



NOTICE TO AERODROME CERTIFICATE HOLDERS (NOTAC) Number 04/2011

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Status of NOTACs

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ACTIONS FOR NOTIFICATION OF ACCIDENTS AND SERIOUS INCIDENTS TO THE GENERAL CIVIL AVIATION AUTHORITY, AND, ACCIDENT SITE PRESERVATION OF EVIDENCE PROCEDURES

1. INTRODUCTION

1.1 UAE Federal Act 20 (1991), The Civil Aviation Law contains the following definitions:

- a. Competent Authority: The Ministry of Communications or body designated from among its departments to supervise matters relating to civil aviation and its development.
- b. The General Civil Aviation Authority is the competent authority under Federal Act 20.

- c. Appropriate Authority: The concerned authorities of the respective Emirates.
- d. Aircraft Accident: An occurrence associated with the operations of an aircraft which takes place between the times boards the aircraft with the intension of flight until such time as all persons have disembarked, in which:
 - i. A person is fatally or seriously injured as a result of being in the aircraft, or in direct contact with the aircraft or anything attached thereto, or
 - ii. The aircraft sustains substantial damage.
- e. Aircraft Incident: an occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operations.

1.2 The Civil Aviation Law Chapter 7 Aircraft Accidents, Article 48 requires that:

- a. The Competent Authority shall conduct, or designate an external authority to conduct an investigation of aircraft accidents in the territory of the State and the airspace above it, and accidents involving national civil aircraft on the high seas.
- b. The Local Authorities within the jurisdiction of which an aircraft accident occurs, shall promptly forward a notification to the Competent Authority. The Local Authority shall prevent the departure of the affected aircraft and shall safeguard its components, all its contents or wreckage until the arrival of representatives of the Competent Authority.

1.3 ICAO DEFINITIONS

AIRCRAFT ACCIDENT

An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

- a) A person is fatally or seriously injured as a result of:
 - being in the aircraft, or
 - direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
 - direct exposure to jet blast.

Except: when injuries are from natural causes, self inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passenger and crew, or

b) The aircraft sustains damage of structural failure which:

- adversely affects the structural strength, performance or flight characteristics of the aircraft, and
- would normally require major repair or replacement of the affected component,

Except: for engine failure or damage, when the damage is limited to the engine, its cowling or accessories: or for damage limited to propellers, wingtips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin or,

c) The aircraft is missing or is completely inaccessible.

2. PURPOSE

2.1 The purpose of this NOTAC is to assist Aerodrome Certificate holders in developing procedures for notification of an aircraft accident, preservation of evidence and aircraft accident procedures.

3 NOTIFICATION

3.1 Notification to GCAA should be carried out via the ROSI reporting system, as well as by advising the GCAA Duty Inspector of Accidents or Serious Incidents. Details for filing ROSI reports and contacting the GCAA Duty Inspector (971506414667) are available on the GCAA website: www.gcaa.ae

3.2 Contact details for the Air Accident Investigation Department of the GCAA are as follows:

- **Air Accident Investigation Dept:**
 - TEL: +971 2 444 7666
 - FAX: +971 2 449 1599
 - E-mail: accid@gcaa.ae

4. INCIDENT SITE PROCEDURES

4.1 Preservation of Evidence

The fundamental purpose of investigating aircraft accidents is to determine the circumstances with a view to the preservation of life and the avoidance of accidents in the future. It is not the purpose to apportion blame or liability.

4.2 Accident Site Security

Although it is primarily a Police function to secure an accident site, all emergency personnel need to be aware of the reasons for its implementation. Unauthorised people should be prevented from having access to the site.

- Vital evidence can be destroyed by unauthorised vehicles or persons entering the site. Some people are tempted to move functional switches and levers from their pre-accident position which then provides negative and confusing information.
- Other people are tempted to remove items as souvenirs thus removing evidence from the scene.

- Unauthorised personnel may be carrying sources of ignition on them unaware of the hazard involved.

Airport Incident Commanders should be aware that an accident site will be considered a scene of crime until proven otherwise. Therefore disturbance should be kept to a minimum and crews should not move any wreckage unless it is unavoidable for rescue purposes or site safety.

It is therefore, very important that wherever practicable, a comprehensive record be made of the original situation by photograph, video and a sketch. Coverage should include an overall view of the site and close-up of the wreckage, especially the cockpit area, and of the bodies.

The guarding of a site can be difficult given the variability of terrain and the occasional extended areas involved. To ensure that all potential evidence is preserved it is essential that the number of people in and around the wreckage is kept to a minimum. It is all too easy for vital evidence to be destroyed by well intentioned persons disturbing wreckage, obliterating ground marks, trampling equipment into the ground.

Following the rescue and fire fighting phases, the emergency services need to bear in mind that the scene of an aircraft accident may or may not be a crime scene. However, it will always be a scene rich in forensic evidence. Therefore, it is important that the scene is preserved as much as possible until the GCAA Investigators arrive.

4.3 Removal of Evidence

Apart from casualties, nothing should be removed from the scene nor should the wreckage or accident site be disturbed any more than is necessary for the extrication of persons, making the scene safe for investigators or for preserving evidence. Removal of obviously deceased persons entangled in the wreckage should not be commenced without first discussing the issues with the GCAA Investigator. Where such activities have to take place before Investigators arrive, a record, preferably a photographic or video record, should be made of the disruption to the wreckage.

Coverage should include an overall view of the site and close-up of the wreckage, especially the cockpit area, and of the bodies.

4.4 Runway Debris

In the case of accidents and serious incidents occurring at airports there may be debris scattered along the runways or taxiways. There is often considerable pressure to sweep the paved areas to allow operations to continue and the GCAA has no wish to cause unnecessary delays.

In such circumstances the airport after obtaining the GCAAs Lead Investigators agreement, the removal of debris should be recorded, preferably by photography and video. This will help investigators to reconstruct the failure sequence.

All evidence, however small, is critical to the successful conclusion of an aircraft accident investigation. Therefore better education and understanding for fire fighters and other rescue personnel in understanding the basic need for and the techniques and procedures used in aircraft accident investigation. Whenever possible the wreckage should remain undisturbed until the arrival of the first aircraft accident investigator. However, when absolutely necessary for the rescue or fire suppression activities, the wreckage may be disturbed. Disturbance should be kept to a minimum.

Modern aircraft systems are complex and vital evidence can be destroyed through inadvertent action by members of the emergency services.

Cameras / Video cameras should be provided at all airports for the recording of information that may assist accident/incident investigations.

4.5 The Inner Cordons

The inner cordon may need to be extended once all rescue and fire-fighting operations is complete. An aircraft wreckage cordon will need to be established restricting all access to crash site other than GCAA Investigators or nominated individuals.

4.6 Police Safety

In establishing an Inner Cordon at any aircraft accident site the Police need to seriously consider the Health and Safety of its officers.

Apart from the normal hazards and risks associated with rescue and fire-fighting operations at the aircraft crash site, attending Police Officers need to consider other special hazards and risks may also be present. All Aircraft construction materials have their own inherent hazards when exposed to fire.

In freight aircraft; other risks may include explosives, gases, flammable materials and substances which are poisonous, infectious, corrosive or radioactive. Military aircraft can present such hazards as bombs, missiles, small arms ammunitions and powerful laser target designators.

Although an aircraft accident site is clearly a potentially hazardous environment, it is impossible to detail every type of hazard that could be encountered.

The Police Officers MUST never expose themselves to smoke, fumes, running fuel, and fire-fighting agents whilst establishing or controlling the Inner Cordon.

4.7 Site Safety

It is impossible to be prescriptive about the presence of hazardous substances or the area that is likely to be contaminated following an aircraft crash. The size, type, age and contents of aircraft are all factors that will have to be considered in determining the likely effects. The prevailing wind and weather conditions will be equally important.

A wide range of hazards may exist at aircraft accident sites, some of which may not be directly associated with the aircraft wreckage. Hazards may be posed by pathogens,

(from human or animal remains), cargo, and the nature of the accident location, ground installations, and other factors.

Emergency Response Personnel and accident GCAA Investigators are at risk of exposure to many biological hazards. Biological hazards may exist in the cockpit, cabin, and cargo wreckage as well as on the ground where bodies and survivors have laid. Since it is not possible to readily identify contaminated blood and other bodily fluids, it is prudent to take precautions whenever working around and in wreckage, when handling wreckage.

4.8 Significant Hazards: Construction Materials

Under normal circumstances carbon fibre based materials present no risk to health. However, crashes involving aircraft largely constructed from laminated carbon fibre composites have given rise to research that suggests that laminated composite materials (in particular those comprising carbon fibres) have the potential to pose a serious hazard to health.

Carbon fibres have an affinity to attract dirt and products of combustion which, if no protective measures are taken, will result in these contaminated fibres entering the body either by inhalation or as a result of embedded fibre (needle stick) injuries, or both.

4.9 Inhalation of Dusts/Fibres

If exposed to fire, components made from carbon fibre will become friable due to the binding/bonding agents melting; allowing the fibres to revert to their individual strands. This allows fibres to be easily liberated into the atmosphere, falling as fine dust in the surrounding area and downwind of the incident.

Absorbed combustion products on carbon fibres allow toxic debris to enter the body causing short term acute decreases in respiratory system efficiency and passageway irritation. Long-term effects are not yet known. Cutting or drilling through MMMF is particularly difficult due to its inherent strength. Where this is attempted, carbon fibre dust will be generated.

4.10 Inhalation of Toxic Gases

Most materials used in aircraft construction pose some kind of toxic hazard during, and following, a fire or crash. However, MMMF materials are probably the most toxic. It is the bonding agents (the resins) used in the construction of MMMF materials that present the most significant hazard. They support a flame at 195C and release highly toxic vapours at very low temperatures, notably cyanide, which is released at 150C.

The cocktail of gases and vapours which may be present make it difficult to specify any particular kind of personal protective equipment.

All aircraft construction materials give of some kind of toxicity when exposed to a crash fire situation.

The safety of personnel will be an important consideration for the GCAA and other organizations involved in accident site operations.

4.11 Aircraft Cargo

All aircraft need some dangerous goods in order to fly or to operate; therefore, some dangerous goods can be found on aircraft as part of the airworthiness equipment or for operational reasons. The airworthiness equipment includes: fuel, oxygen, life rafts, batteries and fire extinguishers. The operational equipment includes: dry ice (for catering purposes), aerosols (for passenger comfort or as insecticides), matches or lighters, alcoholic beverages, perfumes and colognes.

Passengers are permitted to have some items of dangerous goods, subject to certain restrictions. Often passengers are unaware that there are restrictions and may take something on an aircraft which has the potential to endanger its safety or injure other passengers. Although the freight and dangerous goods are strictly regulated some dangerous goods find their way on to all types of aircraft.

It is the cocktail effect of these goods once mixed or exposed to heat/fire and then mixed that can pose a significant risk to emergency services and accident investigators.

On a recent crash site compressed gas cylinders were present and from their condition they had been exposed to intense heat. The GCAA could not ascertain if the pressure relief valves had activated. With the ambient temperatures of the day these could have posed a significant risk to all those present.

At the earliest opportunity an assessment should be made of the hazard/risk levels and personnel should be prevented from entering the risk area unless wearing suitable and sufficient personnel protective equipment.

Personal protective equipment is also recommended for people whose duties involve handling wreckage. Goggles will afford eye protection, Safety boots, Gloves and protective coveralls are recommended.

An aircraft accident site is potentially hazardous, particularly if the airframe has been damaged or exposed to the effects of fire. It is likely, in these circumstances, that the site will be contaminated by hazardous gases, vapours and particles. It is therefore essential that those needing access to the accident site are well informed, prepared and protected.

There is no substitute for experience and common sense. Experience suggests that a cordon should be established a minimum distance of 100 metres from the main fuselage and 30 metres from any debris (including toxic fibres and dusts).

4.12 Food and Drinking Water

During recent UAE aircraft accidents the GCAA identified a large amount of water bottles and food containers were just thrown on the ground in and around the aircraft wreckage and all within the Inner Cordon.

During any incident involving fire or crashed aircraft, designated feeding areas and rest areas should be established outside the inner cordon. No food or drink should be consumed within the inner cordon. Designated rest areas should be established for the welfare of all personnel attending the aircraft accident sites.

4.13 Emergency Operations Centre

It is recommended to install recording devices with time insertion units at the operations centre to ensure that all communications are recorded for later analysis. It is also recommended to record all emergency communications, including printed communication.

An Emergency Operations Centre (EOC) log book should be established and maintained to record those attending, actions, decisions, significant events. The log book should be maintained for the duration of the incident.

Aerodromes should consider Incident site CCTV and the transmission of live CCTV pictures back to the EOC from the crash site.

4.14 Opening and Closing of Airport

If an aircraft accident occurs on the aerodrome and aircraft operations have ceased, while the emergency situation is being dealt by the aerodrome emergency services and external emergency agencies then, prior to resuming operations, the Aerodrome Certificate Holder should conduct an assessment of the aerodrome's readiness to conduct normal or restricted operations.

The assessment for continued operations shall not be solely based on the Airport Fire & Rescue Category but shall take into account the emergency plan's ability to cope with another emergency situation occurring on the aerodrome whilst the first emergency is still being attended.

4.15 Flight Deck Recorders and Cockpit Voice Recorders (FDR/CVR)

Large passenger aircraft carry flight data recorders (FDR) and cockpit voice recorders (CVR) most of which work on an electromagnetic principles.

After an accident, the location of the recorders is of prime importance. Flight recorders are usually painted in 'day glow' red and are designed to be resistant to crash forces and fire. Once a flight recorder has been located, it is imperative that its position should be noted, guarded and reported to the GCAA or Police. Unskilled handling after a crash can cause unnecessary damage which might lead to loss of recorded information, or delay in interpreting that information.

4.16 Do's and Don'ts

Do:

- Secure the site
- Record the location of flight data/cockpit voice recorders

- If possible, photograph or sketch equipment which needs to be disturbed for rescue purposes
- Keep unauthorised personnel away from the site
- Identify any freight hazards
- Take action in respect to any fuel spillage's
- Collect loose documents found on site
- Leave bodies (or parts) in situ
- Make notes of your actions as soon as possible after the incident

Don't:

- Move wreckage unless it is vital
- Remove bodies unless essential to do so
- Remove or attach personal effects from or to bodies
- Handle flight and cockpit recorders
- Move outlying wreckage
- Walk or drive over ground impact marks

5. SCOPE

5.1 The content of this NOTAC applies to all UAE certified aerodromes.

6 IMPLEMENTATION

This NOTAC is effective from 01 June 2011.

7. PROMULGATION

7.1 Current NOTAC's are published on the GCAA website. An email subscription service is available that will notify a subscriber of an addition or amendment to the GCAA's publication catalogue, see paragraph 6 – Subscriptions.

7.2 Aerodrome Certificate Holders should promulgate NOTACs promptly to those persons within the organisation/aerodrome who need to be made aware of the content.

8. SUBSCRIPTIONS

All Aerodrome Certificate Holders are invited to submit a list of recipients including email addresses and job titles. Please refer to NOTAC 01/2009.

9. QUERIES

Any queries, further guidance or a request for NOTAC action should be submitted by email to the Director of ANA section at the following address:
ana@gcaa.ae