# GUIDELINES FOR THE ASSESSMENT OF SAFETY MANAGEMENT SYSTEMS OF CONTRACTED AVIATION SERVICES

## Introduction

ICAO recommends that Safety Management Systems (SMS) are adopted by States as a regulatory requirement and that individual companies within the commercial air transport sector develop them to best suit their size and mission. Although the FAA supports the utilisation of Safety Management Systems, at this stage they have chosen not to make them a regulatory requirement, nor has the requirement been adopted universally so far. A number of aircraft charter contractors, particular those with small fleets, have yet to develop there own separate or integrated SMS, however this does not imply that small companies do not necessarily have a management process for safety in place.

Although a small number of companies and organisations operate aviation services from within their own resources, the majority of business units draw these services from approved aviation service contractors. These guidelines specify the key elements of an SMS.

## Safety Management System Development Guidelines

Amongst several aviation authorities, the International Civil Aviation Organisation (ICAO), the UK Civil Aviation Authority, Transport Canada and the Federal Aviation Administration have provided guidelines for the development and implementation of SMS. Several major aviation service contractors have proactively developed SMS' or processes, which are being readily amended to comply with the newly imposed regulations.

## Elements of a Safety Management System

An effective SMS comprises twelve basic elements. The scope of each element is described in greater detail in the attached Audit Review Check List at Annex A.

1. SMS Management Plan
2. Safety promotion
3. Medical fitness, substance abuse (drugs and alcohol)
4. Document and information management
5. Hazard identification and risk management
6. Occurrence and hazard reporting
7. Occurrence investigation & analysis
8. Safety assurance oversight programmes
9. Safety Management training
10. Management of Change
11. Emergency preparedness
12. Performance measurement & continuous improvement

## Role of the Aviation Adviser in Assessing Contractors SMS

Aviation Advisers are specialist in the field of aviation operations and environments, aircraft maintenance and facilities and aviation safety. They should have been carefully selected for the stewardship of contract aviation services based upon their training, qualifications and experience.

- The Adviser's role should be to review a contractor's SMS at the contract award stage and provide a judgment on it. (*Example Pre-Qualification Matrix Chart at Annex B)*

- During the review, the adviser should assess the contractor's ability to comply with the key elements and requirements of an SMS, identify shortfalls through a Gap Analysis, and make recommendations to address the gaps. *(Audit Check List at Annex A)*

## Classification of Aviation Service Contractors

The scope of each of the twelve SMS elements will vary depending on the size and complexity of the organisation involved and its mission. For audit purposes, the contractors can be divided into three classes depending on their size.

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- **Class I** - **Large Contractors** operating fleet sizes greater than fifteen aircraft in widely dispersed areas of activity to include international operations. These major aviation contractors should have sufficient resources to produce their own SMS Manuals and administer a comprehensive SMS. Contractors involved in international operations must address the following additional factors in their SMS:

  - Widely dispersed operations.
  - Major cultural differences.
  - Effective distribution of SMS information.
  - A thorough understanding of the SMS throughout the organisation.
  - Development of a just safety culture.
  - Compliance with the Safety Plan at all levels throughout the work force.

- **Class I - Joint Venture Operations (JV)** - regardless of the contractor's size**.** Due to the higher risks involved in less developed regions, a contractor operating in a foreign region and utilising a host country's AOC in a JV and should be classified as Class 1. An SMS fit for the specific purpose should be developed. It must be owned by the primary contractor, be specific to the region and interface closely with the JV organisational structure. The SMS must take into account the cultural and regulatory differences of all those involved, be task-oriented and enforced. Generally, it should be the responsibility of the major party in the JV to prepare, install, and administer the JV SMS.

- **Class II – Intermediate Contractors** with between three to fifteen aircraft should be classified as Class II. In addition, due to the increasing risks associated with enhanced fleets, introduction of new aircraft types, expansion of facilities and hiring of new employees, small contractors operating three aircraft or less with an intention to expand should also be classified as Class II. Continuous change management will be vital since the contractor must be

prepared to allocate resources to produce and administer a Safety Plan and measure its results. Rapid growth without an enhanced SMS, coupled with inadequate Change Management procedures, will become a safety issue.

- **Class III - Small Contractors** operating between one to three aircraft with limited staff levels of three to eight employees should be considered as Class III. It is impractical for a Class 1 contractor to develop a large SMS manual nor to implement and administer a complex SMS. Furthermore a Class III operator may have been providing services to a company not requiring a Safety structure before this.

- Regardless of the contractor's classification, **Specialist activities** such as offshore operations, heli-deck inspections, seismic exploration, external lift, oil spill aerial applications, medical evacuation and Maintenance Repair Organisations should be specifically addressed in the contractor's SMS.

## SMS Ownership

A key indicator of an effective SMS is a written commitment and clear statement of policy on safety management from the contractor's owner or Board. The policy should advocate the development of a just safety culture which encourages safety reporting from all staff, seeks to mitigate risk, and strives for continuous improvement in safety performance. The scope of the SMS should be detailed in Operations and Maintenance Manuals and should require pilots, technicians and staff members to be accountable for their compliance. Each element of the SMS process and personnel responsibilities should be delegated to the appropriate staff members. For example, the owner/chief executive will issue the Policy Statement. The administrative assistant will be responsible for Safety Management documents, data control and distribution. Operational issues should be delegated to the pilot or pilots and maintenance, Quality Assurance, and facility issues delegated to the engineer /maintenance chief.

*In a small organisation there is an opportunity for one-on-one conversation with each member of the staff regarding their safety responsibilities. Many of these small organisations have an imbedded safety culture. This class of operation has traditionally demonstrated very acceptable safety performance.*

## Contractor Personnel General Health and Drug/Alcohol Policy

The Safety Health and Environment (SHE) section of contracts for services should have strict and comprehensive compliance requirements with regards to the general health of contractor employees Pre-employment screening is necessary to determine they are medically fit for the task. It is also required that all contractors have a Substance and Alcohol Abuse Policy in force commencing with pre-employment testing, followed by on-the-job random testing and testing for cause for the presence drugs or alcohol abuse.

## Contractors Compliance with Safety Management System

A major organisation's SMS manuals tend to be voluminous as the scope of each element is expanded to reflect the contractors operations. Qualified personnel should be assigned to Safety Management positions and given the authority to manage and administer the Plan. Unfortunately during audits, the advisor may find a substantial SMS publication in the Contractor's library, but discover a lack of awareness or vagueness of the SMS with task level employees, especially those in the outer or distanced ranks. A Safety Management System must flow through the entire organisation.

*It is important to realise that having a comprehensive SMS manual is not the same as company wide compliance throughout the ranks. SMS manuals are not always being complied with and audits provide an opportunity for the adviser to find gaps*.

## Reference Materials

Many publications are available on the subject of developing a Safety Management System Manual. Some may be more relevant than others and should be used in States where Safety Management Systems are required by regulation. Practical documents have been developed by the Joint International Helicopter Safety Team - "Safety Management Systems Tool Kit" - which satisfies most applications of contract aviation – and by the SMS Working Group in ECAST as part of the European Strategic Safety Initiative under EASA sponsorship – which provides general guidelines on SMS.

## Recommended Reading

FAA Advisory Circular 120-92
Introduction of Safety Management Systems for Air Operators

UK CAA CAP 712
Safety Management Group

International Helicopter Safety Team
Safety Management Systems Tool Kit

Flight Safety Information Journal Jan 2008
By Curt Lewis & Associates

UK Flight Safety Committee website – SMS and Risk Management Reference Material

| **Annex A** | **Audit Review Check List** | |
|---|---|---|
| **1. Management SMS Policy** | | |
| a. Is there a clear statement of commitment to safety, core values, objectives and requirements of SMS? Provide details. | | |
| b. Does the Policy define each element of the SMS? Where does it do this? | | |
| c. Does the Policy define duties and responsibilities of delegated SMS personnel? Who are they? | | |
| d. Does the Policy define competency and skill requirements for managing the SMS? What are they? | | |
| e. Does the Policy provide instructions and procedures for JV operations with a foreign country AOC partner? What are they? | | |
| f. Does the Policy promote a Just Culture? | | |
| **2. Safety Promotion** | | |
| a. Is there a statement of the management's commitment to the promotion of a SMS? | | |
| b. Does the SMS plan ensure two way safety communications with employees in the promotion of a safety culture? | | |
| c. Does the safety promotion plan provide training to the appropriate personnel commensurate with their task? | | |
| d. What promotional methods are used to encourage Safety Meeting participation? | | |
| e. How are lessons learned shared among the staff? | | |
| **3. Contractor Personnel - General Health & Drug/Alcohol Policy** | | |
| a. Describe the companies pre-employment screening that determines the employee is mentally and medically fit for the specific task at hand. | | |
| b. How does the company manage cultural issues in administering the D&A program? | | |
| c. What factors may prevail that contribute to excessive alcohol or drug usage? | | |

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| d. Remote work place and alienation arising from boredom, complacency ,stress, harrassment . How is this detected, monitored and remedied? | | |
| **4. Document and Information Management** | | |
| a. Who is responsible for management, administration, organisation and distribution of all organisational, operational, technical, SHE, and SMS publications? | | |
| b. Does it identify and distribute regulations that govern the organisation? | | |
| c. Do all employees have access to pertinent regulatory information? | | |
| d. Does the system have a change control process and method to communicate changes to personnel? Provide example. | | |
| **5. Hazard Identification and Risk Management** | | |
| a. Describe procedures to identify hazards, and to develop a process to mitigate risk. | | |
| b. Describe the process used in conducting a Safety Case. | | |
| c. Describe the process used in conducting Job Safety Analysis. | | |
| d. Describe the process used in conducting Risk Assessment. | | |
| **6. Occurrence and Hazard Reporting** | | |
| a. How do employees report occurrences and hazards?<br>Provide an example of a Hazard report? | | |
| b. What is the process for analyzing occurrence or hazard reports?<br>Is it a closed loop system? | | |
| c. What is the non-punitive policy for persons reporting hazards or unsafe conditions? | | |
| **7. Occurrence Investigation and Analysis** | | |
| a. Does the investigative process determine the “what and why” an event happened, rather than who is at fault?<br>Look at examples | | |
| b. Does the analysis identify immediate causal factors as well as contributing factors? | | |

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| c. Are there systemic factors that may exacerbate the hazard incident? | | |
| d. What is the reporting and feed-back system? Look at examples. | | |
| **8. Safety Assurance Oversight Programs** | | |
| a. Do you have an internal audit check list and reporting form? Look at forms and a copy of last audit. | | |
| b. How often are internal assessments of operational and technical processes reviewed? | | |
| c. How often are external assessments conducted and by whom? | | |
| d. How are findings communicated? Who is on the distribution list? | | |
| e. What resources and materials are available to conduct a Safety and Quality Assurance over sight program? | | |
| **9. Safety Management Training** | | |
| a. Are all personnel given induction and recurrent SMS training? | | |
| b. How are personnel tracked for periodic/recurrent training on SMS? Describe methods. | | |
| c. How and where is training conducted? | | |
| d. Does the program make effective use of literature, trade journals, work shops, and conferences? | | |
| **10. Management of Change(MOC)** | | |
| a. Are changes in operational procedures and processes, equipment and facilities, operational areas and types of operations analysed for Management of Change? | | |
| b. Does the SMS have Management of Change Flow Chart? | | |
| c. Are changes in operating locations and especially JV operations analysed for risk mitigation? | | |
| d. Are Resources in terms of equipment available for MOC Occurrences? Provide an example. | | |
| e. Are procedures in place to manage and distribute all operational and technical | | |

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| publication changes? | | |
| f. Define the management levels that may approve changes. | | |
| g. How are potential hazards identified in organizational changes, rapid growth, new services and new equipment? | | |
| h. Describe the procedures used for Management of Change. Is there an MOC descriptive document? | | |
| i. Does contractor use a MOC matrix? | | |
| **11. Emergency Preparedness and Response** | | |
| a. Is there an emergency response checklist readily available at the work site, with instructions should an emergency occur? Review checklist. | | |
| b. Is there a priority notification list which includes FAA/CAA/DGAC/ or appropriate national authority, Medical Evacuation, Fire, Police, Security, Next of Kin, Insurance and Press? Review list. | | |
| c. Are pre-packed resources and equipment readily available to respond to an emergency? Show examples. | | |
| **12. Performance Measurement** | | |
| a. Have" Key Safety Performance Indicators" been developed to measure effectiveness and define areas for improvement? What are they? | | |
| b. Have the results of safety performance monitoring been documented and used as feed-back to improve system? | | |
| c. Has contractor conducted an Emergency Response Table Top Review and measured the performance? Provide details. | | |

NOTES: A log for each non compliance item should accompany the Aviation Advisers Audit Summary Report, along with recommendations or comments for remedy.

**Annex B**

**Pre-qualification Matrix Chart Aviation Procurement**
**Example of Contract Comparison**

| | | | | | | | Operator A | B | C |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | Safety Management System - Management Policy | 0 to 5 | 5 | 5.0% | | 2 | 4 | 2 |
| 2 | | Safety Promotion | 0 to 5 | 5 | 4.0% | | 2 | 4 | 2 |
| 3 | | Personnel Health & Drug & Alcohol Policy | 0 to 5 | 5 | 4.0% | | 2 | 4 | 2 |
| 4 | | Document and Information Management | 0 to 5 | 5 | 4.0% | | 1 | 4 | 1 |
| 5 | | Hazard Identification & Risk Management | 0 to 5 | 5 | 4.0% | | 2 | 4 | 2 |
| 6 | | Occurrence and Hazard Reporting | 0 to 5 | 5 | 4.0% | | 2 | 4 | 2 |
| 7 | | Occurrence Investigation & Analysis | 0 to 5 | 5 | 4.0% | | 1 | 4 | 2 |
| 8 | | Safety Assurance Over Sight Programs | 0 to 5 | 5 | 4.0% | | 1 | 4 | 1 |
| 9 | | Safety Management Training | 0 to 5 | 5 | 4.0% | | 1 | 4 | 1 |
| 10 | | Management of Change | 0 to 5 | 5 | 4.0% | | 1 | 4 | 2 |
| 11 | | Emergency Preparedness | 0 to 5 | 5 | 5.0% | | 2 | 4 | 2 |
| 12 | | Performance Measurement & Continuous Improvement | 0 to 5 | 5 | 5.0% | | 1 | 4 | 2 |

PROBABILITY

| SEVERITY | FREQUENT | PROBABLE | OCCASIONAL | REMOTE | IMPROBABLE |
|---|---|---|---|---|---|
| I - CATASTROPHIC | 1 | 2 | 4 | 8 | 12 |
| II - CRITICAL | 3 | 5 | 6 | 10 | 15 |
| III - MARGINAL | 7 | 9 | 11 | 14 | 17 |
| IV - NEGLIGIBLE | 13 | 16 | 18 | 19 | 20 |