation is conducted, risk managed, and all risk controls / corrective actions are performed only in the original occurrence report, including corrective actions pertaining to both pilots.

(E) **Event Review Committee actions.** Even though there may be only one occurrence report through which risk is managed, investigation performed, and corrective actions developed, each individual who submits an ASAP report will have a separate report that is unique to that individual.

(1) ERC actions that pertain to each individual reporter are recorded on the *Ownership* tab of the individual's ASAP report, in the *Event Review Committee actions* panel.

(2) The parent report and associated external reports are also displayed here.



Ownership tab of an ASAP child report in OmniSMS

2.4 QUALIFICATIONS OF COMPANY INVESTIGATORS

2.4.1 EVENT INVESTIGATION

(A) Department managers may investigate irregularities, injuries, hazards, errors, nonconformances and non-reportable occurrences within their respective departments.

(B) Department managers and other persons holding key management positions are qualified to investigate these events, based on their qualifications to hold key management positions with YCO.

(C) Reporters are encouraged to participate in the investigation of events they report. A reporter is uniquely qualified to aid in the investigation due to their first-hand knowledge of circumstances surrounding the event.

(D) Department managers may further solicit the assistance of other personnel within the department in fact-finding and to collect information / data surrounding an event. However, department managers remain responsible for proper conduct of the investigation, and are further accountable for accurate identification of causal factors and data entry into the OmniSMS application.

2.4.2 AIRCRAFT ACCIDENT INVESTIGATION

(A) Department managers and other YCO personnel with technical expertise and procedural knowledge may be requested by regulatory authorities to participate in the investigation of a reportable accident (as defined by NTSB reporting requirements).

(B) Even though the accident may involve YCO aircraft and personnel, such participation is a privilege, not a right.

(C) As a minimum qualification for participation, managers should have received and successfully passed, within the preceding 12 calendar months, a suitable course of training which includes explains the roles and responsibilities of participants.

(D) YCO's eLearning course: **SMS Training for Managers** (Initial or Recurrent) meets these requirements.

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3. Accident Causes

3.1 HUMAN ERROR AND LATENT CONDITIONS

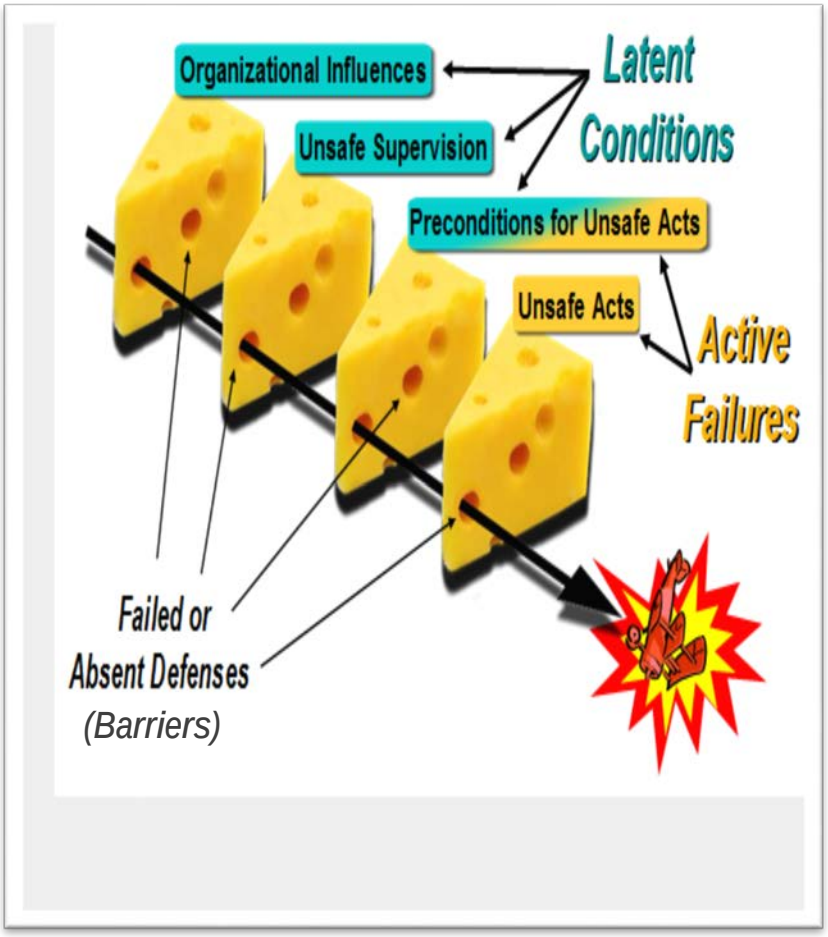
(A) Over 80% of all aviation accidents are the result of human error. Recent research and accident investigation reports suggest, however, that human error is merely the last link in a chain of events that leads to an accident.

(B) Accidents typically result from complex interactions between human error, weaknesses or deficiencies in systems, and failure of technical components, whereby **triggering events** occur, and **latent conditions** combine with **unsafe acts** to produce the accident.

3.1.1 LATENT CONDITIONS

(A) **Latent conditions** are system weaknesses (hazards) that can contribute to an accident, but that will not by themselves cause an accident. Latent conditions can lie undetected within a system for years. On their own, they are not sufficient to cause any major damage to the system, but if combined with triggering events and unsafe acts, may lead to an accident.

(B) Examples of latent condition hazards include poor system or process design, inadequate supervision, inadequate training, inadequate personal readiness, lack of risk controls (system defenses), failed risk controls/ defenses, improper procedures, human perceptions and attitudes (such as complacency or overconfidence), and impending equipment failures that have not been detected. Latent conditions are often discovered to be root causes of an unwanted event.



3.1.2 UNSAFE ACTS

(A) **Unsafe Acts** occur on the front-line of a system where there is human interaction. They are the actions, inactions, omissions, errors, and violations of front-line personnel (pilots, mechanics, flight attendants, cargo handlers, ground support) during the performance of safety-critical tasks.

(B) Unsafe acts may have an immediate adverse effect (such as pilot error), or may also produce latent conditions, as in the case of errors in maintenance which could result in future equipment failures. When combined with latent conditions, unsafe acts can become contributing factors if system defenses are breached and an accident occurs.

3.1.3 TRIGGERING EVENTS

(A) **Triggering events** are changes in environmental, technical, or personal conditions which can also contribute to an accident by acting upon a latent condition, or vulnerable situation. Triggering events may include mechanical failures, undesired interactions or conflicts between hardware, software and systems, changes in operating conditions, and sudden changes in a front-line operator's ability to perform.

3.1.4 CHAIN OF EVENTS

(A) An aviation accident is seldom caused by a single factor such as human error or equipment failure. Accidents are more likely to result from combinations of hazards (including latent conditions) which, when combined with one or more triggering events and unsafe acts, result in an accident.

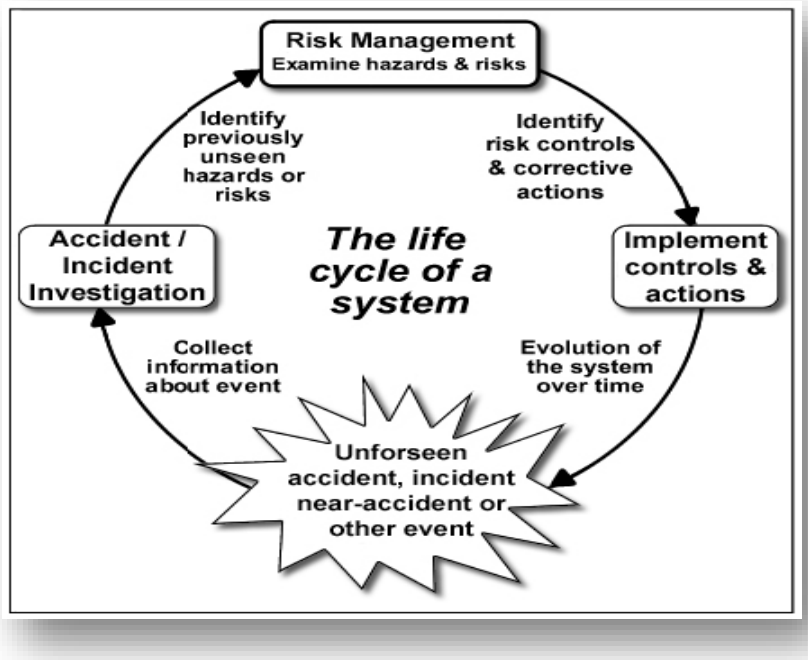
(B) In the majority of cases an unbroken chain of events occurs and numerous system defenses fail, resulting in an accident. However, some of the events that form the chain can be controlled. As soon as the sequence of events is positively altered, the chain is broken and the accident prevented. The event is then reported as an incident or "near-accident".

3.1.5 BREAKING THE CHAIN

(A) Breaking the chain is a challenge for all aviation organizations. Some do it systematically and very effectively; others do it by trial and error. The latter method very often costs lives and large sums of money.

(B) The most effective way to assure that accident chains are broken is to design **barriers** (risk controls) into the system. These range from equipment design basics (such as redundancy) and lockout devices (e.g., landing gear squat switch) to safety devices (seat belts), warning devices (aural flap warning) and administrative controls (policies / procedures).

(C) Event investigation enables us to identify **latent systemic deficiencies** that could contribute to a future accident or incident. Once these root causes are identified, risk controls and corrective actions may be developed and implemented to correct them, before an accident occurs.



Risk assessment and accident analysis (modified) (Blackett et al., 2005)

4. Investigation of Non-reportable Events

4.1 THE INVESTIGATION PROCESS

(A) Event investigation must provide answers as to what happened, how it happened, and why it happened, as well as how a reoccurrence can be prevented. This is done by:

(1) Gathering factual information surrounding the event;

(2) Analyzing facts and recognizing difficulties such as hindsight, perceptions and judgments;

(3) Performing root cause analysis on pertinent contributing factors;

(4) Drawing conclusions and ;

(5) Making recommendations which address improvements.

4.1.1 INVESTIGATION COMPLEXITY

(A) The '5 Why' tool for root cause analysis (see **Paragraph 4.5.1**) allows department managers to quickly and easily determine root causes of less complex events with few contributing factors. Always record identified **contributing and causal factors** in OmniSMS, since they affect performance indicators and trend analysis.

(B) Investigation becomes more complex when numerous contributing factors exist, since many factors influence and interface with each other. These events may require branched investigations (see **Paragraph 2.2.4**), interviewing of personnel, or use of a time-actor diagram and event building blocks. Again, recording of identified factors in OmniSMS provides data necessary for the management system to function properly.

4.2 INVESTIGATIVE METHODS

4.2.1 INFORMATION SEEKING

(A) When investigating a safety-related event, various methods can be used by investigators to obtain and verify information:

(1) **Surveying** forms the initial search for information by obtaining an overview of the event, and identifying sources of information. These sources are likely to point to, suggest, or recommend additional sources or references.

(2) **Chaining** is a way to follow up on initial sources. Forward chaining takes place when pointers from an initial source are followed, thus broadening a search. Backward chaining takes place through identifying and following up on other sources referred by an initial source.

(3) **Browsing** is a semi-directed or 'casual' search in areas of potential interest. This means looking for information at all levels, and remaining unconstrained or open to serendipitous findings; finding new connections or paths to information.

(4) **Distinguishing** (or discriminating) refers to filtering and selecting from among various sources surveyed, by observing differences in the nature and the quality of information offered. Distinguishing may be influenced by prior experiences with sources (credibility), or recommendations from others. Information sources are ranked, including noting from where the information is derived.

(5) **Monitoring** is remaining informed by regularly following particular, or core, sources.

(6) **Extracting** is the process of systematically working through a particular source or sources to identify material of interest, directly consulting the source and using the information provided.

(7) **Filtering** is used to increase information precision and relevancy. This can involve restricting a search for information.

(8) **Verifying** is where the accuracy of information is checked.

(9) **Ending** refers to the conclusion of the information-seeking process and satisfying the information need.

4.2.2 USE OF A TIME-ACTOR DIAGRAM

(A) Investigation of a complex event with several actors may require an additional tool to better understand crucial timings of triggering events and the actions / inactions of people involved. A time-actor diagram is particularly useful during investigation of flight operations events which could include, for example:

(1) Triggering events (such as destination weather going below minimums);

(2) Other threats and when they occurred, including ;

(3) ATC communications and ;

(4) Company communications and actions;

(5) Actions of

(B) Begin by creating a **situational description** of what happened. This should be written as soon as possible after the occurrence. **Do not attempt analysis at this point.** Consider the following:

(1) **WHO?** Qualification, assignment and jobs of persons involved (including operators, supervisors, other departments, other outside agencies;

(2) **WHAT?** Operational process / segment (phase of flight, inspection close-up, push-back); kinds of tasks performed before and during the incident (phase of flight, testing, maintenance); applicable written guidance (procedures, checklists, technical publications, etc.)

(3) **WHEN?** Start / end of the occurrence; start / end of individual event building blocks (EBBs);

(4) **WHERE?** Location of the occurrence; other locations of actors / actions (ATC, other aircraft, etc.)

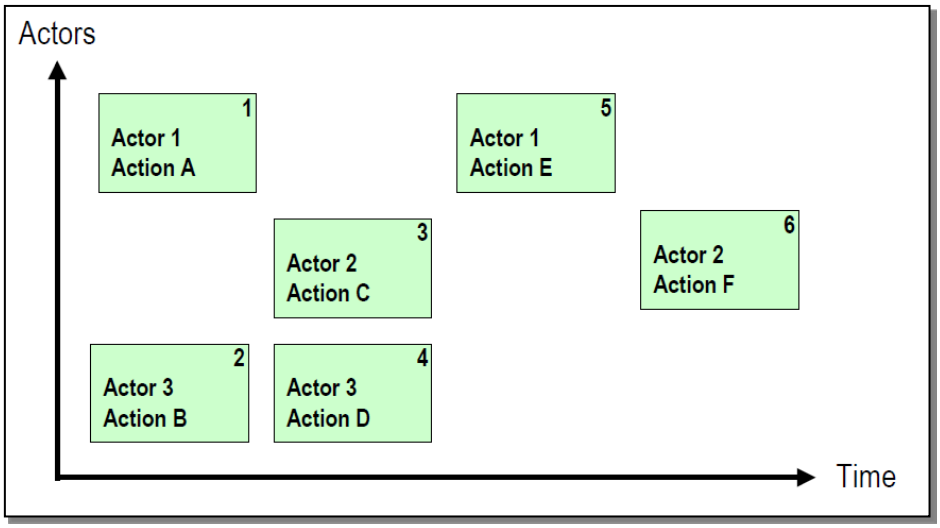
(C) **Break the description down** into individual events, called Event Building Blocks (EBB). Each EBB details the actions and actors involved in the lead-up to the occurrence. Information for each individual event is recorded emarks about each individual event that may be relevant.

Nr.:
Time:
Location:
Actor:
Action:
Remarks:

Event Building Block (EBB)

(D) **Arrange the EBBs into** equence of events and which actors were involved at different stages during the occurrence.

Simplified Time-Actor Diagram



(1) **Analyze each EBB in the diagram** to determine whether it is a contributing factor.

(2) **Record identified factors** in the OmniSMS *Root Cause Analysis* panel, and determine which factors are causal.

4.3 INVESTIGATING THE CAUSES OF ERRORS / VIOLATIONS

4.3.1 INTERVIEWING

(A) To find out why humans did what they did, it is essential to talk to them. Interviews will be part of the fact-finding and analysis step of an investigation. Interviews should be the person being interviewed. It is essential to keep interviews factual and blame free, avoiding judgment.

4.3.2 THE INTERVIEW TEAM

(A) Boeing's MEDA Users Guide recommends a 2-person interview team. In a 2-person team, one person can be asking questions while the second person is writing down information. Further, the second person may think of additional questions to ask.

(1) If one person is used, they should be well-qualified and have some interviewing experience.

(2) If more than 2 people are used, the person being interviewed could start to feel outnumbered, uncomfortable, and reluctant to share everything that he / she knows.

(B) One team member should be from the department who 'owns' the process within which the error or violation was made. So if a branched investigation is being conducted on an inspection failure, the team should include a person from the Inspection department or Maintenance QA.

(C) A second team member should be a respected, senior employee from within the functional area in which the event occurred (or in which the contributing factor has been identified).

(D) It is essential that at least one team member:

(1) Has the respect of the person being interviewed

(2) Is technically knowledgeable about the operation / activity being performed when the event, error or violation occurred.

4.4 COGNITIVE INTERVIEWING

4.4.1 METHOD AND TECHNIQUES

(A) Cognitive interviewing is a systematic approach to interviewing cooperative interviewees based on scientific principles of memory and communication. Techniques involved help interviewees improve their memory performance. These techniques include:

(1) Encouraging ;

(2) Recreating the event context;

(3) Explicitly ;

(4) Focusing on obtaining as much information as possible about a topic before moving on to another topic.

(B) Interview questions should be fact-finding; not interpretive in nature. "What did you observe?" is an appropriate question. "What was your co-worker thinking?" is not an appropriate question. Questions that lead the person being interviewed to speculate should be avoided.

NOTE:
Congruent answers by other persons who were present (and should be interviewed separately) will help to establish facts versus misperceptions.

4.4.2 GENERAL PRINCIPLES OF COGNITIVE INTERVIEWING

(A) There are some general principles of investigative interviewing that should be followed throughout all stages of the interview. These include:

(1) Develop and maintain good rapport.

(2) Encourage the interviewee .

(3) Help the interviewee concentrate.

(4) Use .

(5) Listen actively.

(6) Use a communication

(7) Work as a team with other interviewers.

4.4.3 INTERVIEWER BIAS

(A) Interviewer biases can be very detrimental to the interview process. A poor interviewer allows their biases to drive the questions and to get the answer that they are expecting (from their biases).

(B) In the 1970s, some social psychologists, working in the field of Attribution Theory, studied how people attribute blame when something goes wrong. Unfortunately the social psychologists found that a majority of people attribute blame in the following manner. “When I make an error, it is due to external contributing factors (like poorly written manuals, not having the right tool for the job, etc.).” “When others make an error, it is due to factors that are internal to the person (like their being lazy, complacent, or careless).” Thus, most people bring this attribution bias with them to their job.

(C) Investigators must realize that this bias exists and work actively to overcome it. There are numerous other biases that interviewers can have and must overcome. These include:

(1) Experience/knowledge can have a positive or negative effect. It has a negative effect poor training.”

(2) Sometimes we believe that big events must have had a big cause. “The airplane was out of service for two full days, then Joe must have made a major error.” This is not necessarily true. Remember, one of the U. S. shuttle flights crashed and killed everyone on board because of a 50-cent O-ring seal.

(3) Sometimes an investigator only identifies those contributing factors that are within their ability to change. However, your job is to determine all of the contributing factors, even if some of them are hard or impossible to improve.

(4) Factors that are close in time or space to the system failure will more likely be labeled as causal. While these factors may be causal, do not end your search for contributing factors after identifying these items. Sometimes decisions about the system failure.

(5) Factors that first draw the attention of the investigator will more likely be labeled as causal. While these may be true contributing factors, you must keep an open mind about other contributing factors so that you do not stop your search after the first one or two that caught your attention.

(6) Sometimes an investigator sees an error-caused event that is similar to an historical error event and assumes that they both had the same to the event at hand.

(7) Sometimes an investigator enhances or discounts a contributing factor explanation based on the presence of another contributing factor. For example, “Joe was tired; therefore the maintenance manual was confusing to him.” Even if Joe is tired, you have to show what there was about the maintenance manual that confused Joe.

(8) A very common bias that must be guarded against is blaming a system failure on a person's dispositions. For example, "Joe has a history of skipping functional tests; therefore, he must have skipped the functional test when he caused this event." Do not guess at contributing factors. If you have a guess, check it out using the questions that you ask.

(9) Sometimes an investigator describes first what should have been and then compares the actual events to determine was a contributing factor." Remember, the failure to act is only a contributing factor when there is a pre-existing duty to act.

4.4.4 PRE-INTERVIEW PREPARATION AND PLANNING

(A) It is important that you (and other team members) prepare yourself before conducting the interview. Before carrying out the interview, gather as much information as possible about what happened. Going into the interview, you should know the event that started the investigation, and you will probably know what the system failure was that caused the event. If any engineering investigations have taken place, read that information, also, before the interview. Before interviewing, obtain additional background information:

(1) About the operation, activity or task that was being carried out, or what was done incorrectly and led to the event;

(2) About the interviewee. Licensed/certified? Background? Experience? Specialty area(s)?

(B) Determine aims of the interview— can talk as two people on an equal level. Do not carry out the interview with you sitting behind a supervisor's desk and the interviewee sitting in a chair in front of the desk. This will appear to the interviewee to put him on a lower personal level (employee vs. supervisor), and the interview could start to feel like an interrogation or cross-examination. Pick a neutral location like a private conference room or a quiet corner that is free from distractions.

(C) Determine when the interview will take place. The interview should take place as soon as possible after the event, since the person will begin to forget what happened over time. Allow plenty of time for the interview. Interviews can last only 15-20 minutes up to 1 ½ to 2 hours, depending on the complexity of the situation. Determine who will be involved. The interviewee may want a friend or union representative present. Allow these people to attend the interview.

(D) If more than one person was involved in the operation, activity, or task, then interview each person separately. Many times there will only be one person to interview, so this would not be an issue. However, if more than one person was involved in the system failure, they should each be interviewed, and the interviews should be done separately. You are not doing this to see you find that you get wildly differing stories from the people involved, follow-up interviews may need to be conducted.

(E) Finally, you need to determine the interview plan (how interview will proceed). If there is more than one interviewer, then ensure interviewer roles are clearly defined. Ensure that the interview procedure is clearly understood by all of the interviewers. Develop a specific topic list to help guide some of your follow-up questions. Get plenty of notebooks, paper, pens, and a tape recorder, if you are going to use one. Finally, take along some water and perhaps some other refreshments, like coffee or soda.

4.4.5 INTERVIEW - CONCLUSION

(A) Make sure that your questions have been covered for all topics. Check with other interviewer(s) to make sure they have asked all of their questions. Make a final check of your understanding of any of the issues. Now is the time to deal with any of the larger discrepancies that you did not want to deal with earlier for fear of making the interviewee feel uncomfortable and unwilling to talk. Present the discrepancy as a problem that you have and that you want them to help your resolve, and then ask about it. Clarify the issue as much as is possible without shutting down the interviewee.

(B) Then complete any administrative requirements. Make sure that you have all relevant administrative information—names, dates, contact details, etc. Say that this is an official requirement for all interviews. Find out if the interviewee wants a copy of the tape recording (if used) or of the filled out interview form.

(C) Ask interviewee if they have any questions. Tell the interviewee what their further involvement might be (if any). Provide a summary of the progress of the investigation.

(D) End on a positive note. Ask if the interviewee was happy with the interview and the way it was conducted. Give the interviewee your contact details. Tell the interviewee,). Thank the interviewee for their assistance. Create a positive, lasting impression.

4.4.6 POST-INTERVIEW EVALUATION AND FOLLOW-UP

(A) After you are done with the interview and are back at your desk, it is time to record identified contributing and causal factors in the OmniSMS application.

(B) While you are doing this, you should evaluate the completeness and accuracy of the obtained information. If there are some immediate issues that should be resolved, call the interviewee up and ask more questions. At some point in time you should also evaluate the quality of the interview:

(1) What did you

(2) What did you and the team

(C) For the things you did not do well, work up a plan for improving these areas. Finally, contact the interviewee again (within a week) to information.

4.4.7 RULES OF CAUSATION

(A) Complete the Root Cause Analysis panel in OmniSMS with attention to detail, so that the collected information provides maximum value to Your Company. Remember to associate causal factors with their applicable and external providers (if applicable).

(B) If the interviewer keeps the following “rules of causation” in mind, the task can be made easier and more productive. The rules are:

Rule 1—Each human error

Rule 2—Each procedural deviation must have a preceding cause.

Rule 3—Causal statements must .

Rule 4—Negative descriptors (such as poorly or inadequate) .

Rule 5—Failure to act is only

Rule 6—Causal searches must look beyond that which is within the control of the investigator.

Source: Boeing Maintenance Error Decision Aid (MEDA) User’s Guide (modified)

For complete and detailed information regarding the guidance above, refer to the MEDA User’s Guide.

4.5 ROOT CAUSE ANALYSIS

4.5.1 5-WHY ANALYSIS

(A) For minor issues within a department, supervisors and managers can utilize the simple yet effective "**5 Why Analysis"** process. This requires that a series of questions be asked as many times as is necessary (typically 5 times) to 'drill down' to underlying root causes.

(B) In practice, the question 'why' is seldom asked; instead, more effective lines of questioning are used in order to determine, for example, why a decision was made, an item of equipment failed, an error occurred, or an action not taken. Thought-provoking questions facilitate discovery of hidden, latent deficiencies in processes, procedures, task design, equipment, behavior, etc.

(C) Effective 5 Why analysis requires that the right questions be asked, as well as the ***right kinds*** of questions:

(1) Closed-ended questions can structure the response to be answered by one word, often "yes" or "no", and usually result in a predetermined answer. For example, "Why did our crew use ground equipment that was in need of maintenance?" This type of question is generally not as desirable.

(2) Open-ended questions leave the form of the answer up to the person answering, which draws out more thought for research. For example: "How do we identify serviceable ground equipment from ground equipment that needs maintenance or repair?"

4.5.2 CONTRIBUTING FACTORS AND ROOT CAUSES

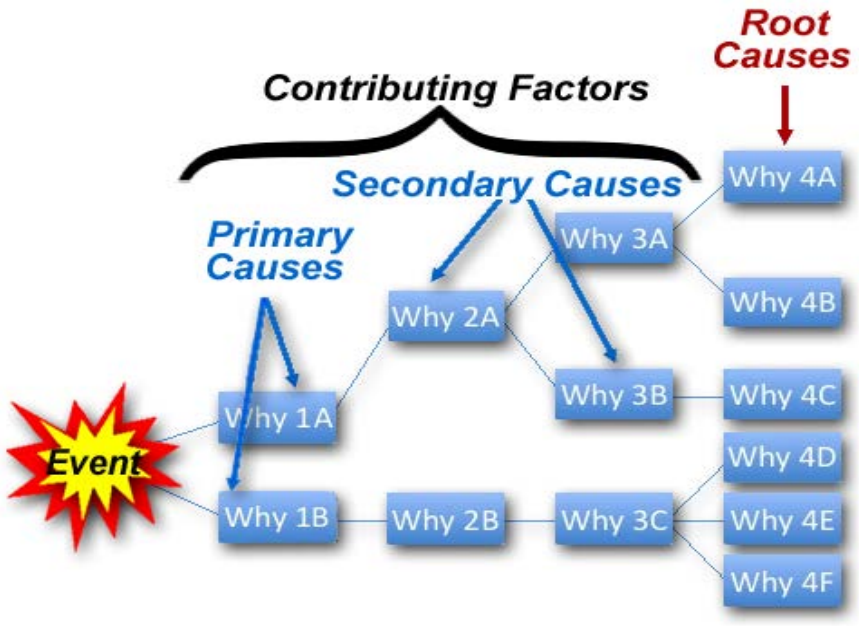
(A) All negative outcomes (consequences) of an event are the result of one or more causes, or contributing factors. These causes may be natural (environmental factors) or human-caused (such as planned inappropriate operations or incorrect procedures). They may also be active or passive (like the errors or inactions of personnel), and initiating or permitting (as in the case of a mechanical failure or failed system defense). Some causes are obvious, and many are often hidden.

(1) Those causes that lead immediately to the outcome are called primary causes;

(2) Primary causes often result from another set of causes, called secondary causes;

(3) These may be the result of still other causes.

(4) When a chain of cause-and-effect is followed from a known end-state back to one or more origins or starting points, root causes are discovered.



4.5.3 SIMPLIFIED EXAMPLE OF ROOT CAUSE ANALYSIS

(A) For illustrative purposes, consider the following example where root cause (a) leads to effect (f), with a few intermediate causes:

(f) aircraft will not start – Why?

(e) battery is dead – Why?

(d) alternator is inoperative – Why?

(c) alternator is beyond its designed service life (TBO) – Why?

(b) alternator was not changed in accordance with manufacturer's maintenance program – Why?

(a) maintenance records indicated the alternator was approaching TBO, but work order was not incorporated into last inspection package

(B) The initial event or failure (f) could be prevented by addressing any of the other factors. For example, connecting ground power to the aircraft to address factor (e), will probably allow the aircraft to be started. However, this solution does not correct the undesired effect and in fact induces new hazards if the aircraft is operated in this condition. Addressing factor (d) by repairing the alternator may solve the problem for a longer period, but factor (c) will eventually result in another age-related failure of the alternator. The alternator could be replaced with a new or overhauled unit addressing factor (b), thus returning the aircraft to airworthiness and in regulatory compliance. However, factor (a) could cause another time-limited component to be overlooked, resulting in another event of noncompliance, an unairworthy aircraft, and risks associated with the operation of fleet aircraft in an unairworthy state.

Root cause analysis in the example above indicates a failure to incorporate maintenance requirements from aircraft records into inspection work packages. Risk controls are needed in order to prevent future occurrences of time-controlled components not being replaced when they are due.

4.5.4 EXPANDED EXAMPLE OF ROOT CAUSE ANALYSIS

(A) In this example, a hazard report was received of an error in maintenance: Inspection panels on the top of the R/H horizontal stabilizer were left unsecured by a maintenance technician (task error) during a scheduled inspection close-up.

(1) **Question 1:** double-shift, and was fatigued during close-up.

(2) **Question 2(a): Why was a double-shift assigned?** - The aircraft was needed on the line the next day (company operating pressure caused the fatigued mechanic to suffer 'work overload').

(3) **Question 2(b): ?** Answers reveal short staffing in maintenance due to a conformity inspection on a new fleet aircraft (production exceeding protection).

(B) This example has produced 2 secondary causes: Time pressure / fatigue, and short-staffing in maintenance (inadequate resources). **Additional discovery is needed:**

(1) **Question 2(c): How many additional techs. are needed to properly staff the department?** Discussion and answers reveal that the personnel shortage is in fact a result of "C" inspections coming due on two fleet aircraft simultaneously, in addition to new aircraft acquisition.

(2) **Question 2(d): How could short-staffing and the resultant scheduling of double-shifts have been avoided?** Answers reveal policies are needed to prevent aircraft from coming due for heavy checks simultaneously.

A definitive root cause has now been identified:
Aircraft scheduling practices that result in temporary short-staffing in the maintenance department.

(C) In another line of questioning, risk controls regarding task completion are examined:

(1) **Question 3: What method is used to assure completion of tasks?** A review of task cards reveals the item 'close inspection panels' is missing from the R/H horizontal stab task card (Task card deficiency; a failed risk control)

(2) **Question 3(a): What could have caused revision process?** No formal QA procedures for task card revision are currently in place (missing risk control).

This line of questioning has revealed a second definitive root cause:
No risk controls exist to assure the quality of the task card revision process.

(D) Certain contributing factors may represent a significant threat to the system and require immediate action. Recommendations developed for these factors should be implemented as soon as possible. In the example above, short-term corrections could include the following:

(1) Stop scheduling fatigued from performing safety-critical tasks.

(2) Correct the omission on the R/H horizontal stabilizer task card.

NOTE:
Root causes are important, but typically do not represent an immediate threat to the system. Prioritize root causes, develop risk controls, and implement accordingly.

(E) In the example above, recommendations to address root causes could include the following:

(1) Change or improve risk-inducing scheduling practices / policies in maintenance (root cause addressed)

(2) Perform a quality assurance check whenever task cards are revised (root cause addressed)

4.5.5 DIFFICULTIES IN ROOT CAUSE ANALYSIS

(A) One difficulty in performing root cause analysis is in knowing when a true root cause has been found. Primary and secondary causes (contributing factors) are easily found. They are plausible; they make sense. Also, working on solutions to these factors looks and feels as latent conditions and could contribute to a future accident.

4.5.6 CHARACTERISTICS OF A ROOT CAUSE

(A) A root cause has three identifying characteristics:

(1) It is clearly a major cause of the event, or of a contributing factor;

(2) It has no worthwhile deeper cause;

(3) It can be resolved.

(B) If root cause analysis leads back to aircraft, equipment, ATS design or other external system:

(1) The 'drill-down' may have gone too far; or

(2) System design may be flawed, or risk assessment is incorrect and requires re-assessment.

4.5.7 RECOMMENDATIONS AND CORRECTIVE ACTIONS

(A) After an investigation is complete and contributing factors / probable root causes have been identified, investigation results are entered into OmniSMS, together with suggestions for correction. When more than one investigator has been assigned, investigators should include their initials next to their investigation notes in order to clearly identify which investigator made the data entries.

NOTE:
Most minor events can be investigated and root causes determined using the 5 Why method, without the need for additional investigation tools and techniques.

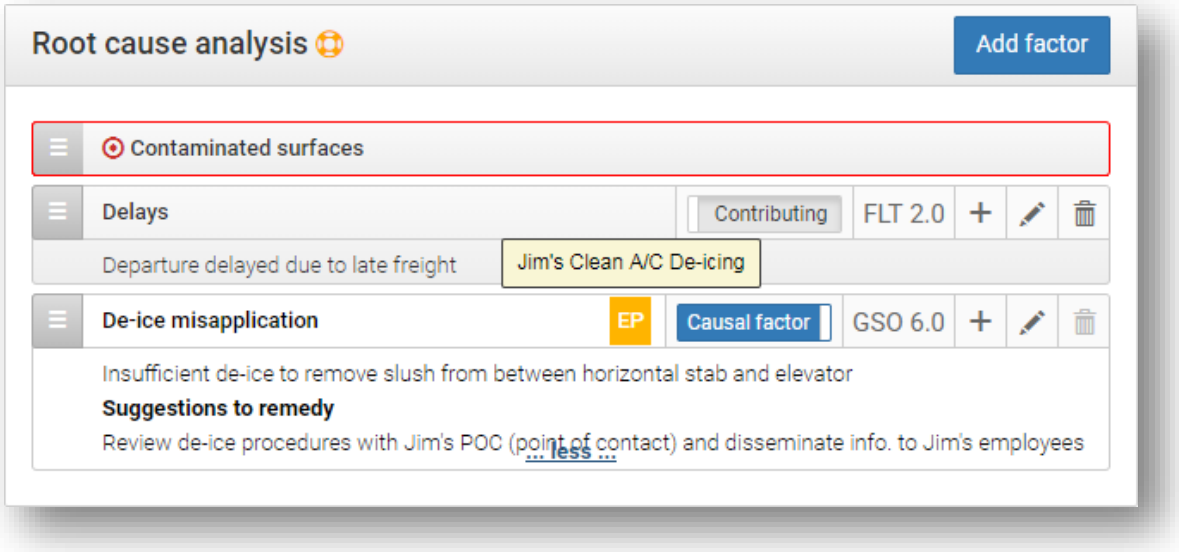
4.5.8 ROOT CAUSES AND EXTERNAL PROVIDERS

(A) Throughout the investigation process, the 5-why questioning technique may be applied to further 'drill down' and discover root causes. Some contributing factors may be root causes themselves, and some contributing factors may have more than one root cause.

(B) Continue with 5-why-question discovery until root causes are identified. If 5-why discovery leads to causes that are beyond our control, the process may have gone too far.

(1) During investigation, contributing factors may be set to causal. Setting a contributing factor to causal allows the factor to be associated with an external provider.

(2) The factor's association is denoted by the yellow "EP" icon, and a tooltip identifies the provider.



(C) In this case, the department manager who contracts with the provider is responsible for quality and safety assurance of the external provider's products and services.

(D) The provider may need to develop risk controls which the department manager should review and accept (or reject if unacceptable), together with follow-up to assure control effectiveness.

Note:
Refer to the YCO Internal Evaluation Program for more information regarding the acceptance of external providers' risk controls and corrective actions.

5. Investigation of Aircraft Accidents

5.1 ROLES & RESPONSIBILITIES

5.1.1 INTRODUCTION

(A) Investigation of civil aircraft accidents is the responsibility of the National Transportation Safety Board or similar government agency in any country that is a signatory to the ICAO Conventions. Under both ICAO and U.S. rules, the operator of a civil preservation of evidence, and support of the investigation team.

(B) The operator may also be invited by the NTSB to participate in the investigation, along with airframe and engine manufacturers, and other technical experts. To be qualified to join the investigation, invited participants must have the technical expertise to support the investigation as well as an understanding of the accident investigation process, in order to provide accurate and timely support.

5.1.2 ACCIDENT NOTIFICATION

(A) When an aircraft accident or incident occurs (as defined by Civil Aviation Authorities), the event must be reported to the appropriate Civil Aviation Authority in accordance with company procedures and the rules of the governing State. Refer to the YCO (**Insert reference to your GOM, Operations Manual, or other document here**).

(B) Any YCO employee who becomes aware of an aircraft accident shall immediately notify YCO management by the most expeditious means.

(C) Upon receipt of such notification, the Director of with the information required to be provided by regulations.

5.1.3 STATES' RESPONSIBILITIES

(A) Depending on where an accident occurs, various States (countries) will have a status that determines rights, obligations, entitlement and accident occurs will conduct the investigation. This may be the country's Civil Aviation Authority, or a separate entity such as the NTSB, which is separate from FAA in the United States.

(B) The State conducting the investigation is responsible for releasing the Final Report as soon as possible. It is recommended that, unless it has been released within twelve months after the occurrence, an interim report is released describing the progress of the investigation and any safety issues raised.

(C) The Final Report will contain safety recommendations; a set of actions necessary to be taken to enhance aviation safety. The format of the Final of the investigation:

(1) (Gathering of) Factual Information,

(2) Analysis,

(3) Conclusions, and

(4) Safety Recommendations.

5.1.4 ROLE OF INVESTIGATIVE AUTHORITIES

(A) The role of an investigative authority is to investigate accidents, determine the probable cause, and develop safety recommendations to preclude a reoccurrence. Pursuant to statute and regulation, the investigator-in-charge may designate "parties" to assist i functions, activities, or products were involved in the accident and who can provide "suitable qualified technical personnel" to actively assist in the investigation. Most investigative authorities appoint an investigator-in-charge (IA IIC) for every accident.

5.1.5 ROLE OF CIVIL AVIATION AUTHORITIES

(A) Civil Aviation Authorities are responsible for the investigation of all accidents within their jurisdiction or geographical area, and must determine the facts surrounding an regulations.

(B) For every accident which is jointly investigated, the Civil Aviation Authority appoints an investigator-in-charge (CAA IIC) to assist the IA IIC and to determine the level of CAA involvement.

(C) During this joint accident investigation, the CAA retains authority for investigating regulatory compliance. Through signed agreements, the IA IIC has agreed to keep the CAA IIC informed of all aspects of the investigation, and to make pertinent investigation records and reports available in a timely and orderly manner.

NOTE:
CAA Inspectors should have completed Aircraft Accident Investigation training before acting as a CAA IIC during accident investigations.

5.1.6 OPERATOR'S DESIGNATION AS PARTY TO THE INVESTIGATION

(A) Under international ICAO Annex 13 rules, the Investigative Authority Investigator In Charge (IA IIC) has the discretion to designate parties that are allowed to participate in an investigation. Except for the local Civil Aviation Authority, party status is a privilege and not a right.

(B) Your Company, as the operator, may become an authorized party to provide knowledge and expertise, and should request party status if not as an essential element of its accident prevention program.

(C) A team effort is necessary in order to develop a complete and accurate factual record of the accident. Each party representative must work under the direction of the IA IIC or other senior investigators at all times.

(D) YCO managers who possess substantial knowledge and expertise are typically selected by senior management to participate as party representatives on behalf of the company. Manufacturers' representatives may also be solicited by the official investigating body to contribute knowledge and expertise.

(E) Persons in legal or litigation positions are specifically not permitted by Investigative Authorities to participate in accident investigation. No members of the news media or insurance personnel are permitted to participate in any phase of the investigation. Claimants or litigants (victims or family members) are also specifically prohibited from serving as party members.

5.1.7 ROLES OF COMPANY INVESTIGATORS

(A) Specialists selected by senior management to participate as party representatives must be employees of YCO and must possess expertise to assist the Investigative Authority in its investigation. Providing technical assistance gives parties many opportunities to learn what happened and to formulate theories as to the cause of the accident.

(B) Party representatives are not permitted to prevention purposes. Information is not to be used for litigation preparation or for public relations.

(C) Sanctions for failing to abide by the Investigative Authority's party rules and procedures include the dismissal of individuals or even the party from the investigation team. Party representatives must sign a party pledge, which is a written statement agreeing to abide by the Investigative Authority's rules governing the party process.

5.2 ASSISTING CIVIL AVIATION AUTHORITIES AND OFFICIAL INVESTIGATIVE BODIES

5.2.1 SHARING OF INFORMATION

(A) As party to an accident investigation, YCO investigators will participate openly, honestly, and with the highest level of integrity, animated by the notion that safety will be furthered by the expeditious determination of an accident's cause.

(B) It is important that all personnel involved with the accident investigation be aware of the other parties and their teams in order to establish communication channels for obtaining and exchanging information.

5.2.2 DOCUMENT CONTROL

(A) Document control is critical during an investigation. Only department managers or their delegates are authorized to copy, print or otherwise reproduce YCO records and documents.

(B) When official investigators request copies of company records or other documents, copies shall be made in duplicate. One copy shall be for the requesting location, and a record kept of all documents provided, complete with the date copied and the name of the requesting investigator and agency.

5.2.3 DUAL ROLES OF YCO INVESTIGATORS

(A) When participating as party to an investigation, YCO investigators serve in dual roles. In addition to providing knowledge, information and technical expertise to official agencies, company investigators should strive to identify latent contributing factors within their respective areas of expertise and departments that are systemic or organizational in nature.

(B) When serving in this capacity, company investigators **must not speculate** on possible organizational deficiencies that could result in potential liability for YCO.

NOTE:
The OmniSMS eLearning module: Introduction to Accident Investigation covers this topic in detail. It is located in the course: Recurrent SMS Training for Managers.

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