



International Safety Management Systems Standards & Approaches

SAND No. 2011-7095C
Sandia is a multi-program laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States
Department of Energy's National Nuclear Security Administration
under contract DE-AC04-94-OR21400.





International Safety Management Systems

- Definitions
- Purpose
- Safety Concepts
- Standards
 - BS 8800
 - OHSAS 18001
 - ILO-OSH 2001
- Approaches
 - SAICM





Definitions

- **Safety:** “The state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management.” (U.S. Federal Aviation Administration, 2009)
- A Safety Management System (SMS) is a systematic way to identify hazards and control risks while maintaining assurance that these risks are effective.
 - Provides for goal setting, planning, and measuring performance
 - SMS is a business imperative: ethical, legal and financial reasons for establishing a SMS (ICAO, 2009)

Reference: International Civil Aviation Organization (ICAO), Safety Management Manual, 2009;
U.S. Federal Aviation Administration, System Approach for Safety Oversight, 2009





Purpose

- Ever-increasing pace of worldwide trade and economies
- Increase in occupational accidents and diseases
 - Over 1.2 million workers are killed due to work-related accidents and diseases annually
 - ~250 million occupational accidents annually
 - ~160 million work-related diseases annually
- The economic loss is estimated to be 4% of the world gross national product

Reference: International Labour Organisation, 2001






Safety Concepts

- Freedom from hazards
- Zero accidents or incidents?
- Instill safety culture towards unsafe acts and conditions
- Error avoidance
- Regulatory compliance

Reference: International Civil Aviation Organization, Safety Management Manual, 2009





Safety Concepts

- Traditional approach – prevent accidents
 - Focus is on outcomes (causes)
 - Focus is on unsafe acts by operational personnel
 - Assign blame/punish for failure to “perform safely”
 - Address identified safety concerns exclusively
- Traditional approach: WHAT? WHO? WHEN, but **NOT**: WHY? HOW?

Reference: International Civil Aviation Organization, Safety Management Manual, 2009





Evolution of Safety Concepts

- Change in approach to incident causation:
 - 1950s to 1970
 - Technical factors
 - 1970s to 1990s
 - Human factors
 - 1990s to present time
 - Organizational factors

Reference: International Civil Aviation Organization, Safety Management Manual, 2009





Safety Management Standards BS (British Standard) 8800

- BS (British Standard) 8800 (1996)
 - A guide to occupational health & safety management systems
 - Emphasizes good working practices to prevent accidents and ill health
 - Goal is to improve business performance and responsible image
 - Assists in continuous improvement beyond regulatory compliance







Safety Management Standards BS (British Standard) 8800

- Last edition: July 2004
- New and improved annexes cover:
 - Hazardous event investigation
 - Risk assessment and control
 - Integration with other quality and environmental management systems into an overall management system



Safety Management Standards OHSAS 18000

- OHSAS 18000 system specification comprises both OHSAS 18001 and OHSAS 18002.
- Created by leading national standards bodies, certification bodies, and specialist consultancies
- Intent—to remove confusion from the proliferation of certifiable occupational health & safety (OHS) specifications
- OHSAS publishes *The Essential Health and Safety Manual* for purchase.
- Emphasis is on policy and procedures



Safety Management Standards OHSAS 18001

Requirements:

- Identify occupational health and safety (OHS) hazards
- Assess the risks associated with OHS hazards
- Determine the controls necessary to reduce OHS risks to acceptable levels
- Proactive v.s. reactive approach to safety and health hazards



OHSAS 18001 Relationships to ISO

- OHSAS 18001 developed to be compatible with ISO 9001 and ISO 14001
- Facilitates the integration of quality, environmental, and OHS management systems
 - Document and data control
 - Auditing
 - Process controls
 - Record controls
 - Training
 - Corrective and preventive actions





OHSAS 18001 Elements

- **OHS Management Program**
 - Designates responsibility and authority
 - Defines means through which objectives are to be achieved, and timeline for achieving them
 - Must be reviewed at regular, planned intervals
 - Must be amended to address relevant changes in activities, products/services or operating conditions
 - Top management must provide necessary resources



OHSAS 18001 Elements

- **Employee Awareness**
 - Importance of conforming to OHS management system
 - Health & safety consequences of their work activities
 - Individual roles & responsibilities
 - Potential consequences of non-conformance to operating procedures
- Employees should be involved in review of policies/procedures for managing risks and consulted on changes that affect workplace.



Employee involvement is KEY.



OHSAS 18001 Elements

- **Document Control**
 - Document procedures established and maintained
 - Can be readily located
 - Legible, identifiable and traceable
 - Are reviewed periodically and updated if necessary
 - Are available at all locations where the OHS management system operates
 - Documents may be integrated with other corporate documents where appropriate



OHSAS 18001 Elements

- **Records and Reviews**
 - Compliance records
 - Training records
 - Accident Information
 - Inspection, maintenance and calibration records
 - Contractor and supplier information
 - Incident reports
 - Hazard analyses
 - Audit results
 - Management review records





OHSAS 18001 Elements

- **Emergency Situations**
 - Identify potential emergency situations and response measures
 - There must be review of response measures after any incidents occur
 - Emergency response measures must be tested periodically









OHSAS 18001 Elements

- **Audit Program**
 - Determines whether OHS management plan has been properly implemented and maintained and meets policy and objectives
 - Reviews results of previous audits
 - Provides audit information to (top) management
 - Should be conducted by independent (not necessarily external) personnel








OHSAS 18001 Elements

- **Management Reviews**
 - Should be at specified periodic intervals, documented, and cite any need for changes to policy or objectives
 - Should include:
 - Audit results
 - Extent to which objectives are met
 - Confirmation of continued suitability of OHS management system
 - Concerns from any relevant interested parties






OHSAS 18001 Certification

Steps to certification are similar to those for ISO 9001/14001:

- Commit to developing OHSAS 18001 system.
- Develop plan for implementation.
 - Understand legal/regulatory requirements.
 - Identify risks/hazards, and controls for them.
- Implementation and training.
 - Training for management/employees can be done in-house or through consultants.
 - Allow enough time for system to be correctly/effectively implemented.
- Once system is in place, consider options for certification.






OHSAS 18001 Certification

Developing a program can be done with or without consultation:

- **Without consultants:**
 - Literature can be purchased to help guide through the process of designing and implementing the program.
- **With consultants**
 - Some consultants perform initial set-up, through development and implementation and certification.
 - Other consultants offer preliminary audits to diagnose implementation problems, and perform audits post-certification to monitor progress.



International Labour Organisation (ILO) OSH 2001

OSH2001 Guidelines on Occupational Safety and Health Management Systems

- **Voluntary guidelines**
- **Do not require certification**
- **Basic Components**
 - Safety Management Policy
 - Organization
 - Planning and Implementation
 - Evaluation
 - Action for Improvement



International Labour Organisation (ILO) OSH 2001

- **Policy statement-** state requirements in terms of resources, management commitment, and define OSH targets
- **Organizing** – describe organizational structure, responsibilities and accountabilities
- **Planning and Implementation** – define regulations and standards that are applicable and how they will be implemented
- **Evaluation** – define how OSH performance measured and assessed
- **Continuous improvement processes described**



Strategic Approach to International Chemical Management (SAICM)

- Adopted by the International Conference on Chemicals Management (ICCM), 2006
- Policy framework to foster safe management of chemicals
- Multi-sectoral, multi-stakeholder
- Goal: ensure that by 2020, chemicals are produced and used in ways that minimize the significant adverse impacts on the environment and human health (ICCM, 2006)

<http://www.saicm.org/index.php?ql=h&content=home>





Strategic Approach to International Chemical Management (SAICM)

- **Quick Start Programme:**
 - A voluntary, time-limited trust fund for developing countries, and economies in transition
- **Priorities:**
 - Development or updating of national chemical profiles
 - Identify capacity needs for sound chemicals management
 - Development and strengthening of national chemicals management institutions, plans, programmes and activities
 - Enable SAICM by integrating the sound management of chemicals in national strategies



Why Implement Safety Management Standards?

- Safety of workers
- Quality of product
- Increased efficiency
- Business image



Integrated Management Systems

- Integrated management systems combine quality, environmental *and* OHS management systems
- Integration may vary from:
 - Increasing compatibility of system elements, to
 - Embedding an integrated management system (IMS) in a culture of learning and continuous improvements
- Some national integrated management standards are being developed (ISO (2008). Integrated Use of Management System Standards).
- For business sustainability an IMS needs to include the entire product chain and all stakeholders
- Jorgensen, et al. (2006). *Integrated management systems – three different levels of integration*. Journal of Cleaner Production, 14(8), 713-722.

