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# NEBOSH

## INTERNATIONAL GENERAL CERTIFICATE IN OCCUPATIONAL HEALTH AND SAFETY

### Element 4: Health and safety monitoring and measuring

Overseas Industrial Technical Institute  
version 1.3



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# SCOPE OF LEARNING

- ❖ Active and reactive monitoring
- ❖ Investigating incidents
- ❖ Health and safety auditing
- ❖ Review of health and safety performance



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# 4.1 ACTIVE AND REACTIVE MONITORING

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# THE DIFFERENCES BETWEEN ACTIVE AND REACTIVE MONITORING

**a) Active monitoring** - Active monitoring is concerned with checking standards before an unwanted event occurs. E.g. tours, inspections.

The intention is to identify conformance with standards, so that good performance is recognized and maintained; non-conformance with standards, so that the reason for that non-conformance can be identified and corrective action put in place to remedy any shortfall.

**b) Reactive monitoring** – Reactive monitoring is the monitoring of data generated after something has gone wrong and learning from mistake

## Active monitoring methods

**NOTE:- Active/proactive HS monitoring before the event:**

- ▶ Safety Inspection: Help to examine machinery, workplace findings.
- ▶ Safety Sampling: Representative sample to judge compliance, less time-consuming.
- ▶ Safety Survey: Detailed examination of one issue, topic.
- ▶ Safety Tour: by managers, can be used to observe behaviors, too.
- ▶ Health Surveillance: Monitoring worker health.
- ▶ Benchmarking: Comparison to other organizations,.



## Reactive monitoring methods:

### NOTE:- Reactive HS monitoring after the event:

Reactive monitoring is a system of monitoring ,that measures the failure of the standards of performance of H&S after the accident

- ▶ Reactive Monitoring deals with things that went wrong.
- ▶ Reactive monitoring is the analytical views of all performance indicators.
- ▶ Action can be taken only after an accident has happen.
- ▶ Reactive monitoring highlights the areas of concern.
- ▶ Reactive monitoring measures failure.
- ▶ Reactive monitoring collect the data over a period of accidents, incidents, ill health, other unwanted events and situations.
- ▶ It discovers the trends and patterns of the organization



# LAGGING INDICATORS

## Lagging Indicators (What is a lagging indicator?)

Lagging indicators measure a company's H&S performance by tracking accident statistics. They're a record of things that have already happened. Since they record things after the fact, they inform a reactive H&S culture.

### Lagging Indicators

- Low Incidents rate (accident rate), (LTI)
- Low absenteeism,
- Low sickness rates,
- Low staff turnover rate
- Good level of compliance with health and safety rules and procedures,
- No Enforcement Action
- Less complaints about working conditions
- Low Medical Cost





# LEADING INDICATORS

Leading Indicators ( similar approach like Active monitoring ) Leading indicators are proactive, preventative, and predictive measures to identify and eliminate risks and hazards in the workplace that can cause incidents and injuries.

Examples include:

- the percentage of managers & supervisor with OHS training,
- the percentage of workers with H&S training,
- frequency of H&S meetings, ( including safety committee meeting)
- frequency of ergonomic assessments,
- and • Frequency of Risk/ hazard assessment.
- Number of PTW's completed weekly.
- Number of Job Safety Analysis completed weekly.
- Number of Hazard Observation/Near-miss reports weekly.
- Number of H&S Training carried out weekly.
- Number of First Aid Training carried out week







## GROUP SYNDICATE EXERCISE

List the examples of Active and Reactive Monitoring arrangements that could be present in a Workplace.



## 4.2 INVESTIGATING INCIDENTS



## THE DIFFERENT LEVELS OF INVESTIGATIONS: MINIMAL, LOW, MEDIUM AND HIGH

The likelihood and consequence categories as discussed in HSG 245 'Investigating accidents and incidents'

Consequence:

- Fatal:** work-related death;
- Major injury/ill health:** (as defined in RIDDOR, Schedule 1), including fractures (other than fingers or toes), amputations, loss of sight, a burn or penetrating injury to the eye, any injury or acute illness resulting in unconsciousness, requiring resuscitation or requiring admittance to hospital for more than 24 hours;
- Serious injury/ill health:** where the person affected is unfit to carry out his or her normal work for more than three consecutive days;
- Minor injury:** all other injuries, where the injured person is unfit for his or her normal work for less than three days;
- Damage only:** damage to property, equipment, the environment or production losses. (This guidance only deals with events that have the potential to cause harm to people.)



## THE DIFFERENT LEVELS OF INVESTIGATIONS: MINIMAL, LOW, MEDIUM AND HIGH

The likelihood and consequence categories as discussed in HSG 245 'Investigating accidents and incidents'

Likelihood that an adverse event will happen again:

**Certain:** it will happen again and soon;

**Likely:** it will reoccur, but not as an everyday event;

**Possible:** it may occur from time to time;

**Unlikely:** it is not expected to happen again in the foreseeable future;

**rare:** so unlikely that it is not expected to happen again.



## BASIC INCIDENT INVESTIGATION STEPS

- > step one: gathering the information
- > step two: analysing the information
- > step three: identifying risk control measures
- > step four: the action plan and its implementation



# BASIC INCIDENT INVESTIGATION STEPS

## STEP ONE: GATHERING THE INFORMATION

- Interviewing Witnesses,
- Taking Drawings/Photographs,
- Collecting previous Reports,
- Taking measurements, etc.

Using a checklist while gathering the information can be helpful.



# BASIC INCIDENT INVESTIGATION STEPS

## STEP TWO: ANALYSING THE INFORMATION

To analyse something means to look at it from every angle and try to figure out what happened and why. There needs to be a comprehensive review of all the data collected to determine what's necessary and what's lacking. Data collection and analysis are concurrent processes.

The most important part of the investigation is to find the immediate, direct cause of the incident. This is because the same thing could happen again, and steps must be taken to make sure that doesn't happen.

Accidents are caused, at least in the beginning, by unsafe actions by people and/or unsafe conditions with the machines and equipment used, the way people work, or the way control measures are used. Even though there may be a deeper reason for these actions or situations, it is important to find out what exactly caused the problem.



# BASIC INCIDENT INVESTIGATION STEPS

## STEP THREE: IDENTIFYING RISK CONTROL MEASURES

Management must take action on multiple fronts to address underlying and root causes, including:

- altering standard operating procedures by, for instance, requiring installers to submit their work for inspection before passing it off as complete, or double-checking the accuracy of assembly instructions before sending them out.
- Raising standards of training for safety and competence.
- Enhanced management and oversight.
- Fostering an environment where safety is prioritised.





# BASIC INCIDENT INVESTIGATION STEPS

## STEP FOUR: THE ACTION PLAN AND ITS IMPLEMENTATION

Senior management, who have the authority to make decisions and act on the investigation team's recommendations, should be involved at this point of the investigation. A thorough inquiry should result in an action plan for implementing additional risk control measures. The action plan should include SMART objectives, which are Specific, Measurable, Agreed Upon, and Realistic, as well as timeframes.



# BENEFITS OF ACCIDENT INVESTIGATION

- Risks inside the organization
- Adherence to established management structures, processes, regulations, guidelines, or directions  
Determine the underlying and root causes of the accident with management.
- Highlight Human error and mistakes (both skilled and unskilled)  
Aids in identifying the risk in order to prevent a recurrence
- Before the danger appears, permit preventive measures to be taken (it helps to identify the preventive measures, time.)
- Determine what will be needed in the future and when repressive measures are necessary.  
comparison with one's own circumstances and framework.  
aids in coming up with original answers and takes time to rank the actions.  
aids in determining if the organization's ability to control accidents is improving or declining.  
Enhance problem-solving  
Permit ongoing development



## HOW OCCUPATIONAL ACCIDENTS AND DISEASES ARE RECORDED AND NOTIFIED BY THE ORGANIZATION

Various countries have varying definitions of what constitutes an occurrence that must be reported to government-appointed organisations. They are all in agreement that fatal accidents must be reported, and they are most likely the only type that is not underreported. We specified the words used for reportable incidents in an earlier element: Occupational Accident, Occupational Sickness, and Dangerous Occurrence. Chemical splashes causing eye injury, scaffold collapse, and occupational cancer caused by asbestos exposure are typical examples.

ILO has a Code of practice termed as 'Recording and Notification of occupational accidents and diseases' which provides relevant guidelines on recording and notification of Incidents and diseases.



# HOW OCCUPATIONAL ACCIDENTS AND DISEASES ARE RECORDED AND NOTIFIED BY THE ORGANIZATION

## PROVIDING INFORMATION AT THE CORPORATE LEVEL

To ensure that employees can report immediately to their immediate supervisor any situation that they have reasonable justification to believe presents an imminent and serious danger to life or health without fear of retaliation, employers should make arrangements in consultation with employees or their representatives in the enterprise and in accordance with national laws or regulations.

These arrangements must contain-

information from workers, workers' representatives, doctors, and other appropriate people about work-related accidents, diseases, dangerous occurrences and incidents in the workplace, and commuting accidents;

the identification of a competent person, when necessary:

- (i) to receive this information on behalf of the employer and take appropriate action; and
- (ii) (ii) to conduct an appropriate investigation on behalf of the employer, after receiving this information.



# HOW OCCUPATIONAL ACCIDENTS AND DISEASES ARE RECORDED AND NOTIFIED BY THE ORGANIZATION

## RECORDING ARRANGEMENTS

### At the country level

Employers should be required by legislation or regulation at the national level to create and keep records documenting work-related injuries, illnesses, and other potentially hazardous events.

National laws or regulations should specify which data and information must be recorded in order to ensure the systematic collection of all necessary data and information and to provide the methodology for investigating occupational accidents, occupational diseases, dangerous occurrences, and incidents. Standardization of forms is necessary everywhere they are used for this purpose.



# HOW OCCUPATIONAL ACCIDENTS AND DISEASES ARE RECORDED AND NOTIFIED BY THE ORGANIZATION

## RECORDING ARRANGEMENTS

### At the Employer level

In compliance with national laws or regulations, employers must have measures in place to report work-related injuries, illnesses, and events.

Some things to consider for these plans are:

- cooperation in recording procedures where two or more employers engage in activities simultaneously at one worksite; the designation of a competent person to prepare and keep records of all occupational accidents, occupational diseases, commuting accidents, dangerous occurrences and incidents;
- and compliance with national laws and regulations.



# HOW OCCUPATIONAL ACCIDENTS AND DISEASES ARE RECORDED AND NOTIFIED BY THE ORGANIZATION

## NOTIFICATION ARRANGEMENTS

### **At the country level**

There has to be a national law or rule that:

- (i) the details of any work-related injuries, illnesses, or harmful incidents that need to be reported to a government agency, labour inspectorate, insurance company, or other organisation;
- (ii) the date and time of the notification, which should ideally be made by the employer:
  - as soon as feasible following the notification of an industrial accident resulting in death;
  - within a certain time frame for other occupational accidents and disorders;
- (iii) the prescribed standardised notification form to be used for notifying the competent authority, labour inspectorate, insurance institution, or other bodies;
- (iv) that the employer identify a competent person at the enterprise level for notification;
- (v) the obligations, appropriate arrangements, and procedures that enable employers to collaborate in the notification procedure when two or more firms engage in activities at the same workplace at the same time; and
- (vi) the information classification systems that will be used



# HOW OCCUPATIONAL ACCIDENTS AND DISEASES ARE RECORDED AND NOTIFIED BY THE ORGANIZATION

## NOTIFICATION ARRANGEMENTS

### At the Employer level

In accordance with national laws or regulations, the employer, after consulting with the workers and their representatives, should establish procedures inside the business for reporting work-related injuries, illnesses, and harmful events.

Among the internal business arrangements:

- the selection of a knowledgeable individual to draught the necessary notification for submission by the business;
- the identification of who is responsible for providing notice under national law and regulations in situations where two or more employers share a single workplace.





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## 4.3 HEALTH AND SAFETY AUDITING

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## DEFINITION OF THE TERM 'AUDIT'

The organised process of gathering unbiased data on the effectiveness, reliability, and efficacy of the overall health and safety management system and developing plans for remedial action.



## WHY HEALTH AND SAFETY MANAGEMENT SYSTEMS SHOULD BE AUDITED

Assuring that:

- Adequate management arrangements are in place, auditing supports monitoring by evaluating the efficacy of the health and safety management system, often across the entire organisation (although occasionally in defined areas).
- Sufficient workplace safety measures are in place; adequate risk control mechanisms are there, they are put into practise, and they are in line with the organization's hazard profile.



## DIFFERENCE BETWEEN AUDITS AND INSPECTIONS

### Audit

- Examines documents
- Examines procedures
- Interviews workers
- Verifies standards
- Checks the workplace
- Can be a long process
- Usually expensive
- Requires high level of competence

### Inspections

- Checks the workplace
- Checks records
- Usually quick
- Lower cost
- May only require basic competence
- Part of an audit



## Advantages and Disadvantages of external Audit

Advantages	Disadvantages
<ul style="list-style-type: none"><li>• Independent</li><li>• Fresh pair of eyes</li><li>• wider experienced at auditing</li><li>• Experience from different field</li><li>• Recommendations carries weight</li><li>• Up to date with compliance</li><li>• deep analysis</li></ul>	<ul style="list-style-type: none"><li>• Expensive due external</li><li>• More Time-consuming</li><li>• May not understand the business,</li><li>• May influence workers, so get incomplete evidence</li></ul>



## Advantages and Disadvantages of Internal auditing

Advantages	Disadvantages
<p>Cost is lower; auditors are already familiar with the workplace and what is realistic; they can see changes since their previous audit; they take better responsibility for issues discovered; they develop internal competence; the workplace is more relaxed; and they are familiar with both the workplace and the individual</p>	<p>Due to internal team factors, auditors could miss certain concerns. They might also lack industry or legal standard knowledge. Finally, they might lack auditing skills and require training. Since auditors are not unbiased internal influences could have an impact on them.</p>



## BENEFITS / MERIT/ ADVANTAGES / STRENGTH OF CHECKLISTS

- Confirms that every point is covered in written form.
- Quicker and Faster saves time by providing an instant record of findings.
- Permits earlier planning and preparation to enable a planned, methodical examination
- Effective approach decreases the possibility that significant areas or issues will be Overlooked and permits the inspectors to use a standardized methodology.
- Offers a simple technique for assessing
- Tailored and customized strategy for a certain business or industry
- Aids in evaluating in order to spot patterns and trends Consistency
- Permit fresh individuals to participate in the audit or inspection.



## THE AUDIT STAGES

- Notification of the audit and timetable for auditing
- Collection of Data
- Audit Process
- Assessing Situations
- Analysis
- Reports and Action





# 4.4 REVIEW OF HEALTH AND SAFETY PERFORMANCE



## REVIEW OF HEALTH AND SAFETY PERFORMANCE

The term "performance review" is used to define the stage of safety management in which data gathered through monitoring and auditing is evaluated and used to make calls on what needs to be done to ensure continual improvement.



## WHY HEALTH AND SAFETY PERFORMANCE SHOULD BE REVIEWED

The reasons are the following:

- To identify whether the organisation is on target. If not on target, why not?
- To compare actual performance with previously set targets;
- To identify substandard H&S practices & conditions (e.g. by means of workplace inspections)
- To identify trends in relation to different types of accident/ incident (by analysis of relevant incident data)
- to "benchmark" the organisation's performance against that of similar organisations or an industry norm;
  - To identify whether control measures are in use & to assess their effectiveness;



## WHY HEALTH AND SAFETY PERFORMANCE SHOULD BE REVIEWED

The reasons are the following:

- To be able to make decisions on appropriate remedial measures for any deficiencies identified;
- To set priorities & establish realistic targets timescales
- To assess compliance with legal requirements. (Requirement of ISO certification)
- **Learning from experience**
- To be able to provide relevant information a Board of Directors /safety committee with.
- What do we have to change to continually improve?
- It demonstrates management commitment and helps to Improves staff culture and morale.
- It helps to reduce incident rates and improve audit results.



## FACTORS TO BE CONSIDER DURING REVIEWS OF H&S PERFORMANCE

- H&S Objectives (targets / Aims) met or not (e.g. SMART objectives considered)
- Level of relevant Legal compliance and organizational requirements
- Accident and incident data
  - Reports of Safety tours, sampling and inspections
  - Absence and sickness data
- Audit reports
- Achievement of objectives
- Enforcement action
- Actions from Previous management reviews
- Best practice developments
- Results of worker's participation and consultation, Complaints
- Communications and complaints from external sources.
- Monitoring data/records/reports.
- Corrective and preventive actions
- Quality assurance reports
- Assessing opportunities for improvement and the need for change



## WHAT TYPE OF INFORMATION WILL BE COLLECTED DURING THE H&S PERFORMANCE REVIEW ?

- Active monitoring (e.g. Safety Inspection, Tours , Sampling etc.)
- Reactive monitoring
  - Accident/incident/near-miss data
- Training record
- Inspection reports
- Investigation reports
  - Risk assessments
- New guidance
- Issues raised by workers or their representatives
- Checks required by law, eg on lifting equipment and pressure systems



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## END OF SESSION QUIZ

1. 'Audit' and 'Inspection' follows the same process  
(Choose the correct option)

1. True
2. False





## END OF SESSION QUIZ

The term 'Risk' can be represented by which of the following?

(Choose the correct answer)

1. Risk = Likelihood x probability
2. Risk= Likelihood x severity
3. Risk= severity x consequence



## END OF SESSION QUIZ

A 'High Level Investigation' will involve supervisors only as part of the investigating team

(Choose the correct option)

1. True
2. False



## END OF SESSION QUIZ

Do we need to notify and record a fatal accident at the workplace?  
(Choose the correct answer)

1. Yes
2. No



## END OF SESSION QUIZ

Which of the following can help in benchmarking the health and safety management system's performance?

(Choose the correct answer)

1. External Safety Audit
2. Inspection