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C4.6

SMS Regulation of Fraport AG

Regulation governing the Safety Management System of Frankfurt Airport

Operational safety is the highest priority for us and in the event of doubt takes precedence over economic, ecological, operational, or social interests.

The Safety Management System Regulation of Fraport AG (referred to in the following as the SMS Regulation) is a description of the general guidelines and principles of the airport operator concerning operational safety. It regulates the procedures of the safety management system of Fraport AG as well as the obligations of all persons and organizations involved in the airport operations to cooperate.

For employees of Fraport AG, the SMS Regulation is a binding instruction in relation to operational safety. All other persons and organizations involved in airport operations are included in the safety management system of Frankfurt Airport in accordance with the applicable general legal conditions (including Commission Regulation (EU) No 139/2014, the Airport User Regulations, Part 2, Chapter 5) and are therefore required to take part in the SMS of Fraport AG in accordance with the provisions of the SMS Regulation. The scope of the SMS Regulation extends to the entire apron and maneuvering area.

The safety management system (SMS) was set up in accordance with the basic EU regulation, Regulation (EC) No 216/2008, and Regulation (EU) 139/2014, the relevant ICAO policies and guidelines, and the legal standards of national aviation law provides Fraport AG with an instrument that records and evaluates safety-related events and is able to identify and highlight any weaknesses.

The overall concept for the SMS activities of Fraport AG is the “Just Culture” declaration of the European Union. Our aim is that the requirements contained in the Safety Policy of Fraport AG are also embodied in practice by all those involved in air traffic. The SMS Regulation is reviewed and, if necessary, updated on a regular basis.

Fraport AG,
Frankfurt, April 1st, 2021

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List of Abbreviations

(Note: As a rule, terms are written out in English in the document; abbreviations refer to the German designations)

Abbreviation	Definition
ADM	Airport Duty Management / Airport Duty Manager
ADREP	Accident / Incident Data Reporting System
AFO	Allgemeine Flughafenordnung – General Airport Regulations
AIP	Aeronautical Information Publication (aerodrome manual)
ALARP	As Low As Reasonably Practicable
ALOR	Acceptable Level of Risk
ALOS	Acceptable Level of Safety
ARMS	Airlines Risk Management Solutions (Working Group)
BfSMS	Beauftragter für das Sicherheitsmanagement-System (EASA Safety Manager)
BFU	Bundesstelle für Flugunfalluntersuchung – German Federal Bureau of Aircraft Accident Investigation
BIAF	Business Intelligence Architecture Framework, company -wide reporting platform of Fraport AG
BMVI	Bundesministerium für Verkehr und digitale Infrastruktur – German Federal Ministry of Transport and Digital Infrastructure
BVD	Bodenverkehrsdienste – Ground Services
CAA UK	Civil Aviation Authority United Kingdom
CAP	Civil Aviation Publication
COR	Construction and Obstacle Routine
CIP	Continual Improvement Process
Doc.	Document
EASA	European Aviation Safety Agency
EASP	European Aviation Safety Program
EN	European Standard
EPR	Emergency Planning Routine
ERC	Event Risk Classification
EU	European Union
FBO	Flughafen Benutzungsordnung – Airport User Regulations
FIUUG	Flugunfalluntersuchungsgesetz – Aircraft Accident Investigation Act
FTU	Flug- und Terminalmanagement – Flight and Terminal Management, Corporate Safety and Security
ICAO	International Civil Aviation Organisation
IFM	Immobilien- und Facilitymanagement – Real Estate and Facility Management
ISO	International Organization for Standardization
LuftVZO	Luftverkehrszulassungsordnung – Air Traffic Licensing Regulation
MSF	Form
MSH	Management system handbook

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RST	Runway Safety Team
SAG	Safety Action Group
SIRA	Safety Issue Risk Assessment
SLS	Safety and Security Control Center
SRB	Safety Review Board
SKPI	Safety Key Performance Indicator
SMM	Safety Management Manual
SMS	Safety Management System
SMS Regulation	Safety Management System Regulation
SSO	Safety Service Office
SSP(G)	State Safety Program (Germany)
WCC	FRA Airport Wildlife Control Committee
Regulation (EU)	EU regulation
VZR	Verkehrs- und Zulassungsregeln – Traffic and Licensing Regulations

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Definitions

Hazard

Based on the definition by ICAO (ICAO Doc. 9859, SMMIII, chapter 1.1.12), a hazard is a condition or a circumstance with the potential to cause death and/or personal injuries, destroy or damage equipment or facilities, cause damage to property, and/or reduce safety margins present in the system, and/or negatively impact the functionality of a complete system.

Hazards are component parts of every production or service company. When viewed in isolation, hazards do not have to result in risks, and risks also do not necessarily lead to damage or adverse impacts on the operations. Safety risks may only arise if hazards coincide with operations handling.

Risk

Based on the definition by ICAO (ICAO Doc. 9859, SMMIII, chapter 1.1.14), risk is the product of the predicted probability of occurrence and the consequences or severity of an event upon the occurrence of the impact.

Safety

As defined by ICAO (ICAO Doc. 9859, SMM III, chapter 1.1.1), safety (operational safety) describes a state in which the probability of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management.

Acceptable Level of Risk (ALOR)

Not every risk that is identified needs a related risk measure. Which risks have to be actively dealt with and minimized and the definition of the acceptable level of risk is laid down for each organization by the head of department who is responsible on the basis of the applicable executive organization chart, if necessary in consultation with their relevant superiors and the nominated persons appointed by the airport operator in accordance with Regulation (EU) No 139/2014 (referred to in the following as EASA nominated persons) and experts within the meaning of section 45(4) LuftVZO.

Possible parameters for determining an acceptable level of risk can include:

- Possible damage in the event of an incident;
- Possible impacts in the event of an incident;
- Probability of occurrence;
- The ratio of expected damage to the costs of a risk measure;
- The criticality of the change or new implementation.

The definition of the acceptable level of risk has to be documented by the responsible department management, if necessary in consultation with the EASA nominated persons.

By approving a change or new implementation of processes, the persons signing the approval confirm that they know the risks and consider them to be acceptable.

The responsibilities at Fraport AG results from the currently applicable rules of procedure, organization charts, job descriptions, descriptions of functions and activities, and the operator's regulation.

Safety Performance Target

Based on ICAO Annex 19, the safety performance targets are defined as the planned or intended objective for safety key performance indicators over a given period.

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1. Responsibilities and Competencies

1.1 Nominated and Appointed Persons

The overall business responsibility and the resulting liability for the operation and servicing/maintenance, the implementation of legal standards, and the continued development of the safety management systems lie with the full Executive Board.

The airport operating company has additionally appointed the persons designated below for the airport operations in accordance with EU Regulation (EU) No 139/2014, Annex III ADR.OR.D.015 and in accordance with sections 45(4) and 45c LuftVZO:

Operations Manager (in the following: EASA Accountable Manager):

- The EASA accountable manager is furnished with the authority to ensure that all activities for fulfilling the relevant requirements can be financed and carried out. He is responsible for establishing and maintaining an effective management system.

Operational Services Manager (in the following: EASA Operations Manager):

- This manager is responsible for the management and supervision of all tasks and interests of Frankfurt Airport related to flight operations.

Safety Management System Manager (in the following: EASA Safety Manager):

- This manager is responsible for the development, maintenance, and day-to-day management of the safety management system.

Maintenance Manager (in the following: EASA Maintenance Manager):

- This manager is responsible for the management and supervision of the maintenance and repair of all airside facilities on the grounds of Frankfurt Airport falling within the scope of Regulation (EU) No 139/2014.

Compliance Manager (in the following: EASA Compliance Manager):

- This manager is responsible for monitoring and maintaining all aspects that form the basis of the certification of Frankfurt Airport.

The rights and responsibilities of the individual functions as well as the persons who are currently appointed can be found in the rules of procedure of the EASA nominated persons.

The current EASA nominated persons for the functions are listed in Annex A: Nominated Persons at Fraport AG.

1.2 Safety Management System Manager (EASA Safety Manager)

The EASA Safety Manager is the central point of contact for the development, management, and maintenance of an effective SMS.

The appointment as EASA Safety Manager represents a delegation of corporate responsibility. The EASA Safety Manager reports directly to the EASA Accountable Manager, who has overall responsibility. He is given a direct, immediate, and personal

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assignment from the Executive Board as well as the individual responsibility for the operation and further development of the safety management system at Frankfurt Airport.

In order to perform his duties comprehensively, the EASA Safety Manager works on a company-wide, inter-divisional, and independent basis.

The EASA Safety Manager must be granted direct access to the EASA Accountable Manager and the Executive Board as well as to each department of the organization or of the organizations engaged by Fraport AG.

As far as safety matters are concerned, the EASA Safety Manager is assigned a cross-divisional supervisory function within the organization of Fraport AG in order to perform the duties assigned to him/her. In this function, the EASA Safety Manager has the right and the duty to issue to other persons or units that are not assigned to him/her for disciplinary purposes higher-level specialist instructions for their area of responsibility.

The authority of the EASA nominated persons to issue binding instructions to external third parties is derived from the Airport User Regulations (FBO), Part 2 User Regulations, point 1 Applicability of the User Regulations, while that of the EASA Safety Manager is derived from the SMS Regulation.

1.2.1 The Responsibilities of the EASA Safety Manager

The EASA Safety Manager is responsible for the following issues:

- Supporting the process owners in the preparation of hazard and risk analyses;
- Supporting all organizations and persons involved in airport operations in all matters of operational safety;
- Monitoring the implementation and functionality of the SMS, including the necessary safety measures;
- Operating of the safety reporting system of Frankfurt Airport;
- Providing regular reports on the safety performance;
- Ensuring that the safety management documentation is maintained;
- Ensuring that training courses in safety management are available and fulfill acceptable standards;
- Providing advice in safety issues and initiating and participating in internal investigations into malfunctions / accidents.

The duties of the EASA Safety Manager are presented in detail in the SMS Regulation of Fraport AG.

1.2.2 The Competences of the EASA Safety Manager

The EASA Safety Manager must have the following competences:

- Suitable practical experience and expert knowledge relating to airport operations or maintenance (or in a similar field);
- Extensive knowledge of the relevant requirements in the area of airports;
- An appropriate level of knowledge in relation to safety and quality management; and
- Extensive knowledge of the aerodrome manual for Frankfurt Airport.

In order to fulfill his/her duties, the EASA Safety Manager has the right and the obligation to obtain information on operations, training, processes, and all other aspects related to operational safety from all organizations and persons involved in airport operations as well as to request related documents or to inspect them on site.

The EASA Safety Manager can assign the performance of his/her duties in the day-to-day business or in the event that he/she is absent to a suitable colleague (see Annex 4.1). However, the responsibility for conducting the duties assigned remains with him- or herself.

1.2.3 Safety Service Office

The EASA Safety Manager and the Safety Service Office (in the following: SSO) support the company management team, the department management teams, the process owners / managers, and the EASA nominated persons designated in this regulation in all matters of operational safety and can obtain information directly about all situations that are of importance for the SMS.

1.3 Heads of Department and Process Owners / Managers

The responsibilities of each head of department include contributing, within his/her respective area, to the operational safety of the company. In order to guarantee operational safety, all department heads have to ensure that:

- The department's processes that are significant for operational safety are regulated clearly and comprehensively;
- The responsibilities, competencies and necessary powers assigned to process (sub)owners for ensuring operational safety within their area are defined, known and documented;
- The acceptable level of safety (ALOS) of their relevant processes are defined and known to the process owners / managers and are also documented;
- The achievement of the safety performance targets defined by the Executive Board is supported within the framework of their competence;
- Before changes to safety-related processes, techniques and organization are implemented, risks that may arise as a result are identified and documented; any risks that may have been identified are reported to the SMS; a risk assessment has been conducted, and any necessary risk mitigation measures are identified and, if necessary, implemented; the acceptable level of safety is not exceeded, and the steps implemented in the change process have been documented;
- The resources required to maintain operational safety are available;
- It is guaranteed that the staff are adequately trained for the duties that they have to perform and in operational safety;
- The staff concerned are informed and, if necessary, instructed in the operational safety concerning new procedures, processes, technical equipment, etc., before they are introduced;
- Supervision is carried out on a regular and verifiable basis;
- If the responsibility for operational safety should be delegated by the corporate management to the relevant process owner / manager, it must be ensured that, in addition to the duties, the necessary rights, powers and resources required for maintaining or restoring operational safety are available.

In the context of audits or investigations, the relevant documentary proof must be submitted to the EASA Safety Manager or kept available for inspection.

1.4 Staff with Personal Appointments

For staff with personal appointments with or without authority to issue instructions, whose duties have or may have an impact on operational safety in the airport operations and who are not explicitly specified in this documents, the requirements placed on departments heads and process owners / managers shall apply mutatis mutandis.

1.5 Organizations and Persons Involved in Airport Operations

1.5.1 Declaration on Operational Safety

In accordance with Regulation (EU) No 139/2014, the airport operator has to ensure that all organizations involved in airport operations have safety procedures in place to comply with the applicable requirements of Regulation (EC) No 216/2008 and its implementing rules and the requirements laid down in the aerodrome manual.

To this end, Fraport AG uses the “Safety Declaration” questionnaire. This has to be completed in full by all organizations involved in airport operations and send to the SMS of Fraport AG.

The information sheet can be downloaded from www.fraport.com/sms.

1.5.2 Participation in Reporting

All persons and organizations involved in handling airport operations are required to take part in the SMS reporting by reference to Regulation (EU) No 376/2014. The incidents that have to be reported are specified in

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Annex C: Reportable events by reference to Regulation (EU) No 376/2014. Within the meaning of the “Just Culture” declaration that has been adopted throughout Europe, the SMS also encourages all staff employed in handling airport operations to report all safety-related incidents and suspected weaknesses in operational safety to the SMS.

More extensive regulations on cooperating with the SMS of Fraport AG are detailed in Chapter 8 of the SMS Regulation.

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2. The Safety Management System

“Safety Management System” describes a systematic procedure for handling (operational) safety, including the necessary organizational structure, responsibilities, guidelines and processes. All organizations and persons involved in airport operations form part of this management system.

Operational safety (in the following: safety) is the protection of airport operations against potential risks of an operational and technical nature. The aim of the safety management system of Fraport AG is to provide process owners / managers with support in guaranteeing the operational safety and the implementation of safe airport operations at Frankfurt Airport.

The safety management system of Frankfurt Airport is operated by the EASA Safety Manager and the Safety Service Office of Fraport AG (referred to as the SMS in the following) (see 2.2). The duties of the SMS comprise providing support for the function owner specified in this regulation as well as for the persons and organizations involved in handling airport operations in guaranteeing operational safety in the course of handling the airport operations. It describes key processes for this in compliance with the related legal standards and established procedures.

The process instructions applicable for all staff in the SMS as well as for any other employees of Fraport AG in relation to the safety management systems are contained in Annex D: Basis of Safety Management Training, which is not available to the public.

2.1 Field of Activity

Risks have to be identified and reduced to an extent that produces the highest possible degree of operational safety, but that at the same time remains workable and practicable for handling airport operations. To this end, competencies, procedures, operating processes, and responsibilities that are significant for operational safety are recorded, potential hazards are identified, the risk stemming from these hazards are assessed, and risk-mitigation measures are described and, where appropriate, instituted.

The identification and assessment of the hazards and risks is performed by the relevant process owners / managers. They decide whether and, if applicable, which risk-mitigation measures are necessary in order to maintain and/or restore orderly operations – where appropriate within an implementation time frame that has to be defined for this purpose. The basis for deciding which risks are acceptable in handling airport operations is provided by the relevant requirements established by legal standards, defined safety criteria, and compliance with the acceptable level of risk (ALOR) specified by the relevant departmental management, where appropriate in consultation with the EASA nominated persons.

The risk assessment is based here on the ALARP principle (As Low As Reasonably Practicable) of ICAO. The potential of the hazards stemming from airport operations is examined systematically by the process owners / managers. When risks are identified, the corrective measures that are recognized to be necessary have to be established, documented and implemented by the process owner / manager. The SMS is informed promptly of the measures and their implementation.

The incidents that are significant for operational safety are recorded, clustered, assessed, and regularly reported to the managers concerned as well as the SRB by the SMS

reactively on the basis of the daily, situation and incident reports from the operational units in accordance with the procedures coordinated with the process owners. If necessary, the process owner / manager has to develop suitable risk-mitigation measures based on the evaluated statement of the SMS.

The SMS stands ready as a consultant and safety expert for all parties involved in airport operations. It provides support for the process owners / managers and the management team in all concerns related to operational safety as well as in defining target levels of safety (TLOS), monitoring the safety services and measuring the operational safety.

2.2 Organization of the Safety Management System

The Safety Management System of Fraport AG is operated by the EASA Safety Manager. In organizational and line management terms, the EASA Safety Manager reports to the EASA Accountable Manager. The EASA Safety Manager exercises the technical supervision and line management of the staff of the SMS (referred to in the following as the Safety Service Office [SSO]).

The SMS is independent and neutral. It

- Advises the management team and the Safety Review Board (SRB) in all matters relating to the establishment, operation and further development of the safety management system as well as the process owners / managers in all issues of operational safety
- Operates the safety management system and further develops it in line with the requirements established by legal standards
- Maintains the hazard and risk register
- Advises the management team and the process owner / manager in the application of key performance indicators for monitoring operational safety in implementation of the State Safety Programs Germany (SSPG) and the European Aviation Safety Programs (EASP)
- Monitors and analyzes the operational safety and reports on this to the Safety Review Board
- Coordinates the emergency planning at Frankfurt Airport in accordance with Regulation (EU) No 139/2014
- Audits the processes relevant for operational safety within the framework of handling airport operations
- Trains all staff employed in airport operations in their tasks and obligations to cooperate related to the SMS
- In coordination with the SRB and Occupational Health and Safety, operates a program to prevent accidents and incidents, including a reporting and analysis system
- Regularly exchanges information with the SMS units of the affiliated companies of Fraport AG that come under the scope of the EASA regulations
- Represents Fraport AG on issues factually connected with the field of activity in national and international boards and associations on behalf of the EASA Accountable Manager
- Formally checks hazard identifications, risk assessments, and identified risk-mitigation measures
- Monitors and supports change processes, at the request of the process owners, in due consideration of the requirements of Regulation (EC) No 216/2008 and Regulation (EU) 139/2014.

2.3 Executive Bodies in the Safety Management System

2.3.1 Safety Review Board (SRB)

The SRB is composed of the EASA Accountable Manager, the heads of the BVD and FTU units, all EASA nominated persons, and the head of Corporate Safety and Security. Other persons, such as the heads of IFM, IUK and/or ZIM, can be invited if necessary.

Other staff from Fraport AG as well as third parties can also take part in the SRB's meetings at the invitation of the SRB on a case-by-case basis, depending on the issues to be discussed.

The SRB meets at the intervals laid down in the applicable rules of procedure and also on an ad hoc basis when necessary, however at least once a year.

The board is chaired by the EASA Accountable Manager. The minutes are taken by the EASA Safety Manager. The tasks of the SRB include:

- Advising the EASA Accountable Manager for example in the event of significant changes to or the introduction of procedures, technology and/or organizational structures if their introduction or changes might result in cross-divisional impacts on operational safety;
- Monitoring safety-related points connected with procedures, technology and/or organizational structures concerning a general improvement of operational safety;
- If necessary, convening Safety Action Groups and defining their tasks and objectives;
- Auditing the effectiveness of the SMS;
- Comparing the operational safety with the Safety Policy and the safety objectives;
- Monitoring the effectiveness of the safety management processes;
- Taking note of the audit plan and its approval by the EASA Accountable Manager;
- Advising the EASA Accountable Manager concerning the provision of sufficient (human) resources to ensure compliance with the defined safety objectives.

2.3.2 Safety Action Groups (SAG)

An SAG is set up by the SRB as and when necessary, especially for cross-divisional tasks, and remains active until the assigned task has been completed. It comprises managers and/or experts from the units (jointly) responsible for the process.

The tasks of an SAG include on an order-related and ad hoc basis:

- Auditing and analyzing a defined problem with the participation of the units with operational responsibility as well as evaluating the impacts in relation to operational safety in the implementation of process changes or the introduction of new technology;
- Identifying suitable risk-mitigation measures;
- Presenting the measures selected to the SRB;
- Ensuring the implementation of the risk-mitigation measures decided upon before process changes are implemented or new technology is introduced;
- Validating identified safety recommendations.

2.3.3 Safety Committees

The Safety Committees described below have been established at Frankfurt Airport. They are managed by the SMS itself or in accordance with the regulated responsibilities. They

provide the SMS with support through their expertise and in the organization, coordination and introduction of programs for promoting operational safety. In addition, information is exchanged between the parties involved, while events, incidents and accidents are analyzed on an ad hoc basis and, if necessary recommendations are issued.

The following Safety Committees have been established:

2.3.3.1 Runway Safety Team (RST)

The lead responsibility for the Runway Safety Team at Frankfurt Airport lies with Deutsche Flugsicherung (DFS – German Air Navigation Services). Represented by the Senior Expert Safety Management Investigations of the “Frankfurt Tower” business unit, DFS is also responsible for the management of the RST. On the part of Fraport AG, the EASA Safety Manager, EASA Operations Manager, EASA Maintenance Manager and an expert are members of the RST.

The team meets on an ad hoc basis in accordance with the applicable rules of procedure, but at least twice a year. The minutes are taken by DFS. Recommendations are adopted by a simple majority.

The key tasks of the Runway Safety Team include:

- Continually analyzing the safety situation at Frankfurt Airport in relation to runway safety;
- Taking note of safety-related events arising in the area of runway safety;
- Comprehensively examining safety aspects in the processing of the air traffic in the maneuvering area (DFS field of responsibility);
- Analyzing safety-related events.

The Runway Safety Team does not take the place of the existing responsibilities within the companies involved, nor is it in competition with them. It is independent, it is not subject to any instructions from third parties when processing the contents of its tasks, and it does not get involved in the clarification of questions of fault.

Should DFS relinquish the management of the Runway Safety Team, this will be taken over by the SMS of Fraport AG.

2.3.3.2 Ramp Safety Committee (RSC)

The Ramp Safety Committee at Frankfurt Airport is a Fraport AG organization. Represented by the SMS, Fraport AG is also responsible for the management of the RSC. The participants are the EASA Safety Manager, the SSO, a representative of the EASA Operations Manager, and, when invited, other organizations involved in airport operations.

It meets on an ad hoc basis in accordance with the applicable rules of procedure, but at least twice a year. The minutes are taken by the SSO. Recommendations are decided on by a simple majority.

The key tasks of the Ramp Safety Committee include:

- Continually analyzing the safety situation on the apron at Frankfurt Airport;
- Taking note of safety-related events arising on the apron;
- Comprehensively examining safety aspects in the processing of the air traffic on the apron;
- Analyzing safety-related events;
- Assessing the operational safety in the area of the apron;

- Assessing hazards that have been identified;
- Discussing possible corrective measures;
- Issuing safety recommendations for avoiding future incidents and accidents;

The Ramp Safety Committee does not take the place of the existing responsibilities within the companies involved, nor is it in competition with them. It is independent, it is not subject to any instructions from third parties when processing the contents of its tasks, and it does not get involved in the clarification of questions of fault.

2.3.3.3 Construction and Obstacle Routine (COR)

Operational safety issues affecting the infrastructure, construction works taking place on the infrastructure, and obstacles to aviation are a key element of the Construction and Obstacle Routine meeting, which is held on a weekly basis. This is a Fraport AG organization, represented by the EASA Maintenance Manager or a deputy appointed by him/her. The minutes are kept by an employee in the Airside Infrastructure Development department. Participants include representatives of the Airside Infrastructure department, Flight Operations, Airport Duty Management and the SSO.

The key tasks of Construction and Obstacle Routine – if they have a factual connection here – include:

- Assessing the operational safety on the flight operations areas of Frankfurt Airport with regard to construction works and obstacles to aviation;
- Assessing possible and identified hazards;
- Discussing possible corrective measures;

The Construction and Obstacle Routine does not take the place of the existing responsibilities within the companies involved, nor is it in competition with them. It is independent, it is not subject to any instructions from third parties when processing the contents of its tasks, and it does not get involved in the clarification of questions of fault.

2.3.3.4 FRA Wildlife Control Committee (WCC)

The operational safety issues related to wildlife and environmental hazards are a key element of the FRA Wildlife Control Committee (WCC), which is a Fraport AG organization. Represented by the Forestry and Biotope department under the leadership of the officer for bird strikes, this committee and also the taking of the minutes is incumbent upon the management team.

The Wildlife Control Committee meets twice a year, once at the beginning and once at the end of the migration seasons, to coordinate and develop measures to monitor and enhance operational safety.

The group of participants on the committee is made up of:

- Wildlife Control Team
- Airport Duty Management, Flight Operations, EASA Safety Manager, fire department, horticultural department
- German Committee for the prevention of bird strikes in aviation (Deutscher Ausschuss zur Verhütung von Vogelschlägen im Luftverkehr)
- DFS German Air Navigation Services
- The aviation authorities (Hessian Ministry of Economics, Energy, Transport and Regional Development – HMWEVL)

- Local Frankfurt nature conservation agency
- Deutsche Lufthansa
- German Federal Police
- Airport Police Department

The tasks of the WCC include:

- Discussing the bird strike data that has been collected as well as the observations made by the bird strike officers;
- Evaluating wildlife hazards, identifying and assessing trends and determining which countermeasures have to be taken;
- Ensuring the communication, cooperation and coordination between the most varied of interest groups on the issue of wildlife hazard management;
- Identifying dangerous wildlife situations, implementing complex habitat controls or developing strategies for protected or rare species.

The Wildlife Control Committee does not take the place of the existing responsibilities within the companies involved, nor is it in competition with them. It is independent, it is not subject to any instructions from third parties when processing the contents of its tasks, and it does not get involved in the clarification of questions of fault.

2.3.3.5 Emergency Planning Routine (EPR)

The SSO meets with the Emergency Management of Fraport AG concerning the Emergency Planning Routine at regular intervals. The topics include:

- Key contents of the emergency plan;
- Further development of the emergency plan;
- Debriefing on actual incidents;
- Planning of and debriefing on emergency exercises;
- Debriefing on emergency exercises.

Ad hoc meetings are additionally arranged when required at short notice.

All findings that are gained here are incorporated in the appropriate control process as described in chapter 10.

3. Safety Policy and Safety Objectives

In accordance with the guidelines of ICAO and the requirements of the European Union, the SMS of an airport operator is essentially based on the general structure proposed by ICAO, which consists of four components:

- Safety Policy and objectives;
- Hazard identification and safety risk management;
- Guarantee of operational safety;
- Promotion of operational safety.

Maintaining our very high safety standards in handling airport operations is a key quality feature in the performance of our services, generates trust among our customers and partners, and is a prerequisite for business success.

The Safety Policy forms the basis of our safety philosophy and is binding for all staff, executives and organizations that work or perform services at the airport. Every employee working in airport operations plays their part in the operational safety of Frankfurt Airport within the context of their individual responsibility.

The effectiveness of the safety management system and of the SMS is reviewed by the SRB and is compared with the requirements arising from the safety programs of the EU and of the Federal Republic of Germany.

3.1 Safety Policy of Fraport AG for Frankfurt Airport

3.1.1 Framework and Publication

The implementation of the requirements arising from the Safety Policy, supplemented by the safety objectives of the company and of the SMS Regulation is intended to guarantee that a sufficiently high safety level is attained in handling airport operations.

Together with the SRB, the EASA Accountable Manager of Frankfurt Airport communicates the Safety Policy and the safety objectives of Fraport AG to all employees who are involved in the processes related to airport operations. Both regularly review the Safety Policy and the safety objectives to ensure they are relevant and appropriate, define the necessary strategic targets and check whether they have been achieved.

The Safety Policy is a key element in the training and continuous professional development on the subject of the SMS. It is thus guaranteed that the executives and staff of Fraport AG and also of the third parties that collaborate in airport operations are aware of both the Safety Policy and the safety objectives and that these can be applied.

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3.1.2 The Safety Policy of Fraport AG

Operational safety is the highest priority for us and in the event of doubt takes precedence over economic, ecological, operational, or social interests. Our goal is to continually develop our strategies, processes and procedures so that the highest possible safety standards can be guaranteed at Frankfurt Airport at all times. The company undertakes to provide adequate and appropriate resources to this end. Executives and staff have an active responsibility to take part in the safety management system.

We specifically expect our executives and process owners / managers to

- Continually promote participation in the SMS and thus also the Safety Policy among all employees and to verifiably demonstrate their own participation in the SMS,
- Ensure that operational actions are always driven by safety,
- Identify potential hazards at an early stage, assess possible risks, develop, implement and regularly review risk-mitigation measures and send the documentation on this to the SMS,
- Ensure that all relevant laws and industry standards that have to be applied are complied with and that adequate and suitable resources, in terms of both quality and quantity, are made available,
- Ensure that safety objectives, service standards and suitable parameters are established and communicated,
- Ensure that events and incidents that have to be reported in accordance with Regulation (EU) No 376/2014 and Commission Implementing Regulation (EU) No 2015/1018 are reported promptly to the SMS.

All employees are informed about the safety management system, have received training in line with duties and always take operational safety into account when performing their work. For this purpose and in order to create a transparent safety culture, we want to raise the safety awareness of all employees at Frankfurt Airport and provide a voluntary reporting system for this. We encourage all airport users to report any incidents or potential hazards they observe or any safety concerns they have to the SMS. Various possibilities for reporting a safety issue are available to all airport users for this purpose:

- *Safety hotline: +49 (0) 69 690 2 44 44*
- *By e-mail: sms@fraport.de,*
- *By fax: internal fax number +49 (0) 69 690 5 83 79,*
- *By internal or normal mail to the SMS: Fraport AG, SMS, 60547 Frankfurt*
- *In person to any employee of the SMS, Building 203, Level 5.*

Reports to the SMS do not result, in principle, in any disciplinary measures against the person submitting the report and can also be submitted anonymously. Exceptions to this can exist in the event of criminal action, gross negligence or willful intent on the part of the person submitting the report.

The services provided by third parties and the requirements related to operational safety placed on them must satisfy our operational safety standards as a minimum. Participation in the SMS, especially in the voluntary reporting system of Fraport AG, is expressly desired.

3.2 Safety Objectives

Operational safety is always the top priority in commercial aviation. Air traffic at Frankfurt Airport has increased significantly over the past few decades, and the safety standards have remained at a constantly high level during this time.

Appropriate precautions are already being taken today by the EU, the Federal Republic of Germany and also by Fraport AG to ensure that the high safety level will be maintained in the course of the forecast increase in passenger and traffic volume.

One of the things that ICAO demands from its member states is that they introduce a State Safety Program (SSP). ICAO defines this SSP as “an integrated set of regulations and activities aimed at improving safety”. Aviation in Europe is organized extensively on a cross-border basis. The roles and responsibilities for safety in aviation are divided at the European level between the EU, EASA and the member states.

The EU has for its part created a European aviation safety program, EASP, in order to ensure cooperation in safety matters and supervision between the member states.

The Bundesministerium für Verkehr und digitale Infrastruktur (BMVI – German Federal Ministry of Transport and Digital Infrastructure) is developing for Germany a State Safety Program of the Federal Republic of Germany (SSPG) for aviation based on the principles of ICAO and EASA. The aim is to sustainably develop and implement strategies and processes which ensure that all aviation activities falling within the scope of responsibility of the Federal Republic of Germany fulfill the high safety requirements. It is intended to review the implementation of the program at regular intervals using defined safety indicators and safety objectives.

3.2.1 Safety Objectives from the State Safety Program of the Federal Republic of Germany (SSPG)

Binding safety objectives are currently being elaborated by the Federal Republic of Germany as part of an SSPG.

3.2.2 Safety Objectives of Fraport AG

The Executive Board of Fraport AG will define and publish annual safety objectives for Fraport AG – based on the recommendations of the Safety Review Board and in consultation with the EASA Accountable Manager – and thus establish safety performance targets that are binding for all persons and organizations involved in the airport operations.

The safety objectives that are currently applicable can be found in

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Annex B: Safety Objectives of Fraport AG.

3.3 Executive Responsibility for Implementation

In addition to the responsibilities and duties to participate in the SMS that are specified in the Airport User Regulations, the General Airport Regulations and the SMS Regulation, every manager is required to communicate recommendations of the SRB and of the EASA Safety Manager to their staff and the third parties they have engaged, comply with legal and safety-related requirements and standards and call on the employees assigned to them to do the same.

Before new procedures, technology and organizational structures are introduced or before significant changes are made to existing ones, a hazard identification and risk assessment have to be carried out and the related acceptable level of risk has to be defined and documented.

Furthermore, every manager has to deploy adequately trained and qualified employees in the (sub)processes for which they are responsible, perform the oversight of operations, support the SMS in monitoring operational safety and, if necessary, take corrective action.

3.4 Coordination and Interplay of Third Parties in the Safety Management System of the Airport Operator

All organizations as well as their employees that work or perform services at the airport are required to take part in the SMS of the airport operator in accordance with the general legal conditions.

This involves implementing the requirements of the SMS of the airport operator, complying with the safety regulations as well as other measures at the request of the airport operator, such as the training, instruction and advanced training of their employees in operational safety, coordinate procedures, technology and organizational structures, cooperate in safety committees and participate in the SMS reporting system.

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4. Documentation and Data Protection

4.1 Documentation

In compliance with the statutory provisions governing data protection, the works agreements in force and also the principle of appropriateness, the SMS documents information and records that are the subject of the SMS and that are directly related to the provisions of Regulation (EU) No 139/2014, Regulation (EU) No 376/2014, section 45b LuftVZO, ICAO Annex 19 and ICAO Doc. 9859.

4.2 Documentation Control

The documentation is the responsibility of the EASA Safety Manager and can be reviewed by the SRB at regular intervals.

4.3 Documentation of the key Responsibilities for Operational Safety

The airport operator manages the responsibilities for operational safety as part of the verification of the certification of Frankfurt Airport within the Airside Infrastructure Operations department (EASA Compliance Manager). The EASA Safety Manager and the Safety Service Office have access to the documentation of the Compliance Manager concerning the responsibilities and processes in the competencies, procedures and operations that are significant for operational safety.

In addition to identifying and assessing new hazards that arise for operational safety and conducting a risk assessment in the event of changes to existing procedures and processes or the introduction of new procedures and processes, the process owner / manager also initiates the modification of measures for minimizing safety risks which may no longer be applicable or effective as a result of the planned changes. More extensive regulations governing the performance of hazard identification and safety assessments can be found in chapter 6.

4.4 Retention Periods

The documentation and retention of the documents is carried out in accordance with the requirements derived from the legal standards as currently applicable.

Irrespective of other relevant requirements for all written records in connection with the tasks of the SMS, the retention periods on the basis of the EU regulation are at least five years. In addition, the documentation of the audits of the operational safety regarding the processes at the airport that have to be performed at regular intervals, of the potential hazards that may be identified in this process, of the corrective measures that appear necessary in the course of the review, and of the corrective measures instituted directly has to be retained for no less than ten years in accordance with section 45b(2) LuftVZO.

The following documentation is subject to a retention period extending a minimum of two years after the documentation has ceased to be valid:

- Agreements with other organizations, manuals for airport equipment or systems used at the airport, as well as safety reviews for systems, procedures or work;
- Records of training courses and qualifications as well as of proficiency examinations have to be kept available by the process owners for up to a minimum of four years after the employee leaves the company or until their field of

activity has been reviewed by the relevant authority, irrespective of any other retention periods.

All staff of the SMS are required to maintain confidentiality and to comply with the relevant regulations of data protection law.

4.5 Documentation Requirements and General Conditions for Photographs

The image and video files that are created are used to prevent damage on the basis of Regulation (EC) No 216/2008 in conjunction with Regulation (EU) No 139/2014 and on the basis of section 45b LuftVZO.

4.5.1 Creation of Image and Video Files

Image and video files are created by the SMS on an ad hoc basis and taking into consideration data privacy and the works agreements in force.

These data privacy rights could be rescinded if incidents are involved here that might form the basis of a criminal offense or in the event of grossly negligent or willful breaches of operational safety.

4.5.2 Handling Image and Video Files

4.5.2.1 Processing

The image and video files are rerecorded from the recording device on to an internal drive of the SMS and deleted from the recording medium. In the event of any further use of the files by the SMS, a copy of the original is produced and the recordings are processed using suitable software in such a way that the privacy of the employees is maintained, e.g. by pixellating the faces when it was not possible to avoid recording the faces at the time the recording was actually made. It is no longer possible to restore the original condition after the processing has been carried out (reversal of the pixellation).

4.5.2.2 Storage and Deletion

In accordance with section 45b LuftVZO, there is an obligation on the part of the SMS to document the reviews and to retain this documentation for a minimum of 10 years. This is also understood to include photo and video recordings if sufficiently informative documentation is not possible without these. The original recordings are retained in accordance with the applicable data privacy guidelines. The data are deleted after the corresponding individual legal deadlines have expired.

The SRB can request a full list of the image and video files that have been stored, inspect the files on an ad hoc basis and, if there is any doubt about whether they are appropriate, arrange the immediate deletion of the files in question.

4.5.2.3 Access to Stored Image and Video Files

Only the EASA Safety Manager and the staff of the SSO have access to the image and video documentation stored on the internal SMS drive.

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5. Change Management

In principle, changes to the operation (processes, procedures and services) and the infrastructure of Frankfurt Airport can result in new hazards or changes to the potential risks of the current situation in relation to operational safety.

For this reason, the SMS operates a change management process in order to identify and assess safety-related changes in advance.

The change management process of the SMS works in close cooperation with the change management within Compliance Management in order to maintain the general certificate.

The change management also includes regular reviews of the operation, the infrastructure, the processes, the documentation as well as the relevant safety evaluations of the SMS in order to guarantee the continuing validity of the initial evaluation.

5.1 Identification of Changes

The SMS systematically records changes to the organization, the operation and the infrastructure in order to be able to identify changes of this kind.

Changes to the organization, the operation and the infrastructure at Frankfurt Airport have to be promptly notified to the SMS in addition to Compliance Management and the competent nominated persons.

Among other things, this concerns:

- The airport operating license of Frankfurt Airport;
- Amendments to the aerodrome manual;
- Changes to the certification base, on the basis of which the certificate is issued;
- Changes to the way in which the airport fulfills the relevant requirements pursuant to Regulation (EC) No 216/2008 and its implementing provisions;
- Changes to the verification for the appropriateness of the resources for the operation of the airport in accordance with the relevant requirements;
- Changes to the declarations of the provider of apron control services;
- Modifications to process instructions, process descriptions and operating instructions, agreements and guidelines that affect or may affect operational safety;
- Major or complex construction projects on the apron and maneuvering area or projects of this kind that deviate from methods and procedures that have previously been practiced and found to be safe;
- Changes to the Aeronautical Information Publication of the Federal Republic of Germany (AIP Germany), if these are initiated by the airport operator.

The basis for the hazard identification and safety assessment of changes is provided by:

- The certification database of the EASA Compliance Manager;
- The hazard identifications and safety assessments carried out by the relevant process owners / managers;
- Criticality and stability of the processes and of the infrastructure;

- Previous operational safety;
- Previous practical knowledge.

The obligations of the relevant process owners / managers to participate in the hazard identification and safety assessment before changes are made at the airport, to its operation, the organization or the management system are:

- To identify the interdependencies with other parties affected and, if relevant, to plan and implement a safety assessment in coordination with these organizations;
- If relevant, to discuss assumptions and mitigation measures in a systematic way with the parties in question;
- If relevant, to ensure a comprehensive assessment of the changes, including any necessary interactions;
- If relevant, to ensure that complete and valid arguments, records and safety criteria are defined and documented in support of the safety assessment.

In addition to identifying and assessing new hazards that arise for operational safety and conducting a risk assessment, the process owner / manager arranges for measures for minimizing safety risks to be canceled or modified if these may no longer be applicable or should no longer be effective in their existing form as a result of the planned changes. If probabilities of occurrence and/or impacts in the event of occurrence can be evaluated only by expert when the safety assessments are carried out, the safety assessment has to be validated.

More extensive regulations governing the performance of hazard identifications and of the safety assessments are specified in chapter 6.

5.2 Auditing of Changes

Changes can in principle be the subject matter of an audit and are carried out in accordance with the SMS procedure for audits (see chapter 9.3.3).

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6. Hazard Identification and Risk Assessments

A central task within the framework of the SMS is to identify hazards and provide support for the process owner / manager in carrying out risk assessments.

It is only the knowledge of actual or potential hazards that allows operational safety measures to be taken in order to improve the safety services.

6.1 Identification of Hazards

Hazards in airport operations are identified and recorded reactively by evaluating daily report logs, accident reports, safety reports, audits, and observations made by the SMS.

This is carried out on a forward-looking basis by identifying potential hazards before major changes to the competencies, procedures, operational workflows and systems that are material for operational safety are implemented by the relevant process owner / manager.

The following methods are applied in the evaluation of facilities, equipment, procedures and documentation in order to identify hazards:

- Reactive evaluation in order to review the effectiveness of the system for monitoring and mitigating safety risks;
- Proactive (including predictive) evaluation in order to identify potential hazards for operational safety and to monitor and mitigate these in advance;
- Event-related evaluation of reportable incidents;
- Trend analyses.

6.1.1 Reactive Identification of Hazards

Hazards in airport operations are identified and recorded reactively among other things by evaluating daily reports and other information that is sent on a regular basis. The SMS can also receive other logs / reports on request if necessary. The SMS draws up a register of hazards on the basis of this information and other sources, such as safety reports, audit reports, surveys, studies, analyses and its own observations.

Analyses concerning emerging trends in relation to SMS-related events are carried out on the basis of the regular evaluation of daily logs, etc. In addition, the events are analyzed for possible hotspots, for example.

6.1.2 Proactive and Predictive Identification of Hazards

The handling of airport operations at Frankfurt Airport continuously undergoes changes as a result of expansions and upgrading, modifications to or the replacement of systems and equipment, organizational changes as well as the introduction of new or amended procedures and processes.

A hazard identification process and also a risk assessment have to be conducted and documented by the process owner / manager as part of the change management before changes to the competencies, processes, operational workflows, systems and infrastructure that are material for the operational safety are implemented. A copy of the documentation has to be given to the SMS. The hazards that have been identified and that

are specified in the documentation are included by the SMS in the register of hazards that it maintains.

Hazards that have been eliminated after modification are deleted from the register of hazards.

6.1.3 Event-related Identification of Hazards

In addition to these regular activities, an in-depth analysis and assessment is always carried out if there has been a (temporary) clustering of safety-related events.

Furthermore, a hazard identification process and safety assessment also have to be conducted if processes, operational workflows, technology, human factors or organizational structures were the cause of a reportable event within the meaning of Regulation (EU) No. 376/2014.

6.2 Risk Assessment

6.2.1 Proactive (Including Predictive) Risk Assessment

Proactive (including predictive) risk assessments serve to classify a risk in order to identify any corresponding need for action. In accordance with ICAO Doc. 9859 (third edition), there are three risk classes, which lead to different actions by the SMS and the process owner / manager:

- **Red risks (ICAO: Intolerable – high risk):**
Measures that are subject to an intolerable risk are not carried out.
- **Amber risks (ICAO: Tolerable – moderate risk):**
Decision on how to handle the measure in future by the process owner / manager, if appropriate in consultation with the EASA nominated persons. Consideration in the predictive assessment by the SMS.
- **Green risks (ICAO: Acceptable – low risk):**
Measure can be implemented. Consideration in the predictive assessment by the SMS.

The risk class is produced from a combination of the probability of occurrence of an event and the expected extent of damage (tolerance matrix). How the relevant risks have to be handled is described in chapter 6.3.

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6.2.1.1 Evaluation of the Probability of Occurrence of an SMS-related Incident

The dimension represented by the probability of occurrence is based on international classifications, e.g. CAA UK, CAP 760, Guidance on the Conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases, January 2006, as well as on ICAO Doc. 9859, SMM III, 1.14.2, Figure 1-8.

The classes correspond to the ICAO ADREP nomenclature. In divergence from ICAO, the dimension “Events per flight hour” to “Events per aircraft movement” has been adjusted in the description to the reference parameters relevant for the airport.

Probability of occurrence	Class	Description	
frequent	5	<10 ⁻³	<1,000*
occasional	4	10 ⁻³ - <10 ⁻⁵	1,000 – <100,000*
remote	3	10 ⁻⁵ - <10 ⁻⁷	100,000 – <10,000,000*
improbable	2	10 ⁻⁷ - <10 ⁻⁹	10,000,000 – <1,000,000,000*
extremely improbable	1	>= 10 ⁻⁹	>=1,000,000,000*

Figure 1: Classification of the probability of occurrence

(*) Explanation: Event occurs once per x flight movements

6.2.1.2 Evaluation of the Extent of Damage of an SMS-related Occurrence

The classification used in the matrix below has been freely selected, and the description has been defined by the airport operator on an empirical basis using the known damage events that have occurred since 1973. The description of the damage is presented by way of example and is not exhaustive. It essentially follows ICAO Doc. 9859, SMM III (2.14.10, figure 2-12), which should be consulted in principle during any assessment. This applies in particular if the extent of damage is not specified in the matrix.

Extent of damage	Class	Description of the damage (SMS definition)
Catastrophic	A	Aircraft / infrastructure destroyed
		Total monetary loss > EUR 1 billion
Hazardous	B	Technical emergency as well as failure of safety-related facilities and equipment
		Total monetary loss > EUR 100 million
Major	C	Serious incidents / accidents / failure of key personnel functions
		Total monetary loss > EUR 10 million
Minor	D	Incidents, operating limitations, use of emergency procedures
		Total monetary loss > EUR 100,000
		Limit of deductible of the insured party
Negligible	E	Isolated, insignificant incidents in operational workflow
		Total monetary loss < EUR 100,000

Figure 2: Classification of the extent of damage

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6.2.1.3 Overall Assessment of SMS-related Occurrences

The process owners / managers carry out an evaluation of the occurrences in accordance with the classifications described in chapters 6.2.1.1 and 6.2.1.2. When necessary, a relevant form (MSF 1002) can be provided by the SMS of Fraport AG.

The risk class is determined on the basis of classifications using a tolerance matrix. The tolerance matrix presented below is consistent with guidance material ICAO Doc. 9859, SMM III, 1.14.4, figures 1-10 and 1-11.

		Catastrophic Crash A	Hazardous Major fire B	Major Accident C	Minor Emergency procedure D	Negligible E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely improbable	1	1A	1B	1C	1D	1E

Figure 3: Tolerance matrix of the Fraport SMS based on ICAO Doc. 9859, SMM III

Decisions on the acceptance or tolerance of risks for operational safety are supported transparently by the tolerance matrix.

The definition of the contents of the matrix is generally laid down by the process owners / managers and department heads.

If in the course of the risk assessments that they have carried out department heads have applied a matrix deviating from the guidelines of ICAO and their other applicable documents on the basis of the acceptable level of risk that they have defined, this fact must be documented in the accompanying documentation, with an indication of the reasons, and notified to the SMS.

How the risks are handled is described in chapter 6.3.

6.2.2 Reactive Risk Assessment (ERC Event Risk Classification)

Reactive risk assessments serve among other things to validate the results of proactive (including predictive) risk assessments and also to review the operational safety of (sub) processes. These have to be carried out by the relevant process owners / managers.

In addition, the SMS assesses together with the relevant process owners / managers the operational safety of the handling of airport operations on the basis of the reports and notifications available.

The reactive risk assessment is made in the form of an “Event Risk Classification”, ERC, and is documented. The main objective of the assessment based on the ERC method is to provide a quick evaluation of whether measures to reduce risks are immediately necessary in connection with the reported or recorded safety-related events. This evaluation is generally carried out within two to three days after the event and is drawn up by the SSO.

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The following questions are considered in the course of the ERC:

- If the reported event had led to an accident, what would have been the biggest, most likely accident that could have been assumed?
- How effective were the remaining safety barriers (“defense mechanisms”) that prevented an accident in the reported event?

6.2.2.1 Categories of Impact Severity

In order to assess to what extent ad hoc measures to minimize risk have to be instituted, it must first be identified how severe the impacts could have been in the event of the biggest or most likely accident that could be assumed. The severity of the impact is assigned to one of four defined categories, A to D.

6.2.2.2 Categories of the Effectiveness of the Defense Mechanisms

The effectiveness of the defense mechanism (safety barrier), whose complete or partial failure led to the event, is assessed. The effectiveness is classified into the following four categories:

Effectiveness of the defense mechanisms	
Definition	Meaning
Ineffective	The defense mechanisms were not effective, with the result that no safety barriers could have prevented an accident.
Minimal	The defense mechanisms were effective only to the degree that existing safety barriers prevented an accident, but a safety-related event occurred that was not under control and that could easily have led to an accident.
Limited	The defense mechanisms were largely effective and it was possible to bring a safety-related event under control with them.
Effective	The defense mechanisms were completely effective and it was possible to prevent a safety-related event before it happened using these mechanisms.

Figure 4: Effect classes based on the ARMS (ERC) methodology

6.2.2.3 Risk Assessment Matrix

The risk is identified and assessed using the following assessment matrix:

Effectiveness of the defense mechanisms					
Category of severity	Class	Ineffective	Minimal	Limited	Effective
Accidents	A	2500	502	102	50
Serious incidents	B	500	101	21	10
Moderate incidents	C	100	20	4	2
No impacts	D	1	1	1	1

Figure 5: Risk assessment matrix based on the ARMS (ERC) methodology

The category determined for the severity of the impact is compared with the effectiveness of the defense mechanisms in order to determine the risk class. Furthermore, a quantitative value that illustrates the intensity of the event under consideration is allotted to each safety-related event as a result.

6.2.3 Reactive Risk Assessment (SIRA, Safety Issue Risk Assessment)

6.2.3.1 Delimitation

Building on the reactive risk assessment based on the ERC methodology, the ERC assessment has to be supplemented by the SIRA component when risks are present in the unacceptable or tolerable range if these are not reduced to the acceptable range by appropriate risk-mitigation measures. The safety management team has to be contacted and the next course of action has to be agreed, especially concerning the scope of the assessment, the general parameters and the definition of the safety criteria, before the reactive risk assessment based on the SIRA methodology is conducted.

6.2.3.2 Methodology

In the course of the hazard identification process, facts with impacts on operational safety can emerge that indicate the necessity of an assessment of existing risks.

The methodology is based on a development of the Airlines Risk Management Solutions (ARMS) Working Group and is applied on the basis of an Excel model, which can be downloaded from the EASA website.

The SIRA method consists of five steps:

1. Definition of the scope of the risk assessment, especially concerning the identified hazards, sites, aircraft, etc.;
2. Development of realistic accident scenarios that emerge from the hazards identified;
3. Analysis of the scenarios with the help of the SIRA model;
4. Determination (or estimation) of the probabilities of occurrence of the triggering event, the failure of the safety barriers, the remaining barriers, the impacts if an accident occurs, and transfer of these parameters to the SIRA form;
5. Inputting of the results in the form for calculating the resulting risk classification.

The SMS of Fraport AG issues more detailed information on the SIRA methodology, including on the algorithms that have been filed, on request.

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6.3 Handling Risks

6.3.1 “Red Risks”

Red risks cannot be tolerated under the given circumstances. The probability of occurrence and/or the extent of damage are so high that immediate measures to eliminate the risks or as a minimum to reduce them to an at least tolerable degree have to be initiated.

Suitable precautions have to be taken in order to

- Reduce the probability of occurrence of the risk and/or
- Reduce the possible impacts if a damage event were to occur.

If the risk cannot be eliminated or at least reduced to a level accepted by the responsible department management, if necessary in consultation with the EASA nominated persons, the trigger for the safety risk (e.g. process, plant operation, etc.) must be suspended.

If the risk can be reduced only to the tolerable range (amber), the following process steps for “amber risks” have to be implemented.

6.3.2 “Amber risks”

Amber risks have to be investigated by the relevant process owner / manager in cooperation with the SMS. They can be tolerated subject to reservations if the accepted level of risk is not exceeded.

The definition of the acceptable level of risk (ALoR) and the decision on how to handle the measure in future are made by the process owner / manager, if necessary in consultation with the department management team and the EASA nominated persons. The investigation must be carried out within a time frame that is appropriate to the risk. Consideration of the risk in the predictive assessment by the SMS.

After the investigation has been concluded, the process owner / manager or the department management, if necessary in consultation with the EASA nominated persons, decides whether and which risk-mitigation measures should be implemented and at what expense. The investigation, the result and the well-founded decision based on the investigation as well as the implementation have to be documented and promptly reported to the SMS.

The SMS is also to be informed if no measures that reduce the safety risk to green are (can be) implemented after the investigation has been concluded. The same applies if the measures are not or cannot be implemented within a reasonable time frame.

6.3.3 “Green risks”

Green risks do not require any measures to be taken if there are no irregularities to be recorded.

In principle, the risk should be reduced as far as possible at reasonable expense in accordance with the ALARP principle.

An ALARP level means that a risk can then be classed as tolerable if the costs for further risk reductions are significantly higher than the costs that can be expected if the safety risk were to occur.

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6.3.4 Risk Mitigation

The tolerable level of risk is defined for each risk by the relevant department management, if necessary in consultation with the EASA nominated persons.

The process owners / managers are required to reduce the red operational risks at least to an amber risk – if the risk is then lower than the acceptable level of risk defined by the department management team.

A risk-benefit analysis is permissible for the assessment of whether the benefits outweigh the residual risk for this purpose. These analyses have to be carried out and documented by the relevant process owners / managers. They are to be disclosed to the SMS/SRB upon request.

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7. Monitoring of the Safety Performance

The safety performance in handling airport operations is verified on the basis of the safety objectives (SKPIs and safety performance targets) that have been adopted and the requirements of the Safety Policy, as well as the evaluation in the Safety Review Board. It is thus ensured that previously identified risks have actually been reduced after agreed measures have been implemented. If the assessments show that risks have not been appropriately reduced, the risk-mitigation strategies may have to be reviewed and adjusted.

7.1 Monitoring of the Safety Performance

The following serve as the basis for monitoring operational safety:

- The reporting on special events, e.g. on incidents and accidents;
- The SMS hazard register;
- The risk assessments carried out by the process owner;
- Mandatory and voluntary safety reports;
- Analyses;
- Audits;
- Safety investigations;
- etc.

Unusual clusters of events in the processes that are related to operational safety are identified on the basis of performance indicators that are derived from the information specified above. Any trend in the development of operational safety can be identified by comparing the number of safety-related occurrences while taking traffic figures into consideration.

The SSO can provide other evaluations regarding occurrence rates on request if these have recorded by the process owners / managers in the past and the data have been sent to the SMS.

If the operational safety level has to be measured in the course of a change to or the introduction of processes, organizational structures and technology, the SMS has to be involved in good time in order to coordinate and guarantee how a measurement can be taken and a report made.

7.2 Measurement of Target Attainment

The fulfillment of the targets set by the Executive Board and the EASA Accountable Manager is reviewed by the SMS and the results are reported to the Executive Board and the SRB.

In the event of serious and persistent deviations from the targets, advice on suitable countermeasures is provided by the SRB and proposed to the EASA Accountable Manager.

Regular communication on the attainment of targets is conducted by the EASA Accountable Manager with all organizations and persons involved in airport operations.

8. Safety Reports

8.1 Safety Reporting System

In order to promote safety at the airport and the safe use of its facilities, Fraport AG has set up a safety reporting system that has to be applied by all persons and organizations that work or perform services at the airport.

The safety reporting system can be used for both mandatory and voluntary safety reports.

A safety report can be submitted to the SMS of Fraport AG through the following channels:

- By phone around the clock using the safety hotline: 069 690 – 2 44 44;
- By e-mail to SMS@fraport.de;
- By fax to the Safety Fax: 069 690 - 5 83 79;
- By internal or regular mail to the SMS: Fraport AG, SMS, 60547 Frankfurt;
- In person to any employee of the SMS.

Information that is sent informally will also be taken into consideration.

The safety alert form (MSF 1001) is available in order to ensure that all information required by the SMS concerning an occurrence that is material for operational safety is provided. The form serves as a guideline for the employees when they write a report. It can be requested from the SMS or filled out directly in the electronic media of Fraport AG and printed out.

The reports are recorded directly in the event database of the SMS and can be viewed only by the EASA Safety Manager and the SSO. The EASA nominated persons can also be allowed to view the content of the report immediately if their viewing of the content is factually connected to the tasks and responsibilities that have been assigned to them.

The SMS refrains from apportioning blame in the assessment and investigation of the incidents that are reported within the meaning of a “Just Culture”.

The person who makes the report – if known – receives feedback on the receipt of their report as well as on the results of the analysis or investigation. The feedback is sent to the person making the report as promptly as possible and has to be documented.

8.2 Mandatory Safety Reports

Fraport AG is subject to reporting duties that result from the relevant German and European regulations, such as LuftVG, LuftVO, LuftVZO, FIUUG, Regulation (EU) No 376/2014 in conjunction with Commission Implementing Regulation (EU) No 2015/1018, and Regulation (EU) No 139/2014.

The reporting duty specifically for the SMS relates to all safety-related incidents in connection with airport operations (including ground services) in accordance with Regulation (EU) No 376/2014 and Commission Implementing Regulation (EU) No 2015/1018 (Annex IV) as well as Regulation (EU) No 139/2014. The time limit is 72 hours for reporting the events and three months for the analyses.

A list of all parties with reporting obligations pursuant to Commission Implementing Regulation (EU) No 2015/1018 as well as the events that have to be reported to the competent authorities can be found in

Annex C: Reportable events.

A copy of all mandatory safety reports that are not transmitted through the SMS of Fraport AG or safety reports of third parties has to be sent to the SMS of Fraport AG.

The SMS evaluates the reported event and, depending on the severity, conducts a safety assessment with the participation of the process owner / manager.

Technical malfunctions, breaches of technical system limitations, special safety-related events and irregular circumstances have to be reported by the office of the airport operator that is responsible for the system to the organization for the design of airport equipment (Regulation (EU) No 139/2014, Annex III, ADR.OR.C.030 b). A copy has to be sent to the SMS of the airport operator.

Furthermore, all accidents, damage events and damage to property have to be reported to the SLS in accordance with the Traffic and Licensing Regulations of Fraport AG.

The person who makes the report receives feedback on the receipt of their report as well as on the results of the analysis or investigation. The feedback is sent to the person making the report as promptly as possible and has to be documented.

8.3 Voluntary Safety Reports

Every employee at Frankfurt Airport has the opportunity – irrespective of their employer – to use the safety reporting system of Fraport AG to report information on safety-related events, hazardous situations in airport operations or suggestions for improving operational safety directly to the SMS of Fraport AG.

Voluntary safety reports can be made via all channels of the SMS (see section 8.1). They will be treated confidentially at the request of the person submitting the report and can be made anonymously.

Information from the voluntary reports are used exclusively to obtain information on potential hazards as well as to identify existing or possible safety problems.

Voluntary reports to the SMS do not result in any disciplinary measures against the person submitting the report in principle. Exceptions to this can exist in the event of criminal action on the part of the person submitting the report (e.g. gross negligence or willful intent).

After a report has been received, it is promptly evaluated in terms of relevance for operational safety. It is also checked whether this or a similar incident has already been reported and whether an investigation and, if appropriate, corrective measures have been instituted.

The EASA Safety Manager then decides whether the facts presented in the report are investigated by the SMS, whether any process owners / managers directly affected are informed or whether this is only of statistical importance.

The person who makes the report receives feedback on the receipt of their report as well as on the results of the analysis or investigation if this is possible and the report was not made anonymously.

The SMS reports regularly to the SRB on the voluntary reports that have been received and the measures that have been derived from them.

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8.4 Investigation of reportable Incidents

Reportable events in accordance with Regulation (EU) No 376/2014 are analyzed by the SMS and investigated in more detail as required. All information, technical records and documentation are provided to the SMS for this purpose.

If necessary, the SMS interviews any people involved, their superiors or other process owners / parties involved in the process. Everyone who is interviewed is instructed that their statements are made in connection with an investigation and may be included in the report.

The investigation of an incident by the SMS does not take the place of any investigations conducted by the German Federal Bureau of Aircraft Accidents Investigation (FBU) or other official bodies.

The SMS is not assigned to identify personal blame or to take part in the clarification of questions of fault after incidents and accidents have occurred. The investigation report does not therefore contain any personal data.

The draft report is submitted to all divisions concerned as well as to the EASA Operations Manager and, if necessary, to the EASA Maintenance Manager before the report is approved by the EASA Safety Manager.

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9. Improvement of the Safety Management System

9.1 Objectives

The safety management system is an important element for improving operational safety. In order to constantly improve the system, the SMS employs a continual improvement process (CIP).

9.2 Rights and Duties of the SMS

As part of its tasks, the SMS can obtain information on all circumstances that are of importance for operational safety. The divisions concerned provide the SMS with the data necessary for this.

All persons and organizations involved in airport operations support the SMS of Fraport AG in the tasks that are assigned to it and in the fulfillment of its duties.

The SMS has to explain its procedures to the persons and organizations involved in the airport operations and is accountable to the EASA Accountable Manager and the SRB.

9.3 Methods

In order to fulfill its duties, the SMS can apply various methods, described below, to improve operational safety.

9.3.1 Safety Studies

Safety studies are carried out as and when necessary and depending on the available resources. They are conducted with the aim of identifying systemic safety defects.

9.3.2 Safety Assessments

Safety assessments are carried out on a case-by-case and ad hoc basis, especially while systems and technologies are under development, before they are introduced or before changes to them are made as well as when processes are changed and/or new or amended processes are introduced.

They form part of the change management. The objective of a safety assessment is to evaluate the safety risks that are connected with the introduction of a system or process.

Planned changes are assessed in terms of the following questions:

- Have a hazard identification process and a safety risk assessment been conducted by the process owner / manager?
- Do the proposed changes contribute to minimizing the existing safety risks?
- Are new safety risks created by the change and how are these countered?
- Are the responsibilities clearly regulated and communicated?
- Does the operational personnel have the necessary competences?
- Will the changes be communicated to all agencies affected?
- Have continuity plans been drawn up for individual processors?

The answers to the above questions have to be entered in a form and added to the assessment process.

If the SMS does not have any safety concerns, this is documented by the EASA Safety Manager signing the signature page of process and operating instructions.

If the SMS does have safety concerns, a list with all the safety concerns is drawn up, which is sent to the process owner / manager and which should contain recommendations. This process is carried out informally, generally by e-mail, for practical operating reasons. These e-mails are documented and archived by the SMS.

It is the responsibility of the respective process owners / managers to dispel the concerns or to minimize the safety risks related to the changes. If necessary, a new safety assessment is carried out to identify and document a corresponding reduction in the safety risks.

9.3.3 Safety Audits

In accordance with the standards of the International Organization for Standardization EN ISO 9000:2005 and EN ISO 19011, audits are a systematic, independent and documented process for gaining statements on products, processes, procedures or systems and producing an objective assessment of these. The assessment helps to determine to what extent defined audit criteria are fulfilled. Processes, procedures and requirements are defined as audit criteria. Audit criteria are used as a reference for evaluating the audit evidence that has been compiled.

The safety management system can achieve its desired effect only if all the processes that are material for operational safety are executed in application of the requirements derived from legal standards, the safety performance is monitored and identified weaknesses are rectified. In addition to identifying possible weaknesses by the process owner / manager, measuring the safety performance and also introducing and further developing the reporting system, safety audits of all relevant workflows and systems at Frankfurt Airport are carried out on a regular basis.

In the course of these audits, it is examined in particular whether existing safety standards and requirements are known and applied and whether all employees have been adequately trained. In addition, interfaces and selected processes in which third-party companies are involved as well as their participation in the SMS of the airport operator are audited.

9.3.3.1 Assessment Conducted on the Safety Management System (Internally and Externally)

Internally:

By the SRB on behalf of the company management or of the EASA Accountable Manager in consultation, if the auditor has no responsibility for the activity to be audited (guarantee of neutrality) and the audit is not carried out by an employee of the SMS itself.

Externally:

By the authority performing the supervisory role pursuant to LuftVZO or Regulation (EC) No 216/2008 and Regulation (EU) No 139/2014, HMWEVL

9.3.3.2 Review Conducted by the SMS (Internally and Externally)

Internally:

Scope: All internal processes, technologies and procedures that affect operational safety;
All organizational units that perform activities that affect operational safety.

Externally:

Scope: All companies that perform activities that affect operational safety and are subject to the scope of responsibility of the airport operator for maintaining the airport in safe operating condition and for ensuring proper operation in accordance with LuftVZO and/or EU legislation.

9.3.3.3 Planning of Safety Audits

As a matter of principle, audits are notified in advance. Audits for which advance notice is given are notified to the organizational units in question in good time before the relevant audit is conducted. Audits can also be conducted without advance notice in exceptional cases. These are carried out with the acknowledgment of the SRB.

The routine safety audits that have to be carried out by the SMS are planned for the following year and approved by the EASA Accountable Manager following consultation in the SRB.

Furthermore, audits of their own organization / processes can also be arranged at short notice by the EASA Safety Manager at the request of all organizations and persons involved in airport operations.

If a process owner / manager refuses a planned audit, this is to be documented together with the reasons and notified promptly to the SRB.

9.3.3.4 Scope of Safety Audits

The subject of the safety audits conducted by the SMS is the review of a system, a product or a defined process with specifically assigned process responsibilities to ensure that they are organizationally correct and complete and actually implemented in practice. The objective is additionally to investigate work sequences that follow causally with the relevant procedure for possible weaknesses.

9.3.3.5 Performance and Documentation of Safety Audits

The audits have to be conducted and documented in a structured and verifiable way in accordance with current audit methods.

The process owners / managers and the SRB are informed if audit findings are present that indicate potential hazards that need to be corrected. A summary overview of all audit findings is presented in the SRB – anonymized if necessary.

9.3.4 Safety Reviews

While audits are used to monitor workflows and processes within an overall system, safety reviews are used to selectively review compliance with standards and requirements.

The safety reviews of flight operations areas (apron and maneuvering area) are carried out by the SMS, where appropriate together with an expert or the EASA Maintenance

Manager. The findings obtained in this process are documented, and the process owners / managers are informed if potential hazards have been identified.

The points that have been identified are subject to a new inspection after any corrective measures have been carried out.

9.3.5 Safety Investigations

Safety investigations can also be necessary in other cases in addition to the analyses pursuant to Regulation (EU) No 376/2014. The same framework conditions apply to the implementation of these investigations.

The aim of the safety investigation is to identify hazards and weaknesses. The findings of the investigation are documented in a report. This is provided to the process owner / manager.

The findings should be prepared in such a way that they provide the process owner / manager with effective support in developing and implementing corrective measures, rectify or minimize the defects or weaknesses that have been discovered and prevent an event of this kind or a comparable event from being repeated.

The development and implementation of measures is the responsibility of the process owners / managers. These can request the SMS to arrange for a new investigation after the measures have been implemented.

9.4 Recommendations for Operational Safety

Based on the result of the analyses, the EASA Safety Manager can issue recommendations concerning operational safety if safety risks have been identified and corrective measures have not already been verifiably instituted. These recommendations are to be addressed to the process owner / manager and also forwarded to the EASA Accountable Manager and, where appropriate, to all EASA nominated persons.

If the process owners / managers – and the company management, which has ultimate liability – do not follow a recommendation that has been issued, the EASA Safety Manager can demand that the company management provide a written presentation of the reasons why the recommendation has not been complied with.

9.5 Just Culture Principle

As set out in the Just Culture principle, the SMS does not carry out a clarification regarding any fault for the event. In due consideration of the Datenschutzgesetz (German Data Protection Act) and of the relevant work agreements, personal data is requested and used only insofar as this is necessary for the analyses.

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10. Coordination of the Emergency Plan

The emergency plan regulates the responsibilities and also the processes for the coordinated handling of emergencies and irregular events at Frankfurt Airport.

The aim is to:

- Prevent or minimize personal injuries and damage to property;
- Take control of an event as quickly as possible;
- Continue operations in a safe way;
- Restore normal operating conditions.

The emergency plan and also the creation of the emergency plan are located within the Emergency Management at Fraport AG. This also involves discussions with third parties. As the operator of the SMS, the SSO plays a coordinating role here in ensuring that the emergency plan is continually developed and improved and also that the emergency plan of Frankfurt Airport is coordinated with other organizations that are involved.

The tasks involved in this coordination include:

- Regularly reviewing the structure of the emergency plan in terms of the delegated powers and the assigned responsibilities in emergencies;
- Ensuring coordination processes for key persons in an emergency and for the restoration of normal operations;
- Identifying external organizations that interact with the airport operator in emergencies in order to coordinate the relevant procedures;
- Develop new procedures as soon as new hazards have been identified by the safety management system.

Changes to the emergency plan and to the relevant procedures are discussed, agreed and assessed with the SMS as part of the coordination of the emergency plan. The EASA Safety Manager co-signs the emergency plan.

The following measures are taken by the SMS specifically:

- Regular meetings of the SMS with Emergency Management. The emergency situations that are newly identified in the course of the risk assessment or that were previously negligible are assessed in this process, among other things. Where necessary, these situations have to be planned and prepared for by the divisions concerned so that they can then be included in the emergency plan;
- Appointment of an emergency plan officer of the SMS in the Safety Service Office. This officer is directly involved in the creation and amendment of the emergency plan;
- Participation of the emergency plan officer of the SMS in the regular meetings of the AOC (Airline Operators Committee) Safety, Security and Emergency Subcommittee.
- The follow-up on real situations and events directly or indirectly related to airport operations can be triggered by the Safety Service Office if this has not already been initiated by the units concerned. It is not only situations and events occurred

at Frankfurt Airport that have to be considered in this process, but – insofar as this is possible and meaningful – also those occurred at other Fraport Group companies or third parties.

- Training exercises in the emergency procedures have to be practiced on a regular basis in accordance with the statutory requirements. The training scenario is agreed with the SMS in advance. When developing training scenarios it is important that consideration is given to the findings from previous exercises and from actual events as well as to parts of the emergency plan that have not been practiced for a long time.
- After a (sub) exercise, the SMS and Emergency Management conduct a joint assessment in respect of the relevant parts of the emergency plan for the aspects that are directly or indirectly related to airport operations.
- The findings from the follow-up / subsequent review are included in an optimized emergency plan (within the meaning of best practice and a continual improvement process). Changes to the emergency procedures have to be planned and prepared for by the divisions concerned if necessary so that they can then be included in the emergency plan.
- The SMS is involved in the performance of the exercises.
- The exercise documentation (exercise instruction and evaluation report) is sent to the SMS for documentation purposes.
- The exercise documentation of the SMS is sent to Emergency Management for evaluation and documentation purposes.

The aim of the coordination and also of the overall review of the emergency plan by the SMS is to ensure compliance with the international and national legal requirements as well as to implement “lessons learned”. The continual development of the emergency plan with all the parties involved is an essential element of the coordination.

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11. Safety Training

The EASA Safety Manager introduces a training program for the safety management system on the basis of the requirement in Regulation (EU) No 139/2014 Annex III ADR.OR.D.005 (8).

This covers all persons that are involved in the management, the operation and the maintenance of the aerodrome as well as all unaccompanied persons who work within the flight operations areas of Frankfurt Airport. The training serves to communicate the objectives and contents of the safety management system and also the duties to participate in it to the organizations and persons involved in airport operations.

Training requirements are ensured by a multilevel training program. Basic safety training has to be successfully completed by all employees who are authorized to access the flight operations areas before they can enter these areas.

Employees of organizations that do not satisfy the training obligation will be refused access to the flight operations areas after the expiry of a pre-defined period of time.

The minimum requirements governing the contents of the training program correspond to the EASA requirements.

Learning goals and detailed regulations governing the training content for employees of Fraport AG, subsidiaries of Fraport AG and third parties are regulated in Annex D.

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12. Safety Communication

The SMS uses various communication channels to actively convey the objectives and procedures of the SMS to all parties involved in airport operations. The goal is to communicate safety-critical information and convey the background to why certain measures are instituted and why safety procedures are introduced. All persons and organizations involved in airport operations keep themselves informed of the objectives, procedures and requirements of the SMS.

12.1 Safety Management System Regulation

All key elements of the SMS are detailed in the SMS Regulation. It specifies key responsibilities in relation to operational safety.

12.2 Safety Policy

The Safety Policy represents the cornerstone of the safety management system. It defines the expectations and requirements that the company management and the EASA Accountable Manager place on all managers and employees both of Fraport AG and its subsidiaries as well as of third parties with regard to operational safety and highlights what behavior in terms of operational safety is not acceptable.

Key elements of a functioning safety management system are specified. The attention of managers and employees of both Fraport AG and its subsidiaries as well as of third parties is drawn to their obligations regarding the SMS. The Safety Policy also contains information on the reporting system.

12.3 Safety News

The SMS ensures that managers and employees of both Fraport AG and its subsidiaries as well as of third parties are made aware of the hazards and risks that exist in handling airport operations through a variety of media and are also introduced to avoidance strategies.

Where necessary, accidents and safety-related events are presented on an anonymized basis with the aim of avoiding a repeat as far as possible. Newsletters and safety bulletins are also used to communicate why procedures, processes or technologies have been introduced or changed. They also include the findings from analyses, benchmarks (best practice) or incidents at other airports that are factually connected to the field of duties of the SMS.

12.4 Website

The SMS operates its own web pages in the Fraport and Group intranet. Employees of Fraport AG and its subsidiaries can find more extensive information here on the safety management system and safety-related incidents. Moreover, safety news is regularly published on the central news site.

General information on the safety management system, including a description of the SMS reporting system, can be found on the Fraport Group website, which can be freely accessed by third parties.

13. Output of the Safety Management System

The output of the safety management system can be summarized as follows:

13.1 Safety Policy and Objectives

The SMS develops, publishes and promotes the Safety Policy of Fraport AG.

The SMS additionally provides support for the senior management in the definition of the safety objectives. The SMS measures the attainment of targets and conducts a variance analysis when necessary. The Safety Policy and the safety objectives are binding for all persons and organizations that take part in the airport operations.

13.2 Coordination of the Emergency Plan

In relation to the emergency plan of Fraport AG, the SMS plays a coordinating role in ensuring that the emergency plan is continually developed and improved and also that the emergency plan of Frankfurt Airport is coordinated with other organizations that are involved.

13.3 Risk Management

A central task within the framework of the safety management system is to identify hazards and provide support for the process owners / managers in carrying out risk assessments.

The SMS lays down the system for identifying and assessing risks. In addition, how the risks of the respective risk classes are expected to be handled is also defined.

The SMS of Fraport AG provides support to all persons and organizations in all relevant aspects of the safety management system.

The SMS of Fraport AG has set up a reporting system that is intended to be used by all persons and organizations to submit safety reports.

The SMS of Fraport AG conducts investigations into safety-related incidents on the basis of Regulation (EU) No 376/2014 or on the instruction of the EASA Safety Manager. All information, technical records and documentation are provided to the SMS of the airport operator in the course of these investigations. The key results are presented during the meetings of the SRB.

13.4 Enhancing Safety

The SMS monitors the contributions made by persons and organizations to operational safety. This monitoring forms the basis for identifying possible trends or problem areas and any necessary programs for enhancing safety.

The SMS of Fraport AG operates a change management process in order to identify and assess safety-related changes in advance. The change management concerns all organizations involved in airport operations.

The SMS employs a continual improvement process in order to constantly enhance safety. The goal is to determine, assess and, if necessary, increase operational safety. A variety of methods appropriate to the objective in question are applied for this purpose.

All organizations and persons cooperating in airport operations are required to take part in this process.

13.5 Promoting Operational Safety

In order to promote operational safety, the SMS ensures that the necessary SMS training programs are carried out for Fraport AG and third parties and that inadequately trained employees are not issued an airport ID card for the flight operations areas.

The SMS regularly provides information about safety-related aspects of the airport operations on an ad hoc basis and by reference to the relevant issues. This includes changes to the Safety Policy and the safety objectives, the attainment of targets, hazards that have been identified and safety performance.

13.6 Further Developing the Safety Management System

In summary, the aim is to constantly enhance operational safety by continually improving the safety management system. The procedures, investigations and audits, etc., described in this regulation are used for this purpose.

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Annexes

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Annex A: Nominated Persons at Fraport AG

The following persons have been appointed as nominated persons by the Executive Board of Fraport AG in accordance with section 1.4 of the rules of procedure:

- Alexander Laukenmann, AVN, EASA Accountable Manager in accordance with ADR.OR.D.015(a)
- Dr. Daniel Kösters, AVN-EM, EASA Operations Manager pursuant to Regulation (EU) No 139/2014 Annex III ADR.OR.D.015(b)(1)
- Patrick Spijkers, AVN-AR, EASA Maintenance Manager pursuant to Regulation (EU) No 139/2014 Annex III ADR.OR.D.015(b)(2)
- Boris Wilke, AVN-EM, EASA Maintenance Manager pursuant to Regulation (EU) No 139/2014 Annex III ADR.OR.D.015(b)(11)
- Martin Bülow, AVN-EM, EASA Safety Manager pursuant to ADR.OR.D.015(c)

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Annex B: Safety Objectives of Fraport AG

The safety objectives (SKPI: Safety Key Performance Indicator) of Fraport AG for 2021 were accepted by the Safety Review Board on February, 24th, 2021 were decided on by the Executive Board of Fraport AG on March 17th, 2021.

The SKPIs are based on the German State Safety Program and cover following occurrences:

- (1) Runway incursions
- (2) Runway excursions
- (3) Accidents / serious incidents with moving aircrafts (Accidents according to Regulation (EU) No 996/2010), aircraft damage during taxi, severe incidents with towed aircrafts)
- (4) Severe near misses during taxiing and push backs
- (5) Severe aircraft damages during ground handling

The SKPIs for 2021 have been defined as followed:

- (1) Runway Incursions: 0,230 per 10.000 movements
- (2) Runway Excursions: Maintain the very high safety standard
- (3) Accidents / serious incidents with taxiing aircraft: 0,400 per 10.000 movements
- (4) Severe near misses during taxiing and push backs: 1,700 per 10.000 movements
- (5) Severe aircraft damages during ground handling: 0,560 per 10.000 movements

They apply for all persons and organizations involved in airport operations.

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Annex C: Reportable events

The following events in connection with airports and ground services have to be reported in accordance with Regulation (EU) No 376/2014 and Commission Implementing Regulation (EU) 2015/1018 Annex IV (the Commission Implementing Regulation as currently amended applies) if they might represent a significant risk to aviation safety:

SAFETY MANAGEMENT OF AN AERODROME

1.1. Aircraft- and obstacle-related occurrences

- (1) A collision or near collision, on the ground or in the air, between an aircraft and another aircraft, terrain or obstacle (including vehicles)
- (2) Wildlife strike including bird strike
- (3) Taxiway or runway excursion
- (4) Actual or potential taxiway or runway incursion
- (5) Final Approach and Take-off Area (FATO) incursion or excursion
- (6) Aircraft or vehicle failure to follow clearance, instruction or restriction while operating on the apron or maneuvering area of an aerodrome (for example: wrong runway, taxiway or restricted part of an aerodrome)
- (7) Foreign object on the apron or maneuvering area which has or could have endangered the aircraft, its occupants or any other person
- (8) Presence of obstacles on the aerodrome or in the vicinity of the aerodrome which are not published in the AIP (Aeronautical Information Publication) or by NOTAM (Notice to Airmen) and/or that are not marked or lighted properly
- (9) Push-back, power-back or taxi interference by vehicle, equipment or person
- (10) Passengers or unauthorized person left unsupervised on apron
- (11) Jet blast, rotor down wash or propeller blast effect
- (12) Declaration of an emergency ('Mayday' or 'PAN' call)

1.2. Degradation or total loss of services or functions

- (1) Loss or failure of communication between:
 - (a) aerodrome, vehicle or other ground personnel and air traffic services unit or apron management service unit;
 - (b) apron management service unit and aircraft, vehicle or air traffic services unit
- (2) Significant failure, malfunction or defect of aerodrome equipment or system which has or could have endangered the aircraft or its occupants
- (3) Significant deficiencies in aerodrome lighting, marking or signs
- (4) Failure of the aerodrome emergency alerting system

(5) Rescue and firefighting services not available according to applicable requirements

1.3. Other occurrences

- (1) Fire, smoke, explosions in aerodrome facilities, vicinities and equipment which has or could have endangered the aircraft, its occupants or any other person
- (2) Aerodrome security related occurrences (for example: unlawful entry, sabotage, bomb threat)
- (3) Absence of reporting of a significant change in aerodrome operating conditions which has or could have endangered the aircraft, its occupants or any other person
- (4) Missing, incorrect or inadequate de-icing/anti-icing treatment
- (5) Significant spillage during fueling operations
- (6) Loading of contaminated or incorrect type of fuel or other essential fluids (including oxygen, nitrogen, oil and potable water)
- (7) Failure to handle poor runway surface conditions
- (8) Any occurrence where the human performance has directly contributed to or could have contributed to an accident or a serious incident

GROUND HANDLING OF AN AIRCRAFT

2.1. Aircraft- and aerodrome-related occurrences

- (1) A collision or near collision, on the ground or in the air, between an aircraft and another aircraft, terrain or obstacle (including vehicles)
- (2) Runway or taxiway incursion
- (3) Runway or taxiway excursion
- (4) Significant contamination of aircraft structure, systems and equipment arising from the carriage of baggage, mail or cargo
- (5) Push-back, power-back or taxi interference by vehicle, equipment or person
- (6) Foreign object on the aerodrome apron or maneuvering area which has or could have endangered the aircraft, its occupants or any other person
- (7) Passengers or unauthorized person left unsupervised on apron
- (8) Fire, smoke, explosions in aerodrome facilities, vicinities and equipment which has or could have endangered the aircraft, its occupants or any other person
- (9) Aerodrome security related occurrences (for example: unlawful entry, sabotage, bomb threat)

2.2. Degradation or total loss of services or functions

- (1) Loss or failure of communication with aircraft, vehicle, air traffic services unit or apron management service unit
- (2) Significant failure, malfunction or defect of aerodrome equipment or system which has or could have endangered the aircraft or its occupants

(3) Significant deficiencies in aerodrome lighting, marking or signs

2.3. Ground handling specific occurrences

- (1) Incorrect handling or loading of passengers, baggage, mail or cargo, likely to have a significant effect on aircraft mass and/or balance (including significant errors in loadsheet calculations)
- (2) Boarding equipment removed leading to endangerment of aircraft occupants
- (3) Incorrect stowage or securing of baggage, mail or cargo likely in any way to endanger the aircraft, its equipment or occupants or to impede emergency evacuation
- (4) Transport, attempted transport or handling of dangerous goods which resulted or could have resulted in the safety of the operation being endangered or led to an unsafe condition (for example: dangerous goods incident or accident as defined in the ICAO Technical Instructions (Doc 9284))
- (5) Non-compliance on baggage or passenger reconciliation
- (6) Non-compliance with required aircraft ground handling and servicing procedures, especially in de-icing, refueling or loading procedures, including incorrect positioning or removal of equipment
- (7) Significant spillage during fueling operations
- (8) Loading of incorrect fuel quantities likely to have a significant effect on aircraft endurance, performance, balance or structural strength
- (9) Loading of contaminated or incorrect type of fuel or other essential fluids (including oxygen, nitrogen, oil and potable water)
- (10) Failure, malfunction or defect of ground equipment used for ground handling, resulting into damage or potential damage to the aircraft (for example: tow bar or GPU (Ground Power Unit))
- (11) Missing, incorrect or inadequate de-icing/anti-icing treatment
- (12) Damage to aircraft by ground handling equipment or vehicles including previously unreported damage
- (13) Any occurrence where the human performance has directly contributed to or could have contributed to an accident or a serious incident

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Annex D: Basis of Safety Management Training

D1: Introduction

As the operator of Frankfurt Airport, Fraport AG has to establish and implement a training program on the basis of the requirement in Regulation (EU) No 139/2014 for the persons involved in the management, operation and maintenance of the airport as well as all unaccompanied persons who work within the movement areas or other operating areas of the airport (red and yellow ID cards) on their obligations to take part in the SMS.

An obligation to conduct SMS training for any third parties, including subsidiaries, is not incumbent on the airport operator [in accordance with decision 2014/012/R of the Executive Director of the EASA AMC1 ADR.OR.D017 (a);(b)]. However, the airport operator is required to ensure that only trained employees enter the flight operation areas.

Organizations, the employees of which enter or use the flight operation areas of the airport, are themselves required to ensure that the basic safety training is carried out. The responsibility for implementing the training programs within Fraport AG lies with the line managers.

The obligation of Fraport AG to ensure the training is regulated in the ID Card Regulations.

The obligation to conduct the training [in accordance with decision 2014/012/R of the Executive Director of the EASA ADR.OR.D.005, ADR.OR.D.017 (a);(b)] has been implemented successively since August 1, 2017.

D2: Basic SMS Training

The basic SMS training [in accordance with decision 2014/012/R of the Executive Director of the EASA AMC1 ADR.OR.D.017 (a);(b)] is binding, as a matter of principle, for all of the operations, rescue, firefighting and maintenance personnel who are authorized to access the flight operations areas.

Specifically, this means that all internal and external holders of red and yellow airport ID cards must have successfully completed at least basic training in safety management and have passed the subsequent test before authorization to access the apron area is issued or renewed.

The identity cards of untrained employees of organizations that do not meet the training obligation will be suspended after a period defined by the SMS of Fraport AG has expired and access to the flight operation areas will thus be denied until proof is presented that the training obligation has been fulfilled.

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In order to ensure the above-mentioned measure, Fraport AG offers basic SMS training that is specific to the airport, with subsequent monitoring of the learning outcome, on an IT system of Fraport AG, which can be accessed as follows:

- In the Skynet of Fraport AG (only for Fraport employees): **sms.fraport.de**
- On the Internet

sms.fraport.de
www.sms.fraport.de
sms.fraport.com
www.sms.fraport.com

The variety of languages used in the organizations and persons involved in airport operations is taken into consideration as far as possible. The training is offered in German, English, Spanish, Turkish and Russian.

For companies that wish to implement the training in another way (e.g. in group training sessions), please contact the Safety Management System (SMS) of Fraport AG. The final test of the learning outcome must be taken individually using the Fraport e-learning system in every case, however, so that the successful completion of the test can be recorded in the identity card management system. Only then can new ID cards be issued or renewals granted.

Training certificates of third parties cannot be recognized on the basis of the regulation, as the training is conducted specifically for the airport. The training is estimated to take approximately 30 minutes.

D.2.1 Training Requirements

The safety training describes the responsibilities related to operational safety, including compliance with all operating and safety procedures as well as the recognition and reporting of hazards.

Contents of the [in accordance with decision 2014/012/R of the Executive Director of the EASA GM1 ADR.OR.D.005 (b) (8)]:

- Safety Policy
- Basics and overview of a safety management system
- Definition of hazards
- Risks, consequences and hazards
- The safety risk management process, including roles and responsibilities
- Safety reports and the safety reporting system of the organization

D.2.2 Term of validity and documentation

After the monitoring of the learning outcome has been successfully completed, the date of the test is automatically transmitted to and stored in the ID card management system of Fraport AG. The term of validity of the basic SMS training is five years, after which the training has to be repeated. The organizations and employees concerned will be requested to successfully complete the training again 30 days before this five-year period expires. Should the new learning outcome test not be taken on time or not be successfully completed, the airport ID card will be suspended.

D3 Advanced SMS Training Programs

The requirements [in accordance with decision 2014/012/R of the Executive Director of the EASA ADR.OR.D.005 (b) (8)] for the implementation of the SMS advanced training are addressed especially to the airport operator (Fraport AG) and its employees at Frankfurt Airport. Also covered by these requirements are the integrated majority-owned affiliated companies (see chapter D4) at Frankfurt Airport as well as externally contracted activities that are performed by other organizations in accordance with Regulation (EU) No 139/2014 Annex III ADR.OR.D.010 if their employees have red or yellow airport ID cards.

D3.1 Training Requirements for the Advanced SMS Training I

All executives (levels 3 – 5 and team leaders) of Fraport AG and the comparable executives at its majority-owned affiliated companies at Frankfurt Airport are required to undergo the Advanced SMS Training I.

The successful completion of the basic SMS training is a prerequisite for completing the Advanced SMS Training I.

The contents of the training [in accordance with decision 2014/012/R of the Executive Director of the EASA GM1 ADR.OR.D.005 (b) (8)] include:

- Responsibilities and promotion of the SMS: The safety training details in particular the responsibilities of the process owners / managers related to operational safety, especially the promotion of the objectives of the SMS and the participation of the operating personnel in the SMS reporting system.
- Advanced fundamentals of an SMS: Processes of the SMS, detailed presentation of the competences and responsibilities related to the safety processes, the recognition of hazards, the safety risk management and the risk minimization as well as the management of process changes.
- Methodology for conducting a safety assessment
- Procedures in safety data analyses

D3.2 Training Requirements for the Advanced SMS Training II

All executives (levels 1 – 2) of Fraport AG and comparable positions as well as managing directors at its majority-owned affiliated companies at Frankfurt Airport are required to undergo the Advanced SMS Training II.

The Advanced SMS Training II includes the course contents of the Advanced SMS Training I.

The successful completion of the Advanced SMS Training I is a prerequisite for completing the Advanced SMS Training II.

The contents of the training [in accordance with decision 2014/012/R of the Executive Director of the EASA GM1 ADR.OR.D.005 (b) (8)] include:

- Responsibilities for operational safety, including compliance with European, national and the company's internal safety requirements, allocation of resources, ensuring effective, cross-divisional safety communication and active promotion of the safety management system;
- Guaranteeing operational safety and its promotion, safety roles and responsibilities, and introduction of the acceptable level of safety
- Safety Policy and objectives as part of operational safety

- Safety and risk management
- Ensuring and monitoring safety standards
- Promoting safety

D3.3 Training Requirements for the Advanced SMS Training III

The Advanced SMS Training III is intended for the Executive Board and Accountable Manager of Fraport AG at Frankfurt Airport.

The successful completion of the Advanced SMS Training II is a prerequisite for completing the Advanced SMS Training III.

The content of the training [in accordance with decision 2014/012/R of the Executive Director of the EASA GM1 ADR.OR.D.005 (b) (8)] includes:

- General awareness of the safety management system, including roles and responsibilities in a safety management system, Safety Policy and objectives, safety risk management, and guaranteeing safety.

D3.4 Term of validity and documentation

The term of validity of the advanced training programs is five years, after which they have to be repeated. The organizations and employees concerned will be requested to successfully complete the training again 30 days before this five-year period expires.

Records concerning the training of executives are retained by the SMS. The records must be kept in such a way that they are protected against damage, tampering and theft.

D4 List of Fraport's Majority-owned Affiliated Companies

List of the subsidiaries that have to undergo the advanced SMS training:

- AirIT Services AG
- Airport Cater Service GmbH
- Energy Air GmbH
- FRA – Vorfeldkontrolle GmbH
- FraCareServices GmbH
- FraGround Fraport Ground Services GmbH
- Fraport Ausbau Süd GmbH
- Fraport Immobilienservice und -entwicklungs GmbH & Co. KG
- Fraport Passenger Services GmbH
- FraSec Fraport Security Services GmbH
- GCS Gesellschaft für Cleaning Service mbH & Co. Airport Frankfurt/Main KG
- Media Frankfurt GmbH
- N*ICE Aircraft Services & Support GmbH

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Annex E: List of the Valid Process Instructions (not Public)

Note: This private annex is applicable only to employees of Fraport AG.

The SMS of Fraport AG works on the basis of the processes presented in the table. The form and entry into force are based on the requirements of the quality management system of Fraport AG. The table also shows which individual processes are relevant for which chapter of the SMS Regulation.

Aufstellung der für das Safetymanagement System gültigen Prozessanweisungen													Stand: 20.11.2017					
Nummer	Thema	Status	Gültig ab Datum	Version	Gültig für Kapitel der SMS Ordnung													
					1	2	3	4	5	6	7	8	9	10	11	12	13	
8.1SMS.1.1	Überwachung der Zielwerte für die betriebliche Sicherheit bei alternativer Nachweisführung in der Zertifizierung	<u>gültig</u>	01.12.2017	4	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8.1SMS.1.2	Erstellung, Veröffentlichung, Bewerbung und Weiterentwicklung der Safety Policy	<u>gültig</u>	01.03.2017	2	x													
8.1SMS.1.3	Reaktive Identifikation von Gefährdungen in der Flughafenbetriebsabwicklung	<u>gültig</u>	15.03.2017	4	x			x	x		x							x
8.1SMS.1.6	Überwachung, Messung und Kommunikation der betrieblichen Sicherheitsleistung	<u>gültig</u>	01.03.2017	3							x							x
8.1SMS.1.7	SMS Basisschulung für alle Mitarbeitenden	<u>gültig</u>	01.07.2017	1							x						x	
8.1SMS.1.8	SMS Aufbauschulung I für Führungskräfte	<u>gültig</u>	01.07.2017	1							x						x	
8.1SMS.1.9	SMS Aufbauschulung II für Führungskräfte	<u>gültig</u>	01.07.2017	1							x						x	
8.1SMS.1.10	SMS Aufbauschulung III für Führungskräfte	<u>gültig</u>	01.07.2017	1							x						x	
8.1SMS.1.11	SMS-Sicherheitsstudien erstellen	<u>gültig</u>	01.03.2017	3	x			x		x		x	x					x
8.1SMS.1.13	Sicherheitsaudits durchführen	<u>gültig</u>	01.12.2017	2	x			x		x		x	x					x
8.1SMS.1.14	Safety Inspektion durchführen	<u>gültig</u>	01.03.2017	3	x			x		x		x	x					x
8.1SMS.1.16	Sicherheitsuntersuchungen durchführen	<u>gültig</u>	01.12.2017	2	x			x		x	x	x	x					x
8.1SMS.1.17	Sicherheitsempfehlungen aussprechen	<u>gültig</u>	01.03.2017	3	x			x		x	x	x	x					x
8.1SMS.1.18	Änderungsmangement für Betriebsabläufen, Infrastruktur, Technik und Organisation, soweit für die betriebliche Sicherheit erheblich	<u>gültig</u>	01.03.2017	3	x			x	x								x	
8.1SMS.1.20	Veröffentlichung von Themen	<u>gültig</u>	01.02.2017	2	x					x							x	x
8.1SMS.1.23	Einbindung Dritter in das SMS des Fraport AG	<u>gültig</u>	01.11.2010	1	x	x	x				x	x	x	x	x	x	x	x
8.1SMS1.25	Runway Safety Team einrichten und betreiben	<u>gültig</u>	01.03.2017	2	x													x
8.1SMS1.26	Ramp Safety Team einrichten und betreiben	<u>gültig</u>	01.03.2017	2	x													x
8.1SMS1.27	Safety Review Board einrichten und betreiben	<u>gültig</u>	01.03.2017	2	x													x
8.1SMS.1.30	Reaktive Sicherheitsbewertung (SIRA-Methodik) durchführen	<u>gültig</u>	01.03.2017	3	x			x	x		x							x
8.1SMS.1.31	Reaktive Sicherheitsbewertung (ERC-Methodik) durchführen	<u>gültig</u>	01.03.2017	4	x			x	x		x							x
8.1SMS.1.32	Vorausschauende und vorhersagende Sicherheitsbewertung durchführen	<u>gültig</u>	15.11.2016	3	x			x	x									x
8.1SMS.1.33	Vorausschauende und vorhersagende Identifikation von Gefährdungen	<u>gültig</u>	15.03.2017	3	x			x	x									x
8.1SMS.1.40	Umsetzung Dokumentationsverpflichtung des SMS am Verkehrsflughafen Frankfurt/Main	<u>gültig</u>	01.03.2017	3	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8.1SMS.1.41	Sicherheitsmeldung und verpflichtende Ereignismeldung	<u>gültig</u>	18.10.2017	4	x					x	x						x	x
8.1SMS.1.42	Sicherheitsindikator zur Effektivität des SMS ermitteln	<u>gültig</u>	01.03.2017	3	x	x				x		x	x	x	x	x	x	x
8.1SMS.1.43	Messung der Sicherheitsleistung durch Sicherheitsindikatoren (SKPIs)	<u>gültig</u>	01.03.2017	3	x	x				x								x

The current overview of the processes, the process map as well as the process instructions themselves can also be viewed on the intranet of Fraport AG under "My

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workplace – Knowledge – Management systems – 8.1 Fraport AG – 8.1S Safety Management”.

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