File No: AAI/13-22/14-AVS

AVIATION SAFETY ADVISORY CIRCULAR NO: 03/2014

HAZLOG Template

1 Introduction

DGCA CAR Section 1, Series C Part I, dated 20th July, 2010 on "Establishment of a Safety Management system (SMS)", requires Aerodrome operators, ATS/ANS operators to develop, establish, maintain and adhere to a safety Management System (SMS). Hazard identification & Safety Risk assessment & Mitigation are one of essential elements in ICAO SMS framework.

Appropriate documentation management of hazards is sign of mature Safety Management. Analysis of safety information generates safety knowledge that must reside in the organization and can be used by organization making safety decisions, which will be based on facts and not opinions.

HAZLOG is the backbone of an SMS. A well-maintained HAZLOG can act as a repository of hazards pertaining to one single project or as a master database pertaining to the airport. It is a real-time indication of the safety health of an airport as well as a safety library for future reference.

2 Scope

The contents of this circular are applicable to all personnel of AAI working at AAI owned airports and ANS (Air Navigation Services) locations.

3 References

- DGCA CAR Section 1, Series C Part I , dated 20th July, 2010 on *Establishment of a Safety Management System (SMS)*
- C-SMS Manual –Version 3, Issue 2
- DGCA SSP Division Circular No. 1 of 2012 – *Hazard Log Template*
- ICAO DOC 9859 *Safety Management Manual* (2nd edition-2009 and 3rd edition-2013)

4 Definitions

4.1 **HAZARD** – A hazard is defined as a condition or an object with potential to cause injuries to Personnel, damage to equipment or structures, loss of material or reduction of ability to perform a prescribed function.

4.2 **Consequence of Hazard –** The potential outcome (or outcomes) of a Hazard.

4.3 **Safety Risk –** The assessment expressed in terms of predicted probability and severity of Consequence of hazard taking a reference to worst foreseeable situation.

4.4 **Safety Risk Control –** Measures to address the hazard and bring the assessed risk under Organizational control.

4.5 **HAZLOG –** An electronic application or paper based format for the compilation & storage of Hazards, their consequences and Safety Risk assessment data.

4.6 **Risk register –** A register where hazards, their consequences, risks & controls of a project are recorded. A risk register may be opened for each phase of project and may contain any number of hazards & controls.

4.7 **Operational Risk Assessment (ORA) register -** A Risk register for the operational phase of the project where the residual risks of project (concept, design & implementation phase) are transferred and kept for onward maintenance.

5 Organizational Requirements

5.1 A service provider shall develop and maintain a formal means for effectively collecting, recording, acting on and generating feedback about hazards in operations, which combine reactive, proactive & predictive methods of safety data collection. Formal means of safety data collection include mandatory, voluntary & confidential reporting. (refer para 10.2 of DGCA CAR on SMS).

5.2 The hazard identification process shall include the following steps:

- Reporting of hazards, events or safety concerns
- Collection & storage of safety data
- Analysis of safety data
- Distribution safety information from safety data

5.3 A service provider shall also develop & maintain a formal process that ensures analysis, assessment and control of safety risks of the consequences of hazards during the provision of its services(refer para 10.3 of DGCA CAR on SMS) .

5.4 The safety risk of the consequences of each hazard shall be analyzed in terms of probability and severity of occurrence, and assessed for tolerability.

5.5 If required, initial risk should be brought down to ALARP level by introducing potential Risk control.

5.6 Residual risk, if any should be accepted by appropriate Risk Accepting authority.

5.7 All these hazards along with it's analysis should be compiled and documented in a standard format as HAZLOG register and should be maintained regularly.

6 Documentation

6.1 Hazard identification is a continuous, ongoing and daily activity. Potential source of hazards can be :

- Accident / Incident Investigation
- Random tape transcription record
- Operational data monitoring
- Internal safety audit
- Routine operational reports, hazard reports, incident reports & maintenance reports.
- Hazard workshops (during Change management)
- DGCA regulatory audits & surveillance activities
- Mandatory occurrence reports
- Voluntary reports
- Safety surveys
- Normal operation safety survey (NOSS)
- Change Risk assessments (for operational change)
- Quality audits
- Manufacturers report
- Safety Information exchange

NOTE: The above list is non-exhaustive.

6.2 Each hazard & its consequence must be documented in the template provided in C-SMS manual as attachment i.e. HazID Form (page 30 of AAI-SAF-105). It has a field to enter hazard number. A single hazard can have many consequences and the risk assessments of each of these consequences would be different. So ideally, each consequence of an identified hazard should be recorded in a different HazID form (page 30 of AAI-SAF-105) and should have a unique ID number.

6.3 Each hazard-consequence combination should be given a separate index number, so that tracking of specific risks will be easier. The hazard numbering format suggested below is based on this philosophy, which may be followed at stations:

- Hazards should be allotted a Unique Hazard ID number in the format HAZ/VXXX/SSS/HHHHHH-CC. For example, a hazard identified at Guwahati airport pertaining to a CNS process should be numbered as HAZ/VEGT/CNS/000001-01. If the same hazard is having a second consequence, whose risk is to be managed separately, the same hazard will again be recorded as HAZ/VEGT/CNS/000001-02, but the consequence will be different.

- The abbreviations to be used for the various departments in the hazard number format (SSS) are ATM, CNS and OPS (Airside Operations).

- The hazard numbers will be allotted by the custodian of the Operational Risk Assessment Register. Normally Safety Manager manages the ORA Register.

- Project HAZLOGs are managed by Project Managers (HODs or officials deputed by them). Thus for a particular project, a series of hazard numbers will be allotted by the Safety Manager. These hazards will be transferred into the ORA Register on completion of the project.

- Hazards which are removed from the active HAZLOG, either on elimination or mitigation to ALARP region, should be retained in the safety library of the airport.

6.4 Each consequence of a hazard must be assessed in terms of probability & severity (follow Table given in 7.4.11 & 7.4.12 of C-SMS Manual).

6.5 Once the initial risk with existing control is established, the next step is to consider whether there is need to treat the risk by following ALARP diagram (follow safety risk assessment Matrix in 7.4.13 of C-SMS manual)

6.6 Safety Risk Management is assessment & mitigation of safety risks of the consequence of hazard to a level of ALARP.

6.7 Develop potential control measures & mitigation strategy to bring down initial risk to ALARP level.

6.8 Residual Risk shall be accepted by appropriate Risk accepting authority (refer 7.4.16 of C-SMS Manual).

6.9 Each hazard along with its consequences, initial risk assessment (with existing risk control), Residual risk (with potential risk control) as carried out in HazID form shall be summarized & documented in an objective manner in a HAZLOG register along with action officer for implementation of potential risk control, current status & review date. The guidance for establishment of HAZLOG / Hazard register is provided in attachment AAI-SAF-108 of C-SMS manual.

6.10 DGCA has developed a Hazard log template (HAZLOG register). (Refer DGCA SSP Division Circular No. 1 of 2012).

6.11 Aviation Safety Directorate, CHQ has simplified the DGCA template and modified HAZLOG template (with a sample example) is appended to this circular. All AAI managed airports / ANS unit shall use the given template for compiling all hazards present in the system. The template shall be maintain regularly by logging all active hazards of the airport along with it's analysis.

6.12 Each aerodrome / ANS location must establish a centralized HAZLOG / Hazard register.

6.13 The safety manager is responsible for establishment and management of HAZLOG / Hazard register.

6.14 Continuous compilation and formal management of hazard related knowledge become "Safety library" of an organization.

6.15 Centralized HAZLOG / Hazard register shall be reviewed every 6 (six) month by Aerodrome / ANS location.

7 Clarifications

Requests for clarifications to this circular may be addressed to Executive Director (Aviation Safety) at edas@aai.aero or forwarded to following address:

Directorate of Aviation Safety
Airports Authority of India
Rajiv Gandhi Bhavan, Block – C
Safdarjung Airport
New Delhi - 110003

N. G. CHIKKATHIMMAIAH
Executive Director (Aviation Safety)

Distribution: As per standard list

HAZLOG TEMPLATE (with example)

ORIGINATOR(STATION)	HAZARD NO.	SOURCE	DATE OF RECORD IN HAZLOG	FUNCTIONAL AREA(UNIT)	HAZARD DESCRIPTION	WORST CONSEQUENCE	EXISTING RISK CONTROL	INITIAL RISK			POTENTIAL RISK CONTROL	RESIDUAL RISK			ACTION OFFICER FOR IMPLIMENTATION OF POTENTIAL RISK CONTROL (NAME & DESG)	STATUS OF RISK CONTROL (PDC) OR COMPLETION	REVIEW PERIOD
								PROBABLITY	SEVERITY	TOLERABILITY		PROBABLITY	SEVERITY	CLASS			
Calicut airport	HAZ/VOCL/OPS/0001	Safety assessment of RWY strip	11/9/2012	OPS.(GFS)	Inadequate RWY strip of RWY 08 & 26. (75m either side of RWY C/L)	Runway Excursion & Aircraft damage	Available RWY strip maintained with reqd. grading and clear of obstructions. Both RWYs are Instrument RWY provided with ILS.	4 (Occasational)	C (Major)	4C (Class-II)	1. Land acquisition fm State Govt. 2. SOP for regular Rubber deposite removal progarm & RWY friction coefficient measurement.	2 (improbable)	D (Minor)	2D (Class IV) (Residual risk accepted by APD)	1. APD, Calicut (for land) 2. Mr. XXXX, DGM (Engg.-Civil) (for SOPs)	1. 31/03/2015 (land acquisition) 2. 30/10/2012 (for SOPs)	31/12/2012