

What is the occupational health safety and management? Provide examples of at least five work places with possible associated exposure risks. How can such exposure be minimized / controlled?

OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

A BRIEF INTRODUCTION

Occupational health and safety management has existed from the start of time. Today, organizations like the International Labour Organization regulate the dealings and requirements with all OSHM related policy on an international scale.

Accordingly the ILO has defined it as:

"OSHM is a systematic approach to

- (a) identify
- (b) Evaluate
- (c) Predict
- (d) Reduce

the harmful effects on the health of workers & and the surroundings from hazards; that has the potential to damage and may or may not arise from the workplace." (ILO)

Accordingly, the ^{OS}OOSH administration has identified the following ^{possible} hazards in a workplace

a) **Physical Hazards**

Equipments, Physical nature of the hazard and so on (Noise, heat)

b) **Biological Hazards**

Microbes, Pathogens, Bacteria, Viruses and so on.

c) **Chemical Hazards**

Chemicals, Toxic Gases, Toxic Materials and so on.

d) **Ergonomic Hazards**

Heavy lifting, repetitive motions, vibrations and so on

WORKPLACES WITH POSSIBLE EXPOSURE RISKS AND MITIGATION MEASURES

1(a) **Steel Smelting / Casting Mill**

a) **A steel Associated Risks for Hazard Exposure**
Steel mills are high labour, and intensity

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workplaces. These steel mills have furnaces that operate in excess of 1000°C . Further more, the rolling and casting areas are dealing with slag that is also in excess of 1000°C . The hazards associated with this workplace are given below

Physical Hazards

- The furnace and ~~room~~ surrounding areas are of high risk of hazard. Molten steel is continuously being transported and may injure someone.
- Slag from the furnace is also being transported to the disposal site since these are $+1000^{\circ}\text{C}$ they may instantly kill someone.
- Rolling of steel into rebar/steel rods is done at 800°C - 1000°C . During this process high ^{levels of} heat may harm someone.
- Final transportation of finished pieces risk of injury, if the steel falls onto them.

Chemicals Hazards

Exposure to SO_2 , NO_2 , VOC (Volatile organic compounds), H_2S and other toxic gases.

Ergonomic Hazards

- Constant exposure to heat and heavy lifting of crucible to smelting/casting areas.

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b) Mitigation Measures

- 1) During transportation, no worker to let hear furnace or finished product
- 2) PPE (Personal Protective Equipment) for those who are actively working near furnace.
- 3) Work shifts should not be long as ^{prolonged} exposure to heat can harm someone.
- 4) Fire suppression and medical services to be always available during operations.

2) Waste Disposal and Management

a) Associated Risks of Exposure to hazards

Waste disposal and management is a risky and hazardous job. They are exposed to variety of hazards.

Physical Hazards

- Risks of exposure to sharp and hard objects.
- Risks of exposure to of garbage falling on them during transportation and storage.
- Risk of getting injured due to steel and associated materials.

Biological Hazards

- High risks of exposure to bio-hazards. (Human waste, pathogens, viruses)

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- while sorting garbage, risk of exposure to biological contaminants.

Chemical Hazards

- Risk of exposure to toxic chemicals (H_2O , HNO_3 , HCl , H_2SO_4)
- Decaying garbage may release toxic gases.

Ergonomic Hazards

- Repetitive Lifting during sorting of garbage.
- Heavy Lifting during garbage

MITIGATION MEASURES

- PPE for those handling garbage.
- Should be passed under heavy magnets to remove steel and metallic materials.
- Cut proof gloves and masks for those handling garbage.
- Ventilation and air flow to be ensured during handling.

3) Hospitals, Laboratories, Clinics

These places have more biological and chemical risks as they deal with human fluids, chemicals and so on

Biological Risks

- Risk of exchange of infected material.

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intravenous contact

- Risk of contracting disease from patient
- Risk of contracting virus, pathogen from the patient.
- Risk of disease spreading through contact.

Chemicals Exposure

- Risk of exposure to chemicals used to disinfect the workplace.
- Risk of exposure to anesthetics
- Risk of exposure to chemicals used during treatments.

Ergonomic Hazards

- Risk of heavy lifting associated with medical equipment
- Risk of equipment tipping over or falling over.

Mitigation Measures

- PPE for doctors performing operations.
- Proper disposal of hospital (contaminated) waste
- Proper ventilation in the hospital to be ensured
- Proper sanitation to be ensured.

42) Transportation Depots (Air, Land, Sea)

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These places contain a variety of risks due to the constant loading and unloading of cargo freight and passengers on transport vehicles.

Physical Hazards

- Risk of fire during handling of fuel and refuelling operations.
- Risks of cargo toppling over and falling.
- Cargo might physically harm the person due its sharp or hard nature
- Risk of getting run over, or colliding with the transport medium.

Chemicals Hazards

- Exposure to chemical fumes during startup, refuelling and shutdown procedures.

Ergonomic Hazards

- Heavy lifting and repetitive nature of jobs have expose the workers to these hazards

Mitigation Measures

- Gloves and masks to be worn during cargo handling operations

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- Proper safety precautions to be taken during refuelling procedures
- Start up and shut down should be brief to avoid inhalation of fumes.

5) Power Plants and Generating Stations (Thermal)

Thermal power plants carry significant risks as they are complex and delicate ~~comp~~ ^{comp} ~~ntities~~ ^{ntities}.

Physical Hazards

- Risk of fire due to fuel leakage or miscellaneous spark
- Turbine and other machinery are at risk of catching fire due to ^{contact with} superheated steam.
- Risk of fuel and its fumes getting leaking.
- ^{Boiler} Turbine and other machinery may explode
- Exposure to super heated steam.

Chemical Exposures

Exposure to toxic fumes due to thermal combustion
Exposure to toxic chemicals within the plant.

Mitigation Measures

- Scheduling routine maintenance and snap checks of the essential machinery

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- Tracking employees location while they are performing maintenance
- PPE for those performing maintenance
- ^{Ensuring} Adequate time cycles between replacement of parts and operation to allow for checks.

CONCLUSION

OSHM is an important process that protects labour workers and professionals from health and safety hazards in the workplace. The ensure a worker's well-being and ~~ensure~~ ^{ensure} better working conditions for the entire team.