Republic of the Philippines
Department of Transportation and Communications
CIVIL AVIATION AUTHORITY OF THE PHILIPPINES
Aerodrome and Air Navigation Safety Oversight Office

MEMORANDUM CIRCULAR NO. 18-14
Series of 2014

TO   : **ALL CONCERNED ATS AND CNS SERVICE PROVIDERS**

SUBJECT   : **Acceptance of ATM Safety Management Systems**

I. References

  a. PCAR-ANS Part1, Safety Oversight
  b. PCAR-ANS Part 11, Air Traffic Service
  c. PCAR-ANS Part 10B
  d. Annex 11 – Air Traffic Service
  e. Annex 19 – SMS and SSP
  f. ICAO Doc 9859 - SMS

II. Acceptance of Safety Management Systems

1 Introduction

1.1 International Civil Aviation Organization (ICAO) standards and regulations applicable to the Philippines require the Civil Aviation Authority of the Philippines (CAAP) to ensure that a Safety Management System (SMS) is employed at all ATS units.

1.2 The Philippine Civil Aviation Regulations (PCARs and PCAR-ANS) also apply in this regard to Communications, Navigation and Surveillance (CNS) Service Providers. This includes units operating navigational aids such as VOR, NDB, ILS, etc.

1.3 It is the responsibility of the Service Provider to satisfy the CAAP (regulatory) that the system under consideration will be safe for use by aircraft and satisfies all appropriate requirements throughout its lifecycle.

1.4 This applies both to initial approval, if applicable/when appropriate, and any subsequent changes to the approved system.

1.5 The following sections provide guidance that can be used by Air Traffic Management (ATM) Service Providers when constructing and maintaining a Safety Management System. It contains examples of typical components of an SMS. As these sections are guidance, the term 'should' is used throughout. However, the use of this term should not be interpreted as implying that the particular SMS component is not mandatory.

2 Scope / Applicability

"Committed to have a Safe and Secure Sky"

2.1 The scope and applicability of SMS requirements depends on the latest Philippine Civil Aviation Regulations and relevant ICAO SARPs (Annex 11, Annex 19 and Doc 9859).

2.2 The provision of AIS, CNS, MET and/or SAR services, when under the authority of an ATS provider, should be included in the scope of the ATS provider's SMS. When the provision of AIS, CNS, MET and/or SAR services are wholly or partially provided by an entity other than an ATS provider, the related services that come under the authority of the ATS provider, or those aspects of their services with direct operational implications, should be included in the scope of the ATS provider's SMS. (Annex 19)

3 Rationale

3.1 The prime responsibility for the safety of an ATM (ATS, AIS, MET, SAR) service rests with the Service Provider. Within the overall management of the service, the Service Provider has a responsibility to ensure that all relevant safety issues have been satisfactorily dealt with, and to provide assurance that this has been done.

3.2 Safety management is that function of service provision, which ensures that all safety risks have been identified, assessed and satisfactorily mitigated. A formal and systematic approach to safety management will maximize safety benefits in a viable and traceable way.

4 Safety Objective

The overall safety objective is to ensure that all safety issues within the provision of an ATM service have been addressed in a satisfactory manner, and to a satisfactory conclusion.

5 Safety Management Systems (SMS) Components

5.1 Safety Management

5.1.1 An ATM Service Provider (ATS, AIS, MET, SAR) should, as an integral part of the management of the ATM service, have in place a SMS which:

   a) ensures a formalized, explicit and pro-active approach to systematic safety management in meeting its safety responsibilities within the provision of Air Traffic Management (ATM) services;

   b) operates in respect of all ATM and supporting services which are under its managerial control;

   c) includes, at its foundation, a statement of safety policy defining the organization's fundamental approach to managing safety.

5.1.2 **Rationale:** An intuitive or ad hoc approach to the management of safety is not, as a fundamental principle of SMS, acceptable.

5.1.3 An acceptable SMS may be defined within several tiers of documentation, for example Safety Management Manuals, Quality Management Manuals, Safety Arguments/Cases, etc.

Similarly, the SMS may be spread between Organizational or Corporate and local level documents.

5.1.4 Where the Service Provider uses external standards to achieve a safety objective, the scope, depth and use of these should be explained.

5.1.5 An acceptable SMS should set out the Service Provider's safety management policies and strategy and give assurance that, irrespective of the events which may take place on the ATS unit, clear processes are established and implemented to ensure that the necessary safety standards are maintained at all times.

5.2 Safety Responsibility

5.2.1 An ATM Service Provider should, as an integral part of the management of the ATM service, have in place a SMS which ensures that everyone involved in the safety aspects of ATM service provision has an individual safety responsibility for their own actions, and that managers are responsible for the safety performance of their own organizations.

5.2.2 **Rationale:** Safety responsibilities are necessary to ensure that the Service Provider's Organization is committed, at all levels, to the fulfillment of its stated safety policy. Accountability for safety belongs to all levels of management and the attainment of satisfactory safety performance requires the commitment and participation of all members of the Service Provider's organization. The SMS depends upon individuals understanding and accepting their delegated responsibility within the Service Provider's organization. Everybody within the organization should be made aware of the consequences of mistakes and strive to avoid them. Management should foster this basic motivation within members of the organization so that everybody accepts their responsibility for safety.

5.2.3 The Service Provider should define and document the safety accountabilities of personnel to explain how any safety significant roles are undertaken.

5.2.4 The Service Provider should make a safety policy statement which confirms that everyone has an individual responsibility for the safety of their own actions and that managers are accountable for the safety performance of the activities for which they and their staff have responsibility. Additionally, the Service Provider should identify who is ultimately accountable for safety and how the associated responsibility is delegated.

5.2.5 There should be a description of the Organizational Framework for the Management and Operating Team of the Service Provider. This should define the Functions, Responsibilities, Authority and Communication Interfaces and accountabilities of all staff with defined safety responsibilities. This should include either individual or generic staff (e.g. Watch/Coordination staff), Operating, Maintenance and Managerial staff. Care should be taken to ensure that there is no overlap or duplication of responsibilities.

5.2.6 Arrangements should be in place to ensure that individuals are also aware of their safety responsibilities under emergency conditions.

5.3 Safety Priority

5.3.1 An ATM Service Provider should, as an integral part of the management of the ATM service, have in place a SMS which ensures that the achievement of satisfactory safety in ATM shall be afforded the highest priority over commercial, environmental or social pressures.

5.3.2 **Rationale:** The safety management system should clearly address and resist business pressures that challenge the safety of the provision of the service. Conversely, the safety management system should ensure that safety is not used to support commercial, financial, environmental, or other related decisions inappropriately, which have little real safety significance. If the term 'safety' is abused in this way the safety management system cannot be focused on controlling the real risks

5.4   Safety Objective of the ATM Service

An ATM Service Provider should, as an integral part of the management of the ATM service, have in place a SMS which ensures that while providing an ATM service, the principal safety objective is to minimize the ATM contribution to the risk of an aircraft accident as far as is reasonably practicable (ALARP).

NOTE: Where risk is concerned there is no such thing as absolute safety. 'As far as is reasonably practicable*' means that risk in a particular activity can be balanced against the time, cost and difficulty of taking measures to avoid the risk. The greater the risk to safety, the more likely it is that it is reasonable to go to substantial effort to reduce it. It is implicit, therefore, that hazards have to be identified and the risk assessed before a judgment can be made upon their tolerability.*

5.5   Competency

5.5.1 Within the operation of the SMS, the Service Provider should ensure that staff are adequately trained, motivated and competent for the job they are required to do, in addition to being properly licensed or certified if so required.

5.5.2 **Rationale:** Staff competence is fundamental to safety.

5.5.3 **Components for Air Navigation Services Engineering and Technical Personnel Undertaking Operational Safety-Related Tasks.**

5.5.3.1 **Introduction**

a) **Definition**
For the purposes of these paragraphs, engineering and technical personnel undertaking operational safety-related tasks are personnel who operate and maintain ATM equipment approved for operational use.

b) The provision of CNS services, when under the authority of an ATS provider, should be included in the scope of the ATS provider's SMS. When the provision of CNS services are wholly or partially provided by an entity other than an ATS provider, the related services that

come under the authority of the ATS provider, or those aspects of their services with direct operational implications, should be included in the scope of the ATS provider's SMS.

c) **Rationale**

The competence of CNS and ATM personnel and, where applicable, their satisfaction of medical requirements, are fundamental elements of safety achievement, and therefore of safety management, in the provision of CNS services and, consequently, ATM services. The application of management controls in this area aims to establish harmonized minimum levels of competence and proficiency for CNS staff having specific ATM-related safety responsibilities. 'Competence' is taken to mean possession of the required level of knowledge, skills, experience and, where required, proficiency in English, to permit the safe and efficient provision of ATM and CNS services.

d) **Applicability**

These paragraphs should apply to ATS providers and to all CNS engineering and technical personnel as defined above who are responsible for tasks which, within provision of an ATM service and ATM-related service of the CNS, are identified as safety-related.

e) **Safety Objective**

The overall safety objective is to ensure the competence and, where applicable, the satisfaction of medical requirements, of engineering and technical personnel responsible for safety-related tasks within the provision of ATM services and ATM-related CNS service.

5.5.3.2 **SMS Components**

5.5.3.2.1 An ATS provider at an ATS unit should ensure, as part of its overall safety responsibilities, that engineering and technical personnel responsible for tasks supporting the provision of air traffic services which are considered to be related to the safety of air traffic are competent to carry out those tasks and satisfy applicable medical requirements.

5.5.3.2.2A person responsible for tasks supporting the provision of air traffic services which are considered to be related to the safety of air traffic should:

   a) not carry out such tasks unless he/she has been declared to be competent and has been duly authorized to do so;

   b) be subject to, or initiate, appropriate measures to ensure ongoing competence;

   c) meet medical requirements, if any, appropriate to the task.

5.5.3.2.3An ATS provider should:

   a) ensure that CNS engineering and technical personnel are properly trained and qualified to perform the assigned tasks;

   b) ensure that CNS engineering and technical personnel:
      i) have and maintain sufficient knowledge to ensure a sound understanding of the ATM services they are supporting, and the actual and potential effects of their work on the safety of those services;

ii) have and maintain sufficient knowledge of the appropriate working limits to be applied when performing safety related tasks;

c) ensure that, in relation to engineering and technical personnel, evidence of the adequacy of personnel arrangements and qualifications to perform their safety related tasks is documented and made available to the CAAP (regulatory) on request. Particular regard should be given to:

i) the availability of sufficient personnel competence (CNS) assigned to operational safety-related tasks, and conformance with these requirements;

ii) CNS qualification schemes and policy;

iii) the competence, specialization and recurrency (recency) of CNS engineering and technical personnel;

iv) CNS training policy and plans;

v) CNS personnel training records;

vi) arrangements for the supervision of non-qualified personnel.

d) ensure that CNS engineering and technical personnel do not undertake the assigned operational safety-related tasks if it is known or suspected that the individuals' physical or mental condition render them unfit to undertake such tasks.

e) ensure that, from a safety viewpoint, appropriate methods are in place to ensure that individuals assigned to operational safety-related tasks meet regulatory requirements;

f) report to the CAAP (regulatory) all safety events involving engineering and technical personnel and air traffic management equipment approved for operational use; the level of reporting details should be agreed between the ATS provider, CNS provider and the CAAP (regulatory).

g) ensure that evidence exists, and is provided to the CAAP (regulatory) as required, of the qualifications and competence of engineering and technical personnel to perform their operational safety-related tasks.

5.5.3.2.4 CNS Engineering and technical personnel undertaking operational safety-related tasks should:

a) comply with regulatory requirements and CNS and ATS providers' schemes to ensure current and ongoing competence;

b) comply with any additional conditions applied by the CAAP (regulatory);

c) not undertake safety-related tasks if they know or suspect that their physical or mental condition renders them unfit to undertake such tasks;

d) ensure that they have sufficient knowledge to enable a sound understanding of the ATM services they are supporting and the actual and potential effects of their work on the safety of those services and safety related tasks;

e) systematically and consistently report safety occurrences in accordance with the provisions laid down in regulatory requirements.

5.5.3.2.5 CNS Engineering and technical operational personnel should initiate appropriate remedial measures if the requirements of paragraph 5.5.3.2.4 above are not met.

5.6 Safety Management Responsibility

Within the operation of the SMS, the ATM Service Provider:

a) should ensure that a safety management function is identified with organizational responsibility for development and maintenance of the safety management system;
b) should ensure that this point of responsibility is, wherever possible, independent of line management and accountable directly to the highest organizational level;
c) should ensure that, in the case of small organizations where combination of responsibilities may prevent sufficient independence in this regard, the arrangements for safety assurance are supplemented by additional independent means;
d) should ensure that the highest level of the Service Provider organization plays general role in ensuring safety management.

5.7 Quantitative Safety Levels

5.7.1 Within the operation of the SMS, the ATM Service Provider should ensure that, wherever practicable, quantitative safety levels are derived and maintained for all systems.

5.7.2 **Rationale:** If the safety performance of a service or product is to be assessed and monitored it is necessary to define the safety objectives that need to be met.

5.7.3 The ATM Service Provider should ensure that for each system the safety analysis leads to a series of quantifiable safety objectives (with the exception of human factors or areas to which only qualitative analysis is applicable).

5.8 Risk Assessment and Mitigation
Within the operation of the SMS, the ATM Service Provider:

a) should ensure that a risk assessment and mitigation is conducted to an appropriate level to ensure that due consideration is given to all aspects of ATM;
b) should ensure that changes to the ATM system are assessed for their safety significance and ATM system functions are classified according to their safety severity;
c) should ensure appropriate mitigation of risks where assessment has shown this to be necessary due to the safety significance of the change.

NOTE: Risk assessment involves, in broad terms, hazard identification, hazard assessment for severity and frequency of occurrence, risk tolerability assessment and risk removal or mitigation. More details of this process can be found later in this section.

5.9 SMS Documentation

Within the operation of the SMS, the Service Provider should ensure that the SMS is systematically documented in a manner which provides a clear linkage to the organization's safety policy.

NOTE: The Service Provider should define the Structure, Contents, Authorities, Responsibilities and Mechanisms for SMS Documentation. Where available, any referenced standards or requirements should be clearly traceable to Organizational/Corporate, Safety Regulatory, National or International Standards or Requirements. In this context, 'Organizational or Corporate' means applicable to all parts of the organization, not just a 'headquarters' area. There are no precise definitions of 'standards' or 'requirements'. Both relate generally to objectives that have to be met and can be interchangeable in meaning. The mandating of such objectives can be organizational or statutory.

5.10 External Services

5.10.1 Within the operation of the SMS, the ATM Service Provider should ensure adequate and satisfactory justification of the safety of the externally provided services, having regard to their safety significance within the provision of the ATM service.

5.10.2 **Rationale:** A safety assessment requires input from all phases of a product or service development. For externally supplied products or services the external supplier must understand and comply with the organization's safety and safety management system requirements.

5.11 Safety Occurrences

5.11.1 Within the operation of the SMS, the Service Provider should ensure that ATM operational or technical occurrences which are considered to have significant safety implications are investigated immediately and any necessary corrective measure or action is taken.

5.11.1.1 **Rationale:** If lessons are to be learned and remedial action is to be taken promptly, safety occurrences need to be investigated in a timely manner by the organization. This activity should be additional to any statutory reporting requirements.

5.11.1.2 The Service Provider should have in place a process for investigating potentially safety significant occurrences, identifying any failure of the Service Provider's management of safety, and take corrective action if required.

5.11.1.3 Under the Mandatory Reporting Requirements of PCAR Part 13, PCAR-ANS Part 1 and Part 11, Annex 11 and Annex 13, 'reportable occurrences' should be reported to the CAAP (regulatory).

5.11.1.4 The Service Provider should address the responsibilities and mechanisms that control the reporting, recording, analysis and dissemination of data relating to Mandatory Occurrence Reports (MORs), incidents, occurrences and failures. These should include:

   a) Interface to external organizations;
   b) Internal reporting paths;
   c) Responsibilities;
   d) Auditing of process;
   e) Notification of incidents to the CAAP (regulatory).

5.11.1.5 Corresponding arrangements should include regular communication to amass (gather), assess and clear safety concerns.

5.12 Safety Surveys

5.12.1 Within the operation of the SMS, the ATM Service Provider should ensure that safety surveys are carried out as a matter of routine, to recommend improvements where needed, to provide assurance to managers of the safety of activities within their areas and to confirm conformance with applicable parts of their Safety Management Systems.

5.12.2 **Rationale:** A safety audit is the pro-active safety management mechanism by which any risk within the organization's operation is identified and controlled.

5.12.3 The Service Provider should consider detailing the arrangements for the Implementation, Planning, Analysis, Dissemination of Audit Results and Rectification or Enforcement Action in respect of faults found.

5.12.4 The Service Provider should consider documentation that details the policy and arrangements for auditing the effectiveness and implementation of the SMS at various levels in the organization.

5.12.5 The Service Provider's safety auditing should be based on the objective of determining the safety consequences if the person, function, facility, procedure or structure failed to perform the pre-planned operational requirements.

5.12.6 The Service Provider should define and ensure the competency of the persons responsible for the safety audit, together with reporting and enforcement arrangements. Enforcement arrangements should be applicable to the accountabilities assigned to the various levels and areas in the Service Provider's organization. The reason for the rejection of any safety survey recommendations should be documented and held centrally.

5.13 Safety Monitoring

5.13.1 Within the operation of the SMS, the Service Provider should ensure that methods are in place to detect changes in systems or operations which may suggest any element is approaching a point at which acceptable standards of safety can no longer be met and that corrective action is taken.

5.13.2 **Rationale:** Safety performance can deteriorate, or the operational environment can change over time. Such events need to be detected and managed, proactively and reactively, to ensure that adequate safety performance continues to be achieved.

5.13.3 The Service Provider should consider the responsibilities, mechanism, authorities and recording arrangements for the collection, analysis and circulation of data to confirm that the safety objectives (where defined) of reliability, integrity and availability continue to be met.

5.14   Safety Records

5.14.1 Within the operation of the SMS, the Service Provider should ensure that the safety records are maintained throughout the SMS operation as a basis for providing safety assurance to all associated with, responsible for or dependent upon the services provided, and to the safety regulatory authority.

5.14.2 **Rationale:** The safety assessment documentation should provide the evidence to the organization (and other parties) that it meets and continues to meet its safety objectives.

5.14.3 A Service Provider should record the safety requirements for its area of activity and the results of the safety assessment process.

5.15   Risk Assessment and Mitigation Documentation

5.15.1 Within the operation of the SMS, the Service Provider should ensure that the results and conclusions of the risk assessment and mitigation process of a new or changed safety significant system are specifically documented, and that this documentation is maintained throughout the life of the system.

NOTE: The following areas of an ATS operation are those in which issues can arise that may have implications on the safety of a unit. As such the Service Provider should have processes in place to conduct safety assessments of these areas.
- *ATM Occurrences*
- *ATM Procedures*
- *ATM Equipment*
- *the SMS*
- *Compliance with requirements*

5.15.2 Guidance on the possible conduct of safety assessments for these areas is provided below.

5.15.3 **Lesson Dissemination**

5.15.3.1 Within the operation of the SMS, the Service Provider should ensure that lessons arising from safety occurrence investigations and other safety activities are disseminated widely within the organization at management and operational levels.

5.15.3.2 The Service Provider should ensure that lessons learned from its safety occurrence investigations, and the case histories or experience from other organizations, are distributed widely and, where appropriate, addressed to minimize the risk of recurrence.

5.15.3.3 **Rationale:** It is essential that lessons should be learned and then remembered, so that the chance of recurrence is reduced. Including the results of such lessons in training programmes will raise staff awareness levels.

5.16 Safety Improvement

5.16.1 Within the operation of the SMS, the ATM Service Provider:

a) should ensure that all staff are actively encouraged to propose solutions to identified hazards;

b) should ensure that changes are made to improve safety where they appear needed.

5.16.2 **Rationale**: This requires an effective means of communicating safety issues and the development of an internal safety culture that encourages every member of staff to focus on the achievement of safety, and to report errors and deficiencies without fear of punitive actions against them.

5.16.3 The Service Provider should have arrangements to allow safety concerns to be highlighted and communicated to those accountable for safety.

5.16.4 The Service Provider should have arrangements that allow comments to be raised, discussed and implemented, should the SMS be found to be deficient. These arrangements should address Interfaces and Audits.

5.17 Occurrences

5.17.1 The requirements for assessing safety related incidents at a unit are given in section 5.3.2 - 'Safety Assurance'.

5.17.2 Occurrences include; ATC incident reports, CNS Engineering Occurrence reports, CNS Service Difficulty Reports, Runway Incursion/Excursion, Bird Strike, etc.

5.18 Staffing Levels and Training

5.18.1 There should be a policy and arrangements in place that define the person responsible and the process to be followed that ensure that an adequate number of suitably trained and rated staff are available in respect of ATS Safety.

5.18.2 Documentation should define the method by which staffing levels are determined in relation to the maintenance requirements and availability of engineering facilities.

5.18.3 There should be a policy and arrangements in place that define the management responsibilities and process for ensuring adequate staff supervision. Arrangements should include the mechanisms that ensure that only trained and competent staff undertake maintenance functions.

5.19 Procedures

5.19.1 The ATM service provider should ensure that procedures are developed for the safety assessment of changes to ATC procedures, including temporary operating instructions and supplementary instructions.

5.19.3 The ATM service provider should ensure that procedures are developed for hazard and risk assessment of changes that may impact upon civil airspace.

5.20 Equipment

5.20.1 The ATM service provider should ensure that procedures are developed for the assessment of the safety implications of changes to maintenance arrangements of equipment. This may be accomplished through cooperation with the CNS service provider or the manufacturer/provider of the equipment.

5.20.2 The ATM service provider should ensure that procedures are developed for the safety assessment of a change of function or change of equipment. This may be accomplished through cooperation with the CNS service provider or the manufacturer/provider of the equipment.

5.21 Changes to the SMS

5.21.1 Changes in the organizational structure of the unit that change the safety accountabilities of individuals defined in the SMS should be considered as a change to current operations and assessed in accordance with 'Safety Assurance Documentation'.

5.21.2 Any changes to the SMS should be assessed to ensure the recommendations in this section are still met.

5.21.3 The results of any internal Safety Survey should be assessed for safety significance. The CAAP Safety Regulator is to be informed of any items of Safety Significance that are not notified through other means such as the Mandatory Occurrence Reporting (MOR) scheme.

5.22 The Communication Arrangements for Safety Concerns

5.22.1 Documentation should define the responsibilities, timing and scope for the regular communication that addresses safety concerns. This documentation should define the responsibilities for the collection, assessment, and distribution of safety concerns and implementing solutions.

5.22.2 There should be an arrangement for organizing and disseminating the results of communication in respect of ATS safety issues, both related to on-going safety management, safety improvement programmes and follow-ups to incidents or occurrences.

5.23   Compliance with Standards and Requirements

5.23.1 The ATM Service Provider should make a safety policy statement committing it to complying with all appropriate safety standards and requirements.

5.23.2 The Service Provider should demonstrate the existing facility's compliance with all relevant safety regulatory requirements.

5.23.3 Any change to the unit should be assessed for its compliance with national and international requirements.

6   SMS Framework

6.1   Air Traffic Service (ATS) Providers, and the safety-related services of other Air Traffic Management Service Providers (AIS, MET, SAR) and CNS Service Providers, shall have in place a safety management system acceptable to the CAAP (regulatory) and which addresses four high-level safety objectives as follows:

a)   identifies safety hazards;

b)   ensures the implementation of the remedial action necessary to maintain agreed safety performance;

c)   provides for continuous monitoring and regular assessment of safety performance; and

d)   aims at a continuous improvement of the overall performance of the safety management system.

1.11.2   The framework for this SMS shall, as minimum, include the following components and elements:

a.   **Safety policy and objectives**

a.1   Management commitment and responsibility
a.2   Safety accountabilities
a.3   Appointment of key safety personnel
a.4   Coordination of emergency response planning
a.5   SMS documentation

b. **Safety risk management**

    b.1   Hazard identification

    b.2   Safety risk assessment and mitigation
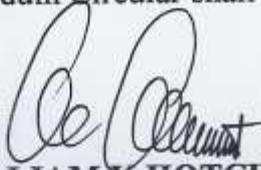
c. **Safety assurance**

    c.1   Safety performance monitoring and measurement

    c.2   The management of change

    c.3   Continuous improvement of the SMS

d. **Safety promotion**

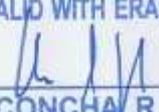   d.1   Training and education

    d.2   Safety communication.

III. Effectivity

This Memorandum Circular shall take effect immediately.

LT GEN WILLIAM K HOTCHKISS III AFP (Ret)
Director General