

## **CHAPTER 9 – INVESTIGATIONS**

References: A. CAFAO 24-1  
B. CAFACM 2-350, Emergency Response Planning  
C. A-GA-135-003/AG-001, Airworthiness Investigator Manual

### **INTRODUCTION**

1. FS occurrences result in or have the potential to cause the loss of aviation resources. It is therefore important to investigate appropriate occurrences with the objective of quickly identifying effective PM that will either prevent or reduce the risk of a similar occurrence. The AIA has been delegated the responsibility to independently investigate matters of aviation safety concern and has delineated the policy by which this activity is conducted in the AIM. All FS investigation activities are also airworthiness investigations and they are carried out on behalf of the AIA. This chapter outlines the authorities for investigations, the occurrence classification system, the investigation classification system and the types of FS investigation done by DND/CAF.

### **DEFINITIONS**

#### **AIRCRAFT DAMAGE**

2. Damage is defined as physical harm to an aircraft that impairs the value or normal function of that aircraft. Damage is said to have occurred when the aircraft or any portion of it is lost or requires repair or replacement as a result of unusual forces like a collision, impact, explosion, fire, rupture, or overstress. Damage does not include faults that progressively develop from repeated applications of load at or below the design operating limits of the aircraft as a result of normal flight stresses. Additional damage resulting from stress failures may be classified appropriately as damage. Routine system or component unserviceabilities are not considered to be damage, and need not be reported unless the originator feels that there was injury or damage potential.

#### **NOTE**

If the equipment has not been misused or subjected to unusual stress failures, it shall not be classed as damage, but as normal wear resulting from prolonged service use.

#### **AIRCRAFT MAJOR COMPONENTS**

3. Aircraft major components are:
- a. Fixed Wing:
    - (1) the fuselage, cargo ramp and major structural sections thereof, but does not include canopies, jettisonable stores, windows, astrodomes, antennae, radomes, MAD booms, aerodynamic braking devices, small non-structural panels, doors or hatches, and non-integral nacelles,

- (2) the wings and major structural sections thereof, but not including the wing-tips, non-integral nacelles, spoilers, flaps, ailerons or other control-of-lift devices,
  - (3) the empennage and major structural sections thereof (vertical stabilizer, horizontal stabilizer, and stabilator), but not including the rudder or elevator; and
  - (4) the landing-gear oleos, legs, struts, sponsons and similar weight-supporting members and structures, but not including the tail wheel strut or support assemblies, wheels, floats, shoes, skis, non-integral removable axles, brakes, tires, gear doors or actuating rods;
- b. Rotary Wing:
- (1) the fuselage, cargo ramp and major structural sections thereof, but does not include, windows, astrodomes, antennae, radomes, small non-structural panels, doors or hatches, and non-integral nacelles,
  - (2) the main rotor and tail rotor blades system, main transmission, and gearboxes but not including the drive shafts,
  - (3) the helicopter tail boom and pylon, but not including the fairings, non-integral vertical or horizontal stabilizers or synchronized elevators, and
  - (4) the landing-gear oleos, legs, struts, sponsons and similar weight-supporting members and structures, but not including the tail wheel strut or support assemblies, wheels, floats, shoes, skis, helicopter cross tubes or skids, non-integral removable axles, brakes, tires, gear doors or actuating rods; and
- c. UAV Major Components. UAV major components will be defined on a case-by case basis as determined by individual UAV type and consultation with DFS.

#### **INVESTIGATOR IN CHARGE (IIC)**

4. The IIC will be a qualified, trained and certified accident investigator appointed by the AIA or through authorized delegation by the 1 Div FSO. The IIC conducts all airworthiness investigation activities on behalf of the AIA. All activities of personnel involved in the investigation are to be coordinated through the IIC

#### **FS INVESTIGATION**

5. A flight safety investigation (FSI) refers to any investigation conducted under the terms of this publication and the AIM for the sole purpose of occurrence prevention. These investigations are also referred to as airworthiness investigations and fulfil the investigation requirement of the CAF/DND Airworthiness Program.

## **FS INVESTIGATION REPORT**

6. The report produced in support for a Class I FSI into the circumstances of a particular FS occurrence, and subsequently commented upon by various levels of command and the PDIs is titled a FSI Report (FSIR).

## **POWER PLANT**

7. The power plant includes the engine, engine-driven components and related systems, including propellers, afterburners, fans and the like.

## **PERSONS WITH A DIRECT INTEREST (PDI)**

8. Typically, PDI status is given to crew members, the affected CoC(s) and contractors directly involved in the operation maintenance or manufacture of the aircraft. Notwithstanding, a PDI is defined as

- a. an individual who is the subject of the report or a witness used in the report who, in the opinion of the AIA, is able to comment constructively on the factual accuracy of the report; and,
- b. an individual, Command or Organization that in the opinion of DFS is directly affected by the findings, cause factors and/or preventive measure recommended within the report.

## **NEED TO INVESTIGATE**

9. FS occurrences result in or have the potential to cause an accidental loss of resources. Therefore, any occurrence that could lead to the identification of causes and determine effective PM will be investigated. This chapter describes the tasking authorities and necessary protocols for the conduct of FSIs.

## **AUTHORITY TO INVESTIGATE**

10. The Aeronautics Act, the A-GA-135-001/AA-001, Flight Safety for the CAF, and the delegations and authorizations as outlined in the A-GA-135-003/AG-001 Airworthiness Investigation Manual (AIM) provide the authority to investigate FS occurrences. These documents define terminology, responsibilities and procedures for investigation. The A-GA-135-002/AA-001 Investigations Techniques for the CAF also provides guidance for terminology and prescribes procedures specific to investigative techniques

## **FSI CONVENING AUTHORITY**

11. DFS/AIA is the convening authority for Class I and Class II investigations. The convening authority for a Class III and IV investigations is delegated by the AIA to the WFSO.

## INVESTIGATION RESPONSIBILITIES

### DEPARTMENTAL RESPONSIBILITIES

12. The MND has designated DFS as the Airworthiness Investigative Authority for the CAF/DND. The AIA is responsible to independently investigate all matters of aviation safety concern, an MND requirement based in the *Aeronautics Act* and a coincidental requirement of both the Airworthiness Program and the FS Program. Consequently, DFS/AIA shall ensure that occurrences as defined in this document are documented and investigated as required. In principle, the completion of a Combined Report or a Supplementary Report constitutes in itself an investigation, although it may consist of the simple gathering of facts as done for occurrences labelled as Repetitive Occurrences (ROs).

### COMMAND RESPONSIBILITIES

13. The unit CO shall ensure that all FSIs affecting aircraft under unit control are investigated; however, all investigation activities are undertaken on behalf of the AIA as delineated in the AIM. If an investigation is impractical for the unit of ownership to investigate, the WComd/Comd 1 Cdn Air Div and DFS shall be advised.

### OCCURRENCE CATEGORY

14. FS occurrences are categorized according to the overall seriousness of the occurrence. The occurrence category is an alphabetical designation assigning an overall seriousness classification to an occurrence based upon two factors:

- a. the aircraft damage level (ADL); and
- b. the personnel casualty level (PCL).

15. Refer to Annex A for the Occurrence Category to be assigned in accordance with the ADL and PCL at play during an occurrence. Occurrence categories range from A to E for both air and ground occurrences, with A being the most serious and E identifying situations where, although no damage occurred, the potential for damage or injury existed.

### AIRCRAFT DAMAGE LEVEL

16. The ADL is a qualitative categorization system used to determine the level of damage sustained by an aircraft during an occurrence. The following damage level definitions are used to reflect the degree of damage

- a. Destroyed/missing: The aircraft has been totally destroyed, is assessed as having suffered damage beyond economical repair or is declared missing;

#### NOTE

Aircraft totally destroyed are normally written off the inventory. Accidents with a lower ADL may subsequently result in administrative write-off of the aircraft for reasons not directly related to the damage. The original ADL will be recorded in the FSOMS for statistical purposes.

- b. Very serious: The aircraft has sustained damage to multiple major components;
- c. Serious: The aircraft has sustained damage to a major component;

**NOTE**

When a fuselage, wing, helicopter drive train or rotor blade are damaged beyond economical repair or are shipped to a repair facility, the level of damage will be referred to DFS for categorization (e.g. rotor blade change is minor damage, multiple blade changes is serious damage, transmission overspeed requiring overhaul is minor damage, sudden stoppage requiring complete change of drive train is serious damage).

- d. Minor: The aircraft has sustained damage to non-major components; and
- e. Nil: The aircraft, including the power plant, has not been damaged.

**NOTE**

When there are unique contractual maintenance arrangements in place that preclude CAF personnel from performing repairs that are considered within second-line maintenance, the case will be referred to DFS, who will assign the ADL.

**PERSONNEL CASUALTY LEVEL**

17. The PCL is a colour-based categorization system used to identify the most severe casualty suffered by personnel in an FS occurrence. The PCL is determined by a medical officer in accordance with CA AO 24-1. The PCL assigned for an occurrence is defined as follows:

- a. BLACK: PCL level assigned when a fatality has occurred;
- b. GREY: PCL level assigned when personnel are missing;
- c. RED: PCL level assigned when personnel are very seriously injured or ill and the person's life is in immediate danger;
- d. YELLOW: PCL level assigned when personnel are seriously injured or ill. There is cause for immediate concern but the patient's life is not in immediate danger. Usually the person is non-ambulatory; and
- e. GREEN: PCL level assigned when personnel are moderately injured or ill in an occurrence for which medical attention is needed but there is no immediate concern. Usually the person is ambulatory.

NOTA  
FS reports shall only provide PCL information. No other medical  
information or details shall be circulated on the FS net  
or entered in FSOMS.

## CLASS OF FS INVESTIGATIONS (FSI)

### CRITERIA FOR ASSESSING FSI CLASS

18. In order to assign investigations to the appropriate authority, an occurrence investigation classification system is used. The purpose of classifying FSIs is to determine the amount of time and resources that will be devoted to the investigation. The type of investigation into an occurrence and the level of effort will be determined by an assessment of the following three criteria:

- a. the occurrence category;
- b. the safety of flight compromise level; an
- c. other factors which could impact on the reputation of the FS Program, the Airworthiness Program, the CAF and the Department.

19. FSIs will be classified I to IV based on the above criteria. Annex B shows the Class of investigation assigned based on these criteria.

### SoF COMPROMISE LEVEL FACTOR (SFCL)

20. The SFCL is categorized with a qualifier that describes the level to which safety margin were compromised during an occurrence. By extension, it provides an indication of how much the crew and/or aircraft were put at risk.

- a. Extreme: an occurrence where the outcome has been or could have been catastrophic and might have resulted in the loss of life or the aircraft;
- b. High: an occurrence where the outcome has resulted or could have resulted in very serious injury or very serious damage to the aircraft;
- c. Medium: an occurrence where the outcome has resulted or could have resulted in serious injury or serious damage to the aircraft; and
- d. Low: an occurrence where the outcome has resulted or could have resulted in minor injury or minor damage to the aircraft.

### OTHER AGGRAVATING FACTORS

21. There are other factors that may elevate the level at which an occurrence is investigated. If a higher level of investigation might lead to a more effective reduction of risk to persons, property or the environment then this level should be assigned. Consideration shall also be given to maintaining the trust of CAF personnel and the general public in the FS Program and the CAF by having occurrences investigated at the appropriate level.

## **RELATIONSHIP BETWEEN INVESTIGATION CLASS AND INVESTIGATION TYPE**

22. Each FSI Class requires the production of a report as follows:
- a. Class I: Flight Safety Investigation Report (FSIR);
  - b. Class II: Enhanced Supplementary Report (ESR);
  - c. Class III: Supplementary Report (SR); and
  - d. Class IV: Combined Report (CR) or SR.

## **TASKING FOR CONDUCT OF INVESTIGATIONS**

23. DFS/AIA conducts all Class I and Class II investigations and depending upon circumstances, tasks the appropriate investigation team to do so. All other investigations are conducted by unit FSO on behalf of DFS/AIA and are released by the supporting wing FSO (IIC). Some occurrences are repetitive in nature and limited benefit would be gained by carrying out a full-scale investigation.

## **REPETITIVE OCCURRENCES (RO)**

### **DEFINITION OF RO**

24. A RO is defined as a recurring type of FS incident where the event and investigation results are consistent with a previous investigation. The use of an RO is limited to a SR or a CR.

25. Example of typical ROs are the Cormorant tail rotor half-hub cracks, bird strikes with little to no damage and the Griffon chip light detectors occurrences. Given the repetitive nature of these incidents and the limited potential to find new causes and original PM, a rudimentary investigation is still required to ascertain the facts and confirm the occurrence is similar in all aspects.

### **RO CONDITIONS**

26. To qualify as an RO, an occurrence must meet the following conditions:
- a. the personnel involved has suffered no injury;
  - b. the aircraft has sustained only minor or no damage;
  - c. the PM and cause factor(s) for the investigated occurrence is/are in line with a reference occurrence; and
  - d. the FS risk and aggravating factors, if any, are in line with the reference occurrence which will serve as the initial RO.

### **RO STAFFING, APPROVAL AND MONITORING**

27. Any occurrence which will be treated as an RO must refer to an original FSOMS reference ID # for which a detailed investigation was completed. It will use the same key words, cause factor(s) and PM(s) of the reference RO.

28. The 1 Div FSO staff monitors the occurrences reported by different wings and is the approving authority to accept a type of occurrences as an RO. If it is determined that a certain type of occurrences should be treated as a RO, the FSO or WFSO shall submit a request to the Div FSO for approval and inclusion on the RO master list. The suitability of the RO designation will be evaluated by the 1 Div FSO staff and approved, as applicable. The WFSOs and FSOs of affected units will be informed of the newly approved RO. The approved RO list will then be updated by the 1 Div FSO staff and posted on the FS Intranet site. By keeping track of ROs, DFS can initiate more detailed analysis, as required, if concerns are identified or as required. The RO list shall be reviewed annually for suitability by the FSOMS WG.

### **INVESTIGATION FOR TRACKING PURPOSE ONLY**

29. If it is assessed by the investigative unit that a Class IV investigation will not lead to the production of significant cause factors and valuable PMs, the investigative officer will ascertain the facts in FSOMS so it can be tracked for future analysis and tracking purpose (FTPO) and make recommendation to the WFSO as follows:

- a. Cause factor: Nil (FTPO); and
- b. PM: Nil (FTPO).

### **FSI TEAM SELECTION**

30. FSI team personnel are assigned by the appropriate FS tasking authority. For Class I and Class II FSI, the AIA appoints the IIC and approves the team composition. For Class III and IV FSIs the team is typically assigned and authorized through the established FS structure positions within aviation units or with units that conduct aviation activities for the CAF/DND.

31. DFS/AIA may, in coordination with the CoC, task a non-DFS IIC to conduct a Class II investigation.

### **INVESTIGATOR-IN-CHARGE**

32. All FS investigations will have an IIC. This is normally the WFSO (typically holding an IIC 3 qualification) for Class III or IV investigations. The IIC for Class I or II investigations should be a DFS accident investigator currently employed at DFS (typically holding IIC 2 or IIC 1 qualifications). In unusual circumstances, DFS may appoint another trained investigator who is not currently employed at DFS. Anyone tasked to conduct an FSI shall be excused from all other duties until released from the investigation by DFS. The IIC reports to DFS/AIA for the conduct of the investigation.

33. The IIC has the authority to quarantine and impound evidence, interview witnesses and examine documents and equipment related in the occurrence. The IIC also has certain delegated authorizations from the AIA for activities associated with investigations as outlined in the AIM. Detailed process guidance for the investigation is promulgated in A-GA135-002/AA-001.

34. The mandate of the IIC is to conduct a thorough and impartial investigation into the occurrence and submit a report in the mandated format detailing the facts, analysis of those facts, causes and PMs relevant to the occurrence as defined and detailed in the AIM.



## MEMBERS AND ADVISORS

35. Personnel assigned to an FSI team are tasked by DFS/AIA and will report to the IIC until released from duty by DFS/AIA. Unless there is no reasonable alternative, a team member should not be selected from the unit of occurrence. The circumstances of the occurrence will dictate the team complement best suited to investigate considerations such as human factors, technical issues, recovery and salvage support and medical issues. In addition, advisors such as meteorologists, other aircrew, air traffic controllers and paratroop officers should be appointed when the need arises. Specialist advisors not specifically assigned to the FSI team in the tasking order may be required to assist in the investigation. Each individual will be appointed with an observer status and will normally have limited access to information not related to their field of expertise. At the discretion of the IIC, each individual could be integrated fully into the investigation team provided an undertaking, consisting of two documents (AIA Observer Status granting form and Non-disclosure Agreement form) is signed and witnessed,

### NOTE

The undertaking documents are available in the AIM, Chapter 4, Annex B and C respectively.

## TYPICAL FSI TEAM COMPLEMENT

36. The FSI team tasked by DFS/AIA will ideally comprise:
- a. IIC. This person is a qualified and certified investigator who is authorized by DFS/AIA to conduct the investigation and is familiar with the aircraft type and role;
  - b. Aircrew Member. This person is a subject matter expert who is qualified and current on the aircraft type involved in the occurrence;
  - c. Technical Member. This person is the DFS AERE Officer or an AERE office familiar with the aircraft type;
  - d. Medical Member. This person is the DFS Flight Surgeon or a military physician, ideally a flight surgeon
  - e. Specialist Advisors. Advisors will be appointed as required; and
  - f. Observers. Observers will be appointed as required.

## TYPES OF OCCURRENCE REPORTS

37. There are several types of FS occurrence reports that may need to be completed depending on the Class of investigation carried out:
- a. Initial Report (IR);
  - b. Supplementary Report (SR);
  - c. Combined Report (CR);
  - d. Enhanced SR (ESR); and

e. FSIR.

INITIAL REPORT (IR)

38. The IR describes the immediately available particulars of the occurrence and should be sent within 12 hours of the event. It is generally reported through FSOMS. If the user is unable to access the application, occurrence details shall be sent to the designated wing for input into the database. Annex E lists the information that must be submitted in the IR. An IR form can be downloaded from the DFS websites.

NOTE

The IR should include whether quarantining has taken place (e.g. quarantining of aircraft and aircraft oxygen system, aircrew ALSE, LOX trailer, LOX storage tank), so that those reviewing the FSOMS entry know right away that this important airworthiness investigation step was not omitted or overlooked.

SUPPLEMENTARY REPORT (SR)

39. The SR is the report normally produced by the wing or unit for Class III and IV investigations. It shall be submitted within 30 calendar days of the occurrence. The report requirements are shown in Annex F.

COMBINED REPORT (CR)

40. The CR is the combination of the IR and SR in a single report submitted for minor occurrences requiring limited or cursory investigation, provided it can be released within 48 hrs of the occurrence. The report format is the same as the SR.

ENHANCED SR (ESR)

41. The ESR is the report type used for Class II investigations which summarize occurrences that are sufficiently complex to warrant a more thorough investigation than a normal SR, but do not require the same degree of detail as a FS Investigation Report (FSIR). The format of the ESR is similar to an SR, with expanded detail within paragraph 22 (analysis). The intent of an ESR is to expedite reporting for less complex occurrences; as such the report is much shorter than an FSIR and a preliminary report is not required. A Class II occurrence requires the publication of an FTI, distribution of a Draft ESR for Comment, input of the final report into FSOMS and the publication of the Epilogue on the DFS Website. The AIA is the tasking and releasing authority for all ESRs.

FSIR

42. The final report is titled FSIR. It is a comprehensive report on an FS occurrence and all related aspects to provide reviewing authorities with detailed information on which to base recommended PM. The report follows the ICAO accident report format. DFS will be the tasking and releasing authority for the report. The report requirements are available on the DFS website. The FSIR will include valid PDI input from the Draft for Comment process. The report

will be produced in both official languages. The FSIR shall normally be unclassified and be released to the public via the DFS Internet website under tab Flight Safety Links\Investigation Reports.

## **ACTIONS LEADING TO PRODUCTION OF FSIR AND ESR**

### **DOCUMENTATION**

43. In the process of staffing a FSIR, the IIC will produce different documents as follows:
- a. FSIR:
    - (1) Preliminary FSIR,
    - (2) From the Investigator,
    - (3) Draft FSIR for Comments,
    - (4) FSIR,
    - (5) Epilogue; and
  - b. ESR:
    - (1) From the Investigator,
    - (2) Draft ESR for Comments,
    - (3) ESR (inputs in FSOMS), and
    - (4) Epilogue.

### **PRELIMINARY FSIR**

44. The purpose of the Preliminary FSIR is to provide senior management with factual information pertinent to the occurrence and provide immediate PM recommendations where appropriate. The Preliminary FSIR shall include Part 1, Factual Information, and Part 4, Preventive Measures of the FSIR. One blank page for each of Part 2 and Part 3 shall be included for completeness. In the interest of expediency, the report may be produced in one language only (normally English unless the addressee is a French language unit (FLU)).

### **FROM THE INVESTIGATOR (FTI)**

45. The FTI summarizes factual information from the initial portion of a Class I or Class II Investigation. It shall describe factual information, immediate safety actions taken and the focus of the ongoing investigation. The FTI will be published in bilingual format on the DFS website and in Flight Comment. The complete document will not normally be longer than two pages.

### **DRAFT FSIR FOR COMMENT**

46. Class I and Class II investigations shall be forwarded to PDIs as a Draft FSIR for Comment. Individual PDIs such as involved aircrew or witnesses shall receive individual copies, and their responses shall be privileged. PDI's wishing to share their responses with

the appropriate CoC, may do so at their discretion on the understanding that the information remains privileged and should only be shared on a need-to-know basis. Draft FSIR for Comment to the CoC and organizations may be distributed only to the staff required to effect an appropriate response. Individual and collated staff responses should be addressed directly to the DFS OPI without further redistribution. The AIA deems that Draft FSIR for Comment responses are by definition, extensions of witness statements and as such, the direct response ensures privileged information is protected as required by the *CTA/ISB Act*.

**EPILOGUE**

47. The *Epilogue* summarizes the information contained in the FSIR. The *Epilogue* will be published in bilingual format on the DFS Internet website and in *Flight Comment*.

**IMMEDIATE ACTION TAKEN**

48. In the course of investigating an FS occurrence, the IIC shall be responsible for staffing reports in accordance with Para 46 above. Notwithstanding report timelines, PM recommendations shall be promulgated by the IIC whenever the investigation discovers a deficiency that requires immediate notification, assessment or action within the Co

**REPORT DEADLINES**

49. Report deadlines shall represent the desired output. Extenuating circumstances such as workload, investigation complexity and manning may result in significant delays. Nevertheless, the intent is to complete all reports in a timely fashion such that preventive measures can be implemented as soon as possible, without sacrificing the quality of the report. Table 3 provides the desired timelines for each report type.

REPORT TYPE	TIMELINE
PRELIMINARY FSIR	30 DAYS
FTI	30 DAYS
DRAFT FSIR FOR COMMENTS	180 DAYS
FSIR	360 DAYS
EPILOGUE	360 DAYS

**Table 3 – Report Timelines**

(Refer to the AIM for other report timelines)

**FOLLOW-UP ON PROPOSED PM**

50. The FSIR and the ESR are distributed in a similar fashion. The FSIR is forwarded from the AIA to C Air Force, who subsequently distributes it to the OAA and TAA, as applicable, to allow them the opportunity to review and provide formal input from the CoC on the proposed PMs. Should the OAA or TAA determine that a recommendation in an FSIR is not feasible, they shall advise the Airworthiness Authority in writing of their decision and the rationale for it. It is highly desirable that the decision not to implement a recommendation be accompanied by a formal risk assessment. An ESR is distributed to the CoC directly from the AIA with a

request for support of all PMs. In the event that the CoC does not support a PM from an ESR, alternative PMs and/or risk assessments are requested.

51. OAA and TAA shall submit any comment and input into the proposed PM (including risk assessments) to C Air Force within 21 days following receipt of the FSIR. The AA will consider the input from the OAA and TAA during the formulation of the final action directive.

52. Chapter 11 of this publication describes the generic handling and follow-up of PM. Chapter 2 of the AIM details the principles of airworthiness investigations and articulate the processes for the follow-up of PM stemming from airworthiness investigations.

## **USE AND HANDLING OF FS REPORTS**

53. Reports prepared under the authority of this publication are considered by the CAF to be sensitive documents and, unless specifically authorized, these reports and their attachments shall not be used for any purpose other than FS. The special treatment accorded these reports is of vital importance in obtaining complete cooperation from witnesses and in determining the real cause(s) of an occurrence. Authorization for other uses shall only be granted with the express concurrence of DFS/AIA. Examples of agencies who might have access to FS information are as follows:

- a. a coroner requests access for the purposes of a coroner's investigation; and
- b. an individual is conducting a coordinated investigation under the provisions of one or more signed agreements (a STANAG or an MOU with TSB).

## **PROTECTION OF INFORMATION IN FS REPORTS**

54. The concept of classifying information given during an FS investigation as privileged encourages a frank and open reporting culture. This helps to determine the cause(s) quickly and to develop the most appropriate PM. It must be noted that FS reports and the supporting investigation files may be accessed through the *Access to Information Act*. Nevertheless, the contents of the reports are eligible for protection under the *CTA/ISB Act*, *Access to Information Act* and *Privacy Act*.

55. It is the policy of DND that some investigation reports will be made available to the public in order to facilitate accident prevention throughout the aviation community. They are released under the authority of the DFS/AIA pursuant to the powers delegated to him/her by the MND as the Airworthiness Investigative Authority of the CAF, with the understanding that the reports will be used for no other purposes than accident prevention.

## **RECONVENING A FSI**

56. An investigation shall be re-opened by DFS or the delegated FSO without delay if it appears that some evidence was not considered or was omitted; if a relevant aspect was not covered adequately; or new evidence has been uncovered, and this evidence would lead to a PM which has not already been recommended. Such action should not be taken unless absolutely essential.

## RELATIONSHIP BETWEEN FSI AND BOARD OF INQUIRY

57. The effectiveness of the FS Program is reliant on open, honest and timely reporting of occurrences by individuals without fear of retribution. When required, the CAF may be required to convene a collateral investigation concurrent with or in addition to a FS investigation for the purposes of determining administrative or disciplinary disposition. In order to preserve the fundamental principles of the FS Program, FSOs shall not be appointed to or participate in collateral investigations. Information gained by FSOs through the conduct of a FS investigation shall only be provided to a collateral investigation on the authority of DFS.

58. When an aircraft accident occurs, a separate Board of inquiry may be convened in accordance with QR&Os. The requirement to conduct a Board of inquiry might be for a variety of reasons such as Investigation of Claim By or Against the Crown; QR&O 21.46, Investigation of Injury or Death; or to support COMSEC, administrative or disciplinary actions. This collateral investigation shall be independent of the FS investigation into the same occurrence. Privileged information (as defined in sections 22, 23 and 24.1 of the *Aeronautics Act*) which is gathered during the course of the FSI shall not be made available to the Board of inquiry President. However, all the factual information and a statement of cause, if available, will be made available upon request.

### NOTE

Anyone who in the course of their FS investigation becomes aware of circumstances that require a collateral investigation is to advise the commanding officer or commander immediately. The FSO will only suggest the requirement of a collateral investigation and shall not give evidence as to what circumstances brought them to that determination. The chain of command, after having concluded there is a requirement of a collateral investigation, should act promptly to initiate the process in order to avoid the impression that information gained through the FSI precipitated the collateral action.

## COORDINATED INVESTIGATIONS

59. Within Canada, TSB is responsible for investigating all aviation occurrences involving aircraft other than military conveyance aircraft or facilities. DND has the responsibility for investigating all occurrences involving military conveyance aircraft or facilities. The *CTA/ISB Act* defines a military conveyance aircraft as one being operated by or on behalf of DND, CAF or a visiting force.

60. When the occurrence involves both civilian and military aircraft and/or facilities, the work of civilian and military investigators will be coordinated and will be governed by a DND/TSB Working Agreement developed for that purpose. The DND investigation will be conducted under the authority of section 4.2(1)(n) or Part II of the *Aeronautics Act*, the *CTA/ISB Act*, the DND/TSB Working Agreement and in accordance with this publication. The TSB investigation will be conducted under the authority of the *CTA/ISB Act* and in accordance with the DND/TSB Working Agreement. Coordinated investigations with other military forces will normally be conducted within the procedures contained in ICAO Annex 13 for investigations involving non-NATO foreign military aircraft, and in STANAG 3531 for investigations involving NATO nations.

## **ACCESS TO INFORMATION REQUESTS**

61. The *Access to Information (ATI) Act* provides broad and effective legal access to information generated by government employees and information about government employees. With respect to FS investigations in general, and more specifically aviation accident/incident investigations, the ATIA, the *Privacy Act*, the Aeronautics Act and the *CTA/ISB Act* provide some protection for information obtained through investigations. Provisions for protection of privileged information is fully protected from release through the *ATI Act*. WFSOs are not expected to be current with the provisions of the various statutes mentioned above nor are they expected to handle FS ATI requests. All requests for FS information should be immediately routed through the designated ATI officer for the wing and handled according to the provisions stipulated in Chapter 7 of the AIM and applicable annexes. If that officer is not aware of the protections afforded by the various laws, they should be cautioned and advised to contact DFS for advice.

## **INVESTIGATION FILE RETENTION/DESTRUCTION**

62. All Investigation documentation, evidence and files, in both paper and electronic formats, shall be retained by the originating unit or the respective unit, wing or FS investigation team until the investigation is formally closed. These documents shall be retained for a period of 5 years and disposed of IAW DND/ADM (IM) policy detailed in the Defence Subject Classification and Disposition System (DSCDS). After the 5 year retention period, Category A, Category B and those investigations completed and identified by the AIA/DFS shall be sent to Library and Archives Canada. Investigation files for Category C, D and E occurrences shall be destroyed. The AIA/DFS direction shall be sought for all circumstances falling outside this direction.

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Annex A  
 Chapter 9  
 A-GA-135-001/AA-001

**ANNEX A – OCCURRENCE CATEGORY TABLE**

1. The Occurrence Category is based on the combination of the ADL and PCL as per the Occurrence Category table below and is based on whichever is the highest of the two values. The Occurrence Category table is to be used in conjunction with the Flight Safety Investigation Class table at Annex B. The reporting unit shall use the Category table to define occurrences that require immediate reporting to DFS via 1-888-WARN-DFS (927-6337) and toxicological screening for those military personnel involved.

**NOTE**

DFS shall be contacted as soon as possible and toxicology testing initiated for any occurrence that is C category or higher, or if the occurrence category is unknown for any occurrence with the potential to be a C category or higher.

AIRCRAFT DAMAGE LEVEL (ADL)	PERSONNEL CASUALTY LEVEL (PCL)	OCCURRENCE CATEGORY	INV CLASS
DESTROYED OR MISSING	FATAL INJURY OR MISSING	A	I
VERY SERIOUS DAMAGE	VERY SERIOUS INJURY/ILLNESS	B	I OR II
SERIOUS DAMAGE	SERIOUS INJURY/ILLNESS	C	II OR III
MINOR DAMAGE	MINOR INJURY/ILLNESS	D	III OR IV
NIL	NIL	E	IV

**NOTE**

Annex B has to be consulted for the final determination of the investigation Class which will take into consideration the SFCL and other aggravating factors.

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**ANNEX B – FS INVESTIGATION CLASS TABLE**

1. The investigation class is normally based on the highest level between the Occ Cat., the SFCL and other aggravating factors as per the Investigation Class table below. This table serves as a guide only and DFS/AIA reserves the right to determine the class of investigation to be done. DFS/AIA is the tasking authority for all Class I and II investigations.

FACTORS			RECOMMENDED INVESTIGATION		
OCC CAT	SFCL	AGGRAVATING FACTORS	INVESTIGATION CLASS	INVESTIGATING AGENCY	REPORT TYPE
A	EXTREME	EXTREME	I	DFS	FSIR
B	HIGH	HIGH	II	DFS	ESR
C	MEDIUM	MEDIUM	III	WFSO OR UFSO	SR
D	Low	Low	IV	UFSO	SR OR CR

2. The determination of the class of investigation and the related assigned investigating agency are based on three factors:
- a. Occurrence Category. Refer to Annex A.
  - b. SFCL. The SFCL indicates the actual level of risk experienced by the personnel and/or aircraft during an occurrence. An event could have resulted in no damage and/or injuries but have an extremely high SFCL, hence may require a more thorough investigation
  - c. Aggravating Factors. There are other factors that may elevate the level at which an occurrence is investigated. If a higher level of investigation might lead to a more effective reduction of risk to persons, property or the environment then this level should be assigned. Consideration shall also be given to maintaining the trust of CF personnel, the trust of the general public in the FS Program and in the CF by having occurrences investigated at the appropriate level (e.g. a Medium SFCL occurrence involving a WFSO could be investigated by DFS or a WFSO from another wing).

**NOTE**  
 DFS shall be contacted as soon as possible if it is felt that a Class I or II investigation would be appropriate.

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## **ANNEX C – FSI SITREP TEMPLATE**

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**FS INVESTIGATION SITREP #**\_\_\_\_

**This report contains information related to an on-going FS investigation. Information shall not be released to the public in whole or in part except under the authority of the Director of Flight Safety, National Defence Headquarters.**

DATE/TIME: USE LOCAL TIME

ACCIDENT AIRCRAFT TAIL #:

LOCATION:

DETAILS OF ACTIONS COMPLETED SINCE LAST SITREP: FOR INITIAL SITREPS, INCLUDE ARRIVAL STATUS OF TEAM MEMBERS. INCLUDE A SUMMARY OF ANY PERTINENT FACTUAL INFORMATION COLLECTED SINCE LAST SITREP, LIKE WITNESS INTERVIEWS COMPLETED, PHOTOGRAPHS TAKEN AND RECORDERS REMOVED/SENT. INCLUDE ANY ON-SITE ANALYSIS SINCE THE LAST SITREP SENT. AVOID CONJECTURE.

DETAILS OF NEXT PLANNED ACTION ITEMS: INCLUDE PLAN FOR NEXT DAY TEAM ACTION ITEMS. IDENTIFY ANY EXTRA SUPPORT REQUIRED FOR THE INVESTIGATION LIKE LOGISTICAL SUPPORT, ADMINISTRATIVE SUPPORT, PUBLIC RELATIONS AND FINANCIAL APPROVALS.

PM TAKEN: INCLUDE ANY IMMEDIATE SAFETY ACTIONS TAKEN BY THE UNIT OR ANY HIGHER-LEVEL AGENCY (NOT ALREADY REPORTED IN A SITREP).

RECOMMENDED IMMEDIATE PM: INCLUDE ANY RECOMMENDED MEASURES THAT THE TEAM FEELS, AFTER INITIAL ANALYSIS, MAY PREVENT SIMILAR INCIDENTS / ACCIDENTS IN FUTURE (NOT REPORTED IN A PREVIOUS SITREP).

ADMINISTRATION: PLACE TO INCLUDE INVESTIGATION COST DURING THE DAY AND EXPECTED COST FOR COMING DAY.

IIC HOTEL INFO: ONLY REQUIRED IN FIRST SITREP UNLESS IT CHANGES. INCLUDE HOTEL PHONE NUMBER.

CONTACT NUMBERS: ONLY REQUIRED IN FIRST SITREP UNLESS CHANGES OR ADDITIONS ARE MADE. INCLUDE ALL TEAM MEMBERS CELLULAR, SUPPORT CELL OR OPERATIONS DESK CONTACT NUMBERS, SatCOM AND / OR PAGER NUMBERS.

IIC NAME:

**Le présent rapport contient de l'information relative à une enquête en cours de la SV. L'information ne doit pas être rendue publique, en tout ou en partie, sauf avec l'autorisation du directeur de la SV, quartier général de la Défense nationale.**

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## **ANNEX D – REFERENCE DOCUMENTATION**

- *Aeronautics Act* \*
- *Canadian Transportation Accident Investigation and Safety Board Act* \*
- ICAO Doc 9839 AN/474, Safety Management System Manual Third Edition 2013 \*
- ICAO Aircraft Accident Investigation Convention on International Civil Aviation, Annex 13 \*
- A-GA-135-001/AA-001, Flight Safety for the Canadian Armed Forces
- A-GA-135-002/AG-001, Occurrence Investigation Techniques \*
- A-GA-135-003/AG-001, Airworthiness Investigation Manual \*
- B-GA-015-001/FP-001, Human Factors Guide for the Conduct of Aircraft Accident Investigation \*
- B-GA-015-002/FP-001, Aircraft Accident Board of Inquiry Handbook–Technical Member \*
- B-GA-015-003/FP-001, Notes for the Conduct of Investigations into Aircraft Accidents \*
- B-GA-015-004/FP-001, Aircraft Accident Board of Inquiry Handbook–Aircrew Member \*
- CFACM 2-350, Emergency Response Planning
- CFTO C-02-015-001/AG-000, Unsatisfactory Condition Report–CF 777
- CFTO C-05-010-002/AG-000, Aircraft Salvage Procedures
- CFAO 24-6, Investigation of Injuries or Death–Coroner’s Inquest
- CFAO 59-3, Claims By or Against the Crown
- CFAO 210-1, Civilian Witnesses–Fees and Expenses
- QR&O 21.47, Finding of Injury or Death
- QR&O 21.56-57, Aircraft Accidents
- QR&O 24.20, Post-mortem Examination
- CFMO 42-03-04, Medical Investigation and Reporting of Aircraft Accidents/Aeromedical Incidents
- STANAG 3101, Exchange of Accident/Incident Information Concerning Aircraft and Missiles
- STANAG 3318, Medical Aspects of Aircraft Accident/Incident Investigation
- STANAG 3531, Investigation of Aircraft/Missile Accidents/Incidents
- ASCC Air Standard 85/2A
- B-MD-007-000/AF-003, CF Flight Surgeons’ Guidelines for FS Investigation
- DAOD 3002-4, Ammunition or Explosives Accident, Incident, Defect or Malfunction Reporting
- Working Arrangement between the Transportation Safety Board of Canada Air Investigations Branch and the Department of National Defence Directorate of Flight Safety

NOTE

Documents annotated with an asterix are core references for the Flight Safety Course and contain essential information for FSOs.



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## **ANNEX E – INITIAL REPORT CONTENT**

The following information should be reported in the event of a FS occurrence and will form the content of the Initial Report (including CF 215) and be entered into FSOMS within 12 hours of the occurrence.

### **GENERAL**

- DATE/TIME OF OCCURRENCE
- TYPE OF OCCURRENCE
  - ACCIDENT / INCIDENT
  - AIR / GROUND
  - BIRD STRIKE
  - AIR WEAPONS SYSTEM

### **SAFETY OF FLIGHT COMPROMISE LEVEL**

- LEVEL TO WHICH SAFETY MARGINS WERE COMPROMISED
  - EXTREME
  - HIGH
  - MEDIUM
  - LOW

### **PERSONNEL CASUALTY LEVEL**

- MOST SERIOUS INJURY ASSESSED IAW B-MD-007-000/AF-003
  - NIL
  - MINOR INJURY OR ILLNESS (GREEN)
  - SERIOUS INJURY OR ILLNESS (YELLOW)
  - VERY SERIOUS INJURY OR ILLNESS (RED)
  - FATALITY (BLACK)
  - MISSING (GREY)
- FOR EACH INJURY
  - MOS ID
  - ROLE (AIRCREW, MAINTENANCE, OTHER)
  - POSITION ON AIRCRAFT IF ON BOARD
  - INJURY SEVERITY

**NOTA**

The FS report shall only provide PCL information. No other medical information or details shall be circulated on the FS net or entered in FSOMS.

## **AIRCRAFT**

- AIRCRAFT DAMAGE LEVEL (ADL)
  - MISSING OR DESTROYED
  - VERY SERIOUS DAMAGE
  - SERIOUS DAMAGE
  - MINOR DAMAGE
  - POTENTIAL FOR INCIDENT OR ACCIDENT
- AIRCRAFT TYPE AND REGISTRATION
  - UNIT OF OPERATION
  - UNIT OF OWNERSHIP
- STAGE OF OPERATIONS (E.G. PARKED, IN-FLIGHT WITH DESCRIPTION, MAINTENANCE)
- MISSION TYPE (SHORT DESCRIPTION)
- FLIGHT ATTRIBUTES (IF APPLICABLE)
- BARRIER ENGAGEMENT (IAS, WIND, WEATHER, AND TEMP)

## **LOCATION**

- LOCATION OF OCCURRENCE (DESCRIBE)
- NAVAID LOCATION (APPLICABLE FOR BIRD STRIKES)

## **DESCRIPTION**

- DETAILED DESCRIPTION OF OCCURRENCE
  - STATEMENT OF FACT (WHO, WHAT, WHERE AND WHEN)
  - DE-IDENTIFIED INFORMATION

## **CONDITIONS**

- WEATHER
- CLOUD
- VISIBILITY
- LIGHT CONDITION
- WIND SPEED / DIRECTION

## **BIRD STRIKE**

THE FOLLOWING INFORMATION SHOULD BE REPORTED IN THE EVENT OF A BIRD STRIKE AND WILL SUPPLEMENT THE CONTENT OF THE INITIAL REPORT AND BE ENTERED INTO FSOMS WITHIN 12 HOURS OF THE OCCURRENCE.

- CATEGORY
  - IMPACT / NEAR MISS / SIGHTING
- REMAINS SUBMITTED
  - YES / NO
- WITHIN 5 NM OF AIRPORT
  - YES / NO
- FLIGHT DISRUPTION
  - CONTINUED FLIGHT
  - RETURNED TO AIRPORT

- LANDED NEAREST AIRPORT
- ABORTED TAKE-OFF
- NOTAM WARNING
  - WAS ALERTED
  - DIDN'T CHECK
  - NONE ISSUED
  - NOT AVAILABLE
- LIGHTS ON
  - EXTERNAL
  - WING
  - NAVIGATION
  - STROBE
  - RED ROTATING BEACON
  - WHITE ROTATION BEACON
  - LANDING
- PART STRUCK
  - CANOPY
  - RADOME
  - ENGINE #1 / #2 / #3 / #4
  - NOSE
  - TAIL UNIT
  - WING
  - FUSELAGE
  - FLAP
  - ROTORS
  - LANDING GEAR
  - STORES / TANKS
  - OTHER
- TYPE OF DAMAGE
  - AIRCRAFT SKIN RUPTURED
  - AIR INLETS / SCOOPS BLOCKED
  - IMPAIRED FUNCTION OF FLIGHT CONTROLS, FLAPS, SPOILERS, SLATS
  - METAL DEPOSITED IN OIL FILTERS OR OTHER INTERNAL ENGINE DAMAGE
  - WINDSHIELD OR OTHER GLAZING DAMAGED
  - FANS / COMPRESSOR BLADES, INLET GUIDE VANES
- BIRD DESCRIPTION
  - SPECIES / QUANTITY
- BIRD SIZE
  - SMALL (STARLING) / MEDIUM (GULL) / LARGE (DUCK)

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## **ANNEX F – SUPPLEMENTARY REPORT REQUIREMENTS**

1. The following information should be reported as part of the Supplementary Report (SR) and will form the content of the information entered into FSOMS. Not all the information categories below are required on all occurrence investigations. FSOs should provide information in the categories below only if that information is considered as contributing to the occurrence.

### **AIRCRAFT**

- FLIGHT ATTRIBUTES
- ALTITUDE
- AIR SPEED
- DIVE ANGLE
- G STATUS
- HEADING

### **MAINTENANCE INFORMATION**

- AIRCRAFT MAINTENANCE
- TIME SINCE NEW
  - TIME SINCE OVERHAUL
  - TIME SINCE INSPECTION
  - INSPECTION TYPE
  - CF349 #
  - CF543 #

### **AIRCRAFT COMPONENT INFORMATION**

- AIRCRAFT COMPONENT OR MUNITIONS FOR EACH COMPONENT
- NOMENCLATURE
  - WUC
  - SERIAL #
  - TIME SINCE NEW (TSN)
  - TIME SINCE OVERHAUL (TSO)
  - TIME SINCE INSTALLATION/INSPECTION
  - PART NUMBER
- CFTO REFERENCE
- MUNITION LOT AND BATCH #
- DISPOSITION

## **ARRESTING SYSTEM**

- ARRESTING SYSTEM – IF ARRESTING SYSTEM WAS ENGAGED OR ATTEMPTED? THE REPORT SHALL INCLUDE:
  - AIRCRAFT SPEED AND WEIGHT AT ARRESTING SYSTEM
  - POSITION AND ANGLE OF ENGAGEMENT FROM RUNWAY CENTRELINE
  - USE OF BRAKES AT ENGAGEMENT
  - CHUTE USED (VISITING AIRCRAFT)
  - DISTANCE
  - SUCCESSFUL OR UNSUCCESSFUL – EXPLAIN
  - REASON FOR ENGAGEMENT
  - DAMAGE TO ARRESTING SYSTEM – BRIEF DESCRIPTION
  - ELAPSED TIME UNTIL ARRESTING SYSTEM AVAILABLE FOR REUSE
  - AIRCRAFT DAMAGE CAUSED BY ENGAGEMENT – BRIEF DESCRIPTION

## **FLIGHT CONDITIONS**

- WEATHER CONDITIONS
  - FLIGHT CONDITIONS (I.E. IFR/VFR)
  - CEILING (FT)
  - TEMPERATURE (CELSIUS)
  - VISIBILITY (NAUTICAL MILES)
  - LIGHT CONDITIONS (I.E. TWILIGHT – DUSK/DAWN)
  - WIND SPEED
  - WIND DIRECTION
- ALIGHTING CONDITIONS:
  - TYPE OF ALIGHTING AREA (UNPREPARED)
  - ALIGHTING SURFACE CONDITIONS (ICE-COVERED)

## **PERSONNEL**

- FOR ALL PERSONNEL IDENTIFIED
  - TIME ON DUTY: LAST 48 HOURS
  - TIME ON DUTY: LAST 24 HOURS
- FOR AIRCREW ONLY – FLYING HOURS
  - GRAND TOTAL
  - TOTAL ON TYPE
  - PAST 30 DAYS (ALL TYPES)
  - LAST 48 HOURS (ALL TYPES)
  - AIRCREW ROLE (AIRCRAFT COMD, CO-PILOT)
- INVESTIGATION NARRATIVE
- DETAILED EXPLANATION OF HOW AND WHY
- CAUSE FACTORS/HFACS
- PM

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## **ANNEX G – PREPARATION OF INVESTIGATION REPORT**

1. The intention of this annex is provide FSOs with guidance on the drafting of an investigation report, and in particular, the investigation narrative.

### **DETAILS OF NARRATIVE**

2. The investigation narrative portion of an SR entry is an important section of the overall report. The narrative section should describe, in sufficient detail appropriate to the occurrence circumstances, what happened (factual data based on the evidence collected) and why it happened. The information contained in the narrative should clearly support the assigned cause factors and PMs and allow the reader to understand how and why conclusions were reached. The length and amount of detail included in the SR investigation narrative will depend on the occurrence circumstances and generally be related to the complexity of the occurrence itself and the value output of the report.

### **EVIDENCE GATHERING**

3. The “Whys” cannot be addressed until the “Whats” are known. Before you begin, determine if the evidence is complete enough and good enough to do a thorough and logical analysis of the occurrence. If not, continue to gather additional evidence related to the occurrence. If, for whatever reason, no further evidence is available, explain in the narrative why the relevant factual data was not available in the narrative.

### **FACTUAL DATA PARAGRAPH(S)**

4. The initial paragraph, or several paragraphs, as required, should describe the factual data relevant to the occurrence. One possible approach to organizing the factual data portion of the narrative is to in turn describe the operation, the persons (Human Factors data), the machine, and the environment. The factual narrative should describe what happened, when it happened and where it happened in a logical order. Deviations from accepted norms should be clearly identified in the narrative. Do not include non pertinent information if the information provided has no influence on the cause of the occurrence (eg, detailed weather information if weather was not a factor). Performance data calculations, technical investigation results from other studies (eg QETE) are all considered to be factual data. Of note, no analysis or opinions should be part of this section.

### **ANALYSIS PARAGRAPH(S)**

5. Analysis is the bridge between the factual information and the cause factors. The

analysis paragraph(s) should explain how and why it happened. In other words: what story is told by the evidence that you presented in the factual portion of the narrative? Do not introduce new information in the analysis paragraphs. The analysis should be based on critical thinking processes and application of the rules of logic. The most commonly used logical approach is inductive reasoning, which means making inferences based on the evidence (facts) and using specific information to come to a general conclusion. There is no set order to the analysis text but the investigator should arrange the analysis section to provide a clear explanation of why the occurrence happened.

## **BIASES**

6. There are some common biases to be aware of and avoid while doing your analysis of the evidence:
  - a. Availability Bias: the investigator depends primarily upon information that is readily available to them and does not actively seek out other evidence.
  - b. Confirmation Bias: the investigator has a natural tendency to confirm rather than to deny a current hypothesis or use only the evidence that supports the opinion of the investigator.
  - c. Hind Sight Bias: the investigator sees events that have already occurred as being more predictable than they were before they took place. One method to mitigate this bias for human factors related investigations is to ask these three questions for those involved in the occurrence:
    - (1) What did they understand the situation to be?
    - (2) What was their plan or intent? and
    - (3) How were they going to accomplish their plan?

## **NARRATIVE REVIEW**

7. When the narrative is complete, the investigator shall do a thorough review to critically check if the conclusions (cause factors) are supported by the evidence. If the factual data is complete and the analysis thorough and logical, accurate cause factors can more easily be identified

## **CAUSE FACTORS SECTION**

8. No analysis and no new information shall be introduced in this section of the report. The cause factor(s) should be self evident from the factual information and the analysis that was written previously. While there has to be a correlation between the unsafe act(s) and what caused the unsafe act(s), there is no requirement to assign a cause factor for each unsafe act. Notwithstanding, the combination of the cause factor(s) assigned should cover the unsafe act(s) carried out.



## **PMs SECTION**

9. As with the Cause Factors section of the report, no new information shall be introduced in the in the PMs section of the report. The reason for recommending the PMs should be self evident based on the investigation narrative. While there has to be a correlation between the cause factor(s) and the PMs assigned there is no requirement to assign a PM for each cause factor assigned. Notwithstanding, the combination of the PMs assigned should minimize the risk of a repeat of the contributing cause factors.