PROVISION OF TRAINING ON SAFETY MANAGEMENT SYSTEM FOR CSB

Safety performance measurement

- Safety Inspection Programme
- Incident/accident investigation
- Safety Audit
- Common barriers in developing and implementing SMS

***Element 6*(CSB core element)**

Safety Inspection programme

視察計劃

◆ **A programme of inspection identify hazardous conditions and for the rectification of any such conditions at regular intervals or as appropriate**

- Develop a safety inspection policy
- Planning for inspection programme
- Planning & Developing of inspection programme
- Organizing
- Implementing
- Review

Framework **SM Regulation**	**Safety Management System Requirements (Code of Practice On Safety Management)**	***ISR Checklist or*** **questionnaire Item Number**
Safety Inspection Program	**A program for the inspection of hazardous conditions** ☐Establish safety inspection program and records kept for all aspects which may impinge on safety ☐Supplement with inspection forms or checklists ☐Satisfy any specific legal requirements Participation of senior management ☐Suitable schedules and performance standards ☐Record for follow-up for a period of not less than 3 year ☐Checking the remedial action and monitored by senior management ☐Prompt evaluation and corrective action ☐Periodic analysis to identify the trends	

Goals

- To identify potential problems that are not anticipated during the design or planning stage
- To identify equipment deficiencies
- To detect improper worker actions, malpractice, etc. and conditions that violate in-house safety rules
- To identify changes in processes or materials
- To identify inadequacies in remedial actions
- To provide management with performance indication
- To demonstrate management commitment

Inspection element

- Regular and planned checks of the workplace are essential to make sure risk controls are effective & new hazards haven't arisen.
- Checks include site inspections, maintenance of plant & equipment & tests of the work environment.
- Corrective actions should be identified, recorded and action to maintain a safe working environment
- **Make reference to the risk assessments to see whether the hazards identified are under close monitoring by safety inspection.**

Content

- There is a procedure which covers inspection, testing & corrective action
- There are checklists & other forms to support inspection, testing & corrective actions
- There is an inspection & testing schedule
- People who undertake inspections & testing are qualified
- Identified problems are recorded & appropriate corrective action is developed
- Corrective action is reviewed to ensure it has been done in a timely manner & has been effective
- Inspection & testing reports are provided to relevant managers
- Inspection & testing records are kept

Planning for inspection programme

The inspection programme should satisfy any specific legal requirements and reflect the risk priorities. A planned inspection programme should include:

- A well-designed inspection form or checklist to help plan and initiate remedial action by requiring those doing the inspection to rank any deficiencies in order of importance
- Checklists will assist inspection of plant and work process systematically. It can be used as a prompt to foresee all the possible situations or events which could lead to harm from plant or associated systems of work. The checklists should cover the plant in the workplace, the systems of work associated with plant and the kinds of things to consider or look for when inspecting the plant in the workplace.

Planning for inspection programme

- Summary lists of remedial action with names and deadlines to track progress on implementing improvements
- Line management and supervisors should follow up inspection reports to make sure not only the problems but also their underlying causes have been corrected. In some cases, intermediate steps can help prevent an accident if a permanent solution of the problem will take time
- Periodic analysis of inspection forms to identify common features or trends which might reveal underlying weaknesses in the system
- Don't forget to consider systems of work as well as the plant itself.
- Information to aid judgements about any changes required in the frequency or nature of the inspection programme

Planning and developing of a safety inspection programme

A suitable inspection programme should take all risks into account. It should be proportional to the hazard profile. An inspection should concentrate on areas where it is likely to produce the greatest benefit and lead to the greatest control of risk. Key risk control systems and related workplace precautions should therefore be monitor in greater detail or more often than low-risk systems or management arrangements.

- Who should inspect?
- How to inspect?
- The safety inspection technique
- What to inspect?

Inspection programme

Who should inspect?

- Set up an inspection programme involving appropriate levels of staff and allowing adequate time/resources
- The site rules and the agree safe working methods incorporated in the project safety plan will be the basis of the inspection programme
- Sub-contractors and others working on the construction works should be monitored with regard to their compliance with the requirements of the plan and relevant statutory provision

Inspection programme

Who should inspect?

- In most organization, the line managers and supervisor are responsible for conducting safety inspections as well as for overseeing the day-today activities in their assigned work areas. This arrangement is usually adopted because no one knows the equipment, the employees, or the situation better than the manager and supervisor.
- To reinforce the inspection, a common approach is for the safety office to conduct plant or departmental/site safety inspections weekly by safety supervisor and monthly by safety officer.
- The identified problems should be discussed in the safety committee meeting.

Inspection programme

How to inspect?

- The key to successful inspections is the inspection checklist, which provides a systematic approach to the task. Critical items can be identified through risk assessment and checklist can easily be prepared with some planning and basic knowledge.
- Good sources of information might be:
  - Relevant legislation dealing with safety and health at work, which is the minimum standards to follows
  - Codes of practice and guidance materials issued by the Labour Department on safety and health at work
  - International standards
  - The best trade practice and trade performance
  - People working with the plant
  - Manufacturer's instructions and advice
  - Injury or incident information, hazard alerts from risk assessment and other relevant reports from periodic status review and safety audit/review

Inspection programme

How to inspect?

- The inspection task should be divided into manageable lots.
  - Different locations (e.g. factory, grounds, office, laboratory, showroom)
  - Different categories of plant (e.g. electronics, appliance, machinery and fixed plant, mobile plant, vehicles, power tools)
  - Different functions or processes (e.g. administration, cooking, washing, cleaning, moving, carrying, printing, binding, stamping, cutting)
- Staff is a good source of information about hazards because of their day-to-day experience and they should be encouraged to be involved. All relevant employees should be included – those who inspect or maintain the plants as well as those who use or operate it.

The safety inspection technique

- The manager or supervisor upon entering the inspected workplace, he or she should **stop, look, and Listen** for just 5 seconds. During this brief time period, he or she should concentrate entirely on the actions of the people in the work area and ask three questions:

1. **Are they doing the job right?**
   - Right from an efficiency standpoint?
   - Right from a quality standpoint?
   - Right from a cost standpoint?
   - Right from a safety and health standpoint?
2. **Could they get injured or cause damage to property?**
3. **Is there anything different?** Differences in day-to-day, routine job performance are the major contributing factor in accidents and personal injuries.

The safety inspection technique

What to inspect?

- Environmental factors (illumination, dusts, gases, sprays, vapours, fumes, noise)
- Hazardous supplies and materials (explosive, flammable, acids, caustics, toxic materials or by-product)
- Production and related equipment (mills, shapers, presses, lathes)
- Power source equipment (steam and gas engines, electrical motors, pneumatic driven)
- Electrical equipment (switches, fuses, breakers, outlets, cables, extension and fixture cords, grounds, connectors, connections)
- Hand tools (wrenches, screwdrivers, hammers, power tools)
- Personal protective equipment (hard hats, safety shoes, respirators)
- Personal service and first aid facilities (drinking fountains, wash basins, eyewash fountains, first aid supplies,

The safety inspection technique

What to inspect?

- Fire protection and extinguishing equipment (alarms, water tanks, sprinklers, extinguishers, hydrants, hoses)
- Walkways and roadways (raps, docks sidewalks, walkways, aisles, vehicle ways)
- Elevators, electric stairways, and manlifts (controls, wire ropes, safety devices)
- Working surfaces (ladders, scaffolds, cat-walks, platforms, gondolas)
- Materials handling equipment (cranes, dollies, conveyors, hoists, forklifts, chains, ropes, slings)
- Transportation equipment (automobiles, railroad car, trucks, front-end loaders, motorized cards and buggies)
- Warning and signaling devices (sirens, crossing and blinker lights, warning signs)

The safety inspection technique

What to inspect?

- Containers (scrap bins, disposal receptacles, carboys, barrels, drum, gas cylinders, solvent cans)
- Storage facilities and areas, both indoor and outdoor (bins, racks, lockers, cabinets, shelves, tanks, closets)
- Structural openings (windows, doors, staircases, sumps, shafts, pits, floor openings)
- Buildings and structures (floors, roofs, walls, fencing)
- Grounds (parking lots, roadways, and sidewalks)
- Loading and shipping platforms

Organizing

- The inspection task group in coordinating safety inspections is to ensure that effective inspections are conducted in order to achieve a safe and healthful working environment.
- Some activities to consider are the following:
  - Routine review all statistics pertaining to the effectiveness of safety inspections
  - Highlight repeat problem items and problem items not properly corrected at the safety committee meetings
  - Perform analyses to determine the cause or causes of repeat items on safety inspections. Suggest ways to eliminate the causes of these items, such as introducing improved engineering controls, improved employee safety training programmes, and improved enforcement of in-house safety rules
  - Emphasize to operating groups the importance of maintaining equipment properly and of ensuring that safe working practices and procedures are followed

Implementing

Clearly written reports must follow each inspection. Reports should specify the name of the department or area or site, date and time of inspection, specific hazards found, recommended actions or corrections, and date by which the problem should be resolved.

Effectiveness of Inspection

- Routine review all statistics
- Highlight repeat problem items at the safety committee meetings
- Perform analyses to determine the causes of repeat items
- Emphasize the important of maintaining equipment properly and following the safe working practices and procedures

Follow-up

- Promptly corrected.
- Visit the area where the inspection was performed and have the supervisor (s) in charge give evidence of the corrective action taken.

General health and safety checklist

Housekeeping

- Work areas free from rubbish & obstructions
- Surfaces safe and suitable
- Free from slip/trip hazards
- Floor openings covered
- Stock/material stored safely

AISLES

- Unobstructed and clearly defined
- Adequate lighting
- Vision at corners
- Wide enough

General health and safety checklist

Electrical

- No broken plugs, sockets, switches
- No frayed or defective leads
- Power tools in good condition
- No work near exposed live electrical equipment
- Tools and leads inspected and tagged
- No strained leads
- No cable-trip hazards
- Switches/circuits identified

- Lock-out procedures/danger tags in place
- Earth leakage systems used
- Start/stop switches clearly identified
- Switchboards secured
- Appropriate fire fighting equipment

General health and safety checklist

Lighting

- Adequate and free from glare
- Lighting clean and efficient
- Windows clean
- No flickering or inoperable lights
- Emergency lighting system

Stairs, steps and landings

- No worn or broken steps
- Handrails in good repair
- Clear of obstructions
- Adequate lighting
- Emergency lighting
- Non-slip treatments/treads in good condition
- Kick plates where required
- Clear of debris and spills
- Used correctly

General health and safety checklist

Fire Control

- Extinguishers in place
- Fire fighting equipment serviced/tagged
- Appropriate signing of extinguishers
- Extinguishers appropriate to hazard
- Emergency exit signage
- Exit doors easily opened from inside
- Exit path ways clear of obstruction
- Alarm/communication system – adequate

- Smoking/naked flame restrictions observed
- Minimum quantities of flammables at workstation
- Flammable storage procedures
- Emergency personnel identified and trained
- Emergency procedures documented – issued
- Emergency telephone numbers displayed
- Alarms tested
- Trial evacuations conducted
- Personnel trained in use of fire fighting equipment

General health and safety checklist

Hazardous Substances

- Stored appropriately
- Containers labeled correctly
- Adequate ventilation/exhaust systems
- Protective clothing/equipment available/used
- Personal hygiene – dermatitis control
- Waste disposal procedures

- Material safety data sheets available
- Chemical handling procedures followed
- Chemical register developed
- Appropriate emergency/first aid equipment – shower, eye bath, extinguishers
- Chemical signing displayed

General health and safety checklist

Manual Handling

- Mechanical aids provided and used
- Safe work procedures in place
- Manual handling risk assessment performed
- Manual handling controls implemented

Workplace Ergonomics

- Workstation and seating design acceptable
- Ergonomic factors considered in work layout and task design
- Use of excessive force and repetitive movements minimised
- Appropriate training provided

General health and safety checklist

First Aid

- Cabinets and contents clean and orderly
- Stocks meet requirements
- First aiders names displayed
- First aiders location and phone numbers
- Qualified first aider(s)
- Record of treatment and of supplies dispensed

Personal Protection

- Employees provided with PPE
- PPE being worn by employees
- Sun cream and sunglasses provided

General health and safety checklist

Material Storage

- Stacks stable
- Heights correct
- Sufficient space for moving stock
- Material stored in racks/bins
- Shelves free of rubbish
- Floors around stacks and racks clear
- Drums checked
- Pallets in good repair
- Heavier items stored low
- No danger of falling objects

- No sharp edges
- Safe means of accessing high shelves
- Racks clear of lights/sprinklers

Amenities

- Washrooms clean
- Toilets clean
- Lockers clean
- Meal rooms clean and tidy
- Rubbish bins available – covered
- Correct signage at access points

General health and safety checklist

Ladders

- Ladders in good condition
- Ladders not used to support planks for working platforms
- Correct angle to structure 1:4
- Extended 1.0 metre above top landing
- Straight or extension ladders securely fixed at top
- Metal ladders not used near live exposed electrical equipment

Public Protection

- Appropriate barricades, fencing, hoarding, gantry secure and in place
- Signage in place
- Suitable lighting for public access
- Footpaths clean and free from debris
- Dust and noise controls in place
- Site access controlled
- Traffic control procedures in place
- Public complaints handled

The inspection programme should cover:

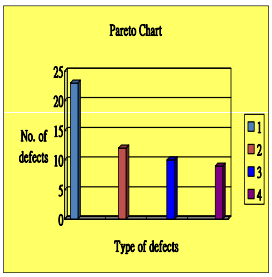
- **Staff:** Medicals and health surveillance; protective clothing
- **Emergency Equipment:** First aid, fight fighting, emergency escape
- **Plant/Equipment** including mobile plant and electrical installations: Statutory and routine inspections/tests/examinations
- **Place of work**: Statutory notices; emergency exits; means of access; excavation; scaffolds; working platforms; floor/staircase edges; confined space; places near or adjacent to water; noise; fume; dust; contamination; exposure to wind, rain
- **Material:** material handling; manual handling; transporting, storing and using hazardous substances.
- **Task:** Permits to work; safe working procedures; safe work method statements; lifting etc.

Safety inspection data analysis

- The workplace is never static and there can be the potential for deviations from work routines. For this reason it is necessary to monitor the workplace, to gather information about potential hazards and to have processes in place to act on the information gathered.
- Statistical process control is used and reduce variation around requirements for all safety activities and processes. In statistical process control, work outputs and results are recorded graphically and once trends are identified, either the tolerances can be made more stringent or adjustments can be made to the work process. The goal of using would be to establish a controlled, accident-free environment.

Statistical Analyze and Control the Inspection Data

- Pareto chart - used to rank problems or causes so that priorities for analysis or action can be determined. The first type of injury is the largest and should be the top priority

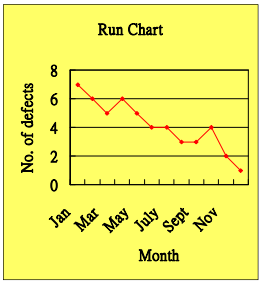


Pareto 80/20 Rule

- 80% of accidents are the result of 20% of activities.
- Targeting the most dangerous 20% of accidents and preventing these allows more effective use of time.

Trend Analyze and Control the Accidents

- **Run (trend) chart which shows the data or results of a process plotted over a period of time.**



Analysis

1. Identify the problems and barriers at each step in the system.

For each box and diamond, write all the problems that have arisen or can arise in carrying out the step. What stops the step being carried out efficiently and effectively? What would the customers of this system (identified earlier) say were the problems and barriers?

2. Determine whether all steps in the system are essential.

Are there any unnecessary steps or tasks? How could the steps better meet the customers' needs?

3. Identify the sources of the problems and barriers.

There are some useful techniques such as used a 'fishbone' diagram.

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Element 9(CSB core element)

Accident/incident investigation

意外/事故調查程序

◆ **to find out the cause of any accident or incident and to develop prompt arrangement to prevent recurrence**

- Policy
- Accident/incident investigation/reporting programme
- Accident Data Analysis
- Reviewing and corrective actions

Framework SM Regulation	Safety Management System Requirements (Code of Practice On Safety Management)	*ISR Checklist or* questionnaire Item Number
Accident/Incident Investigation	**Reactive monitoring system** ☐The need to report defined events (incidents, accidents etc) is known to and understood by employees ☐A formalized procedure exists for reporting and is include in safety plan ☐Management has a system to check on reporting rate and correction ☐Responsibility for recording incident/accident and maintaining records has been allocated ☐Responsibility for investigation/analysis of incidents/accidents has been allocated ☐Recording of investigation including responsibility for follow-up action ☐Following-up of the progress of the implementation of recommendations Statistical trend analysis	

Accident Reporting and Analysis

1. Objectives of accident reporting are:

- **To achieve uniformity and efficiency in the information gathering system on all accident occurrence**
- **To establish the facts of each accident in order to analyse the causes**
- **to enable an efficient control system to be established**
- **to facilitate the administration of all claims for compensation**

Reporting of Accidents/incidents

2. Legal Responsibility

- **Under Regulation 17 of the Factories and Industrial Undertakings Regulations- report of accidents resulting in death or incapacity.**
- **Under Regulation 18 of the F& IU Regulations - reporting of dangerous occurrences**
- **Section 47 of the Mining Ordinance.**
- **Section 15 of the Employees' Compensation Ordinance.**

Reporting of Accidents/incidents

- **Under section 13 of Occupational Safety and Health Ordinance- person responsible for workplace to notify accidents and other matters.**
- **Under section14 of OSH Ordinance -Occupier of relevant premises to report dangerous occurrence.**
- **Under section 15 of OSH Ordinance - Medical practitioner to notify occupational disease.**

Employees' Compensation Ordinance (CAP.282) Section 15

- **Form2 - Notice by employer or the death of an employee or of an accident to an employee resulting in death or incapacity.**
- **Form 2A - Notice by employer of the death or incapacity of an employee due to occupational disease.**
- **Form 2B - Notice by employer of an accident to an employee resulting in incapacity for a period not exceeding 3 days.**

Accident reporting

3. The system of reporting should include:
   - Administrative procedures for systematically recording all accidents and investigation
   - The provision and use of a detailed accident form
   - The reporting of every known injury, whether causing incapacity or not
   - The reporting of every accident which caused damage to plant or equipment

Accident reporting

- The taking of immediate remedial action, where appropriate, on reports pending full investigation
- the presenting of copies of reports to all management staff
- The tabling and discussing of reports and the proposed corrective measures at safety committee meetings

Measuring safety performance

It is increasingly recognised that any simple measure of performance in term of accident frequency rate or accident rate alone is not a reliable guide to the safety performance of an organization

Accident rate indices

- **Annual reports of first aid treatments; loss time accidents; reportable accidents; serious injury accidents and fatal accidents**
- **Accident incidence rate**
- **Accident frequency rate**
- **Accident severity rate**

Comparisons

- **Comparison with a perfect or nil norm**
- **comparison with other organisations of like size or industry or other establishments in the group**
- **comparison with one's own past record**

Accident/Incident Investigation

- **Reasons for investigation:**
  - **to prevent recurrence;**
  - **to comply with policies and regulatory requirements;**
  - **to improve a supervisor's management approach**
  - **to maintain employee awareness of the importance of safe, healthy work practices**

Fundamentals of Accident Investigation

1. Accidents are the results of errors and defects usually under the control of line management, consequently, they often represent management failure;
2. The vast majority of all accidents are preventable by management and employees;
3. Accidents cannot be controlled effectively unless the basic accident causes are correctly identified.

Fundamentals of Accident Investigation

4. Effective accident investigators obtain accident facts and use these to identify basic causes for purpose of analysis and development of control measures;
5. Line supervisors must be properly trained and motivated by upper management to conduct effective accident investigations.

Good accident investigation Procedures

- **yield information needed to :**
  - **determine injury rates**
  - **identify trends and problem areas**
  - **permit comparisons**
  - **safety legal requirements**
- **identify the basic causes that contributed directly, or indirectly, to each accident**

Good accident investigation Procedures

- **Identify deficiencies in the production and management system that permitted the accident to occur**
- **suggest specific corrective action alternatives for the management system**

Causes Not Blame

If attempts are made to apportion “blame”, people might otherwise provide useful information will simply become defensive.

WHY MEASURE PERFORMANCE?

- *You can't manage what you can't measure’ – Drucker*
- *‘If you don’t know where you are going, chances are you will end up somewhere else’ - Yogi Berra*

- Measurement is an accepted part of the ‘plan-do-check-act’ management process.
- Measuring performance is as much part of a health and safety management system as financial, production or service delivery management.
- The HSG 65 framework for managing health and safety, shows where measuring performance fits within the overall health and safety management system.

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Key actions in measuring performance effectively

Top Management

- Demonstrate commitment to the process.
- Ensure that systems are in place to report performance upwards so that as leaders or directors, can review and be assured that legal compliance is achieved and maintained.
- Make certain there is a process in place to report serious incidents upwards immediately.
- Receive and review reports at regular intervals.
- Question results and ensure that action is planned to tackle poor performance and ensure the system uses to manage safety and health works.

Key actions in measuring performance effectively

Middle and line Management

- *Think about who will monitor what*
- *Decide how often monitoring will take place*
- *Plan what action that will take if measure goes up or down*
- *Use performance measurement results*
  - To improve health and safety performance.
  - To learn from human and organisational failures.
  - To share lessons learned within your own organisation and with other organisations.
- *Review safety performance measures every so often against safety policy*
- *For workplaces with major-accident hazards, focus on performance measures for critical activities or plant*

Key actions in measuring performance effectively

Employees consultation and involvement

- Involve workforce in setting and monitoring safety performance measures. Employees may have important information as to which measures make the difference when it comes to risk.
- Involve everyone in the monitoring process. Encourage employees to monitor their own work area, reporting any issues they observe.
- Make reports available to everyone within the organisation.

Using Safety Performance Indicators to drive OHS activities

The systematic management of OSH

- 'Systematic approach' can take many forms but usually consists of a number of key elements that together are often referred to as safety management system (SMS). There are many variations of SMS in use, but all have the following principles:
  - commitment and policy
  - planning
  - implementation
  - measurement and evaluation, and
  - review and improvement.

Examples of performance indicators against each of the OSH management system core categories

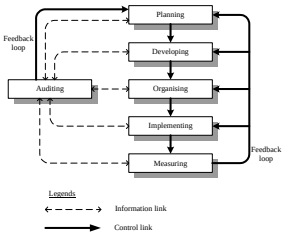
SPI CATEGORY	SPI IN THIS CATEGORY MEASURE	PERFORMANCE INDICATORS	HOW TO MEASURE
COMMITMENT AND POLICY	Demonstrated commitment to improve OSH performance.	☐ Evidence of OSH policy statement signed by CEO ☐ Frequency and quality of OSH reporting by or to Senior Management ☐Senior managers' performance appraisals include OSH ☐ Percentage of workforce and contractors covered by consultation processes and OHS representation ☐ Rating of effectiveness of employee participation in OSH management	Employee Questionnaire/ survey (Safety Climate Index) Examination of records
PLANNING	Procedures established to eliminate workplace injury and disease	☐Operating procedures are developed and relevant ☐The extent to which an organisation requires risks to be managed using a process of hazard identification, risk assessment and control ☐ Extent to which health and safety information is accessible to employees ☐ Extent to which purchasing guidelines and contracts include specific health and safety requirements (for the delivery of the goods or services)	Employee Questionnaire/ survey (Safety Climate Index) Examination of records

SPI CATEGORY	SPI IN THIS CATEGORY MEASURE	PERFORMANCE INDICATORS	HOW TO MEASURE
IMPLEMENTATION	Capability and support mechanisms that are necessary to achieve OSH objectives and targets.	☐ Percentage of workplace inspections conducted over a specified timeframe ☐ Percentage of high risks identified over a specified timeframe ☐ The proportion of items identified through safety walks and inspections that are repeat items measured over a specified timeframe ☐ The proportion of reported incidents that do not result in injury compared with those that do, over a specified timeframe ☐ Percentage of planned management visits conducted over a specified timeframe ☐ Percentage of managers and employees that have received OSH training (eg. induction, job-specific, hazard management, emergency procedures)	Observation – walk through inspections/audits Examination of hazard reports Examination of hazard logs Review of maintenance log Analysis of accident and incident reports
MEASUREMENT AND EVALUATION	The extent to which workplace health and safety is monitored and evaluated so that issues can be identified and corrective action taken.	☐ The extent to which health and environmental monitoring is undertaken and records are maintained and evaluated ☐ Extent to which accident and incident records are maintained and evaluated to identify trends ☐ Extent to which corrective action is taken to address identified issues	Employee Questionnaire/ survey Examination of records
REVIEW AND IMPROVEMENT	The effectiveness of the OSH Management system, and its continuing suitability.	☐ Percentage change in internal or independent OSH management system audit over a specified period of time	Management system audits Examination of records

Learn from experience - audit

- Audits, by your own staff or outsiders, complement monitoring activities by looking to see if your policy, organisation and systems are actually achieving the right results.
- They tell you about the reliability and effectiveness of your systems. Learn from your experiences. Combine the results from measuring performance with information from audits to improve your approach to health and safety management.

Safety Management Model HK



Auditing is one of the six safety processes of the management model. It is a critical process in that it contributes to management control of the other processes.

A sound safety management audit programme will improve the effectiveness of an entire safety management system.

FACTORIES AND INDUSTRIAL UNDERTAKINGS (SAFETY MANAGEMENT) REGULATION

- Gazette Number: L.N. 21 of 2002 Section: 13 Heading: **Appointment of registered safety auditor to conduct safety audit**

1) A proprietor or contractor specified in Part 1 or 3 of Schedule 3 shall appoint a **registered safety auditor** to conduct a safety audit in relation to the relevant industrial undertaking.
(2) Subject to subsection (3), the proprietor or contractor referred to in subsection (1) shall ensure that safety audits are conducted-
(a) where the relevant industrial undertaking involves construction work, not less than once in each 6 months period beginning with the commencement of this section (or, where the undertaking comes into existence after that commencement, beginning with the day on which it comes into existence) but, in any case, not later than 6 months after the last safety audit report was submitted under section 15 in respect of the undertaking;
(b) in any other case, not less than once in each 12 months period beginning with that commencement (or, where the relevant industrial undertaking comes into existence after that commencement, beginning with the day on which it comes into existence) but, in any case, not later than 12 months after the last safety audit report was submitted under section 15 in respect of the undertaking.

FACTORIES AND INDUSTRIAL UNDERTAKINGS (SAFETY MANAGEMENT) REGULATION

- Gazette Number: L.N. 21 of 2002 Section: 14 Heading: **Facilities to be provided by proprietor or contractor for purposes of safety audit**

The proprietor or contractor who has appointed a registered safety auditor to conduct a safety audit shall-
(a) provide all such assistance, facilities and information as may be necessary for the audit; and
(b) if the auditor is an employee of the proprietor or contractor, as the case may be, ensure that the auditor is not required to carry out other work of a nature or to the extent that would prevent the efficacious conduct of the audit.

FACTORIES AND INDUSTRIAL UNDERTAKINGS (SAFETY MANAGEMENT) REGULATION

- Gazette Number: L.N. 21 of 2002 Section: 15 Heading: **Submission of safety audit report**

(1) A registered safety auditor shall submit a safety audit report-
(a) not later than 28 days after completing the audit; and
(b) to the proprietor or contractor who appointed him.
(2) A registered safety auditor (including a former registered safety auditor) shall keep a copy of a safety audit report submitted under subsection (1) by him for a period of not less than 5 years after so submitting the report.

FACTORIES AND INDUSTRIAL UNDERTAKINGS (SAFETY MANAGEMENT) REGULATION

- Gazette Number: L.N. 21 of 2002 Section: 16 Heading: **Action to be taken on safety audit report**

1) The proprietor or contractor to whom a safety audit report has been submitted under section 15 shall-
(a) read and countersign the report, and record the date of his countersignature, as soon as practicable after receiving the report;
(b) if the report contains recommendations for improvements to the safety management system to which it relates-
(i) draw up a plan for the improvements within 14 days after receiving the report; and
(ii) implement the plan as soon as is practicable;
(c) if a plan referred to in paragraph (b) is drawn up, submit a copy of the report together with a copy of the plan to the Commissioner within 21 days after receiving the report; and
(d) keep a copy of the report and the plan, if any, for a period of not less than 5 years after the date of countersignature referred to in paragraph (a).
(2) The Commissioner may request in writing a registered safety auditor to submit to him a copy of a safety audit report prepared by the auditor.
(3) A registered safety auditor the subject of a request under subsection (2) shall comply with the request not later than 21 days after receiving the request.

FACTORIES AND INDUSTRIAL UNDERTAKINGS (SAFETY MANAGEMENT) REGULATION

- Gazette Number: L.N. 21 of 2002 Section: 21 Heading: **Submission of safety review report**

(1) A safety review officer shall submit a safety review report-

(a) not later than 28 days after completing the review; and
(b) to the proprietor or contractor who appointed him.

(2) A safety review officer (including a former safety review officer) shall keep a copy of a safety review report submitted under subsection (1) by him for not less than 3 years after so submitting the report.

FACTORIES AND INDUSTRIAL UNDERTAKINGS (SAFETY MANAGEMENT) REGULATION

- Gazette Number: L.N. 21 of 2002 Section: 22 Heading: **Action to be taken on safety review report**

(1) The proprietor or contractor to whom a safety review report has been submitted under section 21 shall-

(a) read and countersign the report, and record the date of his countersignature, as soon as practicable after receiving the report;
(b) if the report contains recommendations for improvements to the safety management system to which it relates-

(i) draw up a plan for the improvements within 14 days after receiving the report; and
(ii) implement the plan as soon as is practicable;

(c) if a plan referred to in paragraph (b) is drawn up, submit a copy of the report together with a copy of the plan to the Commissioner within 21 days after receiving the report; and
(d) keep a copy of the report and the plan, if any, for a period of not less than 5 years after the date of countersignature referred to in paragraph (a).

CODE OF PRACTICE ON SAFETY MANAGEMENT

- The Factories and Industrial Undertakings (Safety Management) Regulation [hereinafter called "the Safety Management Regulation"] passed on 24 November 1999.
- Code of Practice on Safety Management [hereinafter called the COP] is a Code of Practice issued by the Commissioner for Labour under section 7A(1) of the Factories and Industrial Undertakings Ordinance (Cap. 59).

"safety audit" means an arrangement for -

(a) collecting, assessing and verifying information on the efficiency, effectiveness and reliability of a safety management system (including the elements specified in Schedule 4 of the Safety Management Regulation contained in the system); and

(b) considering improvements to the system;

CODE OF PRACTICE ON SAFETY MANAGEMENT

A proprietor or contractor specified in Part 1 or Part 3 of Schedule 3 is required by the Safety Management Regulation to develop, implement and maintain in respect of the relevant industrial undertaking a safety management system which contains the **10 elements as stipulated in Parts 1 and 2 of Schedule 4. [Sections 8(1) and 8(3) of** the Safety Management Regulation]

A proprietor or contractor specified in Part 2 or Part 4 of Schedule 3 is required by the Safety Management Regulation to develop, implement and maintain in respect of the relevant industrial undertaking a safety management system which contains the **8 elements listed in Part 1 of Schedule 4. [Sections 8(2) and 8(4) of** the Safety Management Regulation]

Note:

The implementation of the Safety Management Regulation will be reviewed one year after the Regulation has come into force to decide on the appropriate time to bring the remaining 4 elements listed in Part 3 of Schedule 4 into operation.

Safety Elements

Safety policy
1. A safety policy which states the commitment of the proprietor or contractor to safety and health at work.

Organisational structure
2. A structure to assure implementation of the commitment to safety and health at work.

Safety training
3. Training to equip personnel with knowledge to work safely and without risk to health.

In-house safety rules
4. In-house safety rules to provide instruction for achieving safety management objectives

Inspection programme
5. A programme of inspection to identify hazardous conditions and for the rectification of any such conditions at regular intervals or as appropriate.

Hazard control programme
6. A programme to identify hazardous exposure or the risk of such exposure to the workers and to provide suitable personal protective equipment as a last resort where engineering control methods are not feasible.

Accident/incident investigation
7. Investigation of accidents or incidents to find out the cause of any accident or incident and to develop prompt arrangements to prevent recurrence.

Emergency preparedness
8. Emergency preparedness to develop, communicate and execute plans prescribing the effective management of emergency situation

Safety Elements

Evaluation, selection and control of sub-contractors
1. Evaluation, selection and control of sub-contractors to ensure that subcontractors are fully aware of their safety obligations and are in fact meeting them.

Safety committees
2. Safety committees to identify, recommend and keep under review measures to improve the safety and health at work.

Job-hazard analysis
1. Evaluation of job related hazards or potential hazards and development of safety procedures.

Safety and health awareness
2. Promotion, development and maintenance of safety and health awareness in a workplace.

Accident control and hazard elimination
3. A programme for accident control and elimination of hazards before exposing workers to any adverse work environment.

Occupational health assurance programme
4. A programme to protect workers from occupational health hazards.

Safety Management System Audits

- The organisation should establish and maintain a programme and procedures for periodic safety and health management system audits to be carried out to enable a critical appraisal of all the elements of the safety and health management system to be made.
- The purpose of these audits is to ensure the continued suitability, adequacy, and effectiveness of the safety and health management system. The audit process should ensure that the necessary information is collected to allow management to carry out this evaluation adequately.

Audit Protocols

- allocation of resources to the process;
- personnel requirements, including that of the audit team; auditors should have the appropriate training and skills so that they can assess physical, human, and other factors and the use of procedures as well as documents or records wherever possible. Auditors should be independent of the activity being audited and include support from a wider range of specialists if necessary;
- methodologies for conducting and documenting the audits, which may include checklists, questionnaires, interviews, measurement, and direct observation;
- procedures for reporting audit findings to those responsible to facilitate timely corrective action and improvement;
- a system for auditing and tracking the implementation of audit recommendations to include addressing the possible need for changes to safety and health policy, objectives and other elements of the safety and health management system.

Audit Protocols

- The protocol serves as a step-by-step guide to collecting information about activities in the area of safety management system at an organization [Corporate/Project/Sub-contractor]. It might require revisions, or modifications to meet the needs of safety audit objectives.
- Organized to follow a five steps audit process:

1. Planning and preparation for the audit
2. Examine details of the elements of safety management system
3. Assess Strengths and Weaknesses
4. Test and Verify
5. Summarize Audit Findings

Board and Senior Management Commitment to Auditing

For safety and health auditing to be of value, the board of directors of the organisation and its senior management should be fully committed to the concept of auditing and its effective implementation within the organisation. This includes a commitment to consider audit findings and recommendations and to take appropriate action as necessary, within an appropriate time. Senior and line management should recognise that, once they have agreed that an audit should be carried out, it should be completed in an impartial way.

Planning and Managing Safety and Health Management System Audits

Auditor Selection, Competence, and Training

One or more persons may undertake audits. A team approach may widen involvement and improve co-operation. External or internal auditors may be used but preference should be given to internal auditors if the expertise is available. In either case, they should be independent of the part of the organisation or the activity that is to be audited. Auditors need to understand their task and be competent to carry it out. They need to have the experience and knowledge of the relevant safety and health standards and systems they are auditing to enable them to evaluate performance and identify deficiencies. Auditors should be familiar with the requirements set out in any relevant safety and health legislation so that they can identify unsafe behaviour that would not be reflected in the organisation's documents and records. In addition, auditors should be aware of, and have access to standards and authoritative guidance relevant to the work they are engaged in.

Data Collection and Interpretation

The techniques and aids used in the collection of the information will depend on the nature of the audit being undertaken. The audit should ensure that a representative sample of key activities is included in the audit and key personnel should be interviewed. Relevant documentation should be examined.

The value of an audit depends on the experience and knowledge of the auditors and their ability to interpret observations and elaborate on the findings. It is also dependent on the integrity of all parties involved. Wherever possible, checks should be built into the system to help to avoid misinterpretation or misapplication of audit records.

Audit Reporting and Acting on Audit Results

- At the end of the audit, the auditor or audit team should summarise and feed back their initial findings to the manager responsible and, in particular, draw attention to any issues that are so significant that they need immediate action. The audit report should assess overall performance, identify any inadequacies, and make recommendations on action for improvement.
- An action plan of agreed remedial measures should be drawn up together with identification of responsible persons, completion dates, and reporting requirements. Follow-up monitoring arrangements have to be established to ensure satisfactory implementation of the recommendations.

Internal audits and external audits

- Internal audits are conducted by the organisation generally for its own compliance and continuous improvement purposes. External audits are conducted by an independent assessor often to satisfy a third party that the organisation has satisfactory safety systems.
- An external audit will often assess compliance against widely-accepted work health and safety standards and adopt a more rigorous and systematic approach whereas an internal audit entails more flexibility in criteria and methodology to suit the organisation's purpose.

Example of audit question

Financial and physical resources are provided for all aspects of safety management

- Guidance (Audit criteria – standard)
- Notes (evidence to support)
  1. An annual budget based on……
  2. Dissemination of safety and health budget information to safety committee.
  3. Strategic safety planning …….
- Opportunity for improvement

A safety audit of a SMS is separate from a workplace safety inspection program

- Inspections are conducted to defect hazards in the workplace and to check how well risk controls are working for particular activities, process or areas
- Audits look at the procedures and processes that are intended to manage the entire safety and health program, rather than the individual deficiencies and failures identified during inspection

Safety audit and safety inspection are two activities are complementary to each other and are not mutually exclusive

Safety audits generate information for management action

- Audits provide the organization's management with fact-based information that can be used to review SMS effectiveness and plan change that will ensure continual system improvement.
- The information generated will provide evidence of conformance or non-conformance with the audit criteria.
- Safety audit is not designed to provide detailed recommendations for solutions to any identified problem.

Safety audit- Positive Performance Indicators

NOHSC publication (1999a:4):

Positive performance indicators - focus on assessing how successfully a workplace or enterprise is performing through monitoring the processes which should produce good OSH outcomes. Positive performance indicators can be used to measure relevant OSH systems, processes, management and compliance with OSH practices in the workplace. Examples of positive performance indicators include the number of safety audits conducted; the percentage of sub-standard conditions identified and corrected as a result of the ***safety audit****; and the percentage of workers receiving OSH training.*

The role of audit tools in SMS operational effectiveness

Benefits associated with audit tools and the audit process:

- Promotes documentation, facilitating consistency, communication and learning from past mistakes.
- Can alert organisations to hidden OSH problems.
- Can assist organisations to understand the concept of an SMS.

Safety Management Strategies

Reactive (Past)	Proactive (Present)	Predictive (Future)
Responds to events that have already happened, such as accidents and incidents	Actively identifies hazards through the analysis of the organization's process.	Analyses system processes and environment to identify potential future problems

SMS

SMS EFFECTIVENESS: CONDITIONS FOR SUCCESS AND BARRIERS TO PERFORMANCE

Management commitment and consultative arrangements are twin pillars. Without both commitment and participation, health and safety management systems cannot work. (Warwick Pearse, UWS).

Factors contributing to effective SMS	Barriers to effective SMS
Type of System	
Customised to organisation's needs	Off-the-shelf system imposed without modification
Developed with support and involvement of all organisation stakeholders	Imposed by senior management without consultation
Management Commitment	
Strong senior management involvement	Delegation of OHS responsibility to line & Safety management positions
Provision of adequate resources	Inadequate resources
OHS integral to management performance appraisals	Limited accountability mechanisms
Leading by example	Words unsupported by practice
Integration into Management Systems	
All organisational functions incorporate OHS	SMS activities marginalized
Role of Employee Involvement	
All employees encouraged and able to participate	OHS restricted to 'technical' experts Inadequate training of employees in OHS & in consultation
Independent representation of employees encouraged and supported	Selective employee involvement at management's discretion

The factors contributing to effective SMS/audits and the barriers to effective SMS/audits

Factors Contributing to Effective SMS	Barriers to Effective SMS
A. Type of System	
• Customised to organisation's needs • Combination of traditional/Innovative system/safe place/safe people systems (Developed with support and involvement of all organisation stakeholders)	• Imposed by senior management without consultation • Traditional system (Off-the-shelf system imposed without modification)
B. Audits and Audit Tools	
• Appropriately used audits can verify and validate SMS and facilitate continuous improvement • Audit tools are tailored to organisational needs and reflect key OHSMS success factors • Audit processes are robust and auditors are technically competent • Audits are integrated within a comprehensive approach to measurement	• Inappropriately used audits encourage 'paper systems' and an instrumentalist approach to SMS • Quality-style audit processes and inadequate auditor skills limit audit comprehensiveness • Use of audits as the primary measurement tool

Barriers to SMS Success

1. Those barriers which arise from a failure to recognise and act on the necessary conditions for SMS to succeed. These might be called 'system design faults'. They include:
   - Failure to customise systems to organisational needs.
   - Imposition without employee consultation.
   - Weak management commitment, organisation and resourcing.
   - Lack of integration with general management functions and systems.
   - Restricting OSH to technical experts and failing to train and involve employees.

Barriers to SMS Success

2. Inappropriate use of audit tools which can induce system design faults. The term Audit tool was applied to SMS standards and proprietory systems. They have played a significant role in the growing use of SMS and are considered to have a positive impact on SMS effectiveness by organisations to the need for a systematic approach to OSH and, through the documentation process, bringing consistency to the management of OSH.