International Association of Oil & Gas Producers

IOGP REPORT 690-1

Safety Management System

1. Safety Management System - General[1]

1A. Purpose

Ensuring safe operation with all necessary approvals and with an effective system of documented safety management procedures.

1B. Expectations

An effective Safety Management System (SMS) is in place, appropriate to the size and complexity of the organization and incorporating all elements of 690-1 to manage significant safety risks to As Low As Reasonably Practicable (ALARP) levels.

1C. Processes and practices

1C.1 The SMS is compliant with National Aviation Authority (NAA) regulatory requirements and meets the intent of ICAO Annex 19, Appendix 2 - Framework for an SMS, and ICAO Doc 9859, Safety Management Manual (SMM), including in those countries where national regulations for SMS are not in place for the class of operation or activity.

1C.2 The SMS interlinks all of the elements listed in IOGP Report 690-1 – *Safety Management Systems* to allow safety information to circulate freely and continuous improvements to be made.

1C.3 Each air operator subcontractor maintains an effective SMS compatible with its own system, and that a documented process between SMSs is established.

Guidance documents

- ICAO Annex 19, Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B – Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model.

[1] The term Safety Management System (SMS) has been used for consistency, recognising that some organizations have system elements contained within a wider integrated Management System (MS).

2. Management commitment and leadership

2A. Purpose

Ensuring an organizational culture where the normal behaviour at all levels is risk conscious, safe, promotes learning and collaborative behaviour, and has management commitment and responsibility

2B. Expectations

Leaders at all levels within the aircraft operator demonstrate responsibility for safety, actively participate in safety management throughout their organization and both educate and develop personnel in safety matters as well as holding them accountable for their actions.

2C. Processes and practices

2C.1 Leaders are accountable for the effective management and safety risks in their business. They:

- 2C.1.1 Know the safety risks associated with their position, responsibilities in their organization, and how they are managed.
- 2C.1.2 Take corrective action if the controls for a risk are ineffective.
- 2C.1.3 Communicate the aircraft operator's safety policies to their personnel and relevant subcontractors.
- 2C.1.4 Plan and make regular base visits to engage with their personnel and relevant sub-contractors about safety.

2C.2 Leaders demonstrate safety leadership through measurable actions. They:

- 2C.2.1 Participate in safety activities, team meetings, and safety programmes and campaigns.
- 2C.2.2 Act as a role model for safety compliance, intervene during day-to-day activities whenever safety requirements are not being met.
- 2C.2.3 Have a process to report safety issues, near misses and Stop Work events, and empower their personnel to use these processes.

2C.3 Leaders motivate, coach, and develop personnel to manage safety risks effectively. They:

- 2C.3.1 Provide constructive feedback to their personnel on their safety behaviours and performance.
- 2C.3.2 Evaluate the safety culture within their organization regularly.
- 2C.3.3 Develop their own competence and that of their team in line with their organization's requirements to manage safety risks effectively.
- 2C.3.4 Include safety behaviours in decisions about recruitment, performance, and personnel development.

2C.4 Leaders hold individuals accountable for their safety performance and behaviours. They:

2C.4.1 Monitor and reinforce compliance with their organization's procedures, applicable laws, and regulations and take appropriate action to correct deficiencies.

2C.4.2 Document and implement within the SMS a "Just Culture", based on ICAO Doc 9859, Section 3 "Safety Culture", where there is a distinction between acceptable and unacceptable behaviour, which is communicated to all employees, who know that their actions or omissions, commensurate with their training and experience, will not be punished.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- IOGP Report 452 - *Shaping safety culture through safety leadership*
- IOGP Report 453 - *Safety Leadership in Practice: A Guide for Managers*
- IOGP Report 597 - *Fabrication site construction safety recommended practice – Enabling activities*
- HeliOffshore Safety Performance Model

3. Safety accountabilities and responsibilities

3A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

3B. Expectations

The Aircraft Operator has appointed key personnel and with defined accountabilities

3C. Processes and practices

3C.1 The accountable executive has ultimate responsibility and accountability for the implementation, financing, and maintenance of the SMS, irrespective of other functions.

3C.2 The accountable executive has authority to ensure all activities can be financed and carried out to the required standard, has final accountability for all safety issues.

3C.3 A safety manager has been appointed.

3C.4 Clear lines of safety accountability are in place and documented throughout the organization, including a direct accountability for safety for all members of management, regardless of other duties, as well as of other staff.

3C.5 Any changes in key personnel directly involved in the SMS during execution of the services under contract requires notification to the Company.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providerss
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance
- CASA Part 119
- HeliOffshore Safety Performance Model

4. Key safety personnel

4A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

4B. Expectations

Key safety personnel have defined competencies

4C. Processes and practices

4C.1 All operational staff, supervisors and management have defined competencies requirements for safety-critical activities and sufficient resources to manage and operate effectively within the SMS.

4C.2 There is a hierarchy of safety committees, appropriate to the size and complexity of the organization, with members appointed according to their expertise and responsibilities.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations.
- CASA Part 119.190
- HeliOffshore Safety Performance Model

5. Emergency response planning

5A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

5B. Expectations

Emergency response planning is coordinated

5C. Processes and practices

5C.1 An Emergency Response Plan (ERP) has been established, with country, regional or global ERPs to meet the Company needs and response objectives covering credible scenarios.

5C.1.1 A policy is in place and agreed that co-ordinates the air operator and Company requirements, actions and responsibilities in responding to an emergency.

5C.2 The emergency response organization is staffed to be able to manage credible scenarios.

5C.3 Emergency responders are trained to a competence level to match their roles and responsibilities as outlined in the ERP.

5C.4 ERP process reviews and exercises (at a minimum desktop) with aviation related objectives are conducted prior to commencement of operations, and then on a scheduled basis, at a minimum annually, for ongoing operations.

5C.5 The exercises test the integrity of the ERP by including credible scenarios, such as one of the following scenarios, in each operational base:

5C.5.1 Accident on arrival or departure

5C.5.2 Overdue aircraft

5C.5.3 Accident/Ditching en route

5C.5.4 Aircraft accident on a remote airstrip, landing site, helipad, or helideck

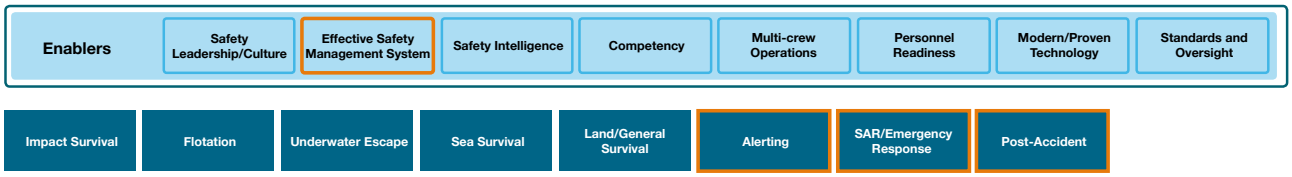
5C.5.5 Aircraft ditching in rescue range of a facility or vessel

5C.6 A post exercise review process is in place to record exercise learnings and track them to closure.

5C.7 In addition, exercises test and validate bridging communications between the Company, the aircraft operator, other involved entities and all emergency services.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- ICAO Doc 9481 Emergency Response Guidance
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations.
- CASA Part 119
- HeliOffshore Safety Performance Model.



6. SMS documentation

6A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

6B. Expectations

The SMS has documented procedures

6C. Processes and practices

6C.1 There are documented, detailed procedures covering all SMS activities and processes. These processes are linked to more broadly documented procedures in the appropriate manuals for safety critical activities related to aircraft operations, including flight operations, aircraft maintenance, and ground operations.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model

7. Safety risk assessment and hazard identification

7A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

7B. Expectations

The Aircraft Operator has established Hazard and Risk Management (HRM) systems

7C. Processes and practices

7C.1 A Hazard and Risk Management system (HRM) is documented that reflects the size and complexity of the aircraft operator.

7C.2 The HRM identifies actual and potential safety hazards, occurrences, assesses the associated risks and includes consideration of human performance, safety culture and threat and error management.

7C.3 The HRM identifies and address generic, mission specific, and location specific worst-case credible scenario hazards.

7C.4 All the hazards identified are assessed using the aircraft operator's Risk Assessment (RA) process, and the assessment of these risks is documented in a Hazards and Effects Register.

7C.5 A demonstration is provided, within a documented format or software system, that all identified hazards are assessed, tracked, mitigated, and managed to ALARP.

7C.6 This demonstration:

- 7C.6.1 Shows the risk assessment rating assigned to each identified hazard.
- 7C.6.2 Links high rated hazards to specific barriers and controls in an appropriate manner (e.g., using a bow tie barrier management approach)
- 7C.6.3 Provides a document reference for the barriers and controls if said measure is procedural or training
- 7C.6.4. Assigns a responsible department or job title to each barrier or control – controls identified for location specific hazards are to be assigned local responsibility

7C.7 The HRM is demonstrably linked to the aircraft operator's Safety Reporting and Investigation process and confirmation of implementation of mitigating actions

7C.8 A Remedial Action Plan is in place to close identified gaps.

7C.9 Establish and maintain an effective HRM review process, which includes a review of external accidents and incidents that are relevant to the operation.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model.

8. Incident reporting, investigation, and learning

8A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

8B. Expectations

Safety reporting procedures are in place

8C. Processes and practices

8C.1 Safety reporting procedures are in place covering all regulatory and non-regulatory reports, including the reporting of lower-level incidents or occurrences, hazards, and near-miss events. These procedures are supported by a Just Culture and the systems in place allow for anonymous reporting to provide protection to the reporter.

8C.2 Reporting is encouraged and tools are provided to personnel to proactively report any incident, occurrence, hazard, error, or near-miss event they become aware of, as soon as possible.

8C.3 Incidents are reported to the Company as detailed in its contract and the aircraft operator allows access for investigations when agreed.

8C.4 All incidents are assessed using the aircraft operator's RA process.

8C.5 The investigation process is aligned with ICAO Annex 13, Aircraft Accident and Incident Investigation, such that it:

- 8C.5.1. Uses trained investigators, reviews the effectiveness of the HRM barriers and generates recommendations.
- 8C.5.2 Includes occurrences that are not required to be reported to the NAA but which are considered to provide valuable learning opportunities, such as high potential, near miss events.
- 8C.5.3 Aims to understand why an event happened and the contributing causes, by taking full account of human and organizational factors using human factors methodology (e.g., Human Factors Analysis and Classification System (HFACS[2])) as part of the investigation process. This considers:
  - 8C.5.3.1 Errors, mistakes, or violations
  - 8C.5.3.2 Pre-conditions relating to the operational environment
  - 8C.5.3.3 The physical and mental states of those involved
  - 8C.5.3.4 Organizational and team influences, interactions and culture
  - 8C.5.3.5 Management, leadership and supervisory factors
- 8C.5.4 Where possible, incident investigations are conducted jointly with the Company.

[2] The HFACS is a broad human error framework that was originally used by the US Air Force to investigate and analyse human factors aspects of aviation. The HFACS framework provides a tool to assist in the investigation process and target training and prevention efforts.

8C.6 The recommendations are tracked to closure, any modified controls or barriers identified are put in place, and a feedback process to the reporter and to the organization is included.

8C.7 A process is in place to learn from significant and high potential incidents through communication and implementation of required actions.

8C.8 Investigations enable the consistent application of Just Culture principles and apply process and tools for any event that may result in consequence management.

8C.9 Safety occurrences are shared with relevant industry safety bodies and as part of its continuous improvement, the organization uses safety events from the industry as part of its HRM analysis process.

Guidance documents

- ICAO Annex 19 Appendix 2.
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B – Safety Management Systems for Aviation Service Providers
- ICAO Annex 13 – Aircraft Accident and Incident Investigation - Standards and Recommended Practices for aircraft accident and incident Investigation
- UK CAA CAP 795 – Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model

9. Safety performance monitoring

9A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

9B. Expectations

The aircraft operator measures the safety performance of the organization

9C. Processes and practices

9C.1 Safety Performance Indicators (SPIs) are established to monitor and measure the safety performance of the organization, and the effectiveness of the SMS for continuous improvement.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- IOGP Report 510 – *Operating Management System Framework*
- HeliOffshore Safety Performance Model

10. Management of change

10A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

10B. Expectations

There is an effective Management of Change (MOC) process

10C. Processes and practices

10C.1 A defined MOC procedure is in place to manage the risks associated with significant changes related to aircraft operations, including key personnel.

10C.2 The MOC identifies changes that introduce new hazards, or impact the effectiveness of the existing barriers or controls in the HRM Process and includes a process to track the effectiveness of the actions.

Guidance documents

- ICAO Annex 19 Appendix 2.
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model

11. Continuous improvement - assurance

11A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement.

11B. Expectation

A Quality Assurance (Compliance Monitoring) system is in place.

11C. Processes and practices

11C.1 A Quality Assurance (QA) system, in addition to, or in the absence of NAA requirements, covering flight operations, maintenance activities, ground operations, the SMS and HRM is developed, documented, and implemented.

11C.2 A QA Manager is appointed.

11C.3 The QA system details a programme of risk-based audits using trained personnel, independent from the activities to be audited.

11C.4 The audit programme covers internal processes and specialized activities, as well as any externally contracted operations or activities.

11C.4.1 Audits of externally contracted operations assess compliance with relevant IOGP 69x series recommended practices.

11C.5 The QA system monitors compliance with, and the effectiveness of, the risk barriers and controls detailed in the aircraft operator's published HRM.

11C.6 A functioning records/data management system which also tracks all audits, non-compliances and corrective actions, to closure is in place.

11C.7 Performance indicators are tracked to monitor the effectiveness of the QA system.

Guidance documents

- ISO 9001: 2015, Quality Management Systems
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- ISO 19011:2018, Guidelines for auditing management systems
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- CASA Safety Management System resource kit: Booklet 3 - Safety Risk Management
- HeliOffshore Safety Performance Model

12. Training, competence, and education

12A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

12B. Expectations

Key Safety Personnel are trained and educated to understand the SMS

12C.Processes and practices

12C.1 Operational staff understand the organization's safety policy and the principles and processes of the organization's SMS.

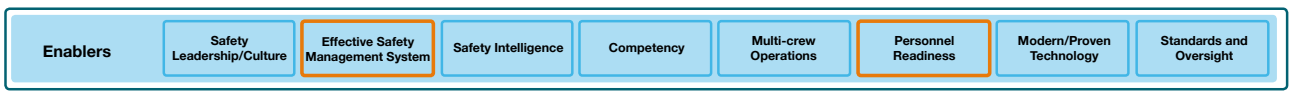
12C.2 Managers and supervisors understand the safety process, hazard identification, risk management and the management of change.

12C.3 The accountable manager has an awareness of SMS roles and responsibilities, safety policy, safety culture, SMS standards, and safety assurance.

12C.4 Staff have initial induction and two-yearly recurrent training to ensure continued competence appropriate to the level of involvement in the SMS.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model



13. Safety communication

13A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

13B. Expectations

Safety information is monitored, shared, and reviewed by management

13C. Processes and practices

13C.1 Safety commitment and policy documents, based on Just Culture, are in place.

13C.2 There is a range of safety promotion and communication processes to enable an effective, two-way flow of information.

13C.3 There are formal meetings where all staff can engage in discussion on safety topics either directly or through appropriate representation.

13C.4 There is a yearly management review process based on a defined hierarchy of meetings that gives senior managers visibility of the SMS activity, in particular:

- 13C.4.1 Safety reporting and performance (review of KPIs and SPIs)
- 13C.4.2 The effectiveness of the HRM process
- 13C.4.3 Issues arising from the aircraft operator's QA process

13C.5 Safety information is disseminated via newsletters, safety bulletins, etc.

13C.6 A "read and acknowledge" process is in place for the distribution of critical safety information.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- HeliOffshore Safety Performance Model

14. Line operations safety audit

14A. Purpose

The Aircraft Operator has a Line Operations Safety Audit (LOSA) programme in place to measure the management of human error in aviation and to inform the company SMS of the effectiveness of Standard Operating Procedures (SOPs), Crew Resource Management (CRM) and Threat and Error Management (TEM) training ensuring continuous improvement

14B. Expectation

The Aircraft Operator has a structured LOSA programme for multi-crew operations

14C. Processes and practices

14C.1 The LOSA programme is implemented by the aircraft operator with support from the Company.

14C.2 The LOSA programme complies with ICAO Doc 9803 – Line Operations Safety Audit (LOSA).

14C.3 The LOSA data is analysed and appropriate action plans implemented.

14C.4 LOSA observations are conducted periodically and a full observation cycle is conducted at a minimum every three years.

14C.5 A LOSA cycle on one type at one base is credited to another base to meet the three year cycle recommendation if an aircraft operator demonstrates that:

- 14C.5.1 The operation, training and Flight Data Monitoring (FDM) program of the type claiming credit at a different bases are harmonized in respect to crew procedures, training and checking and FDM event follow up.
- 14C.5.2 The lessons learned from the LOSA base are applied equally to the base claiming the credit.
- 14C.5.3 The environmental threats at the base claiming credit (weather, terrain, airspace, communications, type of operation and airspace etc) are substantially the same as the LOSA base.

Note: 1. Only LOSA cycles completed on the same aircraft type can be transferred.

14C.6 FDM and LOSA observations are analysed collectively for added insight.

14C.7 The LOSA observer has a jump seat or a forward-facing seat, positioned in such a manner that both pilots can be observed.

- 14C.7.1 The Company takes into account a possible payload and number of passenger seats lost during LOSA observed flights.

14C.8 For fixed wing operations with aircraft with a Maximum Operational Passenger Seating Capacity (MOPSC) of 19 or less a LOSA programme is to be agreed with the Company.

Guidance documents

- FAA AC 120-90
- ICAO Doc 9803 - Line Operations Safety Audit (LOSA)
- HeliOffshore Safety Performance Model

15. Environmental management

15A. Purpose

The prevention of damage to the environment and personnel

15B. Expectation

The Aircraft Operator has environmental management controls in place to prevent damage to the environment and people from pollution, waste, noise, etc.

15C. Processes and practices

15C.1 Hazards to the environment, including pollution, noise, and waste, etc., have been captured in the HRM process and the associated controls are in place.

15C.2 The environmental management controls follow local and/or national regulatory requirements.

Guidance documents

- ISO 14001:2015, Environmental management systems
- HeliOffshore Safety Performance Model