

The pilot and airline operator's perspective on runway excursion hazards and mitigation options

Session 2 Presentation 1



Communications

Communication hazards and mitigation

- The failure to provide timely, accurate and relevant information between:
 - *Crew members*
 - ***Implement effective crew resource management***
 - *ATC and crew*
 - ***Educate ATC on crew needs and priorities***
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- The misinterpretation of the given message:
 - ***Use standard phraseology***
 - ***Listen before speaking***
 - ***Speak slowly***
 - ***When in doubt, seek clarification***

Communication hazards and mitigation

- Non essential communication
 - ***Adopt sterile cockpit concept***
- Communication impediments in multi-crew cockpit
 - ***Define the role of each pilot***
 - ***CRM training on communication techniques***
 - ***Manage the cockpit workload***

Operations

Operational hazards and mitigations

- Identify operational issues that can be addressed through training
 - *Establish applicable training programs*
- Fatigue: performance decrease – impaired decision making
 - *FTL development, implementation and application*
 - *FRMS built on robust FTL*
- Operational Factors (e.g. ILS, VASI, PAPI)
 - **Adjust scheduling to compensate for known operating condition (e.g. night or weather)**
 - **Use available technology to establish stable approach configuration (e.g. DME vs. Height)**
- Using a runway based on noise abatement requirements or ATC preferences at the expense of operational considerations increases risk levels:
 - **Select runways based on operational suitability**
 - longest runway,
 - into wind,
 - least cross-wind,
 - least turbulence, etc



Operational Hazards (cont.)

- Unstabilized approaches

- *Establish FDA Program*

- *Establish a route guide (intelligence manual)*

- *Establish SOPs*

- *No fault go around policy*
 - *Use precision approaches / visual approaches /circling approaches*
 - *Select the most operationally suitable runway*
 - *Establish stable approach criteria*
 - *Establish missed approach criteria*
 - *Establish criteria for reduced flap settings and idle reverse thrust on landing*
 - *Cross-check significant actions*
 - *Non-grooved runway operations*
 - *Operations in topical weather environments*
 - *Operations in winter conditions*
 - *Landing distance requirements calculations*

Operational hazards and mitigations

- Inaccurate performance calculations
 - *Cross check all entries*
 - *Data Input during flight phases with low workload*
- Lack of runway clearing/cleaning
 - *Report observations using incident reporting system*
 - *Educate airport operator on operational requirements*
- Lack of effective incident reporting system
 - *Implement an effective incident reporting system*
 - *Incorporate a no fault reporting system*

Operational Hazards (cont.)

- Veer-offs

- **Pilot training for:**

- **Wind conditions**

- Down wind

- Cross wind

- **Unstable approach**

- **Touchdown speed control**

- **Missed approach technique**

- **Use of reduced flap settings and idle reverse thrust**

- **Use of non precision approaches/visual approaches/circling**

- Confusion

- **SOPs for runway confirmation**

- Use of precision approach

- Use of FMC input

Operational Hazards (cont.)

- Inadequately managed aircraft performance changes
 - Accepting last minute runway change
 - Change of available runway length
 - Task overload potential
 - Navigation FMC missed approach
 - ***Establish SOPs for last minute runway change***
 - *FMC update*
 - *Landing distance calculations*
 - *Approach briefing*
 - Technical problems
 - ***SOPs to manage:***
 - *Technical problem*
 - *Performance aspects*
- Airport environment charts lacking:
 - RESA
 - Arresting beds
 - **Report deficiencies to the CAA**



Visibility

Visibility Hazards

Reduced visibility increases potential for loss of situational awareness

- Not only due to fog or other “low visibility” phenomena
- Visibility may be an issue in clear weather due to glare or reflection (surface contamination)
 - Not knowing the remaining landing distance available
 - Use all available technologies to maintain situational awareness on the runway
 - Realistic training for all low visibility operations



Visibility Mitigation

- Lost of direction control due to a decrease of external cues
 - Establish procedures
 - > Provide realistic training
 - Adhere to take-off/landing minima



Airport Design

Airport Design Hazards

- Lack of adequate identification of runways and taxiways when airborne:
 - landing on a wrong runway or on a taxiway
 - **Conduct an airport briefing before every operation**
 - **Use all available navigation aids to confirm position**
 - **Use aircraft technology to verify taxiways and runways**

Airport Design Mitigation

- Airport familiarity
 - Use aerodrome charts, at all airports where available
 - The charts need to show Hot Spots, RESA information, etc.

Signage and markings

Signage Hazards and Mitigation

Signage may be inadequate (e.g. distance to go marks)

→ ***Report signs that are not usable***

Lack of or unserviceable markings

→ ***Report unserviceable markings***

Inadequate illumination/lighting

→ ***Report lighting not in accordance with ICAO standards***



THANK YOU

