WORK ENVIRONMENT MONITORING

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AGENDA

• Overview of Work Environment Measurement
• Principle of Industrial Hygiene
• Monitoring Methods
RULE 1070, OSHS
OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL

• Establishes the threshold limit values for toxic and carcinogenic substances and physical agents which may be present in the atmosphere in the work environment.
  • Airborne contaminants
  • Physical agents – noise, illumination
  • General ventilation – Air supply, Air movement
  • Work environment measurement
RULE 1077, OSHS
WORK ENVIRONMENT MEASUREMENT (WEM)

- The employer shall maintain and control the working environment in comfortable and healthy conditions for the purpose of maintaining and promoting the health of his workers.
- WEM shall mean sampling and analysis carried out in respect of the atmospheric working environment for the purpose of determining actual conditions therein.
- WEM shall include temperature, humidity, pressure, illumination, ventilation, concentration of substances and noise.
- The employer shall carry out the WEM in indoor or other workplaces where hazardous work is performed and shall keep a record of such measurement which shall be made available to enforcing authority.
- Safety and health personnel shall have adequate training and experience in WEM.
- The employer shall commission the BWC / OSHC / Regional Offices or other accredited institutions.
EO 307: ESTABLISHING THE OCCUPATIONAL SAFETY AND HEALTH CENTER

Section 2: Powers and Functions

• To monitor the working environment by the use of Industrial hygiene, field and laboratory equipment
LABOR ADVISORY IN THE CONDUCT OF WEM

• If the WEM is conducted by the employer, the LLCO will validate the credentials of the person who performed the WEM and the calibration of the equipment.
• If the WEM is conducted by the accredited WEM provider, the OSHC will validate the reliability of the results.
• Refer to the TLVs in the OSHS in evaluating the results of WEM
ELEMENTS OF INDUSTRIAL HYGIENE

• Anticipation
  • Review of potential risk

• Recognition of WE Hazards
  • Industry/process/materials/environment

• Evaluation
  • Potential hazards, methods, equipment/calibration

• Control Measures
  • Results of measurements/Existing controls/feasible controls
INDUSTRIAL HYGIENIST WORKS WITH...

- Safety Officer/Practitioner/PCO
- Occupational Physician
- Management and Employees
- Employees
APPROACH OF INDUSTRIAL HYGIENE
ANTICIPATION

• Review of chemicals (i.e. SDS)
• Review of chemical and physical characteristics
• Review of work practices and work conditions
RECOGNITION

- Identification of workplace health hazards

- Chemical agents
  - gases & vapors
  - dust

- Physical agents
  - noise & vibration
  - IR & NIR
  - heat

- Ergonomics
  - repetition
  - posture
  - workforce

- Biological agents
  - bio hazards
  - fungi
  - allergens
  - toxins
WORKPLACE HAZARDS

• Biological
• Mechanical
• Electrical
• Chemical
EVALUATION

- Determine the magnitude or extent of the health hazards
- Evaluation methods
  - Qualitative
    - Plant “walk-through” survey
  - Quantitative
    - “Sampling and analytical” program
    - Use of industrial hygiene measuring instruments
PLANT “WALK-THROUGH” SURVEY

• Sample Checklist
  • Plant Layout
  • Operation (Production/Service Processes)
  • Raw materials
  • Machines
  • Workers
  • Health hazards
  • Existing control measures
  • Safety facilities
  • OH Programs
INDUSTRIAL HYGIENE MEASUREMENTS - WEM PROCEDURES IN THE CONDUCT OF WEM

• Plant “walk-through” / Ocular Survey
  – Identify the parameters / work environment hazards to be measured
  – Decide on the need for measurement
  – Identify the subject worker and workplace
  – Select the areas for measurement

• Calibration of Equipment

• Conduct of actual WEM

• Analysis of samples and evaluation of results

• Evaluate the existing control measures and recommend measures to improve the work environment efficiently and economically
MONITORING METHOD

• Work Environmental / Area Monitoring
• Exposure / Personal Monitoring
• Biological Monitoring
WORK ENVIRONMENT / AREA MONITORING

- is the measurement of contaminant in the workroom. This helps pinpoint work areas with high or low exposure levels of contaminants.
EXPOSURE / PERSONAL MONITORING

• Preferred method of evaluating worker exposure to airborne chemicals
• Worker wears sampling device that collects airborne contaminants wherever he goes, whatever he does.
BIOLOGICAL MONITORING

- involves the measurement of changes in the composition of body fluids, tissue or expired air to determine absorption of a potentially hazardous material.
TO DECIDE WHAT CONSTITUTES A REPRESENTATIVE SAMPLE, THE IH MUST ANSWER THESE BASIC QUESTIONS:

• What to sample
• Where to sample
• Whom to sample
• When to sample
• How long to sample
• How many to sample
WHAT WILL YOU DO WITH THE RESULTS OF MEASUREMENTS?

• The measurement data will be compared with existing standards / guidelines:
  • Threshold Limit Values (TLVs)
  • Permissible Exposure Limits (PELs)
  • Occupational Exposure Limits (OELs)
  • Recommended Exposure Limits (RELs)
  • Maximum Allowable Concentrations (MACs)
CONTROL

- a process of conception, education, design and implementation of beneficial interventions and changes carried out that reduces, minimizes, eliminates, decreases or downgrade hazardous conditions.

- The correct recognition and careful evaluation of the hazards are extremely important and will constitute the basis of appropriate control measures.
PREPARATION OF REPORT

1. Company Profile
   - name, address, nature of industry, no. of workers, working time, safety and health programs and personnel

2. Conditions at Sampling
   - date of measurement, parameters measured, workers activities, description of work area, existing control measures, etc

3. Results of Measurement
   - data and corresponding measuring point
4. Evaluation
   • comparison with TLVs, permissible levels

5. Control Measures
   • Evaluation of existing controls
   • Recommend appropriate and feasible controls

6. Points of Measurement
   • Layout, report details
SUMMARY

• WEM is an exposure assessment process of measuring the magnitude, frequency and duration of exposure to physical and chemical hazards.

• Industrial Hygiene focuses essentially on a preventive approach through the minimization of exposure to work environment hazards thereby preventing an occupational disease.
Thank You
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