



دُوَلَةِ الْإِمَارَاتِ الْمُهَبَّةِ الْمُتَّبِعَةِ  
الْهَيْئَةُ الْعُلَمَاءُ لِلطَّيْرَانِ الْمُعَنَّبِ  
**UAE** General Civil Aviation Authority

## CIVIL AVIATION ADVISORY PUBLICATION

**CAAP 44**

# **Low Visibility Procedures (LVP)**

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## Glossary

For the purpose of this document, the following definitions apply:

Accepted/Acceptable.		Means not objected to by the Authority as suitable for the purpose intended.
Advanced Surface Movement Guidance and Control System (A-SMGCS).		A system providing routing, guidance and surveillance for the control of aircraft and vehicles in order to maintain the declared surface movement rate under all weather conditions within the aerodrome visibility operational level (AVOL) while maintaining the required safety.
Aerodrome.		A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.
Aerodrome control tower.		A unit established to provide air traffic control service to aerodrome traffic.
Aerodrome control service.		Air traffic control service for aerodrome traffic.
Aerodrome Facilities and Equipment.		Facilities and equipment, inside or outside the boundaries of the aerodrome, that are constructed or installed, operated and maintained for the arrival, departure and surface movement of aircraft.
Aerodrome Manual.		The manual that forms the exposition and is part of the application for an Aerodrome Certificate pursuant to these Regulations, including any amendments thereto accepted by the Authority.
Aerodrome Certificate – Low Capacity		A certificate issued to the operator of an aerodrome, for the operation of an aerodrome limited to air service operations by aircraft with either a maximum seating capacity of 10 passenger seats or a maximum take-off weight of 5,700 kilograms.
Aerodrome Certificate.		A certificate issued by the Authority under Civil Aviation Regulation Part IX for the operation of an aerodrome.
Aerodrome Operator.		In relation to a Certified Aerodrome, the aerodrome operator.

Air Service.	An air service operation open to the public and performed by an aircraft for the public transport of passengers, mail or cargo for remuneration or hire.
Apron.	A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.
Apron Management Service.	A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.
Area Control Centre. (ACC)	A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.
Area Control Service.	Air traffic control service for controlled flights in control areas.
Certified Aerodrome.	An aerodrome whose operator has been granted an aerodrome certificate by the authority under applicable regulations for the operation of an aerodrome.
Free Ranging	For the purpose of this document, Free Ranging is a privilege granted to specific competent airside drivers by the Aerodrome Operator and ATC in carrying out their duties on the manoeuvring area.
Foreign Object Debris (FOD)	Any debris on the airfield that can cause damage to an aircraft.
Instrument Runway.	<p>One of the following types of runways intended for the operation of aircraft using instrument approach procedures:</p> <p>Non-precision Approach Runway. An Instrument Runway served by visual aids and a non-visual aid providing at least directional guidance adequate for a straight-in approach.</p> <p>Precision Approach Runway, Category I. An Instrument Runway served by ILS and/or MLS and visual aids intended for operations with a decision height not lower than 60 m (200 ft) and either a visibility not less than 800 m or a Runway Visual Range not less than 550 m.</p> <p>Precision Approach Runway, Category II. An Instrument Runway served by ILS and/or MLS and visual aids intended for operations with a decision height lower than 60 m (200 ft) but not lower than 30 m</p>

(100 ft) and a Runway Visual Range not less than 300 m.

Precision Approach Runway, Category III. An Instrument Runway served by ILS and/or MLS to and along the surface of the runway and:

A - intended for operations with a decision height lower than 30 m (100 ft), or no decision height and a Runway Visual Range not less than 175 m.

B - intended for operations with a decision height lower than 15 m (50 ft), or no decision height and a Runway Visual Range less than 175 m but not less than 50 m.

C - intended for operations with no decision height and no Runway Visual Range limitations.

*Note: Where decision height (DH) and Runway Visual Range (RVR) fall into different categories of operation, the instrument approach and landing operation would be conducted in accordance with the requirements of the most demanding category (e.g. an operation with a DH in the range of CAT IIIA but with an RVR in the range of CAT IIIB would be considered a CAT IIIB operation or an operation with a DH in the range of CAT II but with an RVR in the range of CAT I would be considered a CAT II operation).*

Intermediate Holding Position.	A designated position intended for traffic control at which taxiing aircraft and vehicles shall stop and hold until further cleared to proceed, when so instructed by the aerodrome control tower.
Low Visibility Conditions (LVC).	The met conditions requiring CAT II or CAT III instrument approaches.
Low Visibility Procedures (LVP).	The measures required to support safe operations at an aerodrome in Low Visibility Conditions (LVC).
Manoeuvring Area	That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.
Movement Area	That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).
RFFS Optimum.	Optimum visibility and surface conditions are defined as daytime, good visibility, no precipitation with normal response routes free of aircraft and surface contamination.

Runway.	A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.
Runway Guard Lights.	A light system intended to caution pilots, vehicle drivers and other runway users that they are about to enter an active runway.
Runway-Holding Position.	A designated position intended to protect a runway, an obstacle limitation surface or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower.
Runway Visual Range (RVR).	The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.
Safety Management System (SMS)	A system for the management of safety at aerodromes, including the organizational structure, responsibilities, procedures, processes and provisions for the implementation of aerodrome safety policies by an Aerodrome Operator, which provides for control of safety at, and the safe use of, the aerodrome.
Safeguarded	For the purpose of this document, Safeguarded is defined as the result of a pre LVP process to ensure that essential Navigational aids and runways are protected from interference and incursion.
Surface Movement Guidance and Control (SMGC).	A system for the provision of guidance to and control of, all aircraft, ground vehicles and personnel on the Movement Area of an aerodrome for the prevention of collisions and to ensure that traffic flows smoothly and freely.
Work Area	Means a part of an aerodrome in which maintenance or construction works are in progress.

## **Chapter 1      Introduction**

### **1      General**

- 1.1 As an integral part of an Aerodrome Operator's Safety Management System (SMS), an effective Low Visibility Plan (LVP) shall be developed and established at all certified airports operating in Low Visibility Conditions (LVC).
- 1.2 CAR Part IX, Chapter 4.21, Low Visibility Procedures outlines the regulatory requirements to establish such procedures for all relevant operational areas at the aerodrome.
- 1.3 The criteria, which are given in this CAAP, reflect the GCAA's interpretation of Standards and Recommended Practices of Annex 14 to the Convention on International Civil Aviation, in so far as these have been adopted by the United Arab Emirates (UAE) in respect to aerodrome operations during Low Visibility Conditions.

### **2      Purpose**

- 2.1 The purpose of this document is to offer guidance to Aerodrome Operators as to what should be included in the policy and procedures for Low Visibility Operations at their aerodrome.
- 2.2 Appendix A provides guidance for the aerodrome operator in conducting a LVP safety assessment.

### **3      Responsibility**

- 3.1 The implementation of the requirements contained in these Low Visibility Regulations is the responsibility of the aerodrome operator who shall ensure that suitable measures have been taken.

### **4      Scope**

- 4.1 The criteria in this document apply to all Certified Aerodromes within the UAE. The document should also be used as a resource by non-certified aerodromes as guidance to ensure a safe operating environment.

## **Chapter 2     Low Visibility Operations**

### **1     Introduction**

- 1.1 Aircraft operations at aerodromes during reduced visibility or low cloud conditions present additional hazards to the aircraft and to other aerodrome users. As visibility reduces, the ability of air traffic service staff, pilots, vehicle drivers and other personnel to identify hazards and to take remedial action in a timely manner becomes limited. In conditions of low cloud, the time available for the pilot of an approaching aircraft to assess the aerodrome environment visually is reduced.
- 1.2 Aerodromes that wish to continue operating in poor visibility or are available for instrument approaches in conditions of low cloud are required to develop and maintain procedures to be implemented in poor weather conditions in order to safeguard the operation of aircraft. These procedures are known as Low Visibility Procedures (LVP).
- 1.3 Aerodromes that are available for precision instrument approaches are required to develop and maintain additional processes that ensure suitable measures are in place to protect the signal produced by the ground-based radio navigation equipment.

### **2     Responsibilities with respect to Low Visibility Procedures**

- 2.1 The aerodrome operator shall develop and maintain the LVP used at their aerodrome.
- 2.2 Whilst ATC are responsible for advising pilots of the status of LVP at an aerodrome, it is the responsibility of the aerodrome operator to ensure that all measures required to protect aircraft operations in poor weather conditions are in place before advising ATC that LVP can be declared to be in force.

### **3     Hazards**

- 3.1 On aerodromes where the ground marking and lighting is satisfactory, ground traffic flow rates can often be sustained safely in visibilities down to 500 m. An aeroplane on the ground is most vulnerable during the landing and the take-off phases of flight, when the pilot is severely restricted in the avoiding action that he or she can take. The aircraft is likely to be badly damaged or destroyed if it collides, at high speed, with any sizeable object. As visibility deteriorates the potential for runway incursions by aircraft vehicles or personnel increases.

- 3.2 The risk of inadvertent runway incursion by taxiing aircraft is greatest at aerodromes with complex layouts and multiple runway access points. This risk can only be managed adequately by the application of procedures that provide the pilot with clear, unambiguous guidance on routing and holding points or ground traffic patterns.
- 3.3 The safe operation of vehicles on the movement area depends to a large degree upon drivers being adequately trained and thoroughly familiar with the aerodrome layout in all visibility conditions and by complying with procedures, signs, signals and ATC instructions. As part of their SMS, aerodrome operators should have in place a process that ensures drivers permitted to operate in airside areas at times when LVP are in force, are not only appropriately trained but also remain competent in view of the limited occasions in which these conditions occur.
- 3.4 During precision instrument approach operations, interference with the signal guiding the aircraft can cause deviation to the aircraft's flight path and can cause unnecessary go-arounds.

#### **4 Low Visibility Procedures**

- 4.1 In order that flying operations may be safely conducted at aerodromes in low visibility conditions, aerodrome operators, in consultation with local ATS staff, should determine the movement rate that they wish to sustain and develop LVP that will support the desired movement rate. The declared movement rate shall be notified to the UAE Area Control Centre (ACC)
- 4.2 These procedures will vary with each aerodrome, are subject to acceptance by the GCAA, and shall be included within the aerodrome manual and all stakeholders' procedures manuals. LVP should take account of the factors described in the following paragraphs.
- 4.3 In order to protect aircraft operating on the ground in low visibilities, it is essential to prevent unauthorised vehicular traffic from entering the movement area. The area should, where practicable, be fenced and provided with manned controlled entry points. Where unguarded gates are provided, they should be kept locked and inspected regularly to ensure that they remain secure. Where physical closure is not practicable, for example between aircraft maintenance areas and manoeuvring areas, entry points should be manned and where the opening is too wide for visual surveillance, then it should be fitted with intruder detection equipment suitable for operation in low visibility conditions. By protecting the movement area in this manner, it should be possible to exclude unauthorised personnel who will not be aware of aerodrome traffic control procedures.

- 4.4 Complete protection can be expensive and is sometimes difficult to achieve, particularly on large aerodromes where taxiways cross vehicular traffic routes, and where maintenance areas compete with parking aprons for space. Where it is not practicable to secure the area in the manner recommended above, the aerodrome operator shall satisfy the GCAA as to the security of the aerodrome's operations in low visibility conditions.
- 4.5 When LVP are in force, only vehicles essential to the aerodrome operation and driven by formally tested and authorised drivers should be allowed on to the manoeuvring area. All such vehicles should be equipped with an airfield chart permanently displayed in the driver's cab clearly showing all taxiways, runways, holding points and vehicle routes marked with their appropriate designation. The chart should be accompanied by written instructions clearly detailing the action that the driver should take in the event that the vehicle should break down or that the driver should become unsure of his position on the airfield. In addition, all vehicles operating on the manoeuvring area should be equipped with R/T and the driver required to maintain contact with ATC at all times.
- 4.6 Authorised drivers should be thoroughly briefed, possess ICAO level 4 English and be familiar with the aerodrome layout including closed taxiway junctions and runway access points, the meaning of all markings, signs and aerodrome lighting and the use of standard R/T phraseology. Drivers that are restricted to certain areas of operation should be familiar with the limits of those areas, particularly if they cannot be clearly marked, for example, on the aerodrome surface. Authorised drivers should be checked at least annually for competence and knowledge of local instructions.
- 4.7 All non-essential vehicles and personnel, e.g. works contractors and maintenance parties and their equipment, must be withdrawn from the manoeuvring area.
- 4.8 In order to continue unrestricted operations for as long as possible whilst weather conditions deteriorate, LVP at many aerodromes are designed to implement most of the ground-based measures in good time and, in certain circumstances, before they are absolutely necessary. The final measures, which are wholly within the control of ATC, should be implemented only when the weather conditions demand it. However, in such cases there is potential for misunderstandings to occur as to the status of LVP at the aerodrome. Processes should ensure that the potential for such misunderstandings is minimised and that there is a single point from which definitive information about the current status of LVP can be confirmed.

- 4.9 Rescue and Fire Fighting Service (RFFS) vehicles are essential to airfield operations at all times and response and deployment times are of vital concern to aerodrome operators. RFFS response time will be significantly affected in low visibility, temporary relocation of vehicles to strategic points may be necessary for a very large or complicated aerodrome. In visibilities below the RFFS optimum there is greater probability that response times will be affected.
- 4.10 Similarly, because congregations of wildlife are difficult for both ATS staff and pilots to observe in poor weather conditions, bird hazard control operations should not be restricted during LVP. Processes should ensure that adequate time between movements is afforded to permit bird hazard control measures to be implemented. The importance of maintaining a runway inspection regime in sustained periods of LVP implementation is also highlighted. This too should be accounted for when determining the declared movement rate.
- 4.11 The risk of inadvertent runway incursion by an aircraft, or aircraft misrouting, is increased in low visibility conditions. Wherever possible this risk should be minimised by keeping taxiway routings as simple as is practicable. This can be best achieved by restricting the available taxiway system wherever possible to a single route from the apron to the runway, with intermediate junctions closed, a clearly defined runway entry point, holding point and a separate exit taxiway and return route for landings or rejected takeoffs.
- 4.12 All other runway access or crossing points should be closed. This can be achieved by the use of red stop-bars or by a physical barrier using the unserviceability markers. Markers used in this manner should be either retro-reflective or augmented by lights. In this way, the procedural control of aircraft and vehicles at complex aerodromes can be simplified. On major aerodromes where traffic is such that several routes are operated simultaneously, a Surface Movement Guidance and Control system is likely to be required in order to achieve the declared movement rate.
- 4.13 Car Part VIII, sub part 9 requires the provision of Surface Movement Radar (SMR) at aerodromes where operations in RVR less than 300 m take place. SMR enhances existing ATC procedures and its use should not be regarded as the prime method by which collision avoidance can be effected.
- 4.14 During LVC it will be required to limit the number of runway exits, taking into account the traffic density and means to control the ground operations.

## **5 Visibility Conditions and Associated Actions**

- 5.1 The point at which LVP are implemented will vary from one aerodrome to another depending on local conditions and facilities available. However, a period of time is required to prepare and safeguard the aerodrome and, in particular, the movement area, in readiness for the LVP. The point at which LVP are to be implemented must be clearly defined in terms of a specific RVR, expressed in metres, or cloud ceiling measurement, expressed as a height in feet, and must be promulgated in relevant notices and documentation to all those persons involved.
- 5.2 Aerodrome operators, in conjunction with the Air Traffic Service Provider where applicable, should develop actions to ensure that, in good time prior to the implementation of LVP, all airlines and other organisations with movement area access are notified. This is particularly important where companies exercise control over their own apron areas and maintenance facilities adjacent to the manoeuvring area.
- 5.3 The measures must ensure that, prior to the implementation of LVP, all actions to protect aircraft operations have been put in place. Particular attention should be given to the protection of the runway and radio navigational aids. Access to the manoeuvring area shall be restricted to essential operational safety vehicles and personnel. Any temporary work-in-progress on the manoeuvring area shall cease and the work areas shall be vacated and returned to operational condition or clearly marked/lit and notified as unavailable for use. The decision to commence or continue such work, especially involving construction, when a significant probability for the need to invoke LVP exists, should take account of the time it will take to cease the work, remove all persons and equipment, and prepare the site for LVP.
- 5.4 The planning process employed in the development of major construction projects should include an SMS which details the control measures that would be implemented should it be deemed necessary to continue both WIP and aircraft operations during LVP.
- 5.5 It is not possible to lay down definitive rules governing the actions to be taken in order to ensure the smooth implementation of LVP at every aerodrome. The following guidelines may be of assistance in developing robust LVP.

## **6 Visibility Conditions**

- 6.1 Whereas ICAO Doc 9476 Manual of Surface Movement Guidance Control System (SMGCS) chapter 2, lists three visibility conditions for the purpose

of discussing SMGCS, a further condition (condition 4) is listed in ICAO Doc 9830 Advanced Surface Movement Guidance Control System (A-SMCS) A summary of low visibility conditions has been included as follows:

## **7      Visibility Condition 1**

- 7.1      Visibility Condition 1 is defined as visibility sufficient for the pilot to taxi and to avoid collision with other traffic on taxiways and at intersections by visual reference, and for ATC personnel to exercise control over all traffic based on visual surveillance.
- 7.2      No additional requirements for the protection of ground operations by aircraft are required during Visibility Condition 1.

## **8      Visibility Condition 2**

- 8.1      Visibility Condition 2 is defined as visibility sufficient for a pilot to taxi and to avoid collision with other traffic on taxiways and at intersections by visual reference, but insufficient for ATC personnel to exercise control over all traffic on the basis of visual surveillance.
- 8.2      Actions required in Visibility Condition 2 are dependent on the dimensions of the manoeuvring area and the position of the control tower. Procedures and visual aids will allow the pilot to determine his position and follow the required route. In the lower ranges of Visibility Condition 2, the necessary measures might limit the movement rate unless some additional aids are available, such as Surface Movement Guidance and Control Systems, which may enable a greater movement rate to be achieved safely.
- 8.3      Adequate safeguards against runway incursions should be in place, such as limited taxi routing, surface movement radar assistance and stop-bars or physical barriers at runway access points.
- 8.4      When the visibility decreases to a value equivalent to about 1000 m RVR, and is expected to fall further, the withdrawal of vehicles and personnel involved in construction, maintenance and other non-essential activities on the manoeuvring area should normally be initiated. Routine maintenance on visual and non-visual aids should be suspended and the ILS sensitive area should be cleared of all traffic. As the RVR deteriorates to 600 m, or the cloud ceiling reduces to 200 ft, the withdrawal of non-essential vehicles and personnel from the manoeuvring area should be completed and all activities on the manoeuvring area should be brought under specific control by ATC (e.g. all activities subject to individual clearances as opposed to free ranging).

## **9      Visibility Condition 3**

- 9.1    Visibility Condition 3 is defined as visibility equivalent to an RVR of less than 400 m, but more than 75 m.
- 9.2    In such visibility conditions, it is likely to be necessary to restrict further the operation of vehicles and persons on the manoeuvring area. Procedures developed for ATC to assist all essential operations on the manoeuvring area should be implemented.

## **10     Visibility Condition 4**

- 10.1   Visibility insufficient for the pilot to taxi by visual guidance only. This is normally taken as an RVR of 75 m or less.

Note. - The above visibility conditions apply for both day and night operations.

## **11     Precision Instrument Approach Operations**

- 11.1   As the RVR and the cloud ceilings values deteriorates to the minimum at which Category I approaches can be made (typically below 600 m but the exact value is determined by a variety of factors), or the cloud ceiling reduces to 200 ft, the withdrawal of non-essential vehicles and personnel from the manoeuvring area shall be completed.
- 11.2   In such conditions, all measures designed to protect Category II and III approaches should be in place.
- 11.3   It should be noted that a pilot will expect a precision instrument approach aid to be fully safeguarded and available for Category II or III use if LVP are declared to be in force by ATC (see paragraph 6.2) at the aerodrome.

## **12     Declaration of Low Visibility Procedures in Force**

- 12.1   It is essential that all LVP safeguarding measures be verified as in place before LVP are declared to be in force by ATC. Similarly, LVP should be declared as cancelled before the aerodrome operator withdraws any safeguarding measures. It should be remembered that aircraft established on an approach may have commenced that approach believing that LVP are in force and that measures taken to protect the approach aid and runway remain in place until all such aircraft have completed their approach.
- 12.2   At aerodromes that support Category II or III operations and in conditions that preclude Category I operations, under no circumstances should LVP be declared to be in force if the appropriate safeguards for Category II or III operations are not fully in place to protect the landing aids and runway.

12.3 Misunderstandings about the status of LVP can easily arise during periods when the procedures are being introduced or withdrawn. This is particularly true at aerodromes where some safeguarding measures may be left in place during what may be a temporary improvement in the weather conditions so that full LVP can be re-instituted at short notice should the weather deteriorate again. Local processes should ensure that the status of LVP is clearly understood by all stakeholders involved in aerodrome operations.

### **13      Review of Low Visibility Procedures**

- 13.1 LVP table top exercises shall be conducted annually for any LVP. An example of what should be included in a LVP Table Top Exercise is given in Appendix B to this document.
- 13.2 Aerodrome Operators, in co-operation with local ATC staff and other stakeholders involved in LVP operations, should regularly review the effectiveness of LVP. Changes identified shall be included in the aerodrome manual and all stakeholders' procedures manuals.

### **14      Additional information**

- 14.1 Low visibility operations are discussed in greater detail in ICAO Doc 9476 Manual of Surface Movement and Guidance Control Systems, Chapter 5 and examples of LVP in use at several international airports are given in Appendix B to the ICAO Doc 9476 Document.
- 14.2 Systems designed to enable movement rates to be sustained are discussed in ICAO Doc 9830 Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual.

## **Chapter 3      Obstacle Control**

### **1      Introduction**

- 1.1      Control of obstacles shall be based on surfaces as prescribed in CAR Part IX, Appendix 13.

### **2      Approach / Landing Surfaces**

- 2.1      Obstacle restriction shall be enforced for Category II and Category III precision approach runways as detailed in Annex 14, Volume 1, Chapter 4.
- 2.2      For Category II operations, penetration of obstacle limitation surfaces may be accommodated at the expense of increased OCA/H.
- 2.3      For Category III operations, penetrations of approach, transitional or baulked landing surfaces are not permitted.

### **3      Take-off / Climb Surfaces**

- 3.1      Dimensions of the take-off and climb surface shall be as defined in CAR Part IX, Appendix 13, Obstacle Control and Markings, except the slope shall be 1.6 per cent

## **Chapter 4      Pavement Markings**

- 4.1      Airport operators shall ensure surface markings are compliant with CAR Part IX, Appendix 12, Markings and Markers. In addition, it must be ensured that other essential markings in connection with LVP are treated accordingly.
- 4.2      Taxiway and taxiway / apron intersections and intermediate holding positions shall be identified with markings and signs that are legible to the pilot in the cockpit in all visibility conditions during which the airport will be used.

## **Chapter 5      Aeronautical Ground Lighting (AGL)**

- 5.1      Aerodrome operators shall ensure all AGL are compliant with CAR Part IX, Appendix 9, Aerodrome Lighting.

## **Chapter 6      AIP / NOTAM**

- 6.1      The wording of NOTAM or AIP entries shall not give the impression that such operations are dependent on the availability of any particular part of the ground system. This shall include a description of procedures that will be applied as part

of the LVP, together with the trigger point at which they will be implemented by Air Traffic Services.

## **Chapter 7 Aerodrome Facilities**

### **1 Introduction**

- 1.1 When LVC are planned for an airport, all facilities must be considered and assessed for suitability. The guidance detailed in this CAAP must be considered in conjunction with appropriate GCAA Civil Aviation Regulations and documents related to the airport and its facilities.
- 1.2 The specific types of operations requiring establishment of LVP are:
  - 1) Low Visibility Take-off;
  - 2) Approach and landing operations in Category II and III weather conditions;
  - 3) Deteriorating weather conditions, which preclude full visual observation of the manoeuvring area.
- 1.3 The conduct of LVP depends on the existence of suitable runway protection measures, surface movement guidance and control, emergency procedures and apron management.
- 1.4 The extent and complexity of the procedures will depend on the operations being conducted while meeting the objectives as stated in paragraph 4
- 1.5 The physical characteristics of runways and taxiways, and the characteristics of pre-threshold terrain shall be carefully considered to ensure safe operations in LVC.

### **2 Apron Management**

- 2.1 Apron management service is normally required under LVC to provide instructions and advise to pilots and vehicle drivers in order to manage movement of traffic on apron areas.
- 2.1 Local procedures shall be developed by the unit operating the apron management service to manage the movement of aircraft and vehicles on the apron for the lowest visibility conditions under which the aerodrome will maintain operations.
- 2.2 A formal agreement between ATC and the Apron Management Service shall define the LVP to be used and clearly state the tasks and responsibilities of each party in LVC, in particular including provisions for the movement of vehicles on the apron.

### **3 Rescue and Fire Fighting**

- 3.1 To meet the operational objective as nearly as possible in less than optimum conditions of visibility, especially during low visibility operations, suitable guidance, equipment and/or procedures for rescue and fire-fighting services shall be provided.
- 3.2 RFFS appliances shall be equipped with an airfield chart clearly showing all taxiways, runways, holding points and appliance routes marked with their appropriate designation, emergency runway RFFS standby positions. The chart(s) should be accompanied by written instructions clearly detailing the action that the driver/officer should take in the event that the appliance should break down or that the driver/officer should become unsure of the appliances position on the aerodrome.
- 3.3 Once low visibility operations have been initiated it may be necessary to restrict the operation of appliances and crews in the aircraft manoeuvring area. Procedures for ATC to assist the RFFS in case of an accident or incident in low visibility conditions should be developed, implemented, tested and exercised.
- 3.4 Operational procedures should be developed through which ATC stop or divert all aircraft and non-essential traffic that conflicts with responding RFFS appliances. RFFS personnel should continuously monitor the minimum visibility operating conditions in order to maintain response capability under such conditions.
- 3.5 Positioning appliances and crew on prolonged states of readiness during low visibility operations can cause an adverse affect on appliances and crews. During low visibility standbys on fire stations there should be no need to keep the appliance engine running. Appliance and crew shall always be kept fit for immediate turnout in all conditions.
- 3.6 Appliance positioned off station at standby locations within the aircraft manoeuvring area shall maintain radio contact with ATC, and only relocate or respond to incidents under the guidance of ATC. Officers and crews should remain vigilant to the surroundings and the changes in circumstances at all times.
- 3.7 At all times during LVPs and when responding to all incidents the RFFS Officer-in-Charge is to get ATC permission before leaving the fire station.
- 3.8 All aerodromes RFFS should establish an on aerodrome lost aircraft search plan and procedures. Such plans should be exercised and assessed.

- 3.9 All available aids, including the Surface Movement radar, shall be used to guide Rescue and Fire Fighting Appliances to the location of the emergency.
- 3.10 Service roads and emergency access roads shall be provided with adequate signs and markings which enable drivers to establish their position and route in the lowest visibility conditions in which the airport maintains operations.

#### **4 Ground Vehicles**

- 4.1 The requirement for ATC to be continuously aware of the movement of vehicles and other activities on the manoeuvring area assumes greater importance when LVP are in force.
- 4.2 Only vehicles essential to the operation of the aerodrome and driven by an authorised driver shall be allowed on the manoeuvring area.
- 4.3 Vehicle shall be equipped with an aerodrome chart permanently displayed in the driver's cab showing all taxiways, runways, holding points and dedicated LVP routes marked with their appropriate designation. The chart shall be accompanied by written instructions detailing the action that the driver shall take in the event that the vehicle shall break down or that the driver shall become unsure of his position on the aerodrome and also in the event of radio failure.
- 4.4 The airport operator shall ensure that drivers of vehicles permitted on the movement area of the airport are properly qualified. This shall include, as appropriate to the driver's functions;
  - 1) The geography of the airport;
  - 2) Airport signs, markings and lights;
  - 3) Radiotelephony operating procedures;
  - 4) Terms and phrases used in aerodrome control including the phonetic alphabet;
  - 5) Rules of air traffic services as they relate to ground operations;
  - 6) Airport rules and procedures;
  - 7) Specialist functions as required, for example, in rescue and fire fighting.
- 4.5 The driver shall hold a UAE driver's license for the appropriate category of vehicle and demonstrate ability to navigate on the airport whilst complying with air traffic control and local procedures.

- 4.6 Vehicles operating on the manoeuvring area shall be equipped with R/T and the driver required to maintain contact with ATC at all times and possess ICAO level 4 English.
- 4.7 Ground vehicles shall be equipped with frequencies separate from those used for control of aircraft. Consideration should be given for drivers to operate on the same frequency as aircraft during LVP so that all parties are aware of the location and instructions given to runway/taxiway users.
- 4.8 All personnel involved in LVP shall be trained under conditions which include actual or simulated low visibility.
- 4.9 Drivers may be trained to different levels, appropriate with their functions – for example, drivers restricted to aprons.
- 4.10 Drivers shall be tested for proficiency at least once a year.
- 4.11 A system shall be established and enforced to ensure adherence to local rules.

## **Appendix A    Guidance for Aerodrome Operators in conducting a Low Visibility Safety Assessment**

### **1      Introduction**

- 1.1    Due to the more demanding nature of operating in Low Visibility, there will normally be restrictions curtailing movement rates during LVC. While this may be acceptable at airports with low volumes of traffic under LVC, application of additional means such as improved lighting systems or Surface Movement Radar may be necessary to maintain required capacity. The safety assessment shall consider the operational requirements of the airport and assess the need for additional measures to maintain the desired capacity.
- 1.2    The end requirement of the safety assessment is to provide the means to institute the necessary equipment and procedures to maintain the required movement capacity at the airport and ensure that these operations are conducted safely.

### **2      Organisation**

- 2.1    To ensure that all ground environment elements are properly integrated into the total system, the airport operator shall form a working group composed of representatives of all sections concerned with equipment or services associated with low visibility operations.
- 2.2    These shall include, but not be limited to, air traffic services, meteorological services, the engineering section(s) responsible for establishment and/or maintenance of visual and non-visual aids and power supply, rescue and fire fighting services, airport security, ground support providers and major operators. The group should appoint a coordinator who shall be responsible for the accomplishment of the whole task.
- 2.3    A preliminary safety assessment shall be carried out to ensure that an adequate level of safety can be achieved during LVC. The safety assessment shall be carried out in accordance with these regulations and appropriate ICAO documentation. An assessment of the magnitude of any increase in operating risk resulting from lack of control by visual means shall be made, taking into account the lowest RVR at which operations are planned. The purpose of the safety assessment is to eliminate this risk by the application of additional control techniques, procedures and aids which will constitute the LVP for the airport.
- 2.4    The working group shall identify required actions to be taken and establish a work programme encompassing all issues related to LVC.

2.5 The airport operator shall appoint and maintain an organisation to ensure that facilities, equipment and operating conditions are in accordance with current safety regulation and local instructions. The size and organisation of such a body shall be adjusted to local conditions in order to ensure adequate monitoring of airport operations. This system shall include routines for initiating corrective actions when deviations from described standards are detected.

2.6 The working group shall carry out and document a preparatory process, including a timetable for completion of preliminary studies, installation and verification of visual and non-visual aids and for development of procedures required to ensure safe operations in LVC.

2.7 Summary of actions to be taken:

- 1) Examination of movement statistics for aircraft and vehicles;
- 2) Examination of aeronautical meteorological records to establish the requirements for additional facilities and services for operating in LVC;
- 3) Evaluation of meteorological limits for establishment and discontinuation of LVP;
- 4) Examination of instrument, measuring and recording equipment and procedures used by meteorological services;
- 5) Evaluation of obstacle environment against limitations surfaces specified by the GCAA;
- 6) Examination of the airport environs for lights that may dazzle or confuse pilots during LVC;
- 7) Evaluation of approach, runway and taxiway lighting, runway taxiway and apron markings as well as signage for suitability under LVC;
- 8) Examination of non-visual guidance systems, particularly all components of ILS and associated monitoring systems, including calibration records, for the intended type(s) of operation;
- 9) Determination of critical and sensitive areas for ILS components;
- 10) Evaluation of instructions to, and recording systems employed by, engineering support services responsible for visual and non-visual aids, meteorological instrumentation and power supply;
- 11) Evaluation of requirements for communications between ATC and aircraft, vehicles, rescue and fire fighting services, meteorological services,

engineering support, security, apron control, other ATC units, air traffic flow management and other units/authorities/services affected by LVC;

- 12) Examination of terrain conditions in the final approach areas for impact on radio altimeter indications;
- 13) Evaluation of airport lay-out with particular attention to taxi routes between aprons and runways, ground traffic routes, service roads, ground traffic control points, movement area entrances and existing aids;
- 14) Evaluation of the requirements for aeronautical information material, hereunder AIP entries, aeronautical charts ,for LVC;
- 15) Evaluation of requirements for local aeronautical information services, hereunder communication facilities such as ATIS to provide timely information to operators;
- 16) Evaluation of operational Letters of Agreement for suitability for LVC;
- 17) Evaluation of existing ATC instructions, operational orders and company rules that are relevant to the general movement scenario;
- 18) Evaluation of impact on airport capacity during LVP;
- 19) Determination of desired movement rates during LVC;
- 20) Evaluation of safety requirements for safe provision of ground support services, such as re-fuelling, cleaning, maintenance, cargo-and baggage handling and catering services;
- 21) Examination of surveillance systems for ground movements;
- 22) Evaluation of marking and equipment of vehicles permitted on the movement area during LVC;
- 23) Evaluation of standard operating procedures for operation staff;
- 24) Evaluation of experience and training requirements for operational staff;
- 25) Evaluation of the risk of runway incursions. This shall include evaluations of records of runway incursions and taxiway junction incident;
- 26) Evaluation of existing airport security measures;
- 27) Evaluation of impact on rescue and firefighting services' ability to perform in a timely and efficient manner;

- 28) Examination of documentation-, investigation- and reporting procedures covering movement and meteorological data, serviceability of equipment and systems as well as incidents;
- 2.8 The safety assessment shall be considered by the working group through the Safety Management System approach and must be completed at an early stage of the implementation process. The general picture derived from the study shall identify mitigation measures to be implemented as part of the LVC approval process.
- 2.9 A procedure shall be established to ensure that the required provisions are amended or updated as a consequence of new developments.

## Appendix B LVP Tabletop Exercise (Suggested Framework)

### Advance Preparation – Airport to:

- Refer to GCAA Civil Aviation Regulations (CAR) Part IX, Chapter 4, 4.27 and CAAP **XX** Low Visibility Procedures
- Provide a competent person to chair or facilitate the Table Top Exercise (TTE)
- Prepare two LVP scenarios for the exercise
- Arrange suitable room
- Invite **all** stakeholders involved in LVP
- Provide aerodrome layout maps at the appropriate scale
- Provide Aerodrome Manual and operating procedures, any Emergency Orders and invite all Stakeholders to bring their operating procedures manuals
- Provide a competent person to take notes and actions
- Review against International Incidents, for example the “European Action Plan for the Prevention of Runway Incursions” published by Eurocontrol (incl. review of Linate incident)

### Suggested Participants. At least one from the following groups:

- Airside operations, and RFFS personnel; Air Traffic Control, Engineers, especially Electrical Lighting Engineer.
- Possible others: Aircraft Operator, Fuelling Company, Security Staff and Handling Agent(s)
- GCAA representatives: Aerodrome Operations, RFFS Inspectors and Air Traffic Control Inspectors

### Time

- No time limit suggested, but experience has shown that three to four hours should be scheduled.

### Introduction to Table Top Exercise – Aims & Objectives

- To ensure that all stakeholders involved are aware of their responsibilities and actions, and actions of others in LVP conditions
- That all stakeholders and agencies procedures dovetail in their actions
- To test the effectiveness of LVP
- To test emergency procedures in LVP
- To ensure that all charts and plans are accurate, and all departments have the correct editions
- That all equipment used in LVP are suitable for purpose and sufficient in quantity
- To conduct the exercise in a relaxed atmosphere and to encourage participation

### **Table Top Exercise – Part 1**

- Individually, each department to describe their procedure and actions taken in initiating LVP. Experience has shown that ATC should begin the exercise
- At the end of each Stage (or Visibility Condition) described, the opportunity should be taken to re-cap or review actions

### **Table Top Exercise – Part 2**

- Airport to describe the first scenario
- This part should be kept flexible and the opportunity taken to expand the scenario
- Second scenario to be used or one provided by GCAA – if required

### **Table Top Exercise – Part 3**

- Re-cap actions resulting from exercise
- Review of objectives – have they all been addressed?
- Concluding remarks

### **Follow-Up**

- Forward notes and actions to all participants
- Completion of actions – forward action plan to all participants and process through the appropriate forum, for example: the Safety Action Group (SAG) or Safety Review Committee (SRC) and the aerodrome Safety Management System.
- The GCAA Aerodrome Inspectors will audit this process against the requirements in CAR Part IX, Chapter 4, 4.21.5