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European Union Aviation Safety Agency

ARISE+
Funded by the European Union and implemented by the European Union Aviation Safety Agency

P4.1. Safety Management System

Your safety is our mission.

An Agency of the European Union

P4.1. Safety Management System

Basic concepts: Quick review

P4.1. Safety Management System

CONCEPT OF SAFETY (Doc 9859)

Safety is the state in which the risk of harm to persons or property damage is **reduced to**, and maintained at or below, **an acceptable level** trough a continuing process of hazard identification and risk management.

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SAFETY: TRADICIONAL APPROACH – PREVENTING ACCIDENTS

- Focus on outcomes (causes)
- Unsafe acts by operational personnel
- Attach blame/punish for failures to “perform safely”
- Address identified safety concern exclusively

Identifies

WHAT? **WHO?** **WHEN?**

But not always discloses:

WHY? **HOW?**

P4.1. Safety Management System

Traditional Approach

1.- Aviation system performs most of the time as per design specifications.

2.- Prescriptive regulations compliance based; audits and inspections

3.- Outcome oriented:

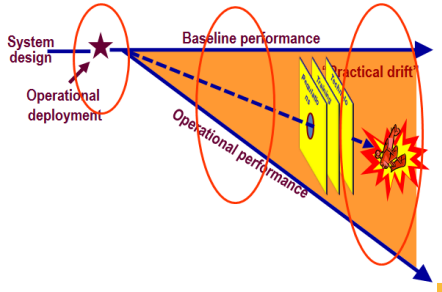
Accidents investigations

New Approach

1.-Aviation system does not perform most of the time as per design specifications (practical drift).

2.- Performance based: risk management and safety assurance

3.- Process oriented



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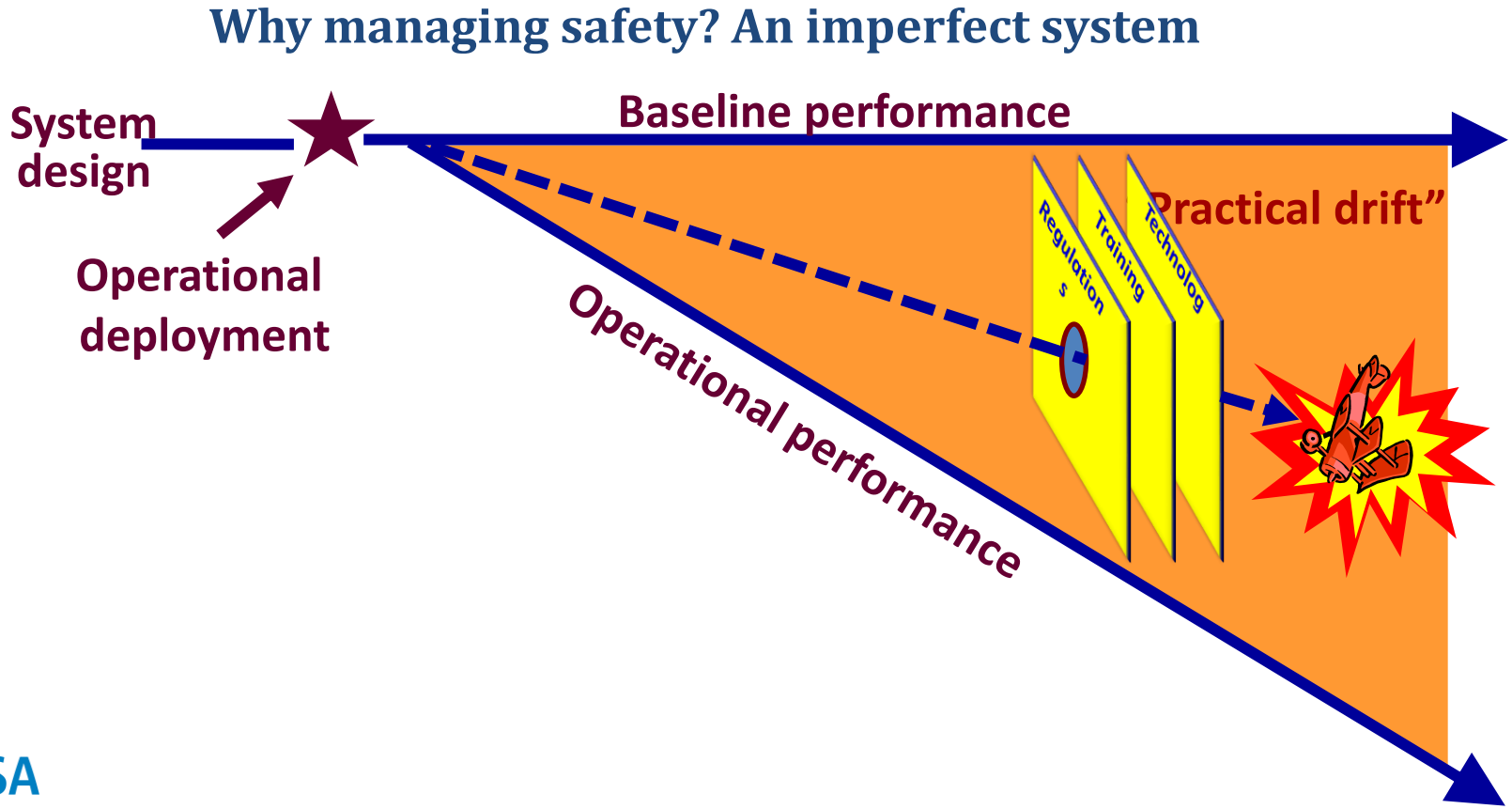


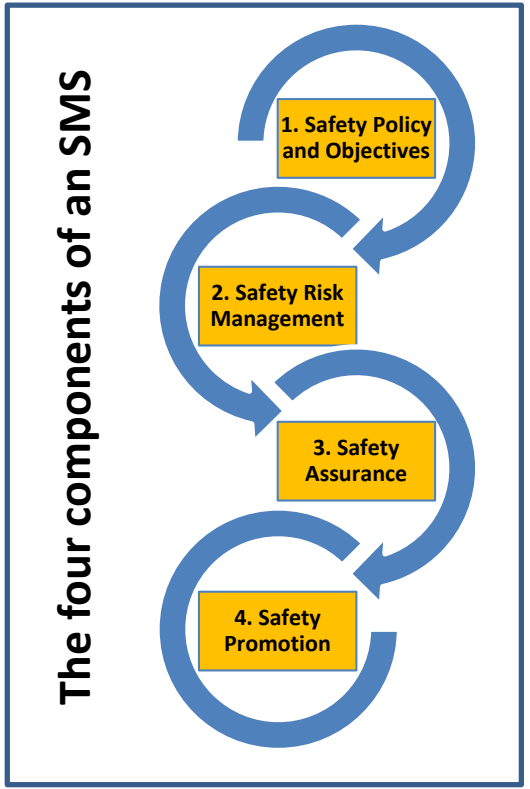
P4.1. Safety Management System

What is a Safety Management System (SMS)?

A **systematic approach to managing safety**, including the necessary organizational structures, accountabilities, policies, and procedures.

It strives to continually **identify safety hazards** and ensures that the associated **safety risks** have been managed properly.

The safety risk management process

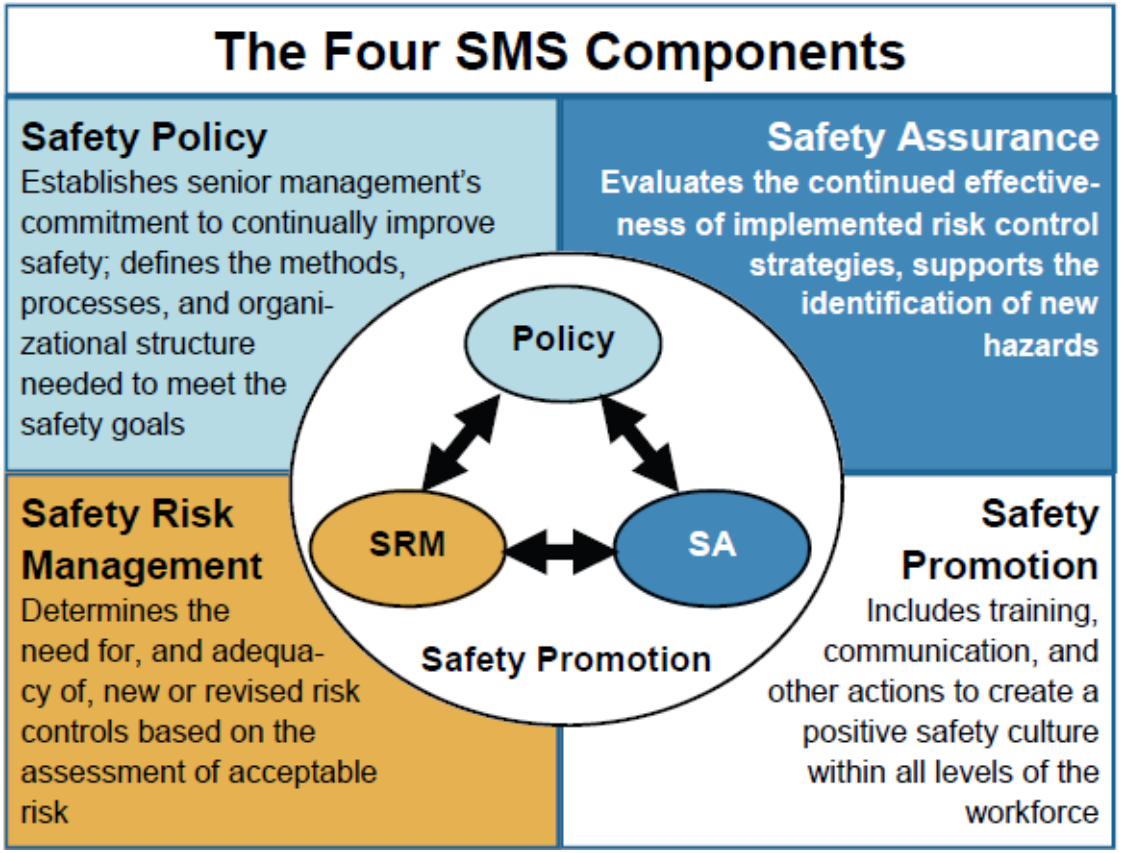


P4.1. Safety Management System

SOME DEFINITIONS…

- **Hazard** – Condition, object or activity with the potential of causing injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.
- **Systematic** – Safety management activities are in accordance with a pre-determined plan, and applied in a consistent manner throughout the organization.
- **Proactive** – An approach that emphasizes hazard identification and risk control and mitigation, before events that affect safety.

P4.1. Safety Management System



P4.1. Safety Management System

1. **Safety policy and objectives**
   - 1.1 Management commitment and responsibility
   - 1.2 Safety accountabilities
   - 1.3 Appointment of key safety personnel
   - 1.4 Coordination of emergency response planning
   - 1.5 SMS documentation

2. **Safety risk management**
   - 2.1 Hazard identification
   - 2.2 Safety risk assessment and mitigation

P4.1. Safety Management System

3. Safety assurance

3.1 Safety performance monitoring and measurement

3.2 The management of change

3.3 Continuous improvement of the SMS

4. Safety promotion

4.1 Training and education

4.2 Safety communication

P4.1. Safety Management System

How will SMS benefit my organization?

- ✓ A clear and documented approach to achieving safe operations that can be explained to others.
- ✓ Active involvement of staff in safety.
- ✓ Demonstrable control for the regulator, your customers and other stakeholders under your control.
- ✓ Building a positive safety culture.
- ✓ Reduction or removal of operational inefficiencies.
- ✓ Decreased insurance costs and improved reputation.
- ✓ A common language to establish safety objectives and targets and implement and monitor safety risk controls.

P4.1. Safety Management System

P4.1. Safety Management System

Requirements stablished in the European regulation:

Clearly defined **lines of responsibility** and accountability

Safety policy

The means to verify the safety performance

(safety performance indicators and targets)

A **safety training programme** (operation, RFF, maintenance and management personnel)

P4.1. Safety Management System

Requirements stablished in the European regulation:

Formal **processes**

- That ensure that **hazards** in operations are identified
- That ensure that **analysis, assessment and mitigation** of the safety risks in aerodrome operations
- To manage **changes**
- To **review** the management system
- To **monitor compliance** of the organization with the relevant requirements

P4.1. Safety Management System

How to comply with those requirements?

SAFETY POLICY

- Endorsed by the accountable manager;
- Identifies **safety as the highest organizational priority** over commercial, operational, environmental, or social pressures;
- **Communicated**, with visible endorsement, throughout the organization.

P4.1. Safety Management System

How to comply with those requirements?

SAFETY RISK ASSESSMENT AND MITIGATION

Safety risk assessment is the analysis of the safety risks of the consequences of the hazards that have been determined

A formal safety (risk) assessment and mitigation process should be developed and maintained that ensures:

- **Analysis** (in terms of probability and severity of occurrence);
- **Assessment** (in terms of tolerability); and
- **Control** (in terms of mitigation) of risks.

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SAFETY PERFORMANCE MONITORING AND MEASUREMENT

- Is the process by which **the safety performance** of the aerodrome operator **is verified** in comparison to:
  - The safety policy and
  - Objectives, identified safety risks and the mitigation measures.
- This process should include:
  - The setting of **safety performance indicators and** safety performance **targets**; and
  - Measuring the aerodrome operator's safety performance against them.

P4.1. Safety Management System

How to comply with those requirements?

THE MANAGEMENT OF CHANGE

We will see it in detail later….

P4.1. Safety Management System

SAFETY MANAGEMENT SYSTEM TRAINING

For which personal of the aerodrome?

- Aerodrome operations,
- Rescue and firefighting,
- Maintenance,
- Management personal (supervisors, managers, senior managers and the accountable manager)

Regardless of their level in the aerodrome operator's organization.

The amount and level of the detail of safety **training should be proportionate and appropriate** to the individual's responsibility and involvement in the safety management system.

SAFETY MANAGEMENT SYSTEM TRAINING

Staff SMS training requirements

Operations, RFF and maintenance personnel:

- Safety responsibilities should be addressed (including adherence to all operating and safety procedures, and recognizing and reporting hazards).
- Contents:
  - Definition of hazards;
  - Consequences and risks;
  - Safety risk management process (including roles and responsibilities)
  - Safety reporting and the organization's safety reporting system(s).

SAFETY MANAGEMENT SYSTEM TRAINING

Staff SMS training requirements

Senior managers:

Safety responsibilities should be addressed (including compliance con EU, national and the organization's own safety requirements, allocation of resources, ensuring effective inter-departmental safety communication, and active promotion of the safety management system).

Accountable manager:

General awareness of the organization's safety management system, including safety management system roles and responsibilities, safety policy and objectives, safety risk management, and safety assurance.

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SAFETY COMMUNICATION

- The aerodrome operator should **communicate** safety management system objectives and procedures to all operational personnel.
- Communication should flow between the safety manager and operational personnel throughout the organization.
- What should the safety communications aim to?
  - Ensure that the staff are fully aware of the SMS.
  - Convey safety-critical information.
  - Explain why particular actions are taken.
  - Explain why safety procedures are introduced or changed.

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COMPLIANCE MONITORING

- What for? To enable the aerodrome operator to **monitor compliance with the applicable regulatory requirements**.
- How?
  - Properly implemented, maintained and continually reviewed and improved as necessary.
  - **Structured according to the size of the organization** and the complexity of the activities to be monitored (including the subcontracted ones).
  - Should include a feedback system of findings to the accountable manager.

P4.1. Safety Management System

COMPLIANCE MONITORING

What has to be monitored?

- Compliance with the procedures it has designed, to ensure safe activities.
- As a minimum, monitor compliance with:
  - Privileges of the aerodrome operator;
  - Manual, logs and records;
  - Training standards;
  - Required resources; and
  - Management system procedures and manuals.

P4.1. Safety Management System

COMPLIANCE MONITORING

Organizational set-up

- **A person should be responsible** for compliance monitoring.
- The accountable manager should ensure that sufficient resources are allocated for compliance monitoring.
- **Independence of the compliance monitoring**: ensure that audits and inspections are carried out by personnel not responsible for the function, procedure, etc. being audited.
- Personnel involved in compliance monitoring: should have access to any part of the aerodrome organization, and any contracted organization as required.

P4.1. Safety Management System

COMPLIANCE MONITORING

Audit scheduling

- A defined audit schedule should be established.
- The compliance monitoring itself should also be audited.
- The schedule should allow for unscheduled audits when trends are identified.
- Follow-up audits should be scheduled to verify that corrective action was carried out, and that it was effective and completed.

P4.1. Safety Management System

COMPLIANCE MONITORING

Audit scheduling

- Within the first 12 months since the date of the issuance of the certificate:

  The aerodrome, its management system key processes, and its operation should be audited.

P4.1. Safety Management System

COMPLIANCE MONITORING

Audit scheduling

- After that:
  - Definition of the calendar period within which and audit (or a series of audits) should be conducted, considering the results of its safety risk assessments and of its past compliance monitoring activities.
  - To cover the whole aerodrome, its management system key processes, procedures and its operation.
  - The calendar should be consistent with de competent authority's oversight planning cycle.
  - **May be increased, up to 36 months**, provided that there are no level 1 findings, and subject to the aerodrome operator having a good record of rectifying findings in a timely manner.

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COMPLIANCE MONITORING

Responsibility for compliance monitoring

- The responsibility should be with a person who has direct access to, and is **responsible to the accountable manager.**
- **Not be one of the nominated persons**: Manager of Operational Services, Maintenance manager or the Safety Manager.
- **Exception**: less complex aerodrome organizations / operations, it may be with the accountable manager or with the Safety Manager.

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P4.1. Safety Management System

Spanish example

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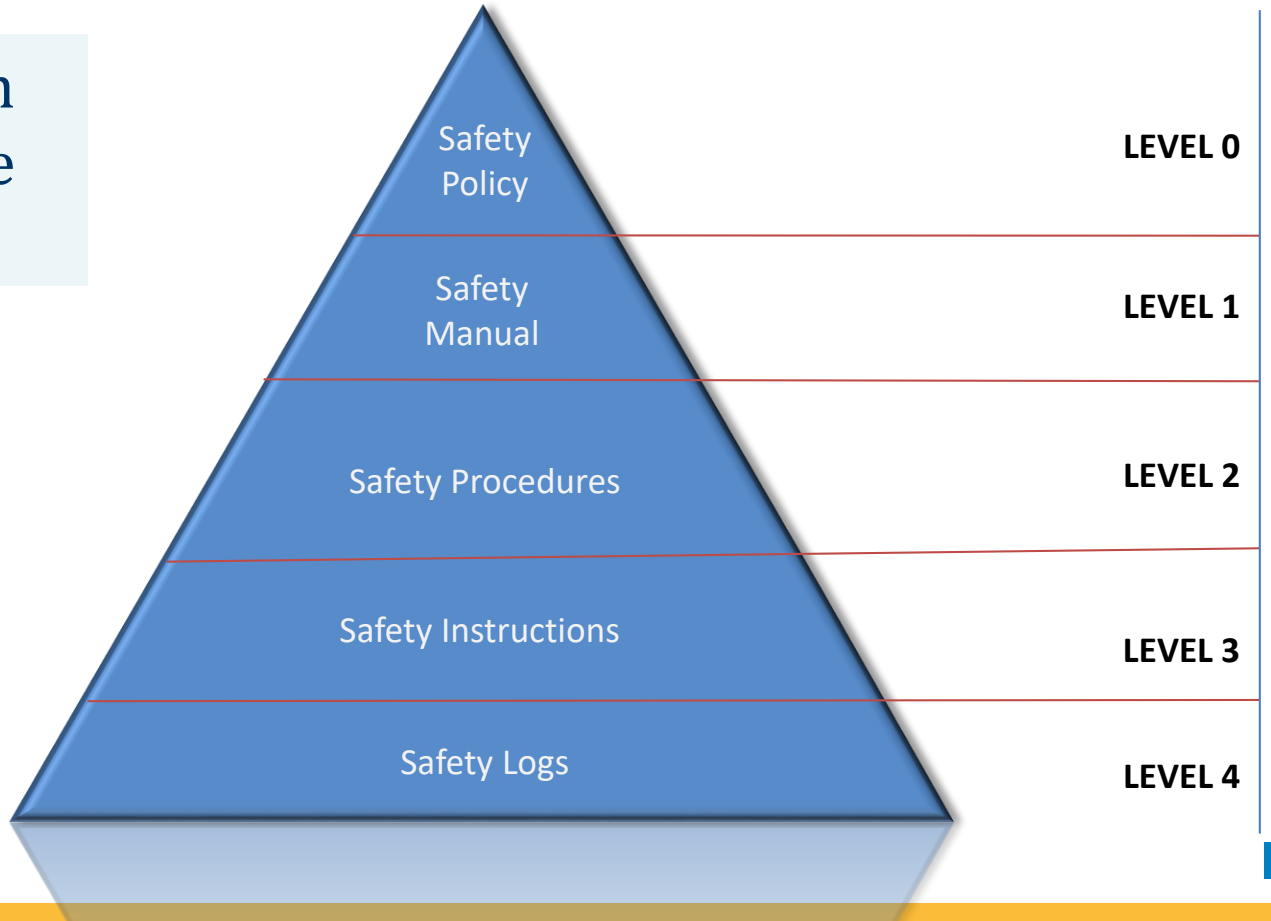
Documentation structure of the Spanish SMS



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SAFETY POLICY

Objectives:

- To establish the philosophy and basic action line in terms of safety
- To clearly identify safety as the highest organizational priority over commercial, operational, environmental, or social pressures
- To continually improve safety in all aspects of its activities
- To promote and improve the *Just Culture* and safety reporting procedures
- To settle the commitment of the aerodrome operator with safety, specially for the accountable manager.

Senior management should:

- Continually promote the safety policy to all personnel, and demonstrate their commitment to it;
- Provide necessary human and financial resources for its implementation
- Establish safety objectives and performance standards.

P4.1. Safety Management System

Safety Manager

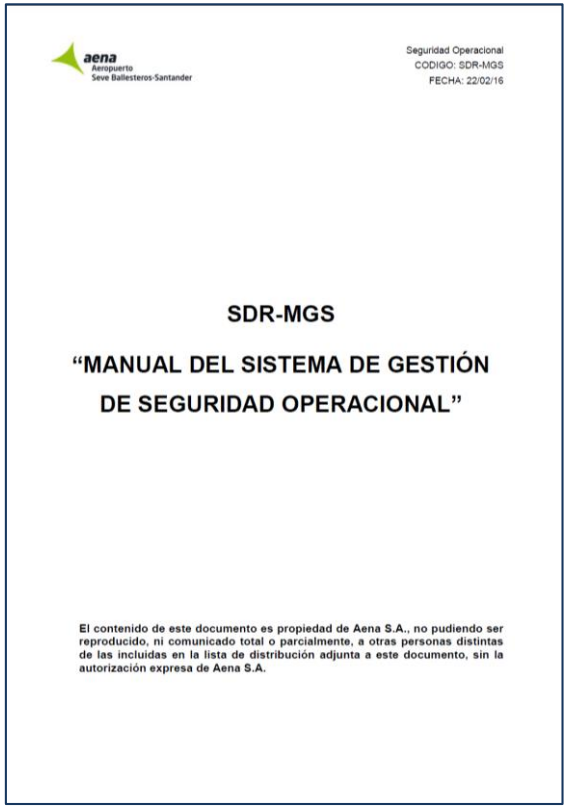
SAFETY MANUAL

Objectives:

- To identify safety responsibilities and key safety personnel inside the SMS
- To establish key procedures inside SMS
- To establish safety committees in the aerodrome, according to the size and complexity of the infrastructure
- To establish coordination with other safety stakeholders
- To set a coordination of SMS with the emergency response plan

P4.1. Safety Management System

SAFETY MANUAL



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FECHA: 22/02/16

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"MANUAL DEL SISTEMA DE GESTIÓN DE SEGURIDAD OPERACIONAL"

P4.1. Safety Management System

SAFETY MANUAL

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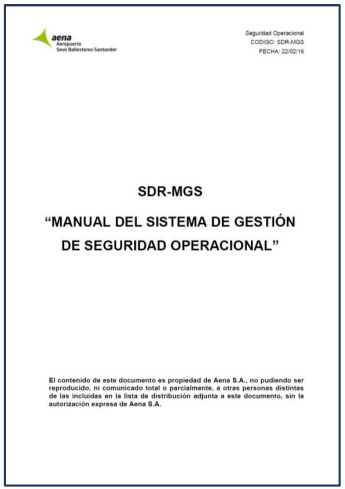

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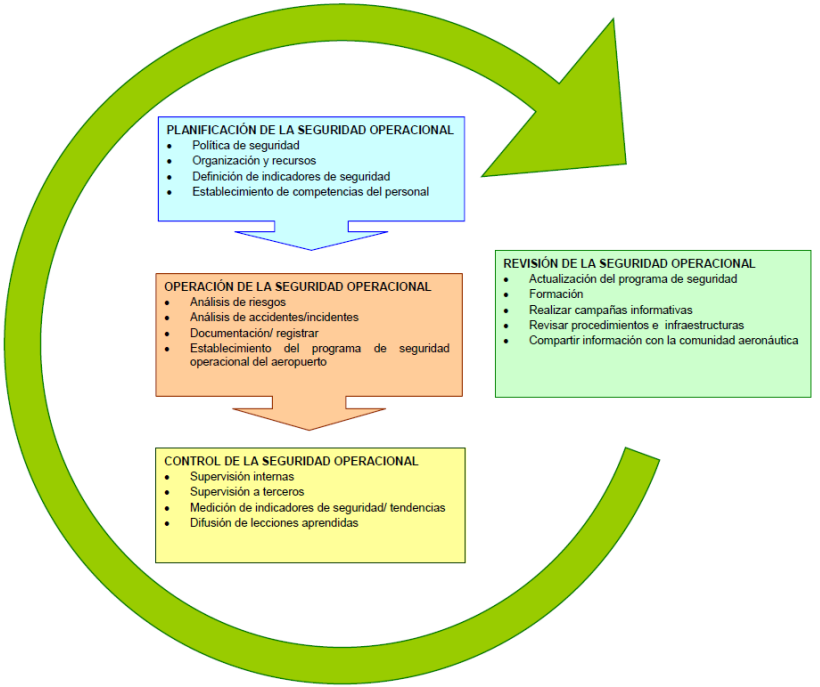
- **Description of the SMS**. *How does it work?*



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SAFETY MANUAL

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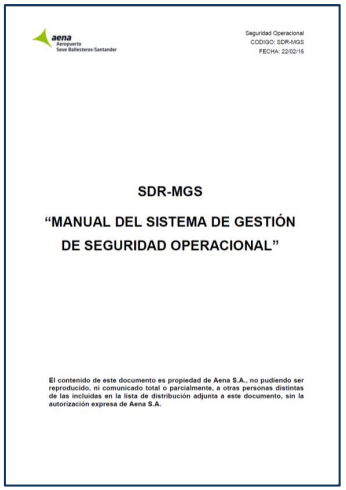

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- **Description of the SMS.** *How is it's documentation organized?*

DOCUMENTO DE REFERENCIA	NIVEL	CÓDIGO	APLICACIÓN
Política de Seguridad Operacional de ***Aena***	0	EXA 51	Compromiso de la dirección de Aeropuertos de ***Aena*** de alcanzar, mantener y promocionar la Seguridad Operacional en sus aeródromos.
Manual del Sistema de Gestión de Seguridad Operacional	1	MGS	Documento de aplicación e implantación del SGSO.
Procedimientos del SGSO	2	PGS	Descripción de las actividades y aspectos específicos del SGSO, detallando como se van a llevar a cabo las directrices dadas en el Manual del Sistema.
Instrucciones técnicas de Seguridad Operacional	3	ITS	Son descripciones detalladas y concisas de cómo se debe realizar determinadas actividades derivadas de los Procedimientos.
Registros del SGSO	3	RGS	Formularios o fichas que presentan los resultados obtenidos en una determinada actividad relacionada son el Sistema.

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SAFETY MANUAL

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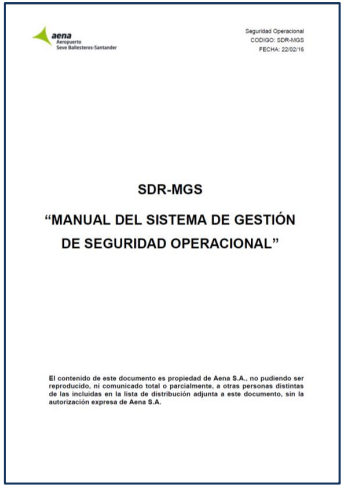

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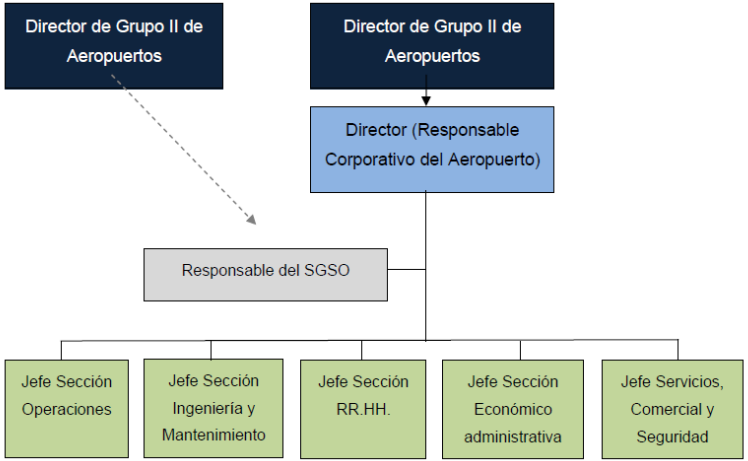
- **Safety Manager.**

Responsibilities and hierarchy within the organization.



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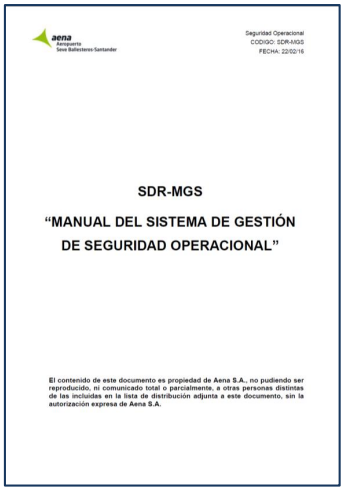
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SAFETY MANUAL

Contents

- **Safety structure at the airport**
- Responsibilities of the Accountable Manager.
- Responsibilities of the Safety Manager.
- Responsibilities of the Operation Manager and the Maintenance Manager.
- Safety committees at the airport.
- Safety processes (brief description).
- Coordination of the SMS with the airport Emergency Plan (Emergency Commitees).

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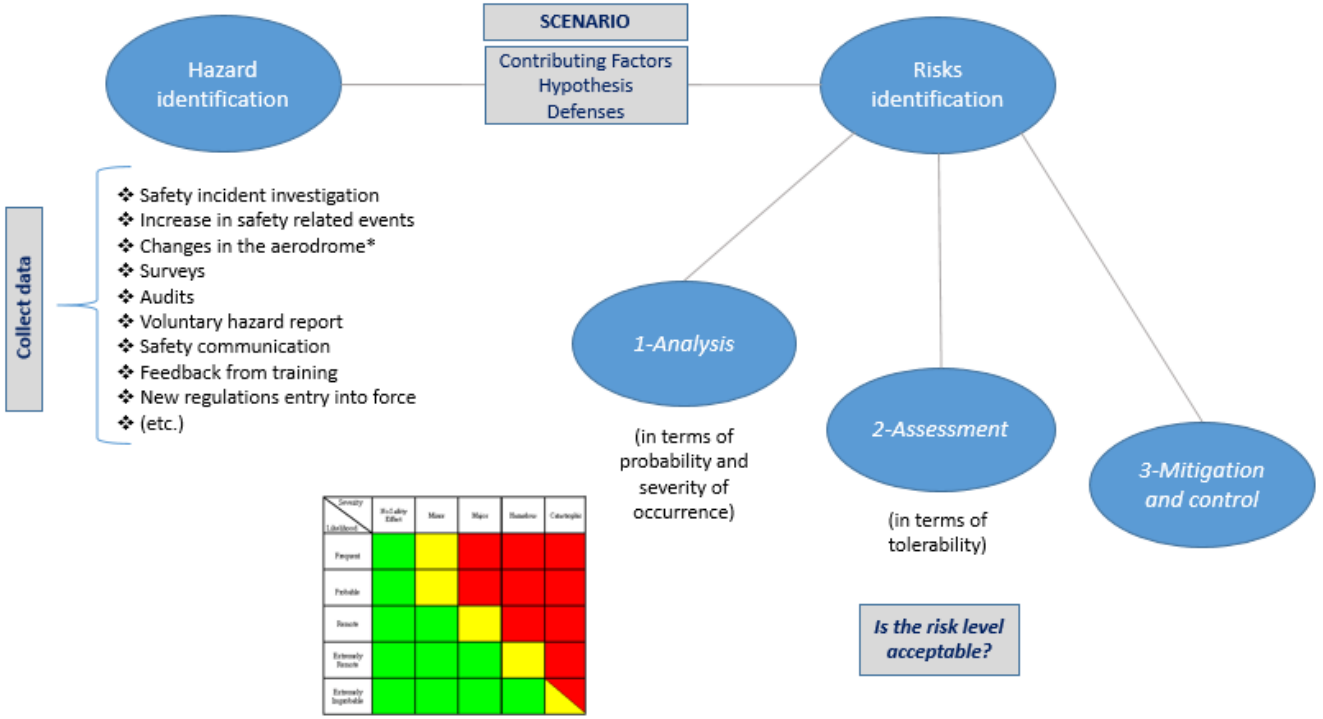
P4.1. Safety Management System

SAFETY PROCEDURES

1. Risk management system
2. Change management
3. Requirements for third parties, external suppliers
4. Safety performance indicators
5. Safety Reporting system - Accident and incident investigation
6. Safety Documentation management
7. Safety compliance monitoring - Safety Audits
8. Safety training
9. Safety communications
10. Safety Program

P4.1. Safety Management System

SAFETY PROCEDURES



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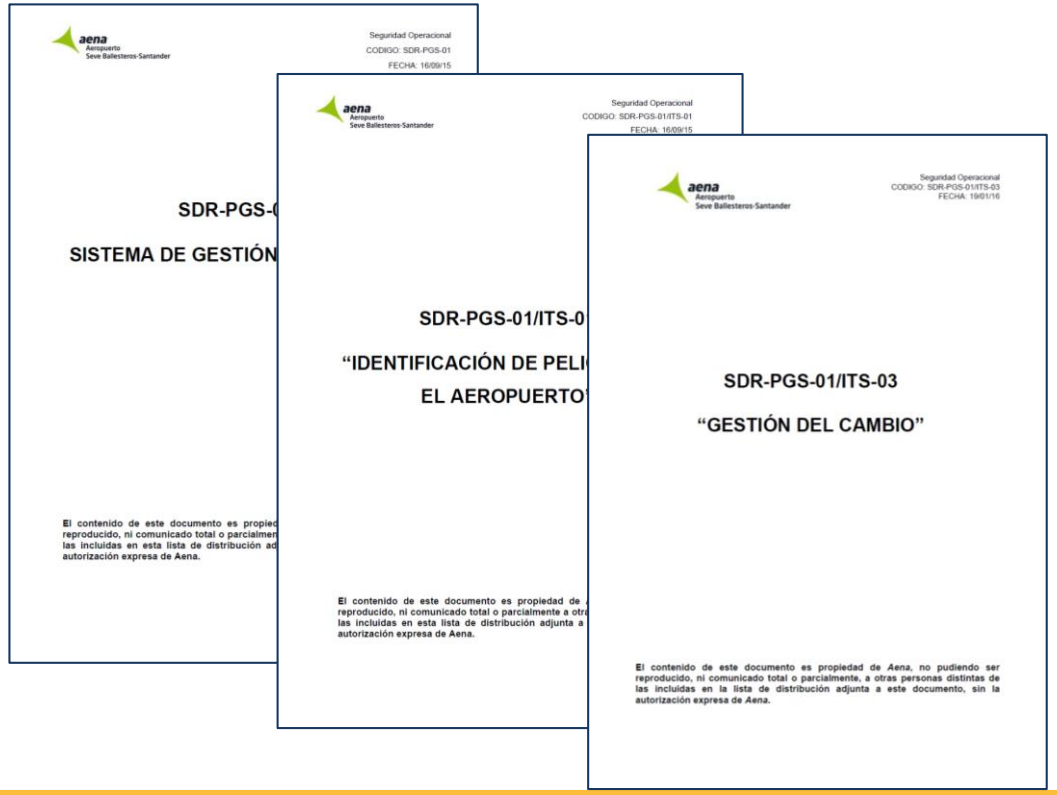
SAFETY PROCEDURES

1. Risk management system



P4.1. Safety Management System

SAFETY PROCEDURES

1. Risk management system

- **The information needed to carry out the airport risk management is provided:**
  - In which cases is necessary to carry out a risk management?
  - How the hazard identification has to be done?
  - Risk analysis:
    - ✓ Risk definition.
    - ✓ Identification of potential risks at the airport.
    - ✓ Stablishing the probability of the risk.
    - ✓ Stablishing the severity of the risk.
    - ✓ Risk acceptability assessment.
    - ✓ Risk mitigation.
  - Methodology to carry out a risk assessment (documentation needed).

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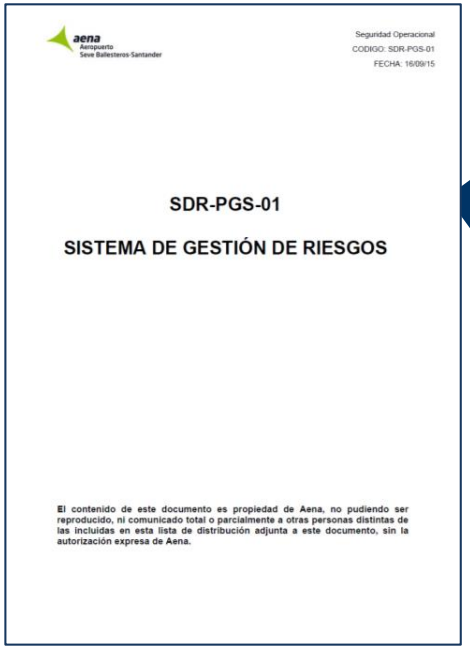
SAFETY PROCEDURES

1. Risk management system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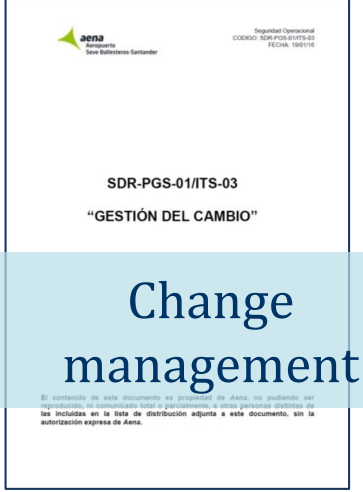
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Change management


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"IDENTIFICACIÓN DE PELIGROS EN EL AEROPUERTO"

Hazard identification

P4.1. Safety Management System

SAFETY PROCEDURES

1. Risk management system

Hazard identification

- **Areas**: *where can I identify hazards in my airport?*

(OLS, RWY and protection surfaces, TWY and protection surfaces, Aprons, other pavemented areas, visual aids, etc.)

- **Processes:** *which processes are carried out in each defined area?*
- **Factors:** *which factors do I have to take into account at my airport?*
- ***Risks:*** *which risk are related to each factors?*
- ***Mitigation measures.***

P4.1. Safety Management System

SAFETY PROCEDURES

Hazard identification

Areas

1. Risk management system

- OLS (Obstacle limitation surfaces)
- RWY and protection surfaces
- TWY and protection surfaces
- Aprons
- Visual aids
- Works
- Emergency management
- Wildlife risk management
- Aerodrome notifications

P4.1. Safety Management System

SAFETY PROCEDURES

1. Risk management system

Hazard identification

Factors for each area (example)

ÁREA	PROCESOS	FACTORES	RESPONSABLE	REVISADO	ANÁLISIS
Pista de vuelo y áreas de protección asociadas	Aterrizaje Despegue inicial hasta V_2 (altura 35 ft) Despegue frustrado Acceso a pista	**Físicos (zonas pavimentadas):**			
		Longitud y anchura de pista		Si ☐ No ☐	
		Despegues desde intersección (publicación y señalización)		Si ☐ No ☐	
		Pendientes longitudinales y transversales de pista y requisito de distancia visible		Si ☐ No ☐	
		Resistencia de pista		Si ☐ No ☐	
		Drenaje superficial de pista		Si ☐ No ☐	
		Irregularidades superficiales de pista		Si ☐ No ☐	
		Valor del coeficiente de rozamiento y de la textura superficial de pista		Si ☐ No ☐	
		Márgenes de pista de pista: anchura, pendientes y resistencia		Si ☐ No ☐	
		Zona de parada: anchura, pendientes, resistencia, coeficiente de rozamiento, irregularidades superficiales, suciedad, FOD, drenaje superficial		Si ☐ No ☐	

P4.1. Safety Management System

SAFETY PROCEDURES

1. Risk management system

Hazard identification

Factors for each area (example)

ÁREA	PROCESOS	FACTORES	RESPONSABLE	REVISADO	ANÁLISIS
		Accesos directos a pista desde plataforma		Si ☐ No ☐	
		Físicos (zonas no pavimentadas):			
		Dimensiones de la franja		Si ☐ No ☐	
		Presencia de objetos fijos en la franja: permanentes/ temporales, frangibilidad, etc.		Si ☐ No ☐	
		Dimensiones zona nivelada de la franja		Si ☐ No ☐	
		Pendientes longitudinales y transversales de la zona nivelada de la franja		Si ☐ No ☐	
		Pendiente transversal de la zona no nivelada de la franja		Si ☐ No ☐	
		Resistencia de la franja		Si ☐ No ☐	
		Irregularidades de la superficie en zona no nivelada de la franja		Si ☐ No ☐	
		Vegetación en la franja		Si ☐ No ☐	
		Drenaje superficial de la franja		Si ☐ No ☐	
		Dimensiones de la RESA		Si ☐ No ☐	

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P4.1. Safety Management System

SAFETY PROCEDURES

1. Risk management system

Hazard identification

Factors for each area (example)

ÁREA	PROCESOS	FACTORES	RESPONSABLE	REVISADO	ANÁLISIS
		Presencia de objetos fijos en la RESA: permanentes/ temporales, frangibilidad, etc.		Si ☐ No ☐	
		Pendientes longitudinales y transversales de la RESA		Si ☐ No ☐	
		Resistencia de la RESA		Si ☐ No ☐	
		Irregularidades de la superficie en la RESA		Si ☐ No ☐	
		Vegetación en la RESA		Si ☐ No ☐	
		Drenaje superficial de la RESA		Si ☐ No ☐	
		Dimensiones y pendientes de la zona libre de obstáculos		Si ☐ No ☐	
		Presencia de objetos en la zona libre de obstáculos		Si ☐ No ☐	
		Frangibilidad de las ayudas visuales necesarias en áreas de operaciones		Si ☐ No ☐	
		Existencia del área de funcionamiento de radioaltímetro		Si ☐ No ☐	
		Nivelación de zonas próximas a la franja de pista o RESA		Si ☐ No ☐	

EASA

P4.1. Safety Management System

SAFETY PROCEDURES

2. Safety requirements for third parties, external suppliers

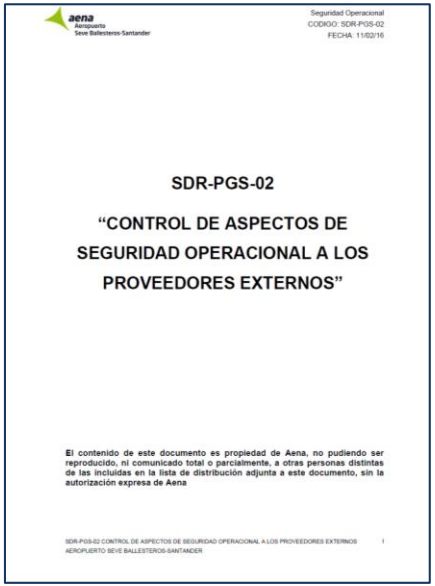
Objectives:

- To establish the frame of the relationship between the partners
- To establish safety requirements (including safety training)
- To systematize the monitoring for the operation of all third parties

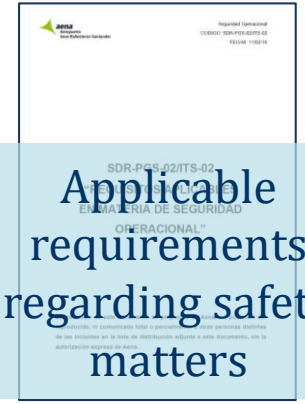
EASA

2. Safety requirements for third parties, external suppliers

SAFETY PROCEDURES



Safety standard information



Applicable requirements regarding safety matters

Classification of external suppliers

Guide to make a safety surveillance plan

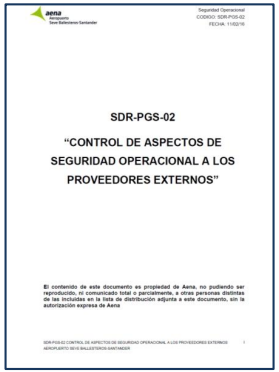
Classification of ground handling services

P4.1. Safety Management System

SAFETY PROCEDURES

2. Safety requirements for third parties, external suppliers *(Example)*

Documentation given to an external provider



SDR-PGS-02

"CONTROL DE ASPECTOS DE SEGURIDAD OPERACIONAL A LOS PROVEEDORES EXTERNOS"

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aena Aeropuerto Seve Ballesteros-Santander	DOCUMENTACIÓN ENTREGADA AL PROVEEDOR EXTERNO AEROPUERTO SEVE BALLESTEROS-SANTANDER	SDR-PGS-02/RGS-02 Pág. x de y
EMPRESA:	**Nº EXPTE/ CONTRATO:**	

INFORMACIÓN GENERAL DEL AEROPUERTO	Número Enmienda	Fecha entrega
Plan de autoprotección		
Procedimiento de visibilidad reducida		
Presentación del Sistema de Gestión de Seguridad Operacional		
Programa de prevención de FOD		
Programa de seguridad en pista		
Programa de seguridad en plataforma		
NORMAS Y PROCEDIMIENTOS GENERALES DE AENA	**Número Enmienda**	**Fecha entrega**
Normativa de Seguridad en Plataforma		
EXA 22 Instrucción Operativa sobre el uso de equipos portátiles de comunicaciones y otros dispositivos portátiles en las plataformas de los aeropuertos		
EXA 26 Boletines de Obstáculos		
EXA 30 Instrucción Operativa sobre características y utilización de las luces rotatorias en el interior aeroportuario		
EXA 38 Instrucción Operativa sobre la obtención y utilización del PCP		
EXA 43 Manual Básico para el Área de Maniobras		
EXA 44 Instrucción Operativa sobre la exigibilidad de la acreditación ADR para el transporte de mercancías peligrosas en la plataforma del aeropuerto		
EXA 50 Trabajos en el aeródromo		
EXA 51 Política de Seguridad Operacional		
EXA 69 Instrucción Operativa relativa a la inspección técnica aeroportuaria de vehículos y equipos móviles (I.T.A.)		
PROCEDIMIENTOS LOCALES DEL AEROPUERTO	**Número Enmienda**	**Fecha entrega**
SDR-PGS-02/ITS-02 Requisitos aplicables en materia de Seguridad Operacional		
SDR-PGS-02/ITS-04 Guía para la elaboración de un Plan de Vigilancia de Seguridad Operacional		
Procedimientos específicos para cada caso *(Especificar)*		
OTROS DOCUMENTOS DE INTERES	**Número Enmienda**	**Fecha entrega**
Otra información de importancia para el aeropuerto *(Especificar)*		

Ejemplo

EASA

P4.1. Safety Management System

SAFETY PROCEDURES

2. Safety requirements for third parties, external suppliers *(Example)*

Documentation to be given by an external provider

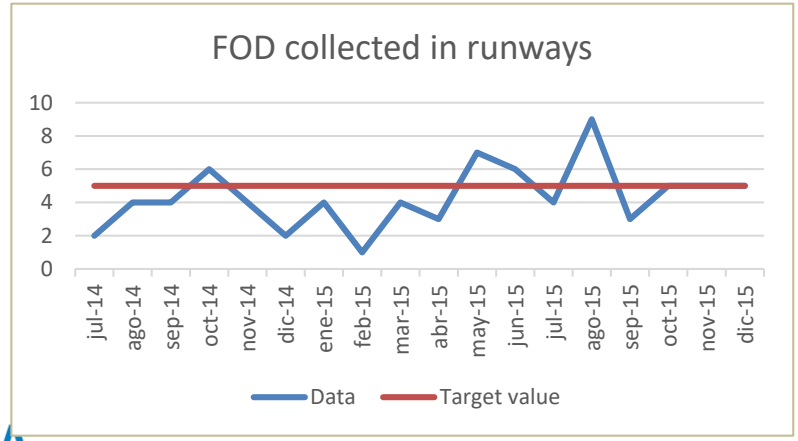
EMPRESA:	Nº EXPTE/ CONTRATO:			
Actividad con implicación en Seguridad Operacional	**Evidencia**	**Aplica / No aplica**	**Ubicación evidencia**	**Periodicidad entrega**
Agentes A.T. de carga y correo	Certificados de formación del personal que realiza la manipulación de mercancías peligrosas (ORDEN FOM 808/2006)			
	Declaración de las compañías para las que se ha realizado la carga/ descarga de mercancías peligrosas			
	Relación de materiales peligrosos transportados			
	Relación de puntos de almacenamiento			
Conducción en plataforma y área de movimiento	Permiso de conducción oficial			
	PCP (Permiso de Conducción en Plataforma)			
	Solicitud de emisión / modificación de PCP (NSP001)			
	Condiciones de utilización del PCP (NSP020)			
	Certificado de aptitud (NSP030) (General)			
	Certificado de aptitud (NSP030) (Área de maniobra)			
	Carné ADR de los conductores de unidades repostadoras y de vehículos de transporte de combustible u otras mercancías peligrosas.			
Vehículos	Plan de mantenimiento del vehículo			
	ITV (Inspección Técnica del Vehículo)			
	ITA (Inspección Técnica Aeroportuaria)			
	Tarjeta de Inspección Técnica			
	DCT (Declaración de Características Técnicas)			
	Certificado ADR			
	Certificado EN (NSP)			
Almacenamiento de combustible	Inscripción de la instalación en el Registro de industria de la Comunidad Autónoma correspondiente.			
	Revisión de la instalación según la Instrucción Técnica de Seguridad Industrial (MI-IP) que corresponda.			
Obras/ Mantenimiento/	Certificado de aptitud (NSP030) – (Utilización de			
PVSO	Plan de Vigilancia de Seguridad Operacional			
Tratamiento de accidentes e incidentes	Anexo 1 de la EXA2 de los accidentes/ incidentes en los que se ha visto involucrado. Implantación y seguimiento de medidas de mitigación.			

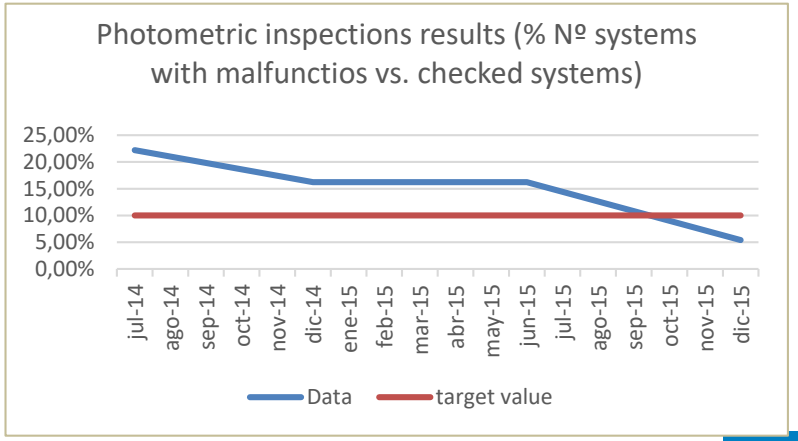
P4.1. Safety Management System

3. Safety performance indicators

Objectives:

- To establish safety indicators in order to measure the safety performance vs. safety objectives
- To monitor and evaluate the indicators values, in order to identify trends
- To guarantee that where the SPI indicate a risk control not being effective, appropriate action is taken





P4.1. Safety Management System

3. Safety performance indicators

- 3 types of indicators are defined: reactive, proactive and predictive indicators.
- **Examples** of defined indicators:
  - Low visibility procedure activation indicator.
  - Friction coefficient indicator.
  - RWY inspection indicator.
  - Number of FOD found at the RWY indicator.
  - RWY visual aid operability indicator.
  - Un-planned wildlife service works indicator.
  - 10.000 index with birds and other animals.
  - Accidents/incidents indicator.
  - RWY incursion indicator.
  - Training indicator.

P4.1. Safety Management System

Friction coefficient

3. Safety performance indicators

INDICADOR DEL COEFICIENTE DE ROZAMIENTO	
Descripción	Valor del coeficiente de rozamiento de la pista (valor mínimo de los dados en el Informe del Laboratorio de Técnicas Aeroportuarias).
Objetivo	Garantizar que las operaciones de las aeronaves se llevan a cabo en una pista con adecuadas condiciones de rozamiento.
Valores de referencia	El valor de referencia que se toma es el valor previsto de mantenimiento: 0,52 si la velocidad de ensayo es 65 km/h. 0,38 si la velocidad de ensayo es 95 km/h.
Forma de medición	Informe anual del Laboratorio de Técnicas Aeroportuarias
Responsable/s de realizar la medición	Laboratorio de Técnicas Aeroportuarias.
Responsable de elaborar el indicador y del seguimiento	Responsable del SGSO/Jefe de Ingeniería y Mantenimiento
Periodicidad mínima de elaboración y seguimiento	Conforme a lo establecido en el procedimiento E-12 del Manual de Aeropuerto.
Envío del Indicador a la DOSS	No

P4.1. Safety Management System

3. Safety performance indicators

10.000 index with birds and other animals.

ÍNDICE 10.000 DE INCIDENTES CON AVES Y OTROS ANIMALES CON AERONAVES NOTIFICADOS	
Descripción	Número de incidentes de aves (bird-strike) y otra fauna con aeronaves notificados por cada 10.000 operaciones.[10]
Objetivo	Evaluar el indicador y su tendencia, en relación con el nivel de referencia. Si es elevado detectar cuales son las posibles causas y adoptar las medidas necesarias para trata de reducirlos. La evolución del indicador permitirá valorar la eficacia de las medidas adoptadas y la revisión de los procedimientos de la actividad de control de fauna que sean de aplicación para el control de la presencia de la fauna en el aeropuerto.
Valores de referencia	5
Forma de medición	Datos registrados en SGISO.
Responsable/s de realizar la medición	Gestor de Control de Fauna del Aeropuerto según la información suministrada por compañías aéreas, SCF, TWR, pilotos, CEOPS, Medio Ambiente y en su caso a la información suministrada a birdstrike@aena.es
Responsable de elaborar el indicador y del seguimiento	Responsable del SGSO
Periodicidad mínima de elaboración y seguimiento	Trimestral.
Envío del Indicador a la DOSS	Sí

P4.1. Safety Management System

3. Safety performance indicators

RWY incursion indicator

INDICADOR DE INCURSIONES EN PISTA	
Descripción	Número total de incursiones en pista[15] ocurridas en el aeropuerto por cada 1.000 operaciones.
Objetivo	Eliminar el número de incursiones en pista en el aeropuerto.
Valores de referencia	Nulo[16]
Forma de medición	Partes de TWR, CEOPS, TOAM y cualquier otra comunicación
Responsable/s de realizar la medición	Jefe de Operaciones
Responsable de elaborar el indicador y del seguimiento	Responsable del SGSO
Periodicidad mínima de elaboración y seguimiento	Mensual.
Envío del Indicador a la DOSS	Sí

P4.1. Safety Management System

Summary

3. Safety performance indicators

INDICADOR	DEFINICIÓN	VALORES DE REFERENCIA	PERIODICIDAD	DOSS
Activación del PPOAM	Relación entre el número de veces que se activan los procedimientos de visibilidad reducida en el tiempo y la forma adecuados atendiendo a lo publicado y el número de veces que se producen condiciones de visibilidad reducida (en %).	100%	Mensual	
Suspensión de repostajes	Relación entre el número de veces que se activan los procedimientos de suspensión de repostajes durante tormentas con aparato eléctrico en el tiempo y la forma adecuados y el número de veces que se producen condiciones de alerta máxima por tormentas (en %).	100%	Mensual	
Coeficiente rozamiento	Valor del coeficiente de rozamiento de la pista (valor mínimo de los dados en el Informe del Laboratorio de Técnicas Aeroportuarias).	0,52 si la velocidad de ensayo es 65 km/h 0,38 si la velocidad de ensayo es 95 km/h	Conforme a lo establecido en el procedimiento E-12 del Manual de Aeropuerto.	
Coeficiente textura superficial	Valor de la textura superficial de la pista (valor medio para la pista dado en el Informe del Laboratorio de Técnicas Aeroportuarias).	0.760 mm	Conforme a lo establecido en el procedimiento E-12 del Manual de Aeropuerto.	
Revisiones de pista	Relación entre el número de días en los que se han hecho todas las revisiones de pista programadas, y el número total de días del mes.	95% de los días hacer todas las programadas y nunca < 2 diarias	Mensual	✓
Número de número de FOD encontrados en pista	Número total de FOD encontrados en pista, aunque no hayan causado un incidente aeroportuario.	1	Mensual	

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P4.1. Safety Management System

Summary

3. Safety performance indicators

INDICADOR	DEFINICIÓN	VALORES DE REFERENCIA	PERIODICIDAD	DOSS
Disponibilidad de la fuente secundaria	Relación entre el número de horas en que están operativos y el número de horas totales en la que debe estar disponible en un mes para cada equipo de la fuente secundaria (grupo de continuidad / grupo de emergencia según sea el caso) que proporciona suministro eléctrico los sistemas de ayudas visuales de pista y calles de rodaje.	95% (media correspondiente a todos los equipos). En el caso de que no se proporcione la potencia necesaria en un momento dado en el periodo de seguimiento no cumplirá el indicador.	Mensual	✓
Operatividad de las ayudas visuales asociadas a pista	Relación entre el número de horas de averías de los sistemas de ayudas visuales asociados a pista y el número de horas totales que deben estar disponibles en un mes, en %.	95%	Mensual	
Resultado de las inspecciones fotométricas	Porcentaje entre el número de sistemas fuera de los límites de mantenimiento y el número de sistemas revisados.	< 10% En caso de no medirse un sistema se considerará incumplimiento del indicador.	Anual	✓
Número de actuaciones fuera de rutina del servicio de control de fauna	Nº de actuaciones fuera de rutina del Servicio de Control de Fauna (o por parte de la unidad que corresponda).	8	Mensual	
Índice 10.000 de incidencias con aves y otros animales con aeronaves notificados	Número de incidentes de aves y otra fauna con aeronaves notificados (Bird strike) por cada 10.000 operaciones.	5	Trimestral	✓

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P4.1. Safety Management System

Summary

3. Safety performance indicators

INDICADOR	DEFINICIÓN	VALORES DE REFERENCIA	PERIODICIDAD	DOSS
PCPs revisados	Relación entre el número de inspecciones realizadas el número de inspecciones programadas de los PCPs (en %).	Nunca menor del 85%	Mensual	
Infracciones NSP	Número de infracciones de la NSP notificadas por cada 1.000 operaciones.	2	Mensual	✓
Incidentes aeroportuarios totales	Número de incidentes aeroportuarios totales por cada 1.000 operaciones.	10	Mensual	✓
Accidentes/ incidentes ACI	Número de accidentes/ incidentes tipo ACI por cada 1.000 operaciones.	1	Mensual	✓
Accidentes/ incidentes tipos ACI A/B/C	Número de accidentes/ incidentes tipo ACI A/B/C por cada 1.000 operaciones.	1	Mensual	✓
Incidentes aeroportuarios relacionados con FOD	Número de incidentes aeroportuarios causados por la presencia de FOD por cada 1.000 operaciones.	Nulo	Mensual	
Incursiones en pista	Número total de incursiones en pista ocurridas en el aeropuerto por cada 1.000 operaciones.	Nulo	Mensual	✓
Indicador de disminución de la Categoría OACI-SEI	Relación entre el número de horas en las que la Categoría OACI-SEI proporcionada por el aeropuerto es inferior a la publicada en el AIP respecto al número total mensual de horas operativas del Aeropuerto (en %).	5%	Mensual	✓
Número de supervisiones	Relación entre el número de supervisiones de escala realizadas sobre el número de supervisiones previstas e incluidas en el PGS-02 Control de aspectos de Seguridad Operacional a los Proveedores Externos, en %.	85%	Mensual	✓

P4.1. Safety Management System

Summary

3. Safety performance indicators

INDICADOR	DEFINICIÓN	VALORES DE REFERENCIA	PERIODICIDAD	DOSS
Indicador de formación	Para cada curso del Programa de Formación especificado en el Manual del Aeropuerto se calculará (en el periodo de valoración) la relación entre el número de trabajadores del aeropuerto (que pertenezcan a alguna de las Ocupaciones/ Puestos definidos en dicho programa de formación) que han recibido el curso en fecha y el número de trabajadores que deberían haber recibido dicho curso. El valor del indicador será la media de todos los cursos en tanto por ciento.	Nunca menor del 85%	Semestral	
Indicador de comprobación de la competencia	Porcentaje (%) de trabajadores activos del aeropuerto incluidos en el punto 5 ("Roles del Personal implicado en la actividad aeroportuaria") del Programa de Comprobación de la Competencia que hayan superado todos los cursos evaluables para la comprobación de la competencia respecto al total de trabajadores activos del aeropuerto incluidos en el punto 5 ("Roles del Personal implicado en la actividad aeroportuaria") del Programa de Comprobación de la Competencia.	Nunca menor del 85%	Anual	

4. Safety reporting system - Accident and incident investigation

Objectives:

- To establish and implement a safety reporting system (both mandatory and voluntary) for all personnel and organizations operating and providing services at the aerodrome *(including aircraft operators, ATC, ground handling operators, etc.*
- To establish the reporting system to the competent authority (SNS)
- To analyze and assess all the incidents reports, to prevent further similar events from happening in the future
- To establish the coordination with all the stakeholders during the investigation of the occurrence
- To implement corrective / mitigating measures, as appropriate
- To communicate all the learned lessons
- IMPORTANT: **JUST CULTURE** and the **PROTECTION OF THE IDENTITY OF THE REPORTER**

4. Safety reporting system - Accident and incident investigation

SAFETY PROCEDURES

Regulation (EU) 996/2010:

(1) *'accident'* means an occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

(a) a person is fatally or seriously injured as a result of:

— being in the aircraft, or,

— direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or,

— direct exposure to jet blast,

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

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P4.1. Safety Management System

4. Safety reporting system - Accident and incident investigation

SAFETY PROCEDURES

Regulation (EU) 996/2010:

(b) the aircraft sustains damage or structural failure which adversely affects the structural strength, performance or flight characteristics of the aircraft, and would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to a single engine, (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes) or minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike, (including holes in the radome); or

(c) the aircraft is missing or is completely inaccessible;

P4.1. Safety Management System

4. Safety reporting system - Accident and incident investigation

SAFETY PROCEDURES

Regulation (EU) 996/2010:

'incident' means an occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation;

SAFETY PROCEDURES

4. Safety reporting system - Accident and incident investigation

- **How the investigation of the accident has to be done?**
  - Just culture.
  - Confidentiality of the investigation process.
  - The analysis may have to be done individually or globally.
- **Events of special relevance:**
  - RWY incursions.
  - RWY excursions.
  - Birdstrikes.
  - Near-collisions.

✓ *24-72h after the event: analysis*

✓ *3-4 weeks: extraordinary safety committee.*

✓ *4-5 weeks: Final report.*

P4.1. Safety Management System

4. Safety reporting system - Accident and incident investigation

- **Event analysis:** Once every 3 months (safety manager).
- **Weekly meeting to event analysis.**
- **Follow-up of defined measures** (safety manager).
- **Lessons learned:** information spreading.
- **SNS:** Notification system.

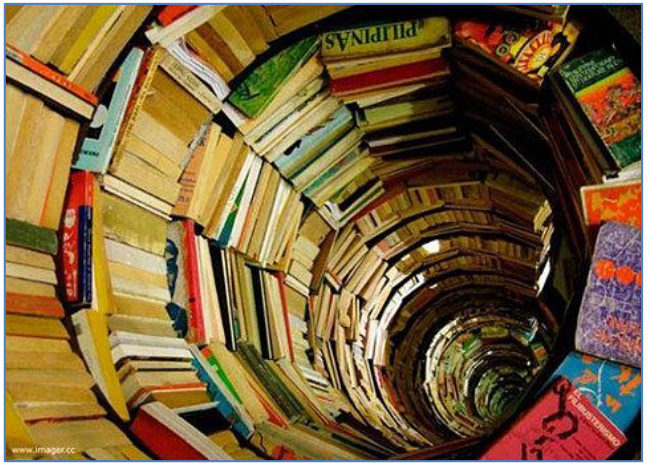
P4.1. Safety Management System

SAFETY PROCEDURES

5. Documentation management

Objectives:

- To establish a systematic way of developing, reviewing, approving, distributing, controlling and broadcasting the documentation of the SMS
- To grant identification, tracking, transparency, and systematic management of documentation



P4.1. Safety Management System

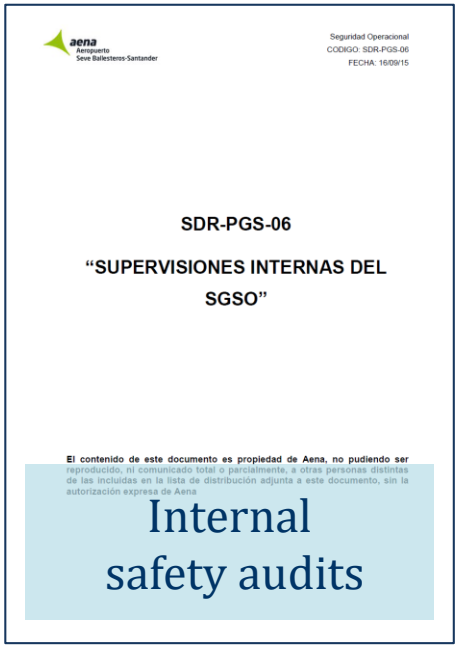
SAFETY PROCEDURES

6. Safety compliance monitoring – safety audits

Objectives:

- To monitor compliance with the relevant requirements and with the procedures it has designed, and ensure safe activities
- To set responsibilities inside compliance monitoring
- To ensure the independence of the compliance monitoring with regard to an audit procedure/department
- To set an audit schedulin

6. Safety compliance monitoring – safety audits

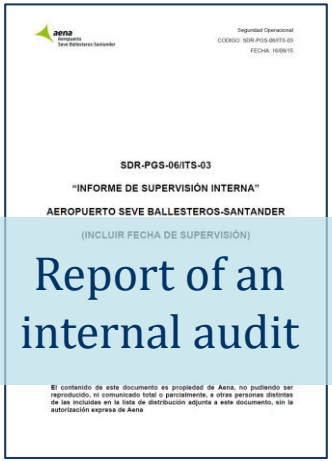


Internal safety audits

+

Internal safety audit plan

Check-list for an internal audit



Report of an internal audit

P4.1. Safety Management System

SAFETY PROCEDURES

6. Safety compliance monitoring – safety audits

- **SMS internal audits:**
  - First audit, in the 12 months after the certification process has finished.
  - Afterwards, an internal audit will be carried out, at least, once every 2 years.
  - This frequency must be reduced if level 1 findings are detected.
  - Audits are carried out by central offices personnel.

P4.1. Safety Management System

SAFETY PROCEDURES

6. Safety compliance monitoring – safety audits

- **Aerodrome Manual internal audits:**
  - First audit, in the 12 months after the certification process has finished.
  - Afterwards, an internal audit will be carried out, at least, once every 3 years.
  - This frequency must be reduced if level 1 findings are detected.
  - Audits are carried out by central offices personnel.

P4.1. Safety Management System

SAFETY PROCEDURES

6. Safety compliance monitoring – safety audits

- **Training internal audits:**
  - Once a year.
  - Carried out by the Safety Manager.
- **Certification Specification review:**
  - Once every 3 years.

P4.1. Safety Management System

SAFETY PROCEDURES

7. Safety training

Objectives:

- To establish a safety training program that ensures that personnel involved in the operation, rescue and firefighting, maintenance and management of the aerodrome are trained and competent to perform the SMS duties
- To establish the requirement and qualification for a safety manager

P4.1. Safety Management System

SAFETY PROCEDURES

8. Safety communications

Objectives:

- **Outgoing communications / safety promotion:** To establish safety communication that ensures that personnel (both internal and external) are fully aware of the SMS, and that lessons learned from investigations, safety related events, or other safety related experiences are distributed widely

- **Incoming communications:** To establish a voluntary reporting system (of any defect, fault and safety hazard which could impact safety)

P4.1. Safety Management System

SAFETY PROCEDURES

9. Safety program

Objectives:

- To ensure the continuous improvement of SMS and safety levels
- To define annual safety objectives
- To promote safety at the aerodrome

Particularized safety programs:

Runway safety program

Apron safety program

FOD prevention safety program

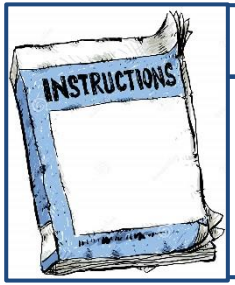
P4.1. Safety Management System

SAFETY PROCEDURES

Safety INSTRUCTIONS AND LOGS

Objectives:

- For each defined procedure, instructions and/or logs are established
- The aim of the instructions is to give a guideline in a specific issue
- The aim of the logs is to standardize the format and the information included in the registers



Example for a instruction:

- Instruction (ITS-01) inside the incidents procedure, identifies which events are mandatory to be reported

Example for a log:

- Register (RGS-01) inside the incidents procedure, provides the means and the format for incident reporting (including required information to be reported)

P4.1. Safety Management System

EASA
European Union Aviation Safety Agency

ARISE+
Funded by the European Union and implemented by the European Union Aviation Safety Agency

END

Thanks for your attention!!

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