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Schweizerischer Feuerwehrverband
Fédération suisse des sapeurs-pompiers
Federazione svizzera dei pompieri
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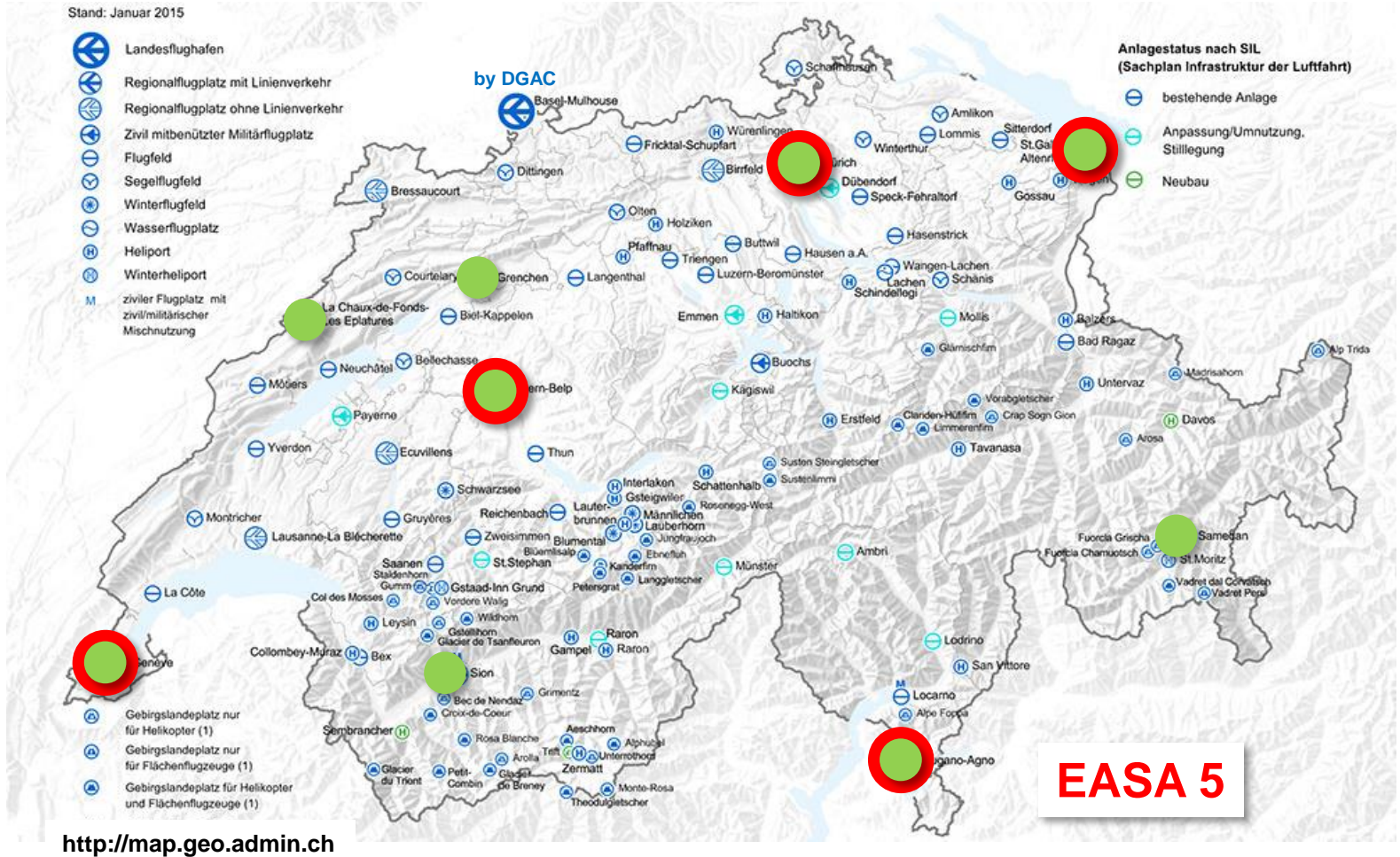
Task Resource Analysis

Federal Office of Civil Aviation (FOCA)

Switzerland



Task Resource Analysis



Legal foundations

AIRPORT SERVICES MANUAL PART 1 RESCUE AND FIREFIGHTING

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<http://www.bazl.admin.ch/dokumentation/grundlagen/02643/02644/index.html?lang=fr>



ICAO Manual

- GENERAL CONSIDERATIONS
- LEVEL OF PROTECTION TO BE PROVIDED
- AIRPORT FACILITIES AFFECTING RESCUE AND FIREFIGHTING SERVICES
- COMMUNICATION AND ALARM REQUIREMENTS
- FACTORS IN THE SPECIFICATION PROCESS FOR RESCUE AID FIREFIGHTING VEHICLES
- PROTECTIVE CLOTHING AND RESPIRATORY EQUIPMENT
- AMBULANCE AND MEDICAL SERVICES
- EXTINGUISHING AGENT CHARACTERISTICS
- FIRE STATIONS
- **PERSONNEL (TASK RESOURCE ANALYSIS)**
- EMERGENCY ORGANIZATION
- AIRCRAFT FIREFIGHTING AND RESCUE PROCEDURES
- RESCUE OPERATIONS IN DIFFICULT ENVIRONMENTS
- TRAINING
- AIRCRAFT FUELLING PRACTICES
- AVAILABILITY OF RFF INFORMATION
- PREVENTIVE MAINTENANCE OF VEHICLES AND RESCUE EQUIPMENT
- HUMAN FACTORS PRINCIPLES

Task Resource Analysis

Directive on Rescue and Fire Fighting at Airports

Table of contents

- purpose
- scope
- infrastructure
- mandatory personnel
- training
- rescue and firefighting vehicles, extinguishing agents
- emergency exercise
- supervision
- inspection



Task Resource Analysis

Rescue and Firefighting

Mandatory personnel

At the airports personnel must be properly trained and Rescue and Fire Fighting staff must be available during all aviation operations. The minimal mandatory number of personnel is defined as follows:

- Category 1 **1 Person**
- Category 2 **2 Persons**
- Category 3 **3 Persons**
- Category 4 according task resource analysis
- Category 5 according task resource analysis
- Category 6 according task resource analysis
- Category 7 according task resource analysis
- Category 8 according task resource analysis
- Category 9 according task resource analysis
- Category 10 according task resource analysis



RFF Training at Swiss Airports

Training

The minimal training is defined as follows:

For Airports with **sheduled and charter traffic** it is mandatory at least annually

- 5 exercises at 2 hours in aviation fire fighting
- 1 exercise at 1 hour in first aid

In addition personnel wearing breathing apparatus have to complete

- 6 exercises at 2 hours

Training with breathing apparatus in local brigade would be allowed.

For **regional airports** it is mandatory to do at least annually

- 4 exercises at 2 hours

in aviation fire fighting and first aid.

In addition personnel wearing breathing apparatus have to complete

- 4 exercises at 2 hours

Training with breathing apparatus in local brigade would be allowed.

Task Resource Analysis

- All emergency staff should participate on a training in aviation Rescue and Fire Fighting at a national or international training centre approved by FOCA.
- The training must be carried out in Aviation Rescue, Fire Fighting and First aid by an Instructor (Aviation Fire Fighting Instructor) approved by the Federal Office of Civil Aviation.

Task Resource Analysis

How we proceeded?

- Letter to concerned airports: May 2015
- Submission TRA: 31.12.2015
- Task of the Airports without participation of FOCA
- Approval FOCA: May 2016
- Submission of update TRA end of each year - if there are changes

Task Resource Analysis

Content

1. General information and classification
2. Situation analysis today / future
3. Communication / alarming
4. Personnel analysis
5. Summary



Task Resource Analysis

Example Zurich Airport

Participants for the Task Resource Analysis

- Schutz und Rettung Zürich (City Fire Fighting brigade as the accountable unity and in charge for rescue and fire fighting at the airport)
- Safety Officer Zurich Airport
- Key Account Zurich Airport
- Internal approval by accountable manager

Task Resource Analysis

6 phases for personnel analysis

1. The goal of the airport fire brigade

Aims and objectives for RFF services and tasks:

- In case of emergency a rapid, qualified and professional intervention
- To save lives, prevent fire
- Create a survivable situation
- Meet the required response times (3 minutes)
- Extinguish an external fire
- Operation in the vicinity of the airport
- Protect escape slides on exit routes
- Assist in the self-evacuation of the aircraft
- Recovery of the airplane



Task Resource Analysis

2. Accident scenarios

Identify a selection of representative realistic, feasible accidents:

- Aircraft engine failure on takeoff with a fire (aborted takeoff, RESA)
- Fire in the aircraft (cabin fire, baggage and cargo hold, avionics bay)
- Fire during fueling with PAX on board
- Crashes in or near the airport perimeter
- Buildings fire at the airport
- Collision with
 - Airplane and airplane
 - Airplane and building
 - Aircraft and vehicle
 - Vehicle and vehicle



Task Resource Analysis

3. Identification types of aircraft

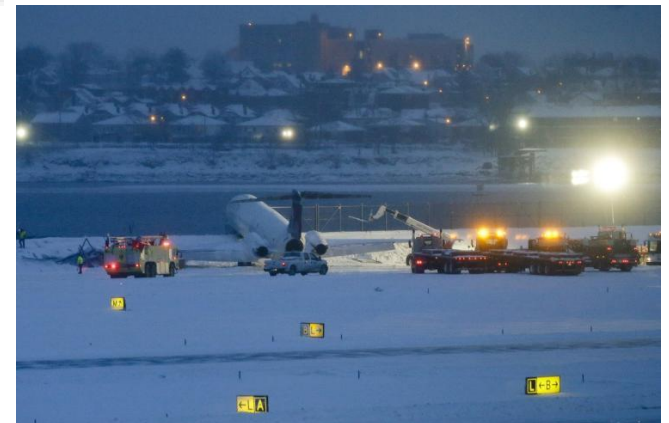
- Explanation of traffic (mixed, scheduled flight, charter, business, general aviation)
- Number of passengers, movements
- Wide-body aircraft (A380 - crew and up to maximum 506 passengers)
- Narrow-body aircraft (A319)
- Short-narrow body aircraft (E190)



Task Resource Analysis

4. Accessibility to the location of an accident

- Description of the airport area (open space, swampy areas, wood/forest, near lake, terrain, surface conditions)
- Access roads to incident area airside and landside
- How to open the gate (crash gate)
- Communication with tower / pilot
- Daylight or darkness access



Task Resource Analysis

5. Accident types

- Description of different accident scenarios
- Overrun RESA
- Overshoot RESA
- Aircraft Stand
- Runway / Taxiway, Apron
- 1 '000m from threshold



Task Resource Analysis

6. Minimal resources

Definition of the minimal resources identified in different scenarios:

- Heatquarters: 2 vehicles with 2 persons each
- Satelit North: 1 vehicle with officer-in-charge, 1 fire track with 2 persons and
- 1 fire track with 1 person
- Satelit Apron: 1 stairs with 1 person, 1 fire truck with 2 persons
- Total: 11 firefighters, 24 hours



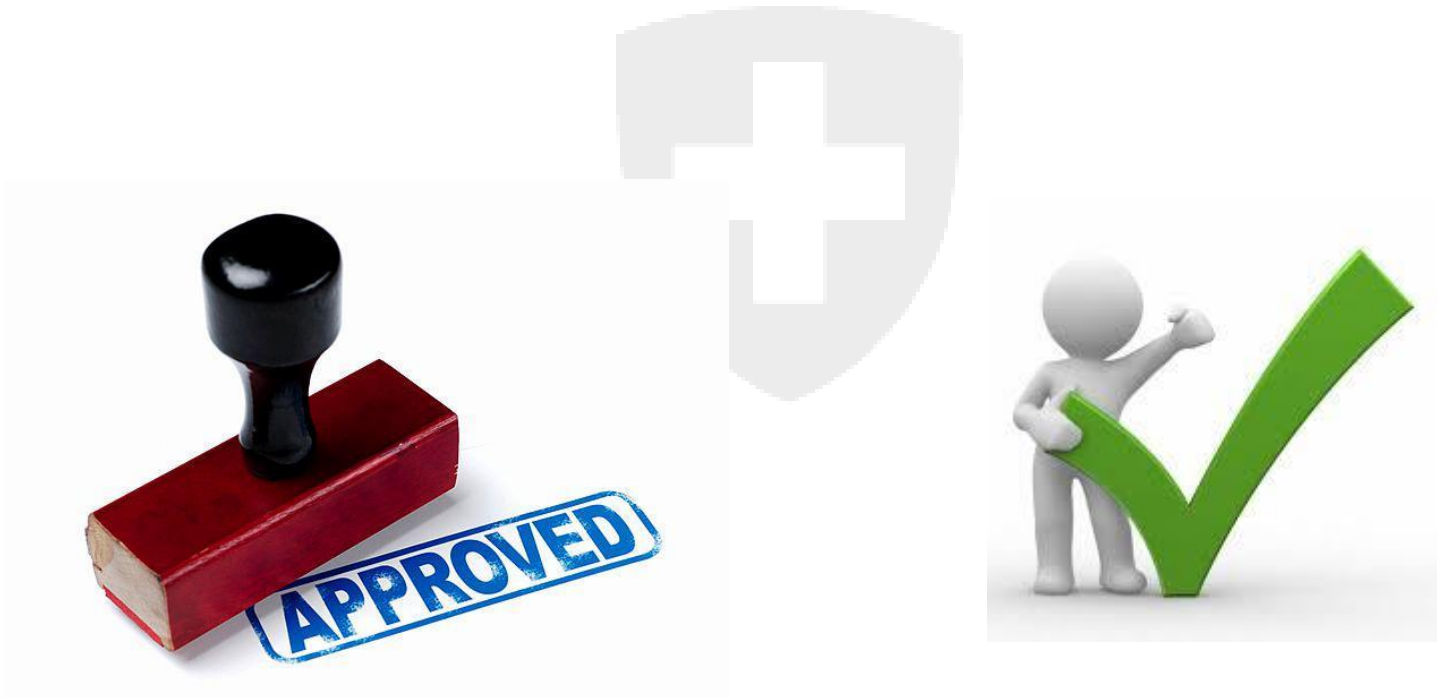
Task Resource Analysis

Summary

- In the region of the airport the following infrastructure are available: four fire brigade in the region, two factory fire brigades at the airport, the professional fire brigade (Schutz & Rescue Zurich), various hospitals and emergency personnel.
- The police are based at the airport and will have the lead of accidents operations in all major events.
- The cooperation between the different unities are trained in exercises with different scenarios (full-scale, small, table-top, staff).

Task Resource Analysis

The result of the TRA was followed by FOCA approvals.
The responsibility remains to the airports!



Task Resource Analysis



Zurich Airport

- Category 10
- Main station: 2 vehicles
- Nord station: 2 vehicles
- Tarmac: 1 vehicle
- Min 11 firefighters
- On duty 24 h
- Hot fire trainings in Amsterdam
- Schutz und Rettung Zurich (professional)



Task Resource Analysis



Geneva Airport

- Category 9
- Main station: 3 vehicles
- Min 9 firefighters
- During 23h30-06h00
Cat 7 – 7 firefighters
- Hot fire trainings in
Teesside
- Factory fire brigade
(professional)





Schweizerischer Feuerwehrverband
Fédération suisse des sapeurs-pompiers
Federazione svizzera dei pompieri
Federación suiza de bomberos



Task Resource Analysis



Altenrhein Airport

- Category 2
2 firefighters
- Category 3-6 for scheduled traffic
3-7 firefighters
- Main station: 2 vehicles
- During 22h00-06h00
airport closed
- Hot fire trainings in
Vienna
- Employees with multi
task (not professional)



Task Resource Analysis



Lugano Airport

- Category 4
5 firefighters
- Category 6 for scheduled traffic
7 firefighters
- Main station: 2 vehicles
- During 23h00-06h00
airport closed
- Hot fire trainings at the
airport
- Employees with multi task
(not professional)



Task Resource Analysis



Bern Airport

- Category 4
5 firefighters
- Category 6 for scheduled traffic
7 firefighters
- Main station: 2 vehicles
- During 23h00-06h00 airport closed
- Hot fire trainings in Zurich
- Employees with multi task (not professional - factory fire brigade)





Task Resource Analysis



Questions ?