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GAR
Subpart D – Aerodrome Operations and Services

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SECTION 1

SUBPART D – AERODROME OPERATIONS AND SERVICES

GAR 1.D005 General

(a) To operate an aerodrome the person or organisation with the authority to operate the aerodrome requires a certificate in accordance with this regulation.

(b) The person or organisation holding the Aerodrome Certificate is hereafter referred to as the Aerodrome Operator.

(c) To enable the National Aviation Authority (NAA) to carry out regulatory safety oversight of the aerodrome and its operations, the Aerodrome Operator shall cooperate fully with the Authority, and shall:

1. Permit and assist the NAA access to facilities and premises required by the NAA;
2. Make available, or submit as necessary, any information, whether kept manually or electronically, the NAA may request.

GAR 1.D015 Agreements with contractors

The Aerodrome Operator shall ensure that operating procedures and when necessary agreements are established between the Aerodrome operator and all contractors delivering products within the airside area.

GAR 1.D020 Aerodrome Management Function

(a) The Aerodrome Operator shall have a Nominated Post to be identified as the Accountable Manager. This post is accountable to the Aerodrome Operator for the safe operation of the Aerodrome.

(b) Any change of person holding this position shall be advised to the NAA.

GAR 1.D025 Aerodrome Management responsibilities

(a) The Accountable Manager has the over all responsibility for the operation of the Aerodrome with its facilities, installations and equipment. In the interest of safety the Accountable Manager shall ensure that:

(1) The operation of the aerodrome shall be according to this regulation and as laid down in the Aerodrome Manual.

(2) Any person involved in aerodrome operations and maintenance, or in activities that may have an impact on the safety of aircraft operations on the aerodrome, shall be appropriately trained for the tasks to be performed.

3) Proper coordination and interfaces are established with all the involved entities whose operations will affect the airside safety.

4) The suitability of allocated resources shall be adequate for the given tasks.

(b) The aerodrome provisions and conditions shall be maintained to at least those in place at the time of the award of the Aerodrome Certificate.

(c) Any changes to the design of the airside facilities must ensure continued compliance with the relevant regulatory standards.

(d) The NAA is notified of planned changes to provision of services or infrastructure which may affect its compliance with these regulations or with the conditions attached to the certificate.

(e) In order to assist the Aerodrome Operator in airside safety matters, an Airside Safety Group shall be established where:

1. The Aerodrome Operator is responsible for leading the activity of this group.
2. Such a group shall include local Air Traffic Services and local Aircraft Operators.

(f) When a matter or situation arises that is not addressed by the Airside Operations Procedures within the Aerodrome Manual, the Aerodrome Operator shall issue additional Local Aerodrome Safety Rules to ensure continued safe Aerodrome Operations.

GAR 1.D030 Information to Staff

The Aerodrome Operator shall ensure that a system is established for promulgation of safety related information to all personnel having access airside.

GAR 1.D035 Reporting

(a) In coordination with the local Air Navigation Service Provider (ANSP), the Aerodrome Operator shall ensure any significant changes in the design, availability, operational status or conditions of the aerodrome and related facilities whether of a temporary or permanent nature, are reported through the Aeronautical Information Services. The information shall be

kept up to date and changes in conditions reported without delay.

(b) Occurrences such as aircraft accidents or incidents which have resulted or could have resulted in damage to aircraft or injury to persons, shall immediately be reported to the relevant safety authorities

(c) The actual level of rescue and fire fighting protection available at the Aerodrome shall be reported through the Aeronautical Information Services.

GAR 1.D040 Operational Documentation Records

The Aerodrome Operator shall ensure that applicable records shall be kept for possible investigation purposes as long as dictated by the NAA.

GAR 1.D045 Access to Airside

(a) The Aerodrome Operator is responsible for ensuring there is a system for controlling access to airside.

(b) Access to the manoeuvring area requires approval from the local Air Traffic Service or when an Air Traffic Service is not available, from the Aerodrome Management.

(c) All staff, when operating airside, shall wear high visibility jackets or tabards with reflecting material.

GAR 1.D050 Condition of the Movement Area

(a) The Aerodrome Operator shall ensure that regular inspections of all aircraft movement areas are carried out and recorded in order to ensure that:

1. The surface of pavements are kept clear of any objects that may cause damage to aircraft or impair the operation of aircraft, and

2. Surfaces are maintained in a condition such as to prevent the formation of harmful irregularities.

GAR 1.D055 Aerodrome vehicle operations

(a) The Aerodrome Operator shall ensure through the Local Aerodrome Safety Rules that Aerodrome vehicle operation rules are established, maintained, enforced and developed to sustain safe aircraft operations.

(b) The Aerodrome Operator shall ensure that all vehicles permitted airside, whether operated by aerodrome staff, third parties or contractors, are adequately maintained, such that their condition or emissions are not hazardous to aerodrome or aircraft operations.

GAR 1.D060 Marking and lighting of Vehicles and Equipment

(a) The Aerodrome Operator shall ensure that all vehicles and mobile equipment, used within the manoeuvring area are conspicuous and equipped with high visibility, omni-directional, yellow flashing lights.

(b) Rescue and Fire fighting vehicles shall be equipped with blue omni-directional lights.

(c) Vehicles and mobile equipment shall switch on their omni-directional lights when operating in the manoeuvring area.

GAR 1.D065 Vehicles and use of Radio Equipment

The Aerodrome Operator shall ensure that communication exists between the vehicle or person entering an area needing clearance and the local Air Traffic Service.

GAR 1.D070 Clearance Distances to Aircraft

(a) Vehicles and mobile equipment shall be manoeuvred, positioned or parked with such clearance distances that ensure the safety of aircraft, people and equipment.

(b) Clearance distance to aircraft with running engines shall be according to the advice of either the aircraft operator or the aerodrome operator, whichever is the most stringent.

GAR 1.D075 Protected Areas, Manoeuvring Area, Approach and Departure Areas

(a) Protected areas:

In coordination with the ANSP and the local authority, the Aerodrome Operator shall ensure that the critical and/or sensitive areas of radar and radio navigation facilities associated with the aerodrome are monitored, so that no development or changes occur or are permitted within those areas that can affect the performance of the equipment.

(b) Manoeuvring Area, Approach- and Departure Areas

(1) The Manoeuvring Area shall be marked in accordance with this regulation.

(2) The boundaries of the manoeuvring area shall be shown on the appropriate aeronautical charts.

(3) Roads crossing the manoeuvring area or the approach and departure areas within the aerodrome boundary shall be marked with a stop line, suitable warning, crossing barriers or signs to prevent vehicles or mobile equipment penetrating the obstacle limitation surfaces during aircraft operations.

GAR 1.D080 Aerodrome Vicinity Safety Protection

(a) The Aerodrome Operator shall monitor and coordinate with local authorities to ensure the local airspace around the aerodrome is safe for the operation of aircraft. Local airspace shall be that area enclosed by and above the protected surfaces required for a particular aerodrome.

(b) Consideration shall be given to the hazards or potential hazards that can affect the safety of aircraft.

GAR 1.D085 Obstacle environment Programme and marking of temporary obstacles

(a) Obstacle Environment Programme

(1) The Aerodrome Operator shall ensure the obstacle limitation surfaces required for the aerodrome operations are monitored so these surfaces will be kept clear from obstacles.

(2) Equipment or installations required for air navigation purposes which are considered to be obstacles shall be marked and/or lit accordingly.

(3) Obstacles which cannot be removed that penetrate the obstacle limitation surfaces shall be marked with colours, flags or lights in accordance with this regulation. At night the obstacle light shall be lit.

(b) Marking of temporary obstacles

(1) A permitted temporary obstacle penetrating an obstacle limitation surface shall be marked with colours, flags or lights.

(2) At night the obstacle light shall be lit.

GAR 1.D090 Wildlife hazard management

The Aerodrome Operator shall establish a programme that identifies and controls any hazards or potential hazards to aircraft operations caused by birds or other animals on, and in the vicinity of, the aerodrome. The programme shall at least cover the following items:

1. Collection of data
2. Bird strike and Wildlife strike reporting
3. Risk reducing and Safety enhancing actions

GAR 1.D095 Air Traffic Services

(a) An Aerodrome Operator shall ensure that Air Traffic Services are established appropriate to the level of traffic and operating conditions at the aerodrome.

(b) The Aerodrome Operator shall not, without prior consultation with the NAA, vary from the established level of Air Traffic Service.

GAR 1.D100 Procedures for surface movement guidance and control

The Aerodrome Operator shall establish surface movement guidance and control procedures appropriate to the type of operations at the aerodrome.

GAR 1.D115 Apron Management Service

The Aerodrome Operator shall establish a system for ensuring the safety of aircraft on an apron.

GAR 1.D120 Fuelling Service

If a fuelling service is provided, the Aerodrome Operator shall ensure that a system for the safe delivery and storage of fuel at the aerodrome is in place.

GAR 1.D125 Maintenance of Movement area surfaces

The Aerodrome Operator shall ensure that a programme for preventative and reactive maintenance procedures for ground surfaces are established and implemented. The procedures shall cover at least the following items:

(1) Clearing any contamination of paved surfaces;

(2) Friction monitoring of runway surfaces and where possible other paved areas for winter operations;

(3) Establishment of a Runway Minimum Friction Level for maintenance purposes.

(4) Friction monitoring of the runway for long-term maintenance operations;

(5) Corrective action to maintain required friction levels on paved surfaces.

(6) Maintenance of the Compass Swinging base, if this is provided, and monitoring for magnetic anomalies.

GAR 1.D130 Maintenance of Aerodrome Visual Aids

(a) The Aerodrome Operator shall ensure a regular check on the performance, conspicuity and relevance of all aerodrome visual aids is carried out. The results of all such checks, along with any required maintenance, shall be recorded.

(b) The Aerodrome Operator shall establish a maintenance programme for the aerodrome visual aids installations.

(c) Failure or irregular operations of significant part of the visual aid system shall be notified to the local Air Traffic Service unit and published through NOTAM.

GAR 1.D135 Maintenance and operation of ground based facilities and equipment radiating electromagnetic waves for air navigation

Where provided, the Aerodrome Operator shall ensure that there is in place a programme for the operation, monitoring and maintenance of equipment radiating electromagnetic waves for air navigation.

GAR 1.D140 Aerodrome Emergency Planning and Exercises

(a) The Aerodrome Operator shall ensure that an emergency plan commensurate with aircraft operations is developed and published in the Aerodrome Manual to provide for the coordination of the response and participation of all agencies in an emergency occurring at an aerodrome or in the vicinity of the aerodrome.

(b) The Aerodrome Operator shall perform in coordination and cooperation with local authorities,

full scale emergency exercises to prove the effectiveness of the emergency plan.

(c) The Emergency Plan shall be tested, by conducting a full-scale aerodrome exercise at intervals not exceeding two years and partial emergency exercises in the intervening year to ensure that any deficiencies found during full scale exercise or actual emergencies have been corrected and reviewed.

(d) Where an aerodrome is located in the vicinity of difficult terrain and a significant portion of the approach or departure operations take place over these areas, the plan shall include the ready availability of and coordination with appropriate specialist rescue services.

GAR 1.D145 Rescue and Fire Fighting service

(a) Level of protection and service

(1) The Aerodrome Operator shall ensure that Rescue and Fire Fighting equipment and services are provided at the aerodrome.

(2) The level of Rescue and Fire Fighting Service to be provided shall be:

(i) Commensurate with the type of aircraft using the aerodrome, and aircraft operations being conducted, and

(ii) As agreed with the National Aviation Authority.

(b) Equipment and service

(1) Whenever the Aerodrome is open for aircraft operations, sufficient number of vehicles, equipment, extinguishing media and trained personnel shall be readily available to meet the published RFF level and minimum response time. Vehicles should be fit for purpose and suitable for the terrain conditions likely to be encountered.

(2) The operational objective of the rescue and fire fighting service shall be to achieve a response time not exceeding three minutes to any point of each operational runway, in optimum visibility and surface conditions.

(3) All Rescue and Fire Fighting personnel shall be properly trained to perform their duties in an effective and efficient manner and shall participate in live fire drills.

SECTION 2

SUBPART D -AERODROME OPERATIONS AND SERVICES

GAR (AMC) 1.D015 Agreements with contractors

In this context “contractors” refers to established airside organisations providing products to the aerodrome or other organisation and any external organisations not having a direct lease agreement with the aerodrome operator who deliver products or provide services within the airside area.

The agreements should relate to the following:

Activities conducted by contractors at the airside area that will affect:

- The physical characteristics, facilities, equipment, installations and the obstacle limitation surfaces and protected areas that will affect aircraft safety or operations at the airside area.
- Personnel airside safety training; maintenance and serviceability of facilities or equipment; emergency planning as it affects the contractor and his staff.
- Safety management system interfaces and coordination.

Such an agreement would be separate from, and additional to, any agreement a contractor might have with another third party on the aerodrome to which he/they are delivering products.

In the context of products they are from a Quality System perspective seen as goods and services.

GAR (AMC) 1.D020 Aerodrome Management Function, the Accountable Manager

This post might be at the organisation’s Board of Directors level, but in any case must have direct access to the organisation’s Chief Executive. The organisational title of this post is at the aerodrome operator’s discretion, but the Nominated Post Holder must be identified to the NAA as the Accountable Manager.

Whether or not the Aerodrome Management Function is a single person in position or several postholders the following should be observed.

Reporting relationships

Reporting relationships of this position with responsibilities and accountabilities throughout the organisational hierarchy should be clearly shown in the Aerodrome Manual. Any change to this reporting and accountability structure should be advised to the NAA before implementation.

Coordination of the safety aspects of all airside operations

The Accountable Manager should have accountability to ensure coordination and cooperation of the safety aspects of all airside operations, or operations that may impact upon aircraft safety, on the aerodrome either through agreement with contractors to the aerodrome or through the aerodrome organisation itself.

Availability of a nominated substitute

The Aerodrome Operator should ensure that whenever the aerodrome is operating under its aerodrome certificate, the Accountable Manager or his/hers competent nominated substitute(s), with appropriate responsibilities and accountabilities shall be available at the Aerodrome.

This need does not require a 1 for 1 replacement if the responsibilities are adequately redistributed to briefed and competent staff to cover for short term absences. This can be achieved through the aerodrome organisational structure.

Non-conformities

If it is evident that non-conformity has developed with the infrastructure and operation of the aerodrome, or is anticipated, the Accountable Manager should:

- 1) Take corrective action and or;
- 2) Limit the operation if necessary and;
- 3) Advise the National Aviation Authority accordingly at the earliest opportunity.

GAR (AMC) 1.D025 Aerodrome Management Responsibilities, Interfaces with organisations and staff that operate airside

In connection with agreements with contractors and in order to establish proper coordination and interfaces with all the involved entities whose operations will affect the airside safety this cannot be satisfied without including local Air Traffic Services and non-airside organisations whose activities may have an effect on aircraft safety.

GAR (IEM) 1.D025 Aerodrome Management Responsibilities, Interfaces with organisations and staff that operate airside

The safe operation of an aircraft consists of several sub operations by a chain of different actors. The aerodrome is one of these actors, whose own operations have to be safe, but which also have to be interfaced and coordinated in a safe way with other relevant actors in a service chain. The significance of coordination in relation to safe operations has made it necessary to require this. This has been one of the overriding principles also for ICAO when imposing requirements to the various actors within aviation.

The problem lies at the interfaces between different organisations performing their services on the aerodrome, since all personnel needs to be adequately trained and supervised, even if employed by companies different from the aerodrome operator. It is therefore necessary that the Accountable Manager be responsible to establish proper interfaces with all involved entities, whose operations may affect airside safety.

In order to assist the Accountable Manager reference is made to the IATA programme for Safety Audit for Ground Operations (ISAGO).

GAR (AMC) 1.D025 Aerodrome Management Responsibilities, Aerodrome Manual, Local Aerodrome Safety Rules

- 1) For the duration of such rules being required, they should be treated as part of the Aerodrome Manual, and should be observed by all relevant personnel.
- 2) The actual title of such rules is at the discretion of the aerodrome operator.
- 3) If a "Local Aerodrome Safety Rule" is to be permanent, it needs to be incorporated or referenced into the Aerodrome Manual.

GAR (IEM) 1.D025 Aerodrome Management Responsibilities, Aerodrome Manual

The Aerodrome Manual should be maintained, amended and updated to reflect changes, additions or improvements to aerodrome operations. ICAO puts an obligation on member states to have an aerodrome manual as part of the certification process. The relevant paragraph is quoted below.

"Annex 14 Volume 1 Paragraph 1.4.5

As part of the certification process, States shall ensure that an **aerodrome manual** which will include all pertinent information on the aerodrome site, facilities, services, equipment, operating procedures, organization and management including a safety management system, is submitted by the applicant for approval/acceptance prior to granting the aerodrome certificate."

The following advice on Aerodrome Manuals is taken from the UK CAA: - where license and licensee has the same meaning as Aerodrome Certificate and Certificate holder in this regulation”.

**“UK CAA CAP 168
Chapter 2, Aerodrome Manual**

1 Introduction

The NAA will use the Manual or parts thereof to assess the suitability of Licensees and their organisations against the safety related requirements. Once granted a licence, the licensee is required to maintain the Manual in conformity these Regulations, and all aerodrome operating staff must have access to the relevant parts of the Manual. The term ‘operating staff’ means all persons, whether or not the aerodrome licensee and whether or not employed by the aerodrome licensee, whose duties are concerned either with ensuring that the aerodrome and airspace within which its visual traffic pattern is normally contained are safe for use by aircraft, or whose duties require them to have access to the aerodrome manoeuvring area or apron. The Manual will be regarded by the NAA as the primary indication of the standards likely to be achieved by the aerodrome operator. A copy is to be lodged with the NAA.

2 Purposes and Scope of the Manual

2.1 An efficient management structure and a systematic approach to aerodrome operation are essential. The Manual should contain all the relevant information to describe this structure satisfactorily. It is the means by which all aerodromes operating staff are fully informed as to their duties and responsibilities with regard to safety. It should describe the aerodrome services and facilities, all operating procedures, and any restrictions on aerodrome availability.

2.2 Accountability for safety must start at the very top of any organisation. One of the key elements in establishing safe working practices is for all staff to understand the safety aims of the organisation, the chain of command, and their own responsibilities and accountabilities. As safety management principles are applied, the Manual should be expanded to describe clearly how the safety of operations is to be managed at all times. To a reader or user of the Manual there should never be any doubt about who is responsible, who has the authority, who has the expertise and who actually carries out the tasks described in any section.

2.3 The principal objective of an Aerodrome Manual should be to show how management expected standards of performance and the procedures by which they will be achieved.

3 Ownership of an Aerodrome Manual

3.1 The Aerodrome Operator is responsible for providing the Aerodrome Manual. It should reflect the requirements and guidance material contained in relevant regulations and other documents.

3.2 It is the responsibility of the Aerodrome Operator to be satisfied as to the appropriateness of each provision of the Manual to the particular operation, and to make amendments and additions as necessary.

3.3 The safety aim and objectives of the Manual and how it is to be used by employees, tenants etc. should be stated in a preface.

3.4 In this format and under the signature of the person with overall responsibility for safety in the company, the Manual demonstrates from the highest level, a commitment to the way in which safety will be managed.

4 Amendment of the Manual

4.1 Responsibility for maintaining the accuracy of the Manual should be clearly defined. Each copy of the Manual should be numbered and a list of holders maintained by the person responsible for the issue of amendments. In the front of each volume there should be an amendment page available for

recording the amendment numbers, date of incorporation, signature of the persons amending and the page or paragraph affected.

4.2 Manuscript amendments are not acceptable. Changes or additions should always be the subject of an additional or replacement page on which the amended material is clearly identified.

4.3 Amendments to the Manual will be needed either because the document requires to be brought up to date or in response to a request by the NAA. Any amendments or additions must be furnished to the NAA by the holder of the licence before or immediately after they come into effect.

5 Form of the Manual

5.1 The Aerodrome Manual is a key document both for the Aerodrome Operator and the NAA. It is the safety assurance document for the NAA's licensing process, and a management tool for industry. The Manual is the source document describing how operational procedures and their safe management will be delivered. It should contain all such information and instructions as may be necessary to enable the aerodrome operating staff to perform their duties.. The NAA will expect the Aerodrome Manual to be an accurate reflection of the aerodrome's visible safety management system and safety culture. It should show how the aerodrome intends to measure its performance against safety targets and objectives. An Aerodrome Manual should not just satisfy the NAA's requirements. One of the principal objectives should be to create a medium for promulgating all procedures and information relating to the safe management of the aerodrome. The reader of a Manual should be given a clear and unambiguous statement of how safety is developed, managed and maintained on the aerodrome. All safety policies, operational procedures and instructions should be contained in detail or cross-referenced to other formally accepted or recognised publications.

5.2 At larger aerodromes the size and complexity of operations and related procedures may dictate that these procedures could not easily be included in a single document. In such circumstances it is acceptable to identify and reference within the Manual the procedures which are not included within it. If this system is to be successful it is essential that any referenced information, documentation and procedures are subjected to exactly the same systems of consultation and promulgation as the Manual itself. For many small aerodromes the Manual can be both simple and brief as long as it covers procedures essential for satisfactory day-to-day operations. Nevertheless it is possible to adopt a common format embracing the essential elements that define a safety management system.

5.3 The numbering of pages and paragraphs should be orderly and systematic to facilitate reference. The standard of printing, duplication and binding should allow the Manual to be read without difficulty and ensure it remains intact and legible during normal use."

GAR (IEM) 1.D025 Aerodrome Management Responsibilities, Appropriate Training

1) The National Aviation Authority assesses the competence of the Aerodrome Management function during the Certification process. It is the responsibility of the Aerodrome Management and foremost the Accountable Manager to choose the size and diversity in competence needed of the staff to perform their duties in a safe way. Recurrent training and continuous reassessment of the tasks and duties is required.

The Aerodrome Operator should identify which areas of competence and tasks are relevant to their Aerodrome. This may be determined by the Accountable Manager with guidance from other Managers and Specialists as required.

2) The Aerodrome Certification Process will result in an Aerodrome Certificate based on a demonstrated management structure assessed by the National Aviation Authority against the objectives and commitments of the Aerodrome. The Management function will be assessed for its competence as part of the acceptance of the aerodrome organisation. The final judgement in the process of appointing nominated post holders rests with the Accountable Manager.

3) The Aerodrome Operator is responsible for making available safety training programmes for all aerodrome staff working on the airside of an airport.

GAR (AMC) 1.D025 Aerodrome Management Responsibilities, Appropriate Training

1) Aviation Safety Competence

With regard to the “personnel involved in safety related tasks including personnel of subcontracted operating organizations”, the aerodrome operator should document the adequacy of the competence of the personnel, the personnel training policy, training plans and records as well as arrangements for the supervision of non-qualified personnel..

An Aerodrome Operator should ensure there is available an Airside Safety Course to train personnel on the dangers and hazards of being airside; and on the procedures to be followed in normal and emergency situations when operating, either on foot or in any type of vehicle, in the airside environment of the aerodrome.

Persons who have not received an airside safety training course or where the validity of the safety training has expired are not being permitted unescorted access airside.

1.1 A policy on the length of time such safety training remains valid is to be laid down in the aerodrome manual.

The Aerodrome Operator should establish the minimum level of safety-related training for all personnel with access to the movement area, and the required frequency of refresher training. The detail and curriculum will vary according the responsibilities, accountabilities and safety-related duties of each post. For example, customer service staff may need to know the safety implications and procedures for escorting passengers on the apron, whilst other staff will need to be aware of local driving and relevant movement area regulations.

Authority to hold a post should cease to be valid if an individual has not fulfilled the requirements of the aerodrome manual or has not completed the programme for recurrence training. The final assessment for acceptability rests with the Aerodrome Operator.

2) Keeping of Training Records

The Aerodrome should keep training records for all staff with aviation safety related work assignments for the duration of the individual’s employment on or at the aerodrome. Other parties operating on the aerodrome may conduct their own training in accordance with the minimum requirements set out by the aerodrome operator and may also keep their own training records. In these cases, the aerodrome operator should be able to satisfy itself that its requirements are met, for example, through contracts, audits, inspections and/or spot checks.

GAR (AMC) 1.D025 Aerodrome Management Responsibilities, Airside design changes due to critical elements of aircraft dimensions

1) When there is a significant change, or anticipated change to the aerodrome design or the volume or type of air traffic using the aerodrome, the safety assessment should be coordinated with other relevant parties at the Aerodrome. See GAR 1.C020 and GAR (IEM) 1.C020

2) The Aerodrome Operator must advise the National Aviation Authority of the change and the result of the safety assessment accordingly.

3) An Aerodrome Operator should consult with the National Aviation Authority at the beginning of the planning stage for any changes to airside facilities including runways; taxiways; aprons; navigation aids etc.

GAR (IEM) 1.D025 Aerodrome Management Responsibilities, Airside design changes due to critical elements of aircraft dimensions

1) The Aerodrome Operator should, as the traffic volume or frequency steadily increases, or the “critical” aircraft, for which the Aerodrome has been certificated changes, review the operation. This

doesn't mean at all instances that there is need for design changes to the Aerodrome layout and equipment. Critical aircraft in this sense can be a combination of different elements of wingspan, aircraft length/height and wheel track or wheelbase and the number of movements. The NAA may need to adjust the certification.

In general there is a requirement for safety assessment when there is a change or anticipated change to the volume or type of air traffic using the aerodrome. Critical aircraft in this sense can be a combination of different elements of wingspan, aircraft length/height and wheel track or wheelbase and traffic volume. As the traffic volume or frequency increases, or the "critical" aircraft, for which the Aerodrome has been certificated changes, or the critical aircraft changes, the Aerodrome Operator shall ensure a hazard identification and safety assessment are completed to assess the impact of any change to the safety of aerodrome operations. This requirement does not mean in all instances that an extensive and exhausted assessment is required, or that there will be a need for design changes to the Aerodrome layout and equipment. A dialogue with the aviation safety authority will render a decision to what level and extent an assessment is necessary.

GAR (AMC) 1.D025 Aerodrome Management Responsibilities, Airside design changes

Compliance with regulations might be best achieved if the Aerodrome Operator:

- 1) Consult with the National Aviation Authority at the beginning of the planning stage for any changes to airside facilities including runways; taxiways; aprons; navigation aids etc.
- 2) Advise the National Aviation Authority of the change and the result of the safety assessment accordingly.

GAR (AMC) 1.D025 Aerodrome Management Responsibilities, Airside Safety Group

In order to assist the Aerodrome Manager in movement area safety matters, with special attention given the runway system, the airside safety group should be established as follows:

- 1) The Aerodrome Operator should either periodically or when need arises convene the airside safety group
- 2) The airside safety group should initiate and maintain actions leading to better safety awareness addressing all users of the movement area (Air Traffic Controllers, Flight Crew and Aerodrome Staff).
- 3) The airside safety group should ensure that specific joint training and familiarisation in the prevention of runway incursion is provided to Air Traffic Controllers, Flight Crew and Aerodrome Staff and especially vehicle drivers to increase understanding of the roles and difficulties of personnel working in other areas. The training should specifically address: Communication on air frequencies, phraseology, use of full call signs, manoeuvring area physical characteristics and markings, lighting and signage and use of correct language.

GAR (AMC) 1.D030 Information to Staff

The information to Aerodrome Staff and contractors to the Aerodrome should comprise information relevant to their duties and may include the following:

- AIP
- NOTAM/SNOWTAM
- AIC
- Relevant parts of the Aerodrome Manual.

The aerodrome operator should ensure that its own staff has access to and knowledge of the above documents. In the cases of other organisations, the aerodrome operator should ensure that the relevant and up-to-date documents are distributed to a focal point within each organisation; responsibility for internal distribution lies with each individual organisation. The aerodrome operator should satisfy itself that this takes place via contracts, agreements, audits and/or inspections.

GAR (AMC) 1.035 Reporting

NOTAM requirements for reporting are described in ICAO Annex 15.

In order to satisfy the reporting requirement relevant to the safe operation of aircraft the reporting system should at least cover the aerodrome failure conditions and information or variations with operational character concerning the design, availability or conditions in the following areas:

- 1) The Aerodrome movement area, including construction or maintenance work; rough or broken surfaces on a runway, a taxiway or an apron;
- 2) Aerodrome facilities;
- 3) Aerodrome obstacle environment;
- 4) Communication, Navigation or Surveillance services or visual aids or;
- 5) Air Traffic Services - Information on the condition of the movement area and the operational status of related facilities should be provided to the AIS, and similar information of operational significance to the air traffic service (ATS), to enable those units to provide the necessary information to arriving and departing aircraft. The information should be kept up to date and changes in conditions reported without delay; or
- 6) Occurrences affecting aerodrome operations and air traffic flow, which lead to or may lead to a reduced level of safety. Such a report should be submitted to the Aerodrome Operator and any other entity as required by any member of the Aerodrome staff or contracted staff at the Aerodrome. A copy of such a report should as soon as possible be forwarded to the National Aviation Authority preferably through the Aerodrome reporting system or directly to the National Aviation Authority.
- 7) Bird or other wildlife strikes should be reported to the National Aviation Authority in the required manner.
- 8) Whenever water is present on a runway, a description of the runway surface conditions on the centre half of the width of the runway, including the possible assessment of water depth, where applicable should be made available using the following terms:
 - (1) DAMP – The surface shows a change of colour due to moisture.
 - (2) WET – The surface is soaked but there is no standing water.
 - (3) WATER PATCHES – Significant patches of standing water are visible.
 - (4) FLOODED – Extensive standing water is visible.
- 9) Presence of contamination (including type and depth of snow, slush, ice or water; snow banks or drifts and anti-icing or de-icing liquid chemicals) on runways, taxiways and aprons should be reported. Aerodromes using the SNOWTAM, shall according to GAR 1.E040 report the conditions on the movement area to the ATS in a special format from which the ATS can issue a SNOWTAM. Other types of contamination should be reported to the Air Traffic Services.
- 10) Whenever dry snow, wet snow or slush is present on a runway, an assessment of the mean depth over each third of the runway should be made to an accuracy of 2 cm for dry snow, 1 cm for wet snow and 0.3 cm for slush.
- 11) Information that a runway or portion thereof may be slippery when wet (See GAR (AMC) 1.D125).
- 12) Rescue and Fire Fighting services - The level of rescue and fire fighting protection available at an aerodrome shall be expressed in terms of the category of the rescue and fire fighting services as described in GAR (AMC) 1.D145 and be reported to the AIS and published in the AIP. Changes in the level of protection published in the AIP, expressed in terms of the new category of the rescue and fire fighting service available must be reported to the Air Traffic Services and published through NOTAM.
- 13) Accidents or incident reports for use by the NAA or National Accident Investigation Authorities.

GAR (AMC) 1.D040 Operational Documentation Records

In order to comply with the record keeping requirement the aerodrome operator should ensure that at least the following records are kept:

- Safety Management System monitoring documentation.
- SNOWTAM documentation, de-icing documentation if warranted by the climatic conditions.
- Compass Base documentation.

- Ground Based Electronic Navigation Equipment monitoring documentation.
- Meteorological Equipment monitoring documentation.
- Vehicle and Equipment Maintenance Records
- Movement area Inspection Records
- Any other documentation with operational relevance

GAR (AMC) 1.D045 Access to Airside

1) The Airport Operator may choose to implement a permit system to control access to the movement area. The Aerodrome Operator should issue the permit for all appropriately trained and authorized persons and vehicles.

2) Permits are not required for aircraft crew or escorted passengers on their way to or from aircraft, however, suitable means of identification should be shown.

3) Passengers need to be escorted when crossing an apron. The control of movement of passengers to and from aircraft should be laid out in the aerodrome manual section dealing with airside procedures.

GAR (IEM) 1.D045 Access to Airside, other organisations/entities than contractors

If the Aerodrome Operator decides to let other organisations/entities than contractors to the aerodrome such as recreational flying activities use the movement area they should be treated according to 1.D015 above.

GAR (AMC) 1.D050 Condition of the Movement Area

The Movement Area Inspections should encompass:

1) An essential part of the inspections will be the collection and removal of Foreign Objects that may damage aircraft.

2) Attention needs also to be paid to surface condition, as surface spalling can produce debris hazardous to jet turbine engines, to propellers, and to people through jet blast etc.

GAR (IEM) 1.D050 Condition of the Movement Area

Guidance on carrying out daily inspections of the movement area is given in the Airport Services Manual, Part 8 and in the Manual of Surface Movement Guidance and Control Systems (SMGCS)

GAR (AMC) 1.D055 Aerodrome vehicle operations

(a) In order to achieve safe Aerodrome vehicle operations a vehicle should only be operated:

1) On an apron by a trained driver and as authorized by the aerodrome operator.

2) On a manoeuvring area as in (1) above and also only after permission by Air Traffic Services or when there is no ATS by the Aerodrome Management.

b) The driver of a vehicle on the movement area should:

1) Comply with all mandatory instructions, markings, signs and lights unless otherwise authorised by the Air Traffic Services, when on the manoeuvring area; or by the apron management services, when on the apron.

2) Persons or vehicles moving within the movement area should, unless otherwise instructed by Air Traffic Control, give way to aircraft.

c) Roads located on the movement area should be restricted to the exclusive use of aerodrome personnel and other authorised persons.

1) If access to public buildings by unauthorised and untrained persons requires the use of such roads, procedures should be in place to ensure the safety of vehicles, persons and aircraft.

GAR (IEM) 1.D055 Aerodrome vehicle operations

Vehicle Maintenance

Vehicles exempted from road traffic registration requirements should be subject to an annual maintenance and safety inspection corresponding to the requirements of the national legislation. Vehicles and other equipment should be maintained in accordance with manufacturer's recommendations and service schedules. The aerodrome may authorise vehicles not owned and maintained by the aerodrome operator to operate on the aerodrome movement area. In these cases, the aerodrome operator should satisfy itself, through contracts, agreements, audits and inspections that vehicles are adequately maintained.

GAR (AMC) 1.D060 Marking and lighting of Vehicles, Equipment

The Lighting and Marking of all vehicles and mobile equipment, permanently used within the manoeuvring area should have the following characteristics:

a) Lighting

- 1) The omni directional flashing lights should be yellow to ensure they are visible to aircraft, other vehicles, ATC, and to staff on the manoeuvring area.
- 2) The effective light intensity should not be less than 40 Candela, but must not dazzle aircraft flight crew.

b) Marking

- 1) The marking of vehicles should be so that they provide adequate contrast to the background. Red, yellow or yellowish green have been demonstrated to achieve this contrast.
- 2) Vehicles and equipment should be provided with reflecting colours or materials, as well as lights, to assist conspicuity during night conditions.

GAR (AMC) 1.D065 Vehicles and use of Radio Equipment

In order to comply with the use of radio equipment the Aerodrome Manual should include procedures for the use of radio by vehicle drivers when operating airside. Any person requiring the use of a radio for communications must be appropriately trained in the use of the radio.

Radio communication

- When required to do so, the driver of a radio-equipped vehicle should establish satisfactory two-way radio communications with the aerodrome control tower, before entering the manoeuvring area and with the apron management service [if provided] when entering on the apron.
- The driver should maintain a continuous listening watch on the assigned frequency when on the manoeuvring area.
- Only appropriately trained staff should perform radio communications.
- Radio communication can be substituted by clearances issued by other means through the Air Traffic Control.

GAR (AMC) 1.D070 Clearance distances to Aircraft, Protection of staff, passengers and other third party interests

The Aerodrome Operator has the responsibility to provide ample space and provisions for the safe movement of aircraft in accordance with this regulation.

1) If it is necessary to park vehicles or equipment, or operate a road or passenger access or pathway behind any place where an aircraft may be running its engines, protective blast fences should be installed.

2) When any doubt exists, vehicles or equipment manoeuvring close to an aircraft should do so with third party assistance.

3) When not in use, vehicles and mobile equipment used within apron areas should be positioned at established clearance distances from aircraft. Tools and equipment on wheels should be secured.

GAR (AMC) 1.D075 Protected Areas, Manoeuvring Area, Approach and Departure Areas

a) Acceptable means to comply with the requirements for Protected Areas, Manoeuvring Area, Approach and Departure Areas (a) should be as following:

1) Protection areas should be established around radar and radio navigation facilities. The dimensions of these areas should be in accordance with the manufacturer's advice for the safe operation of the facilities. These distances should be incorporated in the Aerodrome Manual.

2) Changes in the surrounding terrain, construction within and in the vicinity of the Aerodrome, which can affect the safe operation of navigation aids, should be monitored and remedied.

b) The requirements for Protected Areas, Manoeuvring Area, Approach and Departure Areas imply that a temporary obstacle may require a change to the declared distances.

GAR (IEM) 1.D075 Protected Areas, Manoeuvring Area, Approach and Departure Areas

Further information on how to assess and manage the various hazards/potential hazards can be found as follows (This also with reference to Aerodrome vicinity Safety Protection):

Wildlife hazard management

- Annex 14, Volume I, 9.4
- ICAO Doc 9184 Part 2 appendix 2
- Doc 9137-AN/898, Part 3, Bird Control and Reduction
- UK CAP
- Transport Canada TP11500E Wildlife Control Procedures Manual
- FAA Wildlife Hazard Management at Airports – A Manual for Airport Personnel 680
- Selected national regulations
- ACI Wild Life Hazard Manual

Dangerous lights

- Annex 14, Volume I, Ch. 5, 5.3.1.1 and 5.3.1.2,
- CAA CAP 168 Licensing of Aerodromes, Ch. 6, Section 1.3
- FAA AC 236

Lasers

- Annex 14 Volume I Ch.5 paragraph 5.3.1.2 and Figs. 5.10, 5.11 and 5.12
- CAA CAP 168 Licensing of Aerodromes, Ch. 6, Appendix 6E,
- IAA Document ALM 006 based on UK CAP 168 Licensing of Aerodromes Laser lights,
- EUROCONTROL SRC Doc. 7 Outdoor Laser Operations in the Navigable Airspace
- GASR WP 059 Aviation Safety Hazards Due To Outdoor Laser Demonstrations; Interim Guiding Principles For Airspace Protection
- Manual on Laser Emitters and Flight Safety (*Doc 9815*).

Obstacle limitation surfaces

- Annex 14 Volume I Chapter 4 paragraph 4.1 and fig. 4.1
- Airport Services Manual Part 6
- ICAO Doc 9137-AN/898/2, Part 6, Control of Obstacles, Ch. 2

- PANS-OPS Doc. 8168
- ICAO Doc 9261-AN/903 Heliport Manual, Section 3.1
- UK CAA CAP168 Chapter 4.
- UK CAA CAP 738 Safeguarding against local area development.
- FAA FAR 77 Objects Affecting Navigable Airspace

Electronic navigational aids protection zones

- Annex 10
- ICAO Doc 9184-AN/902 Part 1, Master Planning, 8.5
- Annex 10, Volume I, III, IV, V
- FAA AC 150/5300-13 Airport Design
- FAA FAR Order 6750.24C
- FAA AC 20-136 Protection of Aircraft Electrical/Electronic Systems Against the Indirect Effects of Lightning

Approach lights protection zones

- Annex 14, Volume I, Attachment A paragraph. 11.3
- FAA AC 150/5345-53A Airport Lighting Equipment Certification Program

Temporary hazardous objects

- Cranes – each aerodrome need to establish procedures for contacting crane operators in their local area, to ensure they are consulted before a crane is erected within the obstacle limitation surfaces of the aerodrome. Of the aerodrome.
- FAA FAR 77 Objects Affecting Navigable Airspace

Hazardous activities

- Policies and procedures need to be included within the aerodrome manual for liaison with other organisations whose activities may be hazardous to aircraft operating in the local area. It is not possible to offer a comprehensive list of such activities, but they might be activities such as kite flying or pigeon racing releases.

Terrain and building induced turbulence

- Annex 14 Volume 1 Chap.5 paragraph 5.3.5.1.e)
- FAA FAR 77 Objects Affecting Navigable Airspace
- Selected national regulations

Radio signal interference

- Annex 10, Volume I, III, IV, V
- Annex 10, Attachment C
- FAA FAR AC 150/5300-13 Airport Design
- FAA FAR Order 6750.24C
- FAA AC 20-136 Protection of Aircraft

GAR (AMC) 1.D080 Aerodrome Vicinity Safety Protection

In order to comply with the requirement to ensure Aerodrome Vicinity Safety Protection at least the following items should be included:

- 1) Wildlife hazard management
- 2) Hazardous, confusing and misleading lights;
- 3) Objects penetrating Obstacle limitation surfaces
- 4) Electronic navigational aids protection zones;
- 5) Approach lights protection zones;
- 6) Temporary hazardous objects;
- 7) Terrain and building induced turbulence;
- 8) Hazardous activities; (Homing pigeon releases etc.)
- 9) Environmental considerations

The policy for addressing each item should be included in the Aerodrome manual.

GAR (IEM) 1.D080 Aerodrome Vicinity Safety Protection

In the effort to keep the Aerodrome Vicinity Safety Protected from hazardous, misleading and confusing lights the following should be observed.

1) Lights which may endanger the safety of aircraft or mislead departing or arriving aircraft

A non-aeronautical ground light near an aerodrome which might endanger the safety of aircraft should be extinguished, screened or otherwise modified so as to eliminate the source of danger.

2) Laser emissions which may hazardous to the safety of aircraft

To protect the safety of aircraft against the hazardous effects of laser emitters, the following protected zones should be established around aerodromes:

- a laser-beam free flight zone (LFFZ)
- a laser-beam critical flight zone (LCFZ)
- a laser-beam sensitive flight zone (LSFZ).

Figures below may be used to determine the exposure levels and distances that adequately protect flight operations. The restrictions on the use of laser beams in the three protected flight zones, LFFZ, LCFZ and LSFZ, refer to visible laser beams only. Laser emitters operated by the authorities in a manner compatible with flight safety are excluded. In all navigable air space, the irradiance level of any laser beam, visible or invisible, is expected to be less than or equal to the maximum permissible exposure (MPE) unless such emission has been notified to the authority and permission obtained.

The protected flight zones are established in order to mitigate the risk of operating laser emitters in the vicinity of aerodromes. Further guidance on how to protect flight operations from the hazardous effects of laser emitters is contained in the Manual on Laser Emitters and Flight Safety (Doc 9815). See also Annex 11 — Air Traffic Services, Chapter 2.

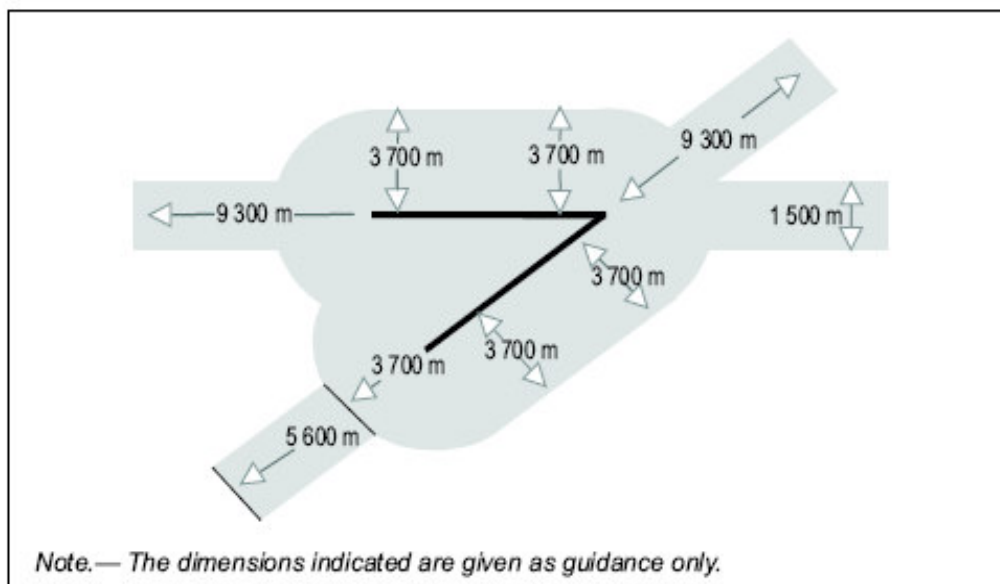
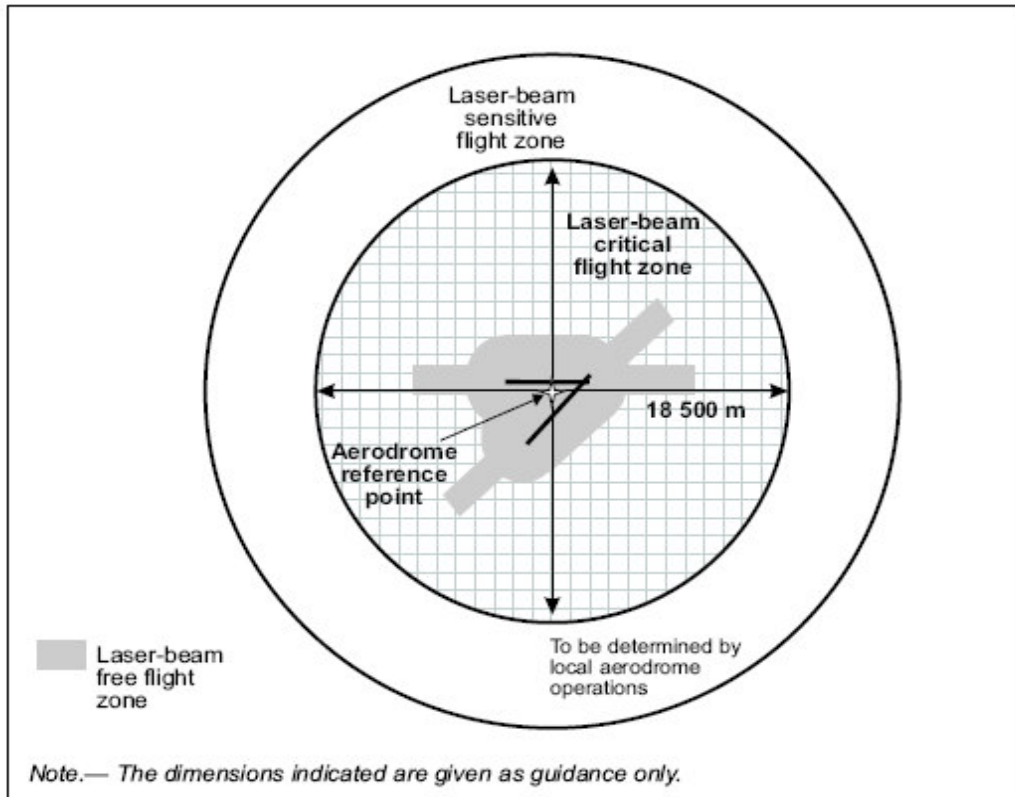
3) Lights which may cause confusion or misleading

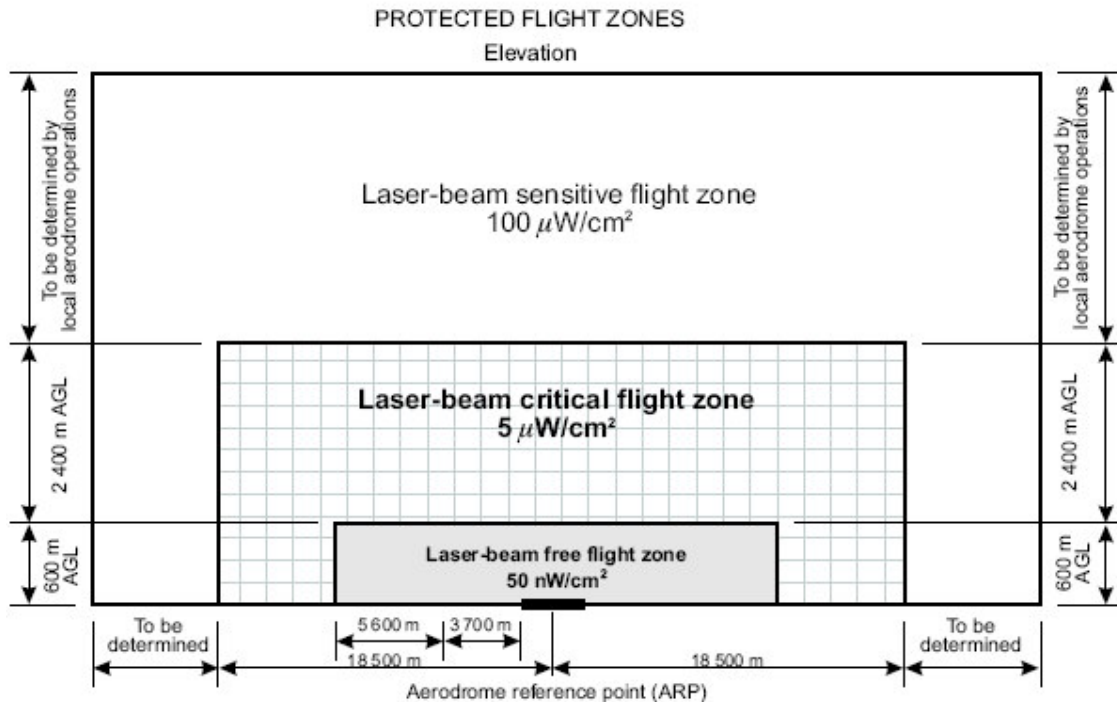
A non-aeronautical ground light which, by reason of its intensity, configuration or colour, might prevent, or cause confusion or misleading in, the clear interpretation of aeronautical ground lights should be extinguished, screened or otherwise modified so as to eliminate such a possibility. In particular, attention should be directed to a non-aeronautical ground light visible from the air within the areas described hereunder:

- a) Instrument runway — code number 4: within the areas before the threshold and beyond the end of the runway extending at least 4 500 m in length from the threshold and runway end and 750 m either side of the extended runway centre line in width.
- b) Instrument runway — code number 2 or 3: as in a), except that the length should be at least 3 000 m.
- c) Instrument runway — code number 1; and non-instrument runway: within the approach area.

4) Aeronautical ground lights which may cause confusion to mariners

In the case of aeronautical ground lights near navigable waters, consideration needs to be given to ensuring that the lights do not cause confusion to mariners.





GAR (IEM) 1.D085 Obstacle environment Programme and marking of temporary obstacles

Planned aerodrome runway development needs to be considered within this programme. When the aerodrome operator is planning and performing runway extensions, the obstacle limitation surfaces also move with that extension. Local planning agencies, estate-owners etc. must be consulted and eventually agreed with before such work can be completed.

GAR (AMC) 1.D090 Wild Life Hazard Management, general points

To satisfy the requirement for the establishment of a programme for wild life hazard management the following measures should be implemented:

a) Collection of data

The Aerodrome Operator should:

- 1) Prepare a survey and collect information about birds and wildlife on and in the vicinity of the aerodrome,
- 2) Collect information on reported occurrences of bird strikes and aircraft collisions with wildlife
- 3) Send all collected data described under Wild Life Hazard Management and other relevant information to the proper authority.

b) Risk reducing and Safety enhancing actions

- 1) At aerodromes where conflicts between aircraft and birds or wildlife can be of a potential risk, the aerodrome operator should provide preventive measures to reduce the risk on and in the vicinity of the aerodrome. Particular attention should be given to the aerodrome boundary, take-off, initial departure and final approach areas.

c) Bird strike and Wildlife strike reports

The Bird strike and Wildlife hazard on, or in the vicinity of an aerodrome should be assessed through:

- 1) The establishment of a national procedure for recording and reporting strikes to aircraft; and
- 2) The collection of information from aircraft operators, aerodrome personnel, etc. on the presence of birds or animals on or around the aerodrome. The risk assessments to be performed should be according to the Safety assessment methods devised to this regulation.

GAR (IEM) 1.D090 Wild Life Hazard Management

The ACI Aerodrome Bird Hazard Prevention and Wildlife Management Handbook are referred to as guidance material. The Training of personnel may need special attention and assistance from ornithologists

GAR (IEM) 1.D095 Air Traffic Services, Meteorological service

In the case of the Aerodrome offers or Meteorological services are connected to the local ATS information on such equipment and services can be found in ICAO Annex 3 and relevant World Meteorological Organisation (WMO) documents.

GAR (AMC) 1.D100, Surface movement guidance and control (SMGC)

In order to satisfy the requirement for Surface movement guidance and control system (SMGCS) the procedures should be developed in cooperation with the aerodrome Air Traffic Service Provider.

The following should be noted when the procedures are included in the Aerodrome Manual:

a) General:

- 1) The term SMGC system stands for a system of aids, facilities and procedures designed to meet the requirements for guidance and control of surface traffic consistent with the particular operational conditions at a particular aerodrome.
- 2) An SMGC system comprises an appropriate combination of visual aids, non-visual aids, radiotelephony communications, procedures, and control and information facilities. Systems range from very simple at non-complex aerodromes with light traffic operating only in good visibility, to the complex at busy aerodromes with operations in low visibility conditions.

b) Design

- 1) The design of a surface movement guidance and control system should take into account:
 - The density of air traffic;
 - The visibility conditions under which operations are intended;
 - The need for pilot orientation;
 - The complexity of the aerodrome layout; and
 - Movements of vehicles.
- 2) The visual aid components of a surface movement guidance and control system, i.e. markings, lights and signs, should be designed to conform to the relevant specifications in this regulation. The system should be designed to assist in the prevention of inadvertent incursions of aircraft and vehicles onto an active runway and the prevention of collision between aircraft, and between aircraft and vehicles or objects, on any part of the movement area
- 3) The level of the SMGC system that is provided at an aerodrome should be related to the operational conditions under which it is intended that the system shall operate. It is important to recognise that a complex SMGC system is not needed and it is uneconomic at aerodromes where visibility, aerodrome layout complexity and traffic density, separately or in combination, do not at present cause problems for the ground movement operations of aircraft and vehicles. However, failure to provide an SMGC system with a capacity properly matched to the operational demands at an

aerodrome will restrict the movement rate and may affect safety.

c) Functions of a SMGC:

All SMGC systems have four basic functions:

1) Guidance - which consists of the facilities, information and advice that are necessary to provide continued, unambiguous and reliable information to pilots of aircraft and drivers of vehicles to keep their aircraft or vehicles on the surfaces and assigned routes intended for their use;

2) Routing - which is the planning and assignment of a route to individual aircraft and vehicles to provide safe, expeditious and efficient movement from the current position to the intended position;

3) Control - which is the application of measures to prevent collisions and runway incursions thereby ensuring safe, expeditious and efficient ground movement; and

4) Surveillance - which provides identification and accurate positional information on aircraft, vehicles and other objects.

d) Where a surface movement guidance and control system is provided by selected switching of stop bars and taxiway centre line lights, the following should be considered.: Taxiway routes which are indicated by illuminated taxiway centre line lights should be capable of being terminated by an illuminated stop bar;

1) The control circuits should be so arranged that when a stop bar located ahead of an aircraft is illuminated, the appropriate section of taxiway centre line lights beyond it is suppressed; and

2) The taxiway centre line lights are activated ahead of an aircraft when the stop bar is suppressed.

e) Surface movement radar for the manoeuvring area should be provided at an aerodrome intended for use in runway visual range conditions greater than of 350m if a safety assessment indicate that the required level of safety cannot be achieved by other means.

GAR (AMC) 1.D115 Apron Management Service

Apron Management Service should be provided, when required by the traffic volume, on an apron by an aerodrome ATS unit; by another unit authorised by the aerodrome operator; or by a combination of these in order to coordinate the orderly movements of aircraft in and out of the apron areas with the local air traffic services unit.

To assist the aerodrome in the marking of aprons and installation of signs reference is made to ACI Apron Markings & Signs Handbook and the ACI Airside Safety Handbook.

GAR (AMC) 1.D120 Fuelling service

a) The following safety measures should be adhered to when an aircraft fuelling service is provided at an aerodrome:

- The fuelling operation should be performed according to national regulations on flammable and explosive wares.
- Fuelling vehicles should be driven in such a manner that the safety of aircraft is not affected.

b) The following preventive measures should be taken to avoid harm to aircraft or persons:

- The fuelling vehicle must be positioned to ensure a rapid exit from the aircraft is always available.
- The driver will not leave the vehicle unattended when fuelling operations are performed,
- Fuelling must not take place under conditions that pose risk from lightning discharges.
- Avoiding fuelling when adjacent aircraft have their engines running and engine exhaust may create risks for fire and explosion.

- If fuelling with Auxiliary Power Unit (APU) in operation, the APU must be capable of being switched off immediately. An APU must not be started inside the fuelling zone during fuelling operations,
 - Fire extinguishing equipment suitable for at least initial intervention in the event of a fuel fire and personnel trained in its use shall be readily available during the fuelling process, and there should be a means of quickly summoning the rescue and fire fighting service in the event of a fire or major fuel spill.
- c) Fuelling with passengers onboard and engines running may only be carried out under the direction of a competent person.
- d) When aircraft refuelling operations take place while passengers are embarking, on board or disembarking, ground equipment should be positioned to as to allow:
- The use of a sufficient number of exits for expeditious evacuation and
 - A ready escape route from each of the exits to be used in an emergency.
- e) Procedures should be in place to evacuate all passengers, including disabled passengers, onboard the aircraft in the event of a fire or emergency.
- f) Fuelling operations or other types of handling of fuel in hangars or other facilities may only be carried out under the regulations of the local community Fire Services.
- g) Fuelling of aircraft only to be performed with approved fuelling equipment.

GAR (IEM) 1.D120 Fuelling service

This facility need not be owned or managed by the Aerodrome Operator.

GAR (AMC) 1.D125 Maintenance of Movement area surfaces

Runway surface, general

The surface of pavements (runways, taxiways, aprons, etc.) should be kept clear of any loose stones or other objects that might cause damage to aircraft structures or engines, or impair the operation of aircraft systems.

The surface of a runway should be maintained in a condition such as to preclude formation of harmful irregularities. Surface irregularities may adversely affect the take-off or landing of an aeroplane by causing excessive bouncing, pitching, vibration, or other difficulties in the control of an aeroplane.

On wet runways with cross-wind conditions, the problem of aquaplaning from poor drainage is apt to be accentuated. At airports with ATS the ground staff duty manager should report to ATS if the runway is wet and considered slippery. At aerodromes without ATS such reports shall be given directly to the pilot.

a) Determination of friction characteristics of wet paved runways

- (1) The friction of a wet paved runway should be measured to:
- Verify the friction characteristics of new or resurfaced paved runways when wet
 - Assess periodically the slipperiness of paved runways when wet
 - Determine the effect on friction when drainage characteristics are poor and
 - Determine the friction of paved runways that become slippery under unusual conditions
- (2) Runways should be evaluated when first constructed or after resurfacing to determine the wet runway surface friction characteristics. Although it is recognized that friction reduces with use, this value will represent the friction of the relatively long central portion of the runway that is uncontaminated by rubber deposits from aircraft operations and is therefore of operational value. Evaluation tests should be made on clean surfaces. If it is not possible to clean a surface before testing, then for purposes of preparing an initial report a test could be made on a portion of clean surface in the central part of the runway.

(3) Friction tests of existing surface conditions should be taken periodically in order to identify runways with low friction. When the friction of a runway is found to be below the reported value then such information should be promulgated by NOTAM. However, when the friction characteristics for either the entire runway or a portion thereof are below the minimum friction level, corrective maintenance action should be taken without delay. Friction measurements should be taken at intervals depending on factors such as: aircraft type and frequency of usage, climatic conditions, pavement type, and pavement service and maintenance requirements.

(4) Measurements of the intrinsic friction characteristics of a new or resurfaced runway should be made with a continuous friction measuring device using self-wetting features in order to assure that the design objectives with respect to its friction characteristics have been achieved. The device should have a capability of using self-wetting features to enable measurements of the friction characteristics of the surface to be made at a water depth of at least 1 mm.

(5) When it is suspected that the friction characteristics of a runway may be reduced because of poor drainage, owing to inadequate slopes or depressions, then an additional test should be made, but this time under natural conditions representative of a local rain. This test differs from the previous one in that water depths in the poorly cleared areas are normally greater in a local rain condition. The test results are thus more apt to identify problem areas having low friction values that could induce aquaplaning than the previous test. If circumstances do not permit tests to be conducted during natural conditions representative of a rain, then this condition may be simulated.

(6) Even when the friction has been found to be above the level set by the State to define a slippery runway, it may be known that under unusual conditions, such as after a long dry period, the runway may have become slippery. When such a condition is known to exist, then a friction measurement should be made as soon as it is suspected that the runway may have become slippery.

(7) When the results of any of the measurements identified in (3) through (6) here above indicate that only a particular portion of a runway surface is slippery, then action to promulgate this information and, if appropriate, take corrective action is equally important.

(8) When conducting friction tests on wet runways, it is important to note that, unlike compacted snow and ice conditions, in which there is very limited variation of the friction coefficient with speed, a wet runway produces a drop in friction with an increase in speed. However, as the speed increases, the rate at which the friction is reduced becomes less. Among the factors affecting the friction coefficient between the tire and the runway surface, texture is particularly important. If the runway has a good macro-texture allowing the water to escape beneath the tire, then the friction value will be less affected by speed. Conversely, a low macro-texture surface will produce a larger drop in friction with increase in speed. Accordingly, when testing runways to determine their friction characteristics and whether maintenance action is necessary to improve it, a speed high enough to reveal these friction/speed variations should be used.

The table below provides guidance on establishing the design objective for new runway surfaces and maintenance planning and minimum friction levels for runway surfaces in use.

Test equipment	Test Tire		Test speed (km/h)	Test water depth (mm)	Minimum friction level
	Type	Pressure (kPa)			
Mumeter MK6	A	70	65	1.0	0,30
	A	70	95	1.0	0,20
Skiddometer BV11	B	210	65	1.0	0,41
	B	210	95	1.0	0,28
SFT	B	210	65	1.0	0,40
	B	210	95	1.0	0,27
RFT	B	210	65	1.0	0,42
	B	210	95	1.0	0,28
SARSYS STFT	B	210	65	1.0	0,37
	B	210	95	1.0	0,24
IMAG	C	150	65	1.0	0,30
	C	150	95	1..0	0,20
Griptester	C	140	65	1.0	?
	C	140	95	1.0	?

(9) The friction values given in the table above are absolute values and are intended to be applied without any tolerance. These values were developed from a research study conducted in a State. The specifications of the tires mentioned in the table (i.e. Types A, B and C) are contained in the ICAO Airport Services Manual, Part 2. Friction measuring devices using rubber formulation, tire tread/groove patterns, water depth, tire pressures, or test speeds different from those used in the programme described above, cannot be directly equated with the friction values given in the table. The values in the last column are averaged values representative of the runway or significant portion thereof. It is considered desirable to test the friction characteristics of a paved runway at more than one speed.

(10) Other friction measuring devices can be used. All the devices should be periodically correlated with at least one test equipment

b) Clearing of pavement surfaces

Clearing should be initiated as soon as the level of contamination such as water, ice, snow fuel, oil, chemicals, biological or rubber deposits reaches values that affects the required friction or availability of the runway system and may endanger the safe operation of aircraft.

If prioritisation is required, the following order should prevail:

- 1) Active runway (runways) with connected emergency access roads.
- 2) Taxiways serving the active runway.
- 3) Other emergency access roads.
- 4) Protected areas for Radio Navigation aids.
- 5) Apron areas.

c) Improvement of Friction

The friction level values obtained should be compared with the following criteria:

- The Design Objective Level (DOL)
- The Maintenance Planning Level (MPL)
- The Minimum Friction Level (MFL)

The friction level values produced by different Continuous Friction Measuring Equipment (CFME) vary slightly for any given runway surface friction characteristics; therefore, the correlation between the assessment criteria of different CFME devices should also be determined.

The aerodrome operator should review the results of each runway friction assessment and where appropriate take the following action:

- If the friction level indicates a falling trend, the Aerodrome Operator should increase the frequency of runway friction assessments in order to identify any further or rapid deterioration and, if appropriate, the action to be taken.
- If the friction level is below the minimum friction level for maintenance purposes, maintenance should be arranged to restore the friction level, ideally to a value equal to or greater than the Design Objective Level.
- If the friction level is below the MFL, maintenance should be arranged urgently in order to restore the friction level and, in accordance with ICAO Annex 14 Volume 1 a NOTAM shall be issued advising that the runway may be slippery when wet.
- If the friction level is significantly below the MFL, the aerodrome operator should consider withdrawing the runway from use for take-off and/or landing when wet.

Clearing of surfaces outside paved surfaces should be performed to sustain the safe movement of aircraft.

d) Maintenance Work on the Aerodrome Surfaces

1) Maintenance work on the aerodrome surfaces should be planned and implemented. The policy on this should be included in the aerodrome manual. The scope of work, physical extent and time period should be notified to concerned functions and units within the aviation community.

2) If such work will render limitations to the use of a particular runway proper measures have to be taken to ensure safety.

e) Measuring and reporting of friction values

1) Measuring of friction should be performed with friction measuring devices approved by the National Aviation Authority. Reporting should be performed in coordination with the local Air Navigation Service Provider and on SNOWTAM where winter conditions apply.

2) Measuring of friction should be performed on runways and if possible on taxiways and aprons when required by the current conditions and traffic situation.

f) Monitoring of friction on runways, taxiways and aprons

Monitoring of contamination levels, temperature changes and friction values should be performed in such a way that the contamination can be removed with the aim of improving friction.

g) Action when the movement area availability is degraded

1) When the availability of the movement area of the aerodrome is degraded so that aviation safety is affected, closure of the affected parts of or the whole aerodrome should take place. In such cases, this should be coordinated with affected aircraft operators. A closure should be notified through NOTAM.

2) When it is suspected that a runway may become slippery under unusual conditions, then additional measurements should be made when such conditions occur, and information on the runway surface friction characteristics made available when these additional measurements show that the runway or a portion thereof has become slippery.

h) Compass Base maintenance

When a Compass Base is provided at an aerodrome, measuring of the magnetic field forces should be performed periodically to ensure the accuracy of its function.

i) Use of Chemicals on the manoeuvring area

Chemicals which may have harmful effects on aircraft or pavements, or chemicals which may have toxic effects on the aerodrome environment, should not be used.

GAR (IEM) 1.D125 Maintenance of Movement area surfaces

Determination of friction characteristics of wet paved runways

- 1) The Airport Services Manual, Part 2 provides guidance on the uniform use of test equipment to achieve compatible test results.
- 2) As an alternative to using wet friction measurement data obtained by use of friction measurement devices, the aircraft operator may use texture data in combination with data on surface type (class A through E), tire pressure, tire thread depth and depth of water on the runway to calculate directly the maximum tire-to-ground, wet runway braking coefficient of friction.
- 3) The surface characteristics of the runway are described in the AIP for the aerodrome with information of surface type and if the runway is grooved. Based on JAR 25.109 and ESDU 71026) runways should be described with surface type A through E depending on measured average surface texture value of the surface according to table 1.

Class	A	B	C	D	E
Low (mm)	0,10	0,15	0,25	0,51	1,02
High (mm)	0,15	0,25	0,51	1,02	2,54

Table 1: Surface type according to ESDU 71026

- 4) To achieve an average texture depth of a new surface of 1.0 mm or more would normally require some form of special surface treatment.
- 5) If the characteristic of the runway surface is in accordance to the specifications given in the AMC either for texture or grooves, the surface will normally not be reported as slippery when wet.
- 6) If the runway is not grooved, the surface texture should be measured at sufficient intervals to ensure the requirements stated in the AMC are met at all times. If rubber or other contaminants are deposited on the runway, consideration should be given to supplement the texture measurement with wet friction measurements, depending of the amount and nature of the deposit. Guidance for measuring texture is given in Annex 14 Vol I, Attachment A and in ICAO Doc 9137 Airport Services Manual Part 2 - Pavement.
- 7) If the runway is grooved, the grooves should be inspected with sufficient intervals to ensure that they drain water efficiently. Both evenness and depth of the grooves are important. Inspection intervals shall take into account the amount of rubber or other contaminants being deposited on the runway. For runways where deposits of contaminants are not a significant issue, yearly inspections are considered sufficient.

GAR (AMC) 1.D130 Maintenance of Aerodrome Visual Aids, Ground Lighting Systems

1) Flight Checks of lighting systems

Flight checks of approach and runway lighting systems should be periodically carried out to ensure the pattern is correct and the lights are working. The opportunity should also be taken to identify any confusing or misleading lights in the vicinity of the aerodrome.

2) Ground checks of lighting systems

Ground checks of light units in approach lighting systems and runway lighting systems should be performed regularly. The checks should ensure that the requirements for intensity, beam coverage and beam direction are fulfilled.

GAR (AMC) 1.D130 Maintenance of Aerodrome Visual Aids, Unserviceable secondary power supply

- 1) In case of an unserviceable secondary power supply, the air traffic controllers should be immediately aware of this failure.
- 2) The local ATS should inform all pilots concerned.
- 3) The ATS or aerodrome operator can choose to downgrade the visual aide capability as described in their procedures and manuals.

GAR (IEM) 1.D130 Maintenance of Aerodrome Visual Aids, Ground Lighting Systems, signs and markings

In order to satisfy the performance requirements for Ground Lighting Systems, signs and markings from an interoperability view-point the ICAO Annex 14 Appendix 1-4 should be consulted.

The operational availability of Ground Lighting Systems for each separate system i.e. Approach lights, Visual Approach slope indicators, Runway edge lights, Runway threshold and wing bar lights, Runway end lights, Runway centre line lights, Runway touchdown zone lights, Rapid exit taxiway indicator lights, Stopway lights, Taxiway centre line lights, Taxiway edge lights, Runway turn pad lights, Stop bars, Intermediate holding position lights, De-icing/anti-icing facility exit lights, Runway guard lights, should not give misleading information or patterns.

GAR (AMC) 1.D135 Maintenance and operations of ground based facilities and equipment radiating electromagnetic waves for Air Navigation

a) Ground based facilities and equipment radiating electromagnetic waves

Ground based facilities and equipment radiating electromagnetic waves for Air navigation should be kept available and functional in accordance with the standards given in ICAO Annex 10.

b) Approval of facilities and equipment

- 1) Facilities and equipment radiating electromagnetic waves for air navigation should, with their monitoring equipment and the choice of position for the facilities and equipment, be approved by the National Aviation Authority
- 2) The results from the Flight Calibration should be attached to the application for approval of any VOR, DME, PAR or ILS facility.
- 3) Before an approval of a category II or III facility an operational test period is required. The National Aviation Authority will decide the test period for each facility.

c) Installation, maintenance and modification of facilities and equipment

- 1) Installation, maintenance and modification of facilities and equipment mentioned in this regulation requires approval by a maintenance facility in its turn approved by the National Aviation Authority.
- 2). Periodical checks and changes of components or units without the intention of modification of facilities or equipment need not be performed by the approved maintenance facility.

GAR (AMC) 1.140 Aerodrome Emergency Plan, Emergency Planning

In order to satisfy the requirement for planning the following AMC on Emergency Planning is acceptable. This is taken from the UK CAA - where license and licensee has the same meaning as Aerodrome Certificate and Certificate holder in this regulation”.

“1 Introduction

1.1 Aircraft accidents have the potential to involve a large number of casualties and fatalities. However, although they may be considered as disasters for the purposes of emergency planning, it

would be incorrect to suggest that all aircraft accidents have the capability to achieve disaster proportions. Many will be capable of being dealt with locally using the facilities provided by the aerodrome or with limited support from local authority emergency services. Nevertheless, an incident involving even the smallest aircraft can be life threatening, not only to the occupants but also to those in the vicinity of the incident. Whilst the scale of response to a disaster may be much greater than that required for the majority of aircraft accidents, the principles of prevention, preparedness, response and recovery do not change.

1.2 Even though the licensee will have demonstrated to the CAA's Inspecting Officers the ability of the aerodrome to meet the fire, rescue and medical requirements specified earlier in this publication, the mere provision of equipment, supplies, or personnel, to the required standard does not necessarily constitute an efficient operational unit. The licensee should also be able to demonstrate that the aerodrome's emergency arrangements are effective, and that appropriate use can be made of all available resources, in particular external emergency services, if an aircraft accident or other incident were to occur.

1.3 An aerodrome may generate hazards in addition to those that relate directly to the operation of aircraft e.g. the handling of hazardous cargoes or bulk fuel storage. Where appropriate, licensees should make plans to deal with emergencies which arise from these peripheral activities. The quantities of equipment, extinguishing agents and personnel required to deal with such emergencies may exceed those provided by the aerodrome for the scale of RFFS required to protect the movements of aircraft only.

Objectives

2.1 Emergency Planning

The objective of aerodrome Emergency Planning is to anticipate the effects an emergency might have on life, property, and aerodrome operations, and to prepare a course, or courses, of action to minimize those effects, particularly in respect of saving lives.

2.2 Emergency Plan

The objective of an Emergency Plan is to consider and record how an emergency situation or incident can be managed in order to minimize the effects it may have on life, property, and aerodrome operations, and how the best use of appropriate available resources should be applied to achieve that aim.

3 Aerodrome Emergency Planning

3.1 An Aerodrome Emergency Plan, commensurate with the level of aircraft operations and other activities, shall be established at an aerodrome as part of the process of preparing an aerodrome to cope with an emergency.

3.2 The aerodrome Emergency Plan shall anticipate the need to alert and coordinate the responses of the different aerodrome agencies (or services), in particular the aerodrome Rescue and Fire Fighting Service (RFFS), and of those agencies in the surrounding community that could be of assistance in responding to an emergency.

3.3 Emergency Orders shall clearly translate the Emergency Plan into a course or courses of action to be followed, for a given emergency or incident, that will ensure the achievement of the objectives stated at paragraph 2.

3.4 Emergency Instructions should provide detailed instructions to individuals, or to departments, of the actions required to initiate the Emergency Plan.

3.5 The Aerodrome Emergency Plan shall include procedures for leading passengers, evacuated from aircraft, to secure areas away from the scene of an incident, and shall ensure that the relevant Aerodrome Emergency Orders suitably address this topic.

4 Emergency Planning Committee

4.1 The aerodrome licensee should form an Emergency Planning Committee to discuss, determine and implement emergency planning arrangements commensurate with the sizes and types of aircraft using the aerodrome. The committee should include the appropriate Heads of Sections and local government assisting services.

4.2 The Committee while forming the Emergency Plan, should meet regularly to discuss tactics, liaison, co-operative training, and exercise planning etc. Post accident and post exercise meetings should be held to consider the work carried out by the organisation and to analyse the results with reference to improvement possibilities. The meetings should be chaired by a senior member of the aerodrome management team with the direct support of the Licensee. Records of the meetings should be taken and retained and the person accountable for the emergency planning arrangements shall be identified within the aerodrome manual."

GAR (AMC) 1.140 Aerodrome Emergency exercises

The plan should include emergency exercises in any difficult terrain in the vicinity of the aerodrome.

GAR (IEM) 1.D140 Aerodrome Emergency exercises

In order to facilitate the Aerodrome Emergency exercises the following examples of agencies are given:

- On the aerodrome: air traffic control unit, rescue and fire fighting services, aerodrome administration, medical and ambulance services, aircraft operators, security services, and police;
- Off the aerodrome: fire departments, police, medical and ambulance services, hospitals, military, and harbour patrol or coast guard.

GAR (IEM) 1.145 Rescue and Fire Fighting Service, General points

a) General application

Some states regulate Rescue and Fire Fighting (RFF) through other national authorities than the National Aviation Authority while others will have stand-alone RFF organisations for each Aerodrome. Every aerodrome should demonstrate how they meet the RFF obligations and requirements within the Aerodrome Manual.

b) Principal ruling of Rescue and Fire Fighting Service obligation at an Aerodrome

As a principal, there are two different responsibilities in the event of an Aircraft accident with ensuing outbreak of fire:

1) The RFF service has the responsibility to respond and act on the crash site if it is on the Aerodrome or in the immediate vicinity of the Aerodrome and to save lives in their effort to suppress and extinguish the fire. Connected to that responsibility, they will facilitate the evacuation of crew and passengers and where necessary commence rescue operations.

2) The first responsibility rests with the Aircraft Operator, with the inherent evacuation systems to facilitate an evacuation.

3) The response to an accident or incident involving RFF in the immediate vicinity of an Aerodrome is not always possible without extreme effort from society. The normal expectation is that response will happen within the aerodrome boundary including the approach sectors up to the length of the approach light installations. Within areas such as large waters or swampy areas, difficult terrain, and distances greater than 3000 meters from the centre of the aerodrome special effort is needed to satisfy a successful response.

c) Limitations

1) It has been assessed by some Civil Aviation Authorities to set either a lower or higher limit at which RFF becomes necessary at an Aerodrome.

2). Special circumstances that can make it economically impossible to provide the rescue and fire fighting services might be that an aerodrome is located in a remote and sparsely populated area. Aerodromes are in such a case the only means of swift communication. Such circumstances require a safety assessment being presented to the National Aviation Authority for comparison against local community needs.

d) Public Fire Protection

States generally sets requirements for the public fire protection through other authorities than the National Aviation Authority. Fire protection in general is not covered by this regulation other than to respond to the public requirement for community protection.

e) Elements of the Emergency Plan

The aerodrome emergency plan document should include at least the following: types of emergencies planned for; Responsibility and role of each agency, the emergency operations centre and the command post for each type of emergency.

f) Emergency operations centre and command post

Suitable facilities should be provided appropriate to the scale of operation at the aerodrome, to ensure effective coordination and management of all the services responding to an emergency. (See ICAO Annex 14 vol1). A suitable communications system linking the coordinator(s) with all participating services should be provided.

GAR (IEM) 1.D145 Rescue and Fire Fighting Service, Suitable RFF organisations and location

Public or private organizations, suitably located, equipped with trained personnel, may be designated to provide the rescue and fire fighting service. It is intended that the fire station, housing these organizations, is normally located on the aerodrome, although an off-aerodrome location is not precluded provided that the response time can be met

GAR (AMC) 1.145 Rescue and Fire Fighting Service, Competence, Manning, Extinguishing agents and water supply

a) Competence

The Competency of the Rescue and Fire Fighting Service should be achieved through means of acquiring formal training on how to engage in aircraft accidents with ensuing fires, through specialised training organisations, complemented by “on the job training” and vocational experience in related fields of work. A proper training should be based on a curriculum, which includes initial and recurrent instruction in at least the following areas:

- Airport familiarization including driving on the movement area;
- Aircraft familiarization;
- Rescue and fire fighting personnel safety;
- Emergency communications systems on the aerodrome, including aircraft fire related alarms;
- Use of fire hoses, nozzles, turrets and other appliances required for compliance;
- Application of the types of extinguishing agents required for compliance;
- Emergency aircraft evacuation assistance;
- Fire fighting operations;
- Adaptation and use of structural rescue and fire fighting equipment for aircraft rescue and fire fighting;
- Dangerous goods;
- Familiarization with fire fighters’ duties under the aerodrome emergency plan; and

- Protective clothing and respiratory protection.
- Personnel engaged in rescue and fire fighting must receive initial and recurrent competence based training relevant to their role.
- Training programmes should take account of human factors performance including team co-ordination.
- Live fire drills should be commensurate with the types of aircraft and types of RFF equipment in use at the aerodrome, including pressure-fed fuel fires.

b) Manning

In determining the number of personnel required to provide for rescue, consideration should be given to types of Rescue and Fire Fighting Equipment used at the Aerodrome.

c) Extinguishing agents and water supply

1) To satisfy the objective of required amount of extinguishing agents and discharge rates for the respective rescue and fire fighting category the aerodrome management has two options. Either the table below is used or calculations can be performed according to the guidelines given in ICAO Aerodrome Design Manual Part 4 under critical Area and Discharge Rate.

Rescue and Fire Fighting service (d): Required total water capacity, in relation to aeroplane dimensions using an aerodrome, in Rescue and Fire Fighting Vehicles at a Certified Aerodrome.

Rescue and Fire Fighting Category	Aircraft Fuselage Maximum Length (m)	Aircraft Fuselage Maximum Width (m)	Foam A		Foam B		Complementary agent*
			Required Water Quantity (L)	Discharge rate foam solution /minute (L)	Required Water Quantity (L)	Discharge rate foam solution /minute (L)	Dry chemical powders (kg)
10	89,0	8,0	53800	16600	36 000	11 200	450
9	76,0	7,0	42700	13500	27 800	9 000	450
8	61,0	7,0	31400	10800	20 900	7 200	450
7	49,0	5,0	21700	7900	14 400	5 300	225
6	39,0	5,0	14900	6000	10 000	4 000	225
5	28,0	4,0	9200	4500	6 100	3 000	180
4	24,0	4,0	4350	2600	2 900	1 800	135
3	18,0	3,0	2250	1300	1500	900	135
2	12	2,0	1200	800	800	550	90
1	9,0	2,0	770	350	500	230	45

* For complimentary agents refer to the ICAO Airport Services Manual Part 1.

d) Number of rescue and fire fighting vehicles

The minimum number of rescue and fire fighting vehicles provided at an aerodrome should be in accordance with the table below.

Aerodrome Category	RFF vehicles
1	1
2	1
3	1
4	1
5	1
6	2
7	2
8	3
9	3
10	3

e) *Protective clothing and respiratory equipment*

All responding rescue and fire fighting personnel should be provided with protective clothing and respiratory equipment to enable them to perform their duties as safely as possible and in an effective manner.

GAR (AMC) 1.145 Rescue and Fire Fighting Service, Response Time

a) *Response time:*

Response time means the time between the initial call to the rescue and fire fighting service, and the time when the first responding vehicle(s) is (are) in position to apply foam at a rate of at least 50 per cent of the discharge rates of the foam solution specified for the aerodrome category.

b) *Optimum visibility and surface conditions*

“Optimum visibility and surface conditions” means daytime, good visibility, no precipitation with normal response route free of surface contamination e.g. water, ice or snow.

c) The personnel for rescue and fire fighting can be assigned for other duties as long as the response time is met.

d) Satellite fire stations can be provided whenever the response time cannot be achieved from a single fire station.

e) Whenever requested by the National Aviation Authority, the Aerodrome Operator should be obliged to both demonstrate that the response time could be met and show records that this has been previously recorded at suitable time intervals.

f) *Communication and Alerting Systems*

Comprehensive alerting and discrete communication systems should be provided at an aerodrome to facilitate adequate alerting and communication.

GAR (IEM) 1.145 Rescue and Fire Fighting Service

Further information of application of RFF resources can be found in some of the following documents:

ICAO Annex14 Volume I

ICAO Doc. 9137 – AN/898 Part 1, RFF, Part 7 and 8

UK CAP168

FAA AC 150/5210 – 6c Extinguishing Agents, - 2a Airport Emergency Medical Facilities and Services

FAA AC 150/5200 – 31a Airport Emergency Plan

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