



WORKING TOGETHER TO ENHANCE
AIRPORT OPERATIONAL SAFETY



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Airport Rescue and Firefighting Aerodrome Emergency Response



Aerodrome Emergency Plan (AEP)

- Airport emergency planning is the process of **preparing an airport to cope with an emergency** occurring at the airport or in its vicinity.
- The object of airport emergency planning is to **minimize the effects of an emergency**, particularly in respect of **saving lives and maintaining aircraft operations**.
- The airport emergency plan sets forth the **procedures for co-ordinating the response of different airport agencies** (or services) and those agencies in the surrounding community that could be of assistance in responding to the emergency.



Aerodrome Emergency Plan (AEP)

To be operationally sound, a comprehensive airport emergency plan must give consideration to:

- Preplanning **BEFORE** an emergency;
- Operations **DURING** the emergency; and
- Support and documentation **AFTER** the emergency.



Aerodrome Emergency Plan (AEP)

The plan should spell out **the co-ordinated response or participation of all existing agencies** which, in the opinion of the authority, **could be of assistance in responding to an emergency On the airport:**

- 1) Rescue and fire fighting services;
- 2) Medical services;
- 3) Police and/or security services;
- 4) Airport administration.



Aerodrome Emergency Plan (AEP)

Notification/Call-Out Protocols

The **alert is the first step** in the initiation of an AEP.

The purpose of the alert is to **notify all agencies which are considered first responders** to a potential, impending or actual emergency that has occurred at the aerodrome.

Emergency communications and warning protocols, systems, processes and procedures should be developed, periodically tested and used to alert people potentially impacted by an actual or impending emergency.

Various methods of transmission may be used to issue alerts, including (but not limited to) **crash phones, fire alarms, sirens, pagers, radios and road signage**.

It is important that the **method used** and the service responsible for the activation of the alert is **clearly identified in the AEP**.

Aerodrome Emergency Plan (AEP)

Emergency Contact Information

As indicated in article 12.5.2 of Part 7 of the ICAO Airport Services Manual, Doc 9137, a **complete and current list of telephone numbers** and other relevant contact details should be available to all agencies on and off the aerodrome which participate in aerodrome emergency response, and to personnel responsible for the AEP.



These phone **numbers and contact details should be verified regularly** to ensure they are correct. Updated lists should be distributed to all emergency plan participants on a continual basis.

Closure during Emergencies

- Depending on the aerodrome's capacity, interruption of regular operations or even closure for a period of time **may be necessary in the event of an emergency.**
- If the aerodrome operation is disturbed by an emergency or for any other reason, a **NOTAM should be issued in accordance with Aeronautical Information Service (AIS) procedures.**
- **SARPs for NOTAMs** and other elements of the Integrated Aeronautical Information Package which may be relevant are contained in **ICAO Annex 15, Aeronautical Information Services.**
- Where applicable, **MOUs with surrounding aerodrome facilities may be developed to ensure potential alternate aerodromes** are available when diversions are required.

Runway Closure

A runway closure may be necessary due to **weather, maintenance, construction or emergency situations** (for example), and any such closure is likely to have a significant impact on aircraft operations into, out of and within the aerodrome, **or close the aerodrome altogether in the case of a single runway aerodrome.**

Where required, a **NOTAM must be issued to notify pilots of the closure.**

The process for **coordinating such information with ATCS and aerodrome tenants in the event of an emergency must be included in the AEP.**

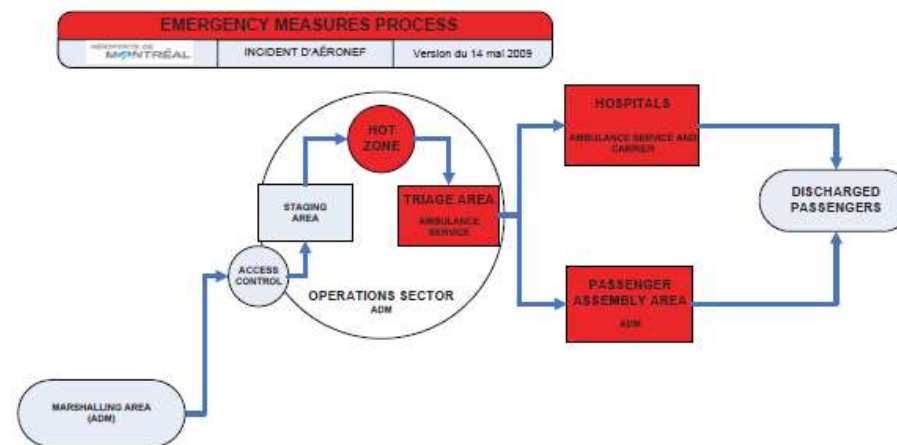


- **Taxiways and aprons can become unusable** or hazardous for aircraft operation for similar reasons as the runways.
- When such areas are closed, **this may have significant impact on aircraft operations on the aerodrome.**
- Where required a **NOTAM must be issued to notify pilots of the closure.**



Aerodromes must consider many types of emergencies, including occurrences which are considered extremely unlikely.

Whether an emergency is related to the aerodrome itself or an aircraft, it is crucial that the aerodrome operator develops an AEP that includes the functions and roles common to most emergency situations.



Crash on the Aerodrome

Response teams for each phase of the accident, including but not limited to:

- Aerodrome firefighters and support from **external firefighters**;
- **Mobile command post**/on-scene emergency commander;
- Aerodrome security/**police forces**;
- **First aid responders**/ambulance teams;
- **Investigative teams**;
- **Aircraft technical experts**; and
- **Air carrier representatives** with specific knowledge of the aircraft.



Provision of crash charts for each aircraft type using the aerodrome. These can either be acquired through ICAO or aircraft manufacturers. Examples are shown in ICAO Doc 9137 Part 1.

Crash Off the Aerodrome

Agreements for emergency management of or assistance for an accident off the aerodrome may be taken with the surrounding community and should enable the aerodrome operator to take the following actions:

- **Respond** to the accident site;
- **Activate** the aerodrome EOC and the mobile command post (if required);
- **Assist** by providing expert knowledge;
- **Support** as much as possible the agency in command of the off-aerodrome accident; and
- **Notify** the aircraft operator involved, concerned agencies (environmental, etc.), aerodrome services (RFF, ATCS, etc.) and military, Coast Guard and Harbour Patrol (if applicable).



Disabled Aircraft

The **safe and timely removal of a disabled aircraft** and rendering the movement area fully operational are **critical elements of an airport's emergency plan.**

Especially at a single-runway airport, **it is vital to minimize any closure period for safety,** continuity of operations and economic reasons.

The AEP should include a **plan or guide for the removal of disabled aircraft.**

All major users of the aerodrome **should be informed of the preparations and capabilities** contained within the disabled aircraft removal plan.



Hazardous Material

Hazardous materials are defined as any substance or material that, when involved in an accident and **released in sufficient quantities, poses a risk to health, safety and/or property.**

Many aerodromes are **located in or near a primary risk area such as highways, railroads, manufacturing/processing facilities, etc.**

Hazardous material related to facilities in the vicinity of the aerodrome **should also be considered in the ERP process.**

Aerodrome operators should also **assess the risk associated with hazardous materials** transiting or being used at the aerodrome.



Representatives of **aerodrome tenants, including air freight carriers and the aircraft operators**, should be contacted and involved in the ERP process.

It is **unlikely that aerodrome resources by themselves will be sufficient** to manage major incidents involving hazardous materials.

Thus, **planning with local emergency preparedness organizations** should be part of the ERP process.



AEP's reference, information should be included on, **but should not be limited to**, the following acts:

- Hijacking;
- Terrorism;
- Bomb threat;
- Arson;
- Biochemical attack;
- Damage/sabotage of aerodrome property; and
- Unlawful conduct by passengers, crew members and/or visitors.

Actions to be taken by the aerodrome operator should be **kept confidential and only disclosed to those agencies with a need to know.**





In fire situations, all required services **must be ready and on stand-by to be called into action.**

In the case of aircraft fires, the **quantity of fuel on board, the presence of dangerous goods on board and the number of occupants is essential information which must be provided.**

A description of and specific **identification of fire-fighting equipment and fire-fighting teams** should be included in the AEP.



Aircraft fires and structural fires will utilize **different types of fire trucks and employ different numbers of firefighters.**

It is vital that **resources that are normally available for fighting fires**, whether these are aircraft or structural fires, be available to the EOC.

However, **the level of response at any given time may vary depending on the availability of personnel and equipment at the time of the emergency.**



For responding to structural fires, the following information should be included in the AEP:

- **Role** of RFF personnel and equipment;
- **Deployment** of fire trucks/equipment and personnel;
- **Activation** of the EOC;
- **Method** for the evacuation of the affected area (if required);
- **Medical assistance** to injured passengers/public (if required);
- **Establishing** of a security area;
- **Re-routing** of traffic;
- **Proper** media management; and
- **Assessment** of damages.



The protection of the environment when responding to an occurrence must also be part of the **objective in order to achieve full success.**

In many instances, specific laws and regulations will require the aerodrome operator to take **specific actions to protect the environment.**

Thus, this topic should also be **covered in detailed guides, procedures and plans that support the AEP.**



Other than the legal requirements, there are many reasons to develop an environmental component in the AEP.

Among them are:

- The response must follow the **adopted policies**;
- Harmonization with **other action plans**;
- Safety;
- Liability; and
- Public image and **acting as a responsible corporate partner** within the community.

As part of their AEP, aerodrome operators should prepare for action to be taken in emergencies that arise from **weather-related phenomena such as rain, snow, frost, hurricanes, sandstorms and tornadoes.**

ICAO Doc. 9137, Airport Services Manual, Part 7 recommends in Section 4.8.1.3 that an AEP includes provisions for **initial protective measures, emergency supplies pertinent to local disaster exposure, personnel shelter and post-storm clean up and restoration.**



The aerodrome should **coordinate with the appropriate meteorological service provider** to obtain information about potential threats from weather.

Communication to the aviation community of reduced services at the aerodrome and emergency action is important, in the form of the appropriate NOTAM format; as is communication to the public, by means of a method predefined and coordinated in the AEP.

In relation to the preparation of the AEP, a **risk assessment should be conducted to determine what kind of weather-related emergencies are likely to occur** in the area where the aerodrome is located and the potential consequences of such an event.

Earthquakes, floods and volcanic activity are examples of other natural disasters that may cause the activation of an AEP.

Some of these are related to the weather: for example, the **drift of volcanic ash is determined by wind direction.**

Actions to be taken in such an event should be documented in the AEP for **initial protective measures, emergency supplies pertinent to local disaster exposure, personnel shelter and post-event clean up and restoration.**



Other Natural Events

After such an event, an **inspection of the movement area should always be conducted.**

Communication to the active aviation community of reduced services at the aerodrome and emergency action by means of the appropriate NOTAM form should be planned for.

Additionally, **the public and owners of facilities, equipment and aircraft at the aerodrome should be notified appropriately** by other means, predefined in the AEP.

The International Health Regulations (IHR) published by the World Health Organization serve as the international legal basis for the **handling of public health emergencies of international concern (PHEICs)**.

The purpose and scope of these regulations are to **prevent, protect against, control and provide a public health response to the international spread of disease**, and to do so in ways that are commensurate with and restricted to public health risks, and which **avoid unnecessary interference with international traffic and trade**.



Public Health Emergencies

Apart from aerodromes, the IHR also **calls for action by concerned local authorities and governmental agencies**, etc. Each country is responsible for the implementation of the IHR.

Aerodrome operators must carefully note this, since **local aerodrome action plans must be in line with the national implementation of the IHR**.

Further information is provided in the ACI publication **“Airport Preparedness Guidelines for Outbreaks of Communicable Disease**.

Major Industrial Accident

A major industrial accident in the aerodrome surroundings can affect the normal operating capability of the aerodrome.

In a VP, the aerodrome operator should identify hazards and assess risks associated with industrial activities in the area.

Depending on this risk assessment, aerodrome operators should prepare their emergency procedures to cover risks with their internal and/or appropriate external resources.

The principal types of hazards encountered are:

- Fire;
- Explosion;
- Radioactivity; and
- Toxic release.

Each of these hazards, individually and collectively, **may expose both people and the environment to risk.**





Difficult Terrain

As ICAO document 9137 Airport Services Manual – Part 7 says: **“Off-airport accidents in adjacent mountains, marshes, deserts or water can present unique and difficult access and logistical problems.**

It is therefore important that **communities so located have adequate plans for rescue in such areas.**

This could require an analysis of the availability of such **special service vehicles as fire boats, rescue boats, helicopters, hovercraft, swamp buggies, snowmobiles, half-tracks, forest fire-fighting equipment, etc., and arrangements for their utilization.**



Difficult Terrain

Consideration also may need to be given to:

The availability of **specialized rescue teams** such as **scuba divers, mountain or desert squads, ski patrols, search dogs and bomb squads;**

The **handling of radiological incidents or chemical spills;** and

Equipment for the emergency transfer of fuel from the aircraft wreckage, from a water surface or from pools formed in ground depressions, etc.”

Therefore, the **aerodrome must evaluate in its risk assessment analysis** if there are any areas with special requirements for procedures and resources to attend an emergency in difficult terrain.

This is particularly important where a **significant portion of approach/departure operations take place over these areas.**



It is common for aerodromes to be located adjacent to large bodies of water, a situation which requires **additional emergency services**.

In this situation, **special provisions should be made for rescue and fire-fighting operations** in the event of an aircraft accident/incident in the water.

Specialized equipment for rescue and fire-fighting may include **fire/rescue boats, air cushion vehicles, helicopters, coastal patrol boats or amphibious vehicles**.



This equipment can be provided by the aerodrome operator or by others.

In any case, the **AEP** must define the way in which such services and equipment operators are alerted.

Local water conditions should be evaluated in order to choose the appropriate equipment for a particular aerodrome.



Aerodrome fire-fighters and other rescue personnel should **understand the basic need for and the techniques and procedures used in aircraft accident investigation.**

Emergency first responders should adhere to the criteria contained in the **national regulations for evidence preservation and accident investigation.**

Reasonable measures must be taken to **protect the evidence and to maintain safe custody of the aircraft and its contents.**



Preservation of Evidence

Prior to the time the investigator or its authorized representative takes custody of aircraft wreckage, **mail or cargo, such wreckage, mail or cargo may not be disturbed or moved except to the extent necessary:**

- To **remove persons** who are injured or trapped;
- To **protect the wreckage** from further damage; and
- To **protect the public** from injury.



Isolation of the wreckage and security measures within the wreckage area should be established as soon as possible.



All authorized personnel should possess and display proper **“Emergency Access”** identification as required in the AEP.

All security personnel should be **briefed on proper identification procedures.**



Two-way radio communication with appropriate authorities on the site **can help identify any person seeking entry whose credentials are questionable.**

Accident sites can be exceptionally dangerous areas because of the possible **presence of flammable fuels, dangerous goods and scattered pieces of wreckage.**

All necessary safety precautions in the emergency area should be carried out rigidly. These include **exercising good judgment during fire control and throughout all rescue efforts.**

Safety equipment and protective clothing must be worn by all personnel involved.

Communication failures as a result of an emergency are not unusual. In order to limit and mitigate such failures, focus should be put on technical communication infrastructure and verbal and written communication.



The aerodrome operator should prepare for additional communication infrastructure to be used in an emergency.



Correct and adequate internal and external verbal and written communication is essential for the outcome of an emergency.

Time is a critical factor in media relations during an event and the **aerodrome should be prepared to respond to questions.**

Statements and comments should focus on the following:

- **Expressing concern** for survivors and/or sympathy for victims and their loved ones;
- **Factual information** about the circumstances of the accident/incident;
- **The progress of the search and rescue operation;**



Facilities and equipment which the airport has provided to support the search and rescue or recovery operations;

Support provided by the airport authorities to the aircraft operator (e.g., assistance in establishing a reception center for “meeters and greeters”);

The impact on the ongoing operation of the airport; and

Actions which the airport has taken to mitigate the impact on other airlines and to minimize passenger inconvenience.





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THANK YOU!