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AIRPORTS COUNCIL INTERNATIONAL

Managing Safety Risk During Aircraft Turnaround

Preface and Acknowledgement

The aircraft turnaround process consists of multiple activities servicing an aircraft on an apron parking bay, if not properly coordinated, planned and executed, can results in serious, fatal or even catastrophic accidents and injuries. The purpose of this document is to provide guidelines to airport operators on to manage safety risks that may arise during an aircraft turnaround process.

These guidelines are the results of selfless efforts of Working Group 1 of the ACI Asia-Pacific & Middle East Regional Operational Safety Committee for the benefit of the association's membership in the region. The Working Group was headed by the Chair of the Committee, Narayanasamy Venkatachalapathy (GMR Hyderabad). He was joined by Ahmed Faseel (Maldives), Herman Chung (Hong Kong), Jean Luc Meyts (Doha), Kevin Huang (Taoyuan, Taipei), Mohammad Nabil Mahmoud Al Nababteh (AIG Jordan), Naoki Naser Mohamed AlMannaei (Bahrain), Nojima (Narita), Orlando Hei Wo Chou (Macau), Siwan Yeom (Korea Airports Corporation), and Tony Sewell (Perth). Ahmad Shiwan (Maldives), Akhil Menon (Dubai), Emilie Coureau (Dubai), Meera Alhammadi (Dubai), Mike Sidlow (GCAA, UAE, Mohamed Yousif (Dubai), Shaiful Abdul Rahman (Malaysia), and Vivian Chen (Taoyuan Taipei) although not members of the Committee, also participated actively in the drafting work. Their contributions to ACI are gratefully acknowledged here.

Disclaimer

Managing Safety Risk during Aircraft Turnaround

1. Purpose

The purpose of this document is to provide guidelines to aerodrome operators on the prevention of safety incidents occurring on the apron involving ground support equipment (GSE), aircraft, personnel, vehicles and other objects/infrastructures during aircraft turnarounds with the aim of eliminating or reducing the probability and the risks potential of such.

2. Scope

These guidelines cover apron safety measures to be considered during the sequencing and coordination of the various activities involved in the aircraft turnaround. This includes the activities of personnel (including staff and passengers), ground handling service providers (GHSP), fuel suppliers, and other stakeholders operating within the limited space and time constraints.

3. Good Practices in the Reduction of Apron Safety Risks

There are multiple good practices that can be applied to reduce safety risks during aircraft turnarounds. Some industry good practices are recommended below and listed by category of consideration: apron design, ground support equipment, human factors, SMS and safety culture.

1. Apron Design Considerations:

Safety risks may be mitigated by the following measures in the design of the apron:

- Involve relevant stakeholders to identify specific hazards and risks associated with the aircraft stands/apron and adjoining area including identifying mitigation controls.
- Establish a platform for engagement to create awareness among all operating agencies before and during the turnaround process.
- Adopt a standard marking in reference to ACI-recommended designs of apron markings and signs.
- Consideration of a safe and compatible bussing stations and supporting routes.
- Consideration for adequate vehicle, GSE parking space, and cargo staging areas, etc.
- Multiple Aircraft Ramp System (MARS) stands that handle multiple types of aircraft at one time should consider different type of GSE parking space and marking made available with due consideration to safety margins.
- The vehicle manoeuvring routes at MARS stands with a dual PBB layout should undergo a safety risk assessment to determine the safe traffic flow supported with an apron management procedure and briefing given to the ground handling agents (GHA) and airlines.
- Consider future airport developments and next - generation aircraft characteristics expected to operate in the apron area.
- Consider the headroom and other manoeuvring space requirements of various GSE size in the designing of the apron, PBB, and the link bridge to ensure conflict-free movements of GSE.

2. Ground Support Equipment (GSE):

- Ensure the serviceability of GSE by conducting checks at randomized timing per a predetermined sample plan and requiring serviceability reports.
- Employ adequate and suitable equipment for the size and nature of the operation and aircraft type for the turnaround process.

- Consider the manufacturer's recommendations on preventative maintenance for the age of the equipment and the associated replacement program.

- Establish a robust system to ensure timely and safe removal of any unserviceable GSE during the turnaround process.
- Establish an inventory of GSE enumerating by type, location parked, and total numbers of them owned by each GHSP in service for better control in operation and to prevent hoarding of unserviceable equipment in the staging area and unauthorized GSE parking on the apron.

3. Human Factors, SMS and Safety Culture:
   - Ensure all personnel involved in ground handling activities and driving equipment are adequately trained by the relevant authorised entity and accredited as being competent in operating the equipment concerned and have a process in place to ensure compliance with competency requirements.

   - Ensure apron safety training is included as a core component of the broader airfield safety program during induction and refresher training of airside workers.

   - Consider mandating SMS for ground handlers and establishing an interface between their SMS and the aerodrome's.

   - Ensure the participation of GHSP in the Apron Safety Committee to provide a venue for them to discuss with the airport operator and other stakeholders apron safety issues, safety best practices, and the resolution of compliance issues to improve overall safety performance.
   - Continuous safety promotion with the key objective of promoting safety culture and encouraging safety reporting.

   - Consider imposing penalties for wilful violations of safety rules to instil the importance of safety in airside personnel involved in aircraft turnarounds. Penalty can be administered with a points system whereby penalty points imposed for infractions accumulate and, when exceeding certain predetermined limits, may lead to suspension or revocation of an airside driver's license or airside vehicle permit. Similar oversight and penalty mechanisms should be put in place to address the safety lapses arising from the aircraft maintenance activities by the aircraft maintenance engineering agency.

   - On the other hand, consider establishing a reward and recognition program to appreciate the stringent adherence to safe operations among stakeholders involved in the turnaround process, which could generate positive results.

   - The human factor aspects, like fatigue, illness, microsleep, etc., should be considered in the deployment of turnaround personnel to proactively avoid incidents or accidents.

Reference

ACI Apron Safety Handbook

ACI Apron Markings & Signs Handbook

ICAO Manual on Ground Handling Doc 10121

ICAO Safety Management Manual Doc 9859