PANS Aerodromes Chapter 3: Safety Assessments
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Objective:
- Help users undertake the safety assessment required in Chapters 2 and 4 of the PANS-Aerodromes.

How:
- It outlines the methodologies and procedures, including a list of topics to be followed when undertaking a safety assessment in the specific domain of aerodromes.

Note: It also includes references to and complements Annex 19 and Doc 9859, Safety Management Manual (SMM) which, respectively, provide the high-level safety management responsibilities and processes, and generic safety management guidance.
Safety Assessments for Aerodromes

3.1.1 A certified aerodrome operator implements an SMS acceptable to the State that, as a minimum:

- a) identifies safety hazards;
- b) ensures that remedial action necessary to maintain safety is implemented;
- c) provides for continuous monitoring and regular assessment of the achieved safety; and
- d) aims to make continuous improvement to the overall safety of the aerodrome.
Chapter 3 of Doc 9981 describes how a safety assessment can be undertaken as part of the aerodrome’s SMS.

By applying the methodology and procedures described in this chapter, the aerodrome operator can demonstrate compliance with the minimum requirements described in the previous slide.

Annex 19 - Safety Management contains the framework for the implementation and maintenance of an SMS by a certified aerodrome.

Appendix 1 to Chapter 2 of Doc. 9981 lists minimum items to be in place when granting the initial certification.
Chapter 3:

- Section 3.4: how the State will validate the conclusion of the safety assessment, when appropriate, to ensure safety is not compromised.
- Section 3.5: procedures on the approval or acceptance of a safety assessment.
- Section 3.6: specifies how to promulgate appropriate information for use by the various aerodrome stakeholders and particularly by the pilots and aircraft operators.
Basic Considerations

General considerations on safety assessments

• For SARPS deviations
• Changes (procedures, equipment, infrastructure, operations, regulations, organization, etc.)
• Consider stakeholders
Items that may need to be considered when conducting an safety assessment:

- aerodrome layout;
- types of aircraft intended to operate at the aerodrome;
- traffic density and distribution;
- aerodrome ground services;
- air ground communications;
- type and capabilities of surveillance systems;
- flight instrument procedures and related aerodrome equipment;
- complex operational procedures - CDM;
- aerodrome technical installation - A-SMGCS;
- obstacles or hazardous activities at or in the vicinity of the aerodrome;
- planned construction or maintenance;
- any local or regional MET conditions;
- airspace complexity.
3.4 Safety assessment process

a. definition of a safety concern and identification of the regulatory compliance;

b. hazard identification and analysis;

c. risk assessment and development of mitigation measures; and

d. development of an implementation plan for the mitigation measures and conclusion of the assessment.
1. Definition of a safety concern and identification of the regulatory compliance

1. Describe in detail: Include timescales, Projected phases, Location, Stakeholders involved/affected & influence, Procedures & operations

2. Evaluate the safety concern: to determine if retain or reject.
   If reject (no safety concern), just Document. Compliance with regulations applicable

3. Identify: areas of concern with all relevant stakeholder before proceeding

Note. — It may be useful to review the historical background of some regulatory provisions to gain a better understanding of the safety objective of those provisions. Elements from similar cases in the same context may be used, but with care.
2. Hazard Identification

1. **Identify**: brainstorming, expert opinion, industry knowledge, experience and operational judgement.

2. **Consider**: Causal factors and critical events, Events with similar circumstances, Potential outcomes/new hazards after change.

3. **Define**: safety objective
   - Reference to standards
   - Reference to existing safety performance
   - Reference acceptance to similar system elsewhere
   - Apply explicit safety risk level
3. Risk assessment and development of mitigation measures

- Estimate the level of risk of each identified potential consequence by conducting a risk assessment and determine the severity of a consequence and probability of the consequence occurring.

- The method for risk evaluation is dependent on the nature of the hazards. The risk itself is evaluated by combining the two values for severity of its consequences and probability of occurrence.

Note.— A risk categorization tool in the form of a safety risk (index) assessment matrix is available in Doc 9859.
5. Development of an implementation plan and conclusion of the assessment

- The implementation plan includes time frames, responsibilities for mitigation measures as well as control measures that may be defined and implemented to monitor the effectiveness of the mitigation measures.
APPROVAL OR ACCEPTANCE OF SAFETY ASSESSMENT
Not everything…

The State establishes the type of safety assessments that are subject to approval or acceptance and determines the process used for that approval/acceptance.
What to analyze/verify?

a. Coordination with stakeholders
b. Risks properly identified and assessed based on documented arguments (physical or HF studies, previous accident analysis, etc.)
c. Acceptable implementation time frames
On completion of the analysis of the safety assessment, the State:

a. either gives formal approval or acceptance of the safety assessment to the aerodrome operator; or

b. if some risks have been underestimated or have not been identified, coordinates with the aerodrome operator to reach an agreement on safety acceptance; or

c. if no agreement can be reached, rejects the proposal for possible resubmission by the aerodrome operator; or

d. may choose to impose conditional measures to ensure safety.
The State should ensure that the mitigation or conditional measures are properly implemented and that they fulfil their purpose.
Promulgation of Safety Information

• The aerodrome operator determines the most appropriate method for communicating safety information to the stakeholders.

• Must ensure that all safety-relevant conclusions of the safety assessment are adequately communicated.

• In case the information affects current integrated aeronautical information package (IAIP), promulgate on IAIP or ATIS.
Attachment B to Chapter 3

Attachment B to Chapter 3 offers safety assessment methodology tailored to aerodromes.