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Introduction

Recommendation 1.1.1 states that at individual aerodromes, as designated by the Regulator, **a Runway Safety Team should be established to lead action on local runway safety issues.**

A Local Runway Safety Team should form a key element in the aerodrome runway safety programme and should ensure that a strong focus is maintained on runway safety across all parties creating, de facto, an aerodrome level safety management function. At some aerodromes cross-disciplinary teams may already exist that could carry out the functions of the Runway Safety Team, using a discrete runway safety agenda. If such teams are employed it is essential that their work is not duplicated; instead the work should be integrated as part of the aerodrome's runway safety action plan.

Establish a Local Runway Safety Team

Local Runway Safety Teams have been established at many aerodromes in Europe. Experience has demonstrated that these teams have been effective at helping to minimise the risk of runway incursions at individual aerodromes, where local issues such as taxiway layout, runway configuration and aircraft operators' needs can be taken into account.

Role

The role of the Local Runway Safety Team should be to advise the appropriate Management on potential runway safety issues and to recommend mitigating measures. This appendix provides guidance on the role of that team.

Terms of Reference

The tasks mentioned here may be reflected in the suggested Terms of Reference for a Local Runway Safety Team.

- Monitor the number, type and, the severity of runway incursions;
- Identify any local problem areas and suggest improvements e.g. by sharing the outcome of investigation reports to establish local hot spots or problem areas at the aerodrome and workable mitigations with and for operational staff;
- Work as a cohesive team to better understand the operating difficulties of personnel who work in other areas and recommend areas for improvement;
- Ensure that the recommendations contained in the European Action Plan for the Prevention of Runway Incursions are implemented;
- Conduct a runway safety awareness campaign that focuses on local issues, e.g. produce and distribute local hot spot maps or other guidance material as considered necessary; and
- Review the airfield to ensure it is adequate and compliant with ICAO Standards and Recommended Practices regularly.

Composition

The team should consist of, as a minimum, representatives from at least the three main groups associated with manoeuvring area operations, namely the Aerodrome Operator (which would include a vehicle driver), Ground Handling Associations when appropriate, representatives from the Air Navigation Service Provider / and local Air Traffic Controller associations and pilots from Aircraft Operators / and local pilot associations that operate at the aerodrome and other organisations that operate on the manoeuvring area.

ICAO

All available safety recommendations of global interest to the civil aviation community, resulting from runway related accidents and incidents and their successful risk mitigations should be reported to ICAO using the normal reporting mechanism for the relevant organisations, i.e. the organisations involved in the incursion.

ICAO Runway Incursion definition

To enable the sharing of safety lessons learned and a common understanding of runway incursion causal and contributory factors ICAO introduced a commonly agreed definition of a runway incursion in November 2004. The definition is:

"Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft."

One role of the Local Runway Safety Team is to ensure that the ICAO definition is used. The following explanations are intended to provide further clarification to ease common understanding of this definition:

"Protected area of a surface designated for the landing and take-off of aircraft".

This is to be interpreted as the physical surface of a runway, from the centreline to the holding point appropriate to the type of runway. Where operations are being conducted during Low Visibility operations this should be the holding point appropriate to the procedures in force.

The "**protected surface**" includes the ILS glide-path and localiser critical areas at all times, and the ILS sensitive areas during Low Visibility Procedures.

"Incorrect presence" This should be interpreted as the unsafe, unauthorised or undesirable presence, or movement of, an aircraft, vehicle or pedestrian.

Regardless of the cause of an incident the Local Runway Safety Team needs to ensure awareness of all occurrences concerning runway safety, irrespective of their severity. The effective introduction of this definition has allowed organisations to understand runway incursion risk and manage it from the perspective of an individual aerodrome and as a collective contributor to the Air Traffic Management network.

One way of managing runway incursion risk is to identify and eliminate or mitigate hot spots on the manoeuvring area.

ICAO Hot Spot definition

The ICAO definition of a hot spot is:

"A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary."

The criteria used to establish and chart a hot spot are contained in the ICAO docs. 9870, 4444 PANS-ATM and Annex 4 - Aeronautical Charts. Hot spots should be identified and brought to the attention of the Local Runway Safety Team. Hazards associated with hot spots should be mitigated as soon as possible and so far as is reasonably practicable. Operational staff needs to be made aware of hot spots at aerodromes.

EXAMPLE	RUNWAY SAFETY – RUNWAY INCURSION	RUNWAY SAFETY - NOT INCURSION
Aircraft, vehicle or pedestrian is cleared, correctly, to enter or cross a runway and proceeds as cleared, but does not read-back the clearance.		X
Aircraft is cleared, correctly, to land or take off and proceeds as cleared, but does not read-back the clearance.		X
Aircraft lands without clearance.	X	
Aircraft lands without clearance and evidence shows that the pilot was acting appropriately in accordance with Loss of Communication procedures due to R/T failure.		X
Aircraft takes off without clearance.	X	
Aircraft, vehicle or pedestrian enters runway without clearance.	X	
Aircraft, vehicle or pedestrian is cleared to enter the runway and does so, as instructed and intended, but before the red stop bar has been "dropped". (this also applies to traffic lights where so positioned).		X
Aircraft, vehicle or pedestrian enters the runway at the incorrect holding point.	X	
Aircraft, vehicle or pedestrian vacates at the incorrect holding point.		X
Controller incorrectly clears an aircraft, vehicle or pedestrian to enter or cross runway.	X	
Controller incorrectly clears an aircraft to land or take-off.	X	
Aircraft lines-up out of instructed sequence.	X	

Reporting culture

Ensure it is easy for operational staff at your aerodrome to report runway incursions and other runway safety occurrences, including post-flight, for pilots after landing at the destination aerodrome. Ensure that the reporter receives feedback in a timely manner. Support the provision of a Just culture for all operational staff. Make use of lessons learned for joint training and improvement of the aerodrome services, infrastructure and practices.

- Short, unambiguous taxi clearances, with no more than 2 sets of numbers to remember at a time. Special consideration should be given to new information;
- Enough sectors / frequencies to avoid congestion of the R/T channels;
- Complete information about expected taxi routing and stand, taxi-out routing and runway well in advance.
- Accurate aerodrome charts and essential information on aerodrome conditions- sources would be ATIS, and NOTAMS and real-time radio communication.

Exchange of lessons learned and best practices

The problem of runway incursions is still considered to be one of the top safety issues to be resolved in aviation. Consequently, an important objective for Local Runway Safety Teams is to raise awareness of the operational hazards of working on the manoeuvring area and share good practices to prevent runway incursions.

Preparing a Runway Safety Programme for your aerodrome

Do not expect pilots to be familiar with local procedures. The difficulty encountered at aerodromes where ICAO provisions are not respected, is the use of local, unique procedures and practices. Non standard items have to be interpreted by the pilot for the pre-flight briefing or whilst taxiing, from the cockpit.

ICAO Standards and Recommended Practices (SARPS) are available to give the same consistent predictable operations at any aerodrome in the world.

When preparing a runway safety programme for your aerodrome each action item should designate a responsible person or organisation for completing the relevant tasks. There may be more than one person or organisation affected by an action item; however, one person or organisation should take the lead and be responsible for the completion of all the tasks associated with the action item. A realistic time frame to accomplish the work should also be associated with each action item.

Dissemination of Safety recommendations

A Local Runway Safety Team should ensure wide dissemination of the safety recommendations derived from accident and incident investigation findings as well as other relevant lessons learned, e.g. from operational experience, and best risk mitigation practices.

What pilots want

What pilots need for safe operation on the manoeuvring area is the consistent use of internationally agreed standard phraseology, procedures and signs, markings and lighting. Pilots' wishes for standardisation of communication practices include:

- Use of standard phraseology in accordance with Annex 11 and Doc. 4444;
- Use of signs, markings and lighting in accordance with Annex 14;
- Enhanced situational awareness, based on the use of one language – aviation English;

Tasks

A number of the recommendations contained in the Action Plan can be dealt with by the Local Runway Safety Team.

One important task is the identification of potential runway safety issues. It is essential to ask the question 'What' can go wrong 'Where' and 'Why'. To provide workable answers it is necessary to review aerodrome practices regularly, and when relevant information is available, from incident investigation findings.

It is important to ensure that:

- suitable data is available to provide evidence for making decisions;
- findings from incident and accident investigations are analysed and understood;
- lessons learned from incidents and accidents related to runway safety issues from other aerodromes, as well as one's own aerodrome are taken into account;
- reviews take place in different weather and light conditions to assess all runway entrances and visual aids to check that they are correctly located and clearly visible to pilots and drivers;
- lights, signs and markings are checked for conspicuity at a height similar to the height of the smallest and largest aircraft and vehicles using the manoeuvring area;
- all markings and signs should be adequate for and understandable by all parties, with no possible ambiguity of their meaning.

In any review the Local Runway Safety Team should take into account runway and taxiway layout, traffic intensity and mix, and both visual and non-visual aids such as markings, lights, signs, radar, taxiway designations, ATS procedures, AIP information etc.

When examining operating procedures, it is necessary to ensure that procedures employed by different companies at the aerodrome are robust, integrated and effective so as to minimise the risk of runway incursions. Extra care should be taken when examining existing or proposed runway capacity enhancing procedures or noise abatement schemes involving runway preferential systems.

Review proposed changes to the runways adjacent taxiway and apron infrastructure in the light of Runway Incursion sensitivity and provide advice to the aerodrome operators.

Measure the effectiveness of operational solutions periodically. This can be accomplished by comparing the results of the initial analysis with the current runway incursion status. For example, if an action item was to provide training for controllers, pilots or vehicle drivers, the effectiveness of such training should be evaluated by the team.

Another important task for the Local Runway Safety Team should be to assist in keeping a spotlight on the subject and to develop and run local awareness campaigns.

The timing of awareness campaigns is important, choosing to make a runway safety briefing at the start of a busy season, or before an unusual activity can be helpful to all operational staff.

A possible output could be the production and distribution of local hot spot maps or other guidance material as considered operationally necessary. Hot spot maps may point out unique or complex intersections and runway crossings where runway incursions have taken place in the past, or areas of the runway or associated taxiways which are not visible from the Control Tower. Consideration should be given to publishing these maps via the AIP. An example of a local map, often referred to as a 'Hot Spot Map', produced by Helsinki Vantaa Aerodrome, is shown.

Other tasks could include, assisting in verifying that communications between air traffic controllers, pilots and vehicle drivers are satisfactory, or if any improvements could be suggested. For example, although standard ICAO phraseology may be used, some messages from ATC may be overlong or complex, which may have the potential to confuse vehicle drivers or pilots.

The inherent difficulties of communicating on the manoeuvring area mean that aerodrome design, visual aids and infrastructure naming conventions play an important part in reinforcing the intended instructions passed by the air traffic controller.

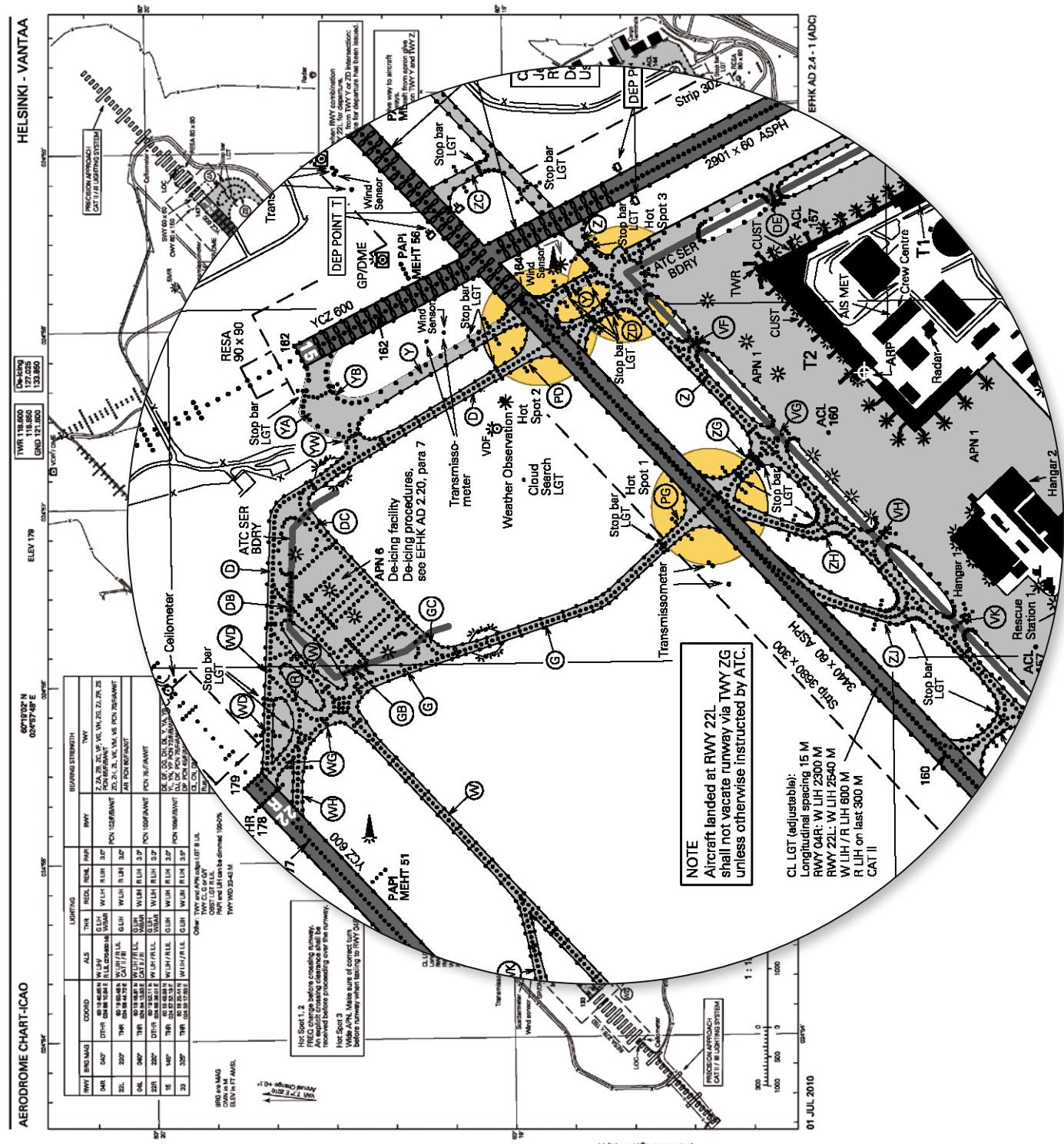
It is recommended that some members of a Local Runway Safety Team participate in safety case work, regarding changes to existing, procedures or infrastructure involving runways.

Local Runway Safety Teams can play a role in preparing the briefing pack for new users of an aerodrome, or for a new high season.

The guidance found in this Action Plan should not be seen to be limiting and good practice should be shared as appropriate. The boundaries set by national regulators and internationally accepted provisions should be respected.

Technology is available to help to prevent runway incursions and may be considered to supplement good manoeuvring area practices by enhancing situational awareness e.g. through the use of appropriate alerting functions.

Hot Spot Aerodrome Chart - Published in the AIP.



Joint training

Education and awareness of Local Runway Safety Team' achievements, can be communicated via training syllabi, newsletters, posters, stickers and the use of forums, on-line and in workshops.

Training on runway safety matters may be a supplement to core content training or EU Ops syllabi for licensing and certification and may also be included in the continuation training for air traffic controllers. EUROCONTROL provides joint training for air traffic controllers, pilots and manoeuvring area drivers called Aerodrome Resource Management. This training provides insight into the common runway incursion causal and contributory factors (such as expectation bias) and how to deal with difficult situations such as regaining situational awareness and control of the present traffic situation.

Raise awareness of runway safety matters

Ensure globally important practices to prevent runway incursions are part of your local practices and that their significance is locally understood, e.g. Never cross (or instruct a vehicle or aircraft to cross) an illuminated red stop bar.

Set up a user friendly email address to ease communication e.g. lrst@xyzairport.aa

The ICAO runway safety toolkit provides information for educational and awareness programmes.

Other awareness material that may be helpful to local runway safety teams is available from:

References

Aerodromes Council International (ACI)
www.airports.org

Air Services Australia
www.airservicesaustralia.com

European Organisation for the Safety of Air Navigation (EUROCONTROL)
www.eurocontrol.int/runwaysafety

Federal Aviation Administration (FAA)
www.faa.gov/runwaysafety

International Air Transport Association (IATA)
www.iata.org

Chapter 3. Establishing a Runway Incursion Prevention Programme 3-7
International Civil Aviation Organisation (ICAO)
www.icao.int/fsix/res_ans.cfm
ICAO doc. 9870 Runway Incursion Prevention Manual

International Federation of Airline Pilots' Associations (IFALPA)
www.ifalpa.org

Transport Canada
www.tc.gc.ca/civilaviation/systemsafety/posters/tools.htm

United Kingdom Safety Regulation Group
<http://www.caa.co.uk>