# WORKING TOGETHER TO ENHANCE AIRPORT OPERATIONAL SAFETY

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# Aerodrome Manual

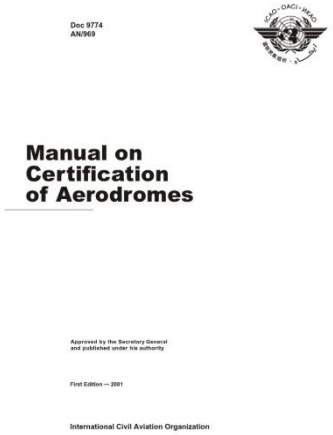
# Scope of the Aerodrome Manual

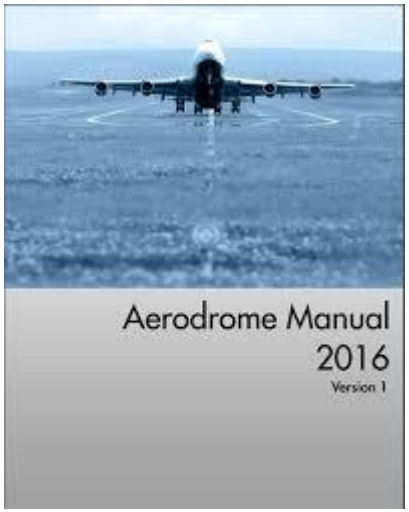
The **aim and objectives of the aerodrome manual and how it is to be used by operating staff and other stakeholders** should be stated in the manual.

The aerodrome manual contains all the **relevant information to describe the management and operational structure**.

It is the means by which all **aerodrome operating staff are fully informed as to their duties and responsibilities with regard to safety**, including information and instructions related to those matters specified in the applicable regulation.

It describes the **aerodrome services and facilities, all operating procedures, and any restrictions in place.**



# Subjects covered in the Aerodrome Manual

**The contents of an aerodrome manual include**:

a)List of **updates**;

b) Aerodrome **administrative da**ta;

c) Description of the aerodrome, including **dimensions and related information**;

d) List of **authorized deviations**;

e) **Duties, means and procedures** of the applicant to ensure safety in each area include:

**1) aerodrome data and reporting**;

2) **access to the movement area**;

# Subjects covered in the Aerodrome Manual

3) aerodrome **emergency plan**;

4) **RFF**;

5) **inspection of the movement area**;

6) **maintenance of the movement area**;

7) **snow and ice control**, and **other hazardous meteorological conditions**;

8) **visual aids and aerodrome electrical systems**;

9) **apron management**;


# Subjects covered in the Aerodrome Manual

10)**vehicle control** on the movement area;

11) **wildlife hazard** management;

12) **obstacles**;

13) **removal of disabled aeroplanes**;

14)**low visibility operations**;

15) **dangerous goods**;

16) **protection of sites for radar, navigational aids and meteorological equipment**;

f) **SMS**.

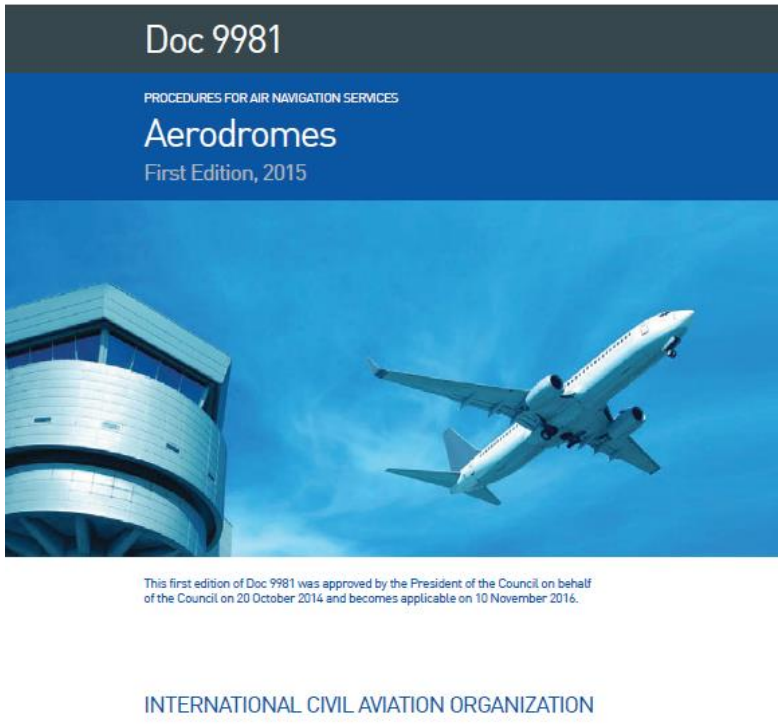
# Aerodrome Safety Coordination

# Aerodrome safety coordination

The State verifies that **coordination exists between the aerodrome operator, aeroplane operators, air navigation service providers and all other relevant stakeholders** to ensure the safety of operations.

**The aerodrome operator should ensure that all users of the aerodrome**, including ground-handling agencies and other organizations that perform activities independently at the aerodrome in relation to flight or aircraft handling, **comply with the safety requirements of the aerodrome operator**.

**The aerodrome operator monitors such compliance.**



# States feedback on occurrences

Aerodrome operators are required to **report safety occurrences at their aerodromes to their State** in accordance with the applicable regulation.

**Aerodrome operators shall report accidents and serious incidents, including**:

a) runway excursions;
b) undershoots;
c) runway incursions;
d) landing or take-off on a taxiway; and
e) wildlife strike-related events.

**In addition to accidents and serious incidents, aerodrome operators should report safety occurrences of the following types**:

a) foreign object debris/damage- (FOD) related event;
b) other excursions (i.e. from a taxiway or apron);
c) other incursions (i.e. on taxiway or apron); and
d) ground collisions.

# Analysis of safety occurrences

Aerodrome operators should ensure that **analysis of safety occurrences at the aerodrome is performed by competent personnel** who have been trained to perform these tasks.

Aerodrome operators should coordinate with all users of the aerodrome, including aircraft operators, ground-handling agencies, air navigation service providers and other stakeholders to improve **the completeness and accuracy of the collection of safety occurrences and their related critical data**.

# Analysis of safety occurrences

The **State should review and analyse the information provided by the operator in the occurrences reports** to ensure that:

a) all occurrences are adequately analysed by the aerodrome operator; **significant trends are identified** (either on a specific aerodrome or at a national level). Further **in-depth analysis on the subject should be carried out if required so that the appropriate actions can be taken**; and

c) **the most serious/significant occurrences should be carefully followed up by the State**.

# Management of change

As part of their SMS, aerodrome operators should have in place **procedures to identify changes and to examine the impact of those changes on aerodrome operations**.

**A safety assessment will be carried out to identify hazards and propose mitigation actions** for all changes that are found to have an impact on the aerodrome operations.

Need for a safety assessment according to the category of changes

***Routine tasks***

**Changes related to routine tasks do not have to be assessed using the safety assessment methodology,** these tasks are established and managed through specific procedures, training, feedback and reviews.

# Management of change

The actions resulting from the regular assessment, feedback and review process related to these tasks **should ensure that any changes related to them are managed, thus ensuring the safety of the specific task**.

However, **a change related to a routine task for which feedback is not yet sufficient cannot be considered as sufficiently mature**.

Therefore, **a safety assessment should be carried out**.

# Management of change

*Specific changes*

Impact on the safety of aerodrome operations may result from:

a) **changes in the characteristics of infrastructures or the equipment**;

b) changes in the **characteristics of the facilities and systems located in the movement area**;

c) changes in **runway operations (e.g. type of approach, runway infrastructure, holding positions**);

# Management of change

*Specific changes*

Impact on the safety of aerodrome operations may result from:

d) changes to the **aerodrome networks** (e.g. electrical and telecommunication);

e) changes that **affect conditions as specified in the aerodrome's certificate**;

f) long-term changes related to **contracted third parties**;

g) changes to the **organizational structure of the aerodrome**; and

h) changes to the **operating procedures of the aerodrome**.

**For any change in aerodrome operations as defined above, a safety assessment should be conducted**.

# Obstacles control

**Obstacle control raises an issue for each State in regard to the responsibilities of each potential party involved**.

The responsibilities of those parties have to be clearly defined as follows:

a) **who is responsible for obstacle surveys**;

b) **who is responsible for the surveillance of the emergence of new obstacles**; and

c) when obstacles are identified, **who is responsible for taking action (i.e. removal, marking, lighting, displacement, instrument procedures) and enforcing that action**.

# Obstacles control

Once the responsibilities have been defined, **appropriate authority should be given to the entity responsible for the enforcement action required**.

**Oversight of third parties**

Compliance of third parties with the safety provisions established by the aerodrome operator, **should be monitored using the appropriate means**.

# Continued aerodrome safety oversight

# Continued aerodrome safety oversight

Continued oversight actions may not need to be as exhaustive but **should be based on principles ensuring that compliance is maintained throughout the planning of adequate oversight actions**.

Specific and targeted actions, in addition to the planned activities, may be carried out by the State, for example, in relation to **changes, analysis of occurrences, safety of aerodrome works, monitoring of corrective action plans, or those related to the State safety plan**.

States may also have to address other issues **regarding aerodrome safety depending on the aerodrome organization, such as obstacle control or oversight of ground handlers**.

# Continued aerodrome safety oversight

The State should **plan continued oversight actions in such a way as to ensure that each subject covered by the scope of certification is subject to oversight**.

The development and operation of an aerodrome's SMS should ensure that **the aerodrome operator takes appropriate actions regarding the safety on the aerodrome**.

**If the SMS of the aerodrome operator is not fully implemented, specific oversight actions should target the SMS to ensure it is developing adequately and at a normal pace**. In this case, the SMS should be audited as appropriate until it is considered to be sufficiently mature.

# Audit of selected items

**After initial certification has taken place**, continued oversight actions of a subject may not require complete audit of all subject items and may instead be on the basis of sample assessment of selected items based on risk profile.

The audit of the selected items should consist of:

a) a **desk-based review** of the appropriate documents, and

b) an **on-site verification**.

The same checklists as those used for initial certification of the subject items should be used, but if a sampling item selection is made, only the selected checklist items should be audited.

# Influence of aerodrome safety performance and risk exposure

The number of audits of the SMS during the period should be determined taking into account the following criteria:

a) **the regulator's confidence in the operator's SMS**. This confidence is evaluated using the results of the SMS audits or other oversight actions.

For example, feedback on the operator's occurrence reporting and management system might indicate that the analyses of the safety occurrences are not carried out as adequately as desired, or that a significant number of incidents have arisen on the aerodrome; and

b) **other factors contributing to the level of risk at the aerodrome**, for example, the complexity of the aerodrome, the aerodrome's infrastructure or organization, the density of traffic, type of operations and other specific conditions.

# Influence of aerodrome safety performance and risk exposure

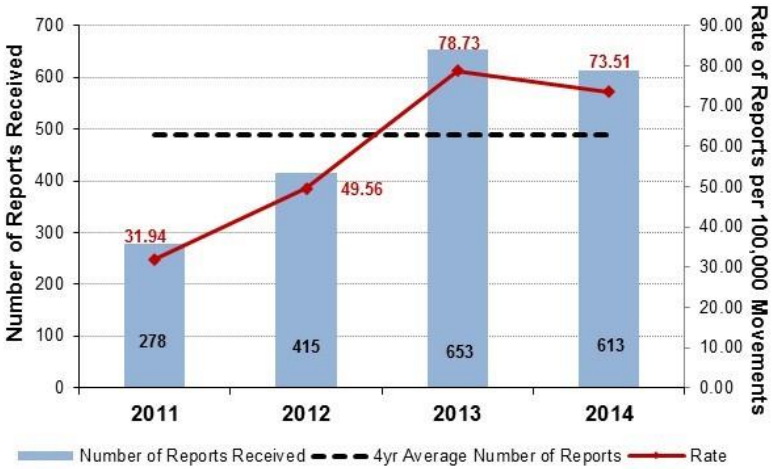
For aerodromes with a fully implemented SMS, in addition to the audit of the SMS, some sample subjects should be checked to ensure that the SMS has identified all safety-critical issues.

This also helps to ensure that the SMS is operating adequately.

<u>The selection of these subjects should be determined taking into account</u>:

a) an **analysis of the safety occurrences on the aerodrome**;

b) **known information related to safety at the aerodrome that may highlight subjects of concern**;



# Influence of aerodrome safety performance and risk exposure

c) **specific subjects most significant for safety**;

d) the complexity of the aerodrome;

e) **any significant development or change to aerodrome infrastructure**; and

f) the subjects previously selected in order to cover all within a certain number of oversight cycles.

# Plans and programmes

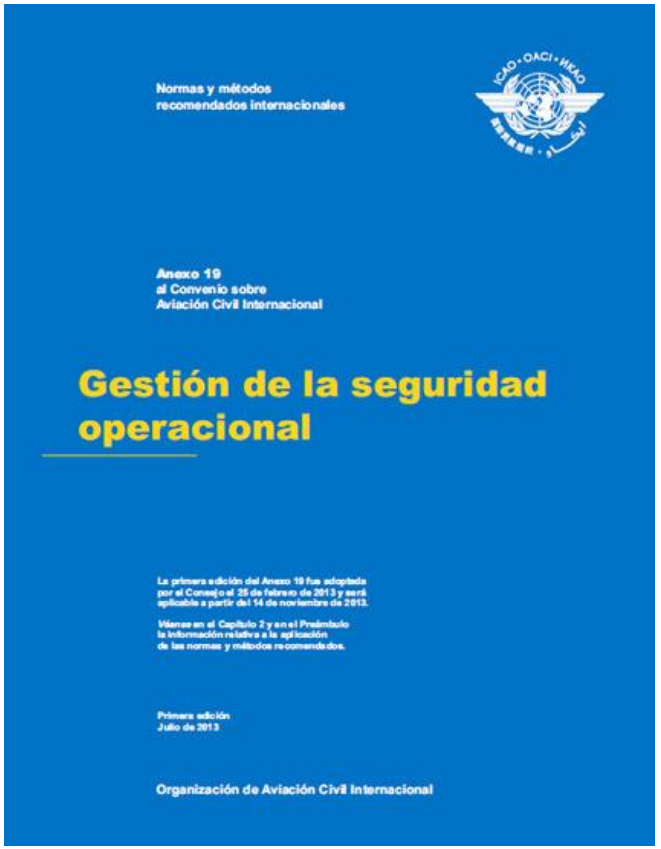
An oversight plan should be determined by the State, for each certified aerodrome and communicated to the aerodrome operator.

<u>This plan should ensure that</u>:

a) for aerodromes where an **SMS is not fully functional**:

**1) each subject within the scope of certification appears at least once and is subject to specified oversight actions**; and

2) the **SMS is audited as appropriate**;



# Plans and programmes

b) for the aerodromes with a **fully functional SMS**:

1) the **SMS is audited at least** once; and

2) **other oversight actions on selected subjects are conducted as appropriate**.

The plan and programme should be **updated annually to show the oversight actions that have actually been carried out**, including observations on certain actions that have not been undertaken as planned.

# Unannounced inspections

Planning of the aerodrome audit is intended to **assist the regulator and aerodrome in planning resources and manpower and in ensuring a consistent and adequate level of oversight**.

However, it does not prevent the State from carrying out **unannounced inspections**, if deemed necessary.

These inspections follow the same methodology as the scheduled audit or technical inspection as appropriate and **may be carried out using the same checklists or could be aimed at a specific subject of concern**.

# Monitoring of corrective actions plans

**Corrective actions plans resulting either from initial certification or from continued oversight audits or technical inspections should be monitored by the State** until all items are closed to ensure that mitigating actions are carried out to the standard and timescale agreed.

The State should **regularly review the status of each pending action**.

When a deadline has been reached, **the State should verify that the related corrective actions have been adequately implemente**d.

Where a corrective action plan does not result in appropriate action being taken within acceptable timelines, **increased oversight can be taken by the State.**

# Increased oversight

When an aerodrome's corrective action plan **does not ensure that appropriate corrective action has been taken within acceptable timelines**, and after coordination between the State and the operator, **the State may decide that increased oversight of this operator is necessary**.

**The scope of increased oversight may cover specific subjects or be all-encompassing**.

# Increased oversight

The State should notify the aerodrome operator in writing:

a) that it **is being placed under increased oversight and outline the subjects concerned and from which date**;

b) the **reasons for the increased oversight and what it consist**s of; and

c) **what actions are required by the aerodrome**.

# Increased oversight

When an aerodrome is placed under increased oversight, the State should:

a) carry out **appropriate oversight actions** on the subjects concerned;

b) **follow** very carefully **the implementation of the corrective actions** plan; and

c) **allocate** sufficient **time/resources to the oversight of the concerned aerodrome.**

The oversight actions carried out under increased oversight are the same as those carried out normally, but are **more exhaustive and address all the subjects concerned**.

**When increased oversight is concluded** on an aerodrome for a specific subject**, the State should advise the aerodrome operator in writing**, stating the end of the procedure and the reason.

**The aerodrome certificate can be amended, suspended or revoked according to the outcome of the increased oversight**.

# On-site verification of the operator's procedures and SMS

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

## On-site verification of the operator's procedures

On-site verification of the aerodrome operator's procedures should include the following:


**a) Aerodrome data and reporting**:

**1) completeness, correctness and integrity of the data reported in accordance with the AIP including**:

i) data collection, including the status of the movement area and its facilities;
ii) data validity checks;
iii) data transmission;
iv) changes to published data, whether permanent or not;
v) checks of the information once published;
vi) information update after construction works;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

2) formal **coordination with ATS**;

3) formal **coordination with the aeronautical information services**;

4) **publication** of the required information **in the aeronautical publication**;

5**) information** published in **accordance** with the **situation on site**;

**b) Access to the movement area:**

1) an **up-to-date plan clearly showing all the access points to the movement area**;
2) a **procedure describing the inspection of access points and fences**;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

**c) Aerodrome emergency plan**:

1) an **up-to-date** aerodrome emergency plan;

2) **regular exercises** in relation to the emergency plan;

3) a **procedure describing the tasks** in the emergency plan;

4)the aerodrome operator regularly verifies the information in the emergency plan, including keeping an **up-to-date list of the persons and contact details** in the emergency plan;

5) a procedure describing its **roles and responsibilities** during emergencies;

6) a procedure describing the **involvement of, and coordination with, other agencies** during emergencies;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

7) the required **minimum emergency equipment is available**, including an adequately equipped emergency operation centre and mobile command post;

**d) RFF:**

1) a **technical inspection** of the various elements of the RFF services is held prior to the audit;

2) the checks that are to be done during the aerodrome operator's on-site verification consist only of **verifying the timely implementation of the corrective action plan subsequent to the technical inspection**;


# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

3) if on-site verification **reveals new deviations**, they should be included in the on-site verification report;

**e) Inspection of the movement area:**

1) a procedure to ensure there is **coordination with ATS for the inspection of the movement area**;

2) **describe the inspections**, if performed by the aerodrome operator, including:

i) frequency and scope;

ii) reporting, transmission and filing;

iii) actions to be taken and their monitoring;

3) **assess, measure and report runway surface characteristics when the runway is wet or contaminated and their subsequent promulgation to ATS**;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

**f) Maintenance of the movement area:**

1) **a procedure to periodically measure the runway surface friction characteristics**, assessing their adequacy and any action required;

2) **ensure there is a long-term maintenance plan**, including the management of the runway surface friction characteristics, pavement, visual aids, fencing, drainage systems and electrical systems and buildings;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

**g) Snow and ice control, and other hazardous meteorological conditions:**

1) at aerodromes subjected to snow and icing conditions:

i) the **aerodrome operator has a snow and ice control plan**, including the means and procedures used as well as the responsibilities and criteria for closing and reopening the runway;

ii) there should be **formal coordination for snow and ice removal between the aerodrome operator and ATS**;

2) for **other hazardous meteorological situations** that may occur at the aerodrome (such as thunderstorms, strong surface winds and gusts, sandstorms), **the aerodrome operator should have procedures describing the actions** that have to be taken and defining the responsibilities and criteria for suspension of operations on the runway;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

3) the aerodrome operator has **formal coordination with the meteorological service provider** in order to be advised of any significant meteorological conditions;

**h) Visual aids and aerodrome electrical systems:**

1) if the aerodrome operator is responsible for the maintenance of visual aids and electrical systems, procedures exist describing:

i) the tasks — **routine and emergency ones**, including **inspections of luminous and non-luminous aids and their frequency and power supply maintenance**;
ii) reporting, transmission and filing of reports;
iii) monitoring of subsequent actions;
iv) coordination with ATS;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

2) **if the aerodrome operator is not in charge of maintenance of visual aids and electrical systems,** the organization in charge needs to be clearly identified, ensuring there are **formal coordination procedures with the aerodrome operator**, including agreed objectives;

3) obstacle marking is taken into account;

**i) Operational safety during aerodrome work:**

1) when executing work on the aerodrome:

i) a **procedure describing the necessary notification to the different stakeholders**;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

ii) **risk assessment** of the aerodrome work;

iii) **roles and responsibilities of the various parties**, including their relationship and the enforcement of safety measures;

iv) **safety monitoring** during the work;

v) **reopening of facilities**, where relevant;

vi) necessary **coordination with ATS**;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

## j) Apron management

<u>When an apron management service is provided</u>:

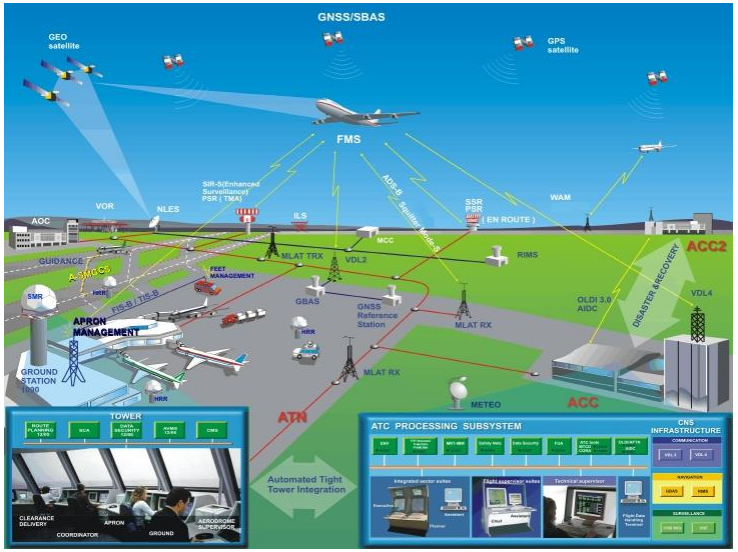
1) a <u>procedure to ensure coordination with ATS</u>;

2) the use of **acceptable aeroplanes for each parking stand** formally identified;

3) a compliant **apron safety line** is provided;

4) general **safety instructions for all the agents on the apron area**;

5) the **placement and pushback** of the aeroplane;



# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

**k) Apron safety management:**

1) a **procedure for the inspection of the apron area;**

2) there is **coordination with other parties accessing the apron**, such as fuelling companies, de-icing companies and other ground handling agencies;

**l) Vehicles on the movement area:**

1) a procedure to ensure the vehicles on the movement area are **adequately equipped**;

2) the **drivers have followed the appropriate training**;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

3) if the aerodrome operator is responsible for the **training of vehicular drivers on the manoeuvring area, an appropriate training plan, including recurrent training and awareness actions**, is available;

4) if the aerodrome operator is not in charge of this training or some of this training, **the service provider is clearly identified and there is formal coordination between them;**

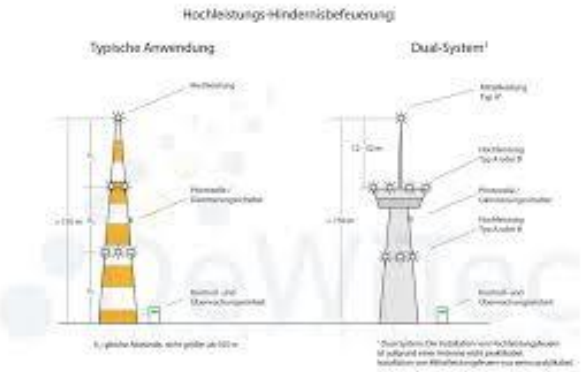
# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

**m) Wildlife hazard management:**

Checks on wildlife hazard management can either be a technical inspection or included in the on-site verification of the operator's procedures.

**n) Obstacles:**

1) a procedure to ensure that there is an **obstacle chart**;




2) a procedure for **obstacle monitoring** describing the checks, their frequency, filing and follow-up actions;

3) a procedure to **ensure that the obstacles do not represent a danger for safety** and that appropriate action is taken when required;

# ON-SITE VERIFICATION OF THE OPERATOR'S PROCEDURES

**o) Removal of a disabled aeroplane:**

1) there is a **plan for the removal of a disabled aeroplane** describing the role and responsibility of the aerodrome operator, including the necessary coordination with other agencies and the means available or that can be made available;

**p) Low visibility operations:**

1) there is **coordination between the aerodrome operator and ATS**, including awareness of the status of both low visibility procedures (LVP) and the deterioration of visual aids;

2) a procedure describing **the actions to be taken when LVP is in process** (vehicle control, visual range measurement if necessary);

# On-site verification of the SMS

**a) As a minimum, the items to be in place when granting the initial certification are:**

**1) safety policy**: a safety policy has been endorsed by the accountable executive to reflect the organization's commitments regarding safety;

2) **operator's organizational structure**: the aerodrome operator has appointed an accountable executive and a safety manager;


**b) The safety manager should be independent from any operational task regarding aerodrome safety**.

The criteria for assessing the operator's SMS structure might be **tailored to the size of the operator**, notably **concerning the independence of the safety manager**;

# On-site verification of the SMS

**c) The capability and competence of the aerodrome operator should be assessed so as to ensure sufficient management commitment to and responsibility for safety at the aerodrome.**

This is usually achieved through the **competence of the accountable executive;**

1) **responsibilities and assignments**: the aerodrome operator has formally defined the responsibilities of each staff member regarding safety as well as the lines of responsibility;

2) **training**: the aerodrome operator formally monitors the staff's and subcontractors' training, ensuring that it is adequate, and takes action when necessary;

# On-site verification of the SMS

3) **accident and incident reporting**: the aerodrome operator has a procedure ensuring that:

**i)** **incidents are reported by staff and subcontractors**, including a description of the actions in place in order to be able to report them;

ii) **incidents are promptly analysed** and the actions to be subsequently taken are monitored;

iii) the **reports and analyses** of the incidents are **filed**;

iv) **incidents** are **reported to the State**;

v) **coordination is in place with other stakeholders**;

4) **existing hazards at the aerodrome**: a procedure in order to identify, analyse and assess hazards to the safe operation of aeroplanes and to put in place suitable mitigating measures;

# On-site verification of the SMS

5) **risk assessment and mitigation of changes**: a procedure ensuring that for any change at the aerodrome, its impact on safety is analysed, listing the subsequent hazards that could be generated.

This procedure describes **who conducts the analysis, when and how the hazards are monitored, what actions are subsequently taken, and the criteria leading to the analysis**.
These assessments are filed;

6) **safety indicators**: the aerodrome operator sets and monitors its own safety indicators that illustrate its safety criteria, in order to be able to analyse the potential deficiencies;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# THANK YOU!