CONTROL HAZARDS AND RISKS

What is a risk assessment?

Occupational Safety and Health (OHS) is a **cross-disciplinary** area concerned with protecting the **safety, health** and **welfare** of people engaged in **work** **or employment.**

The goal of all occupational safety and health programs is to foster a safe work environment. As a secondary effect, it may also protect co-workers, family members, employers, customers, suppliers, nearby communities, and other members of the public who are impacted by the workplace environment. It may involve interactions among many subject areas, including **occupational medicine, occupational (or industrial) hygiene, public health, safety engineering / industrial engineering, chemistry, health physics.**

Risks include acute and chronic health effects, for example, irritation or cancer, and physical effects such as fires or explosions. The hazards are physical and health hazards.

II. Risk assessment

A. Risk assessment is the process where you:

1. Identify hazards
2. Analyze or evaluate the risk associated with that hazard
3. Determine appropriate ways to eliminate or control the hazard B. Factors that influence the degree of risk include:
    - how much a person is exposed to a hazardous thing or condition
    - how the person is exposed (e.g., breathing in a vapor, skin contact), and how severe are the effects under the conditions of exposure

ACGIH has established TLV's for approximately 850 chemicals.

TLVs may appear as:

TLV-TWA or time-weighted average, which is an average eight-hour exposure limit;

TLV-STEL or short-term exposure limit, which is a

fifteen-minute exposure limit, or

TLV-C or ceiling, which is a limit which should never be exceeded without protection.

II. Fire and Explosion Hazard Assessment

Fire is one type of hazard that needs careful evaluation before extinguishing it. Not all fire could be extinguished by water that is why it is necessary that we knew first the cause of fire before dealing the fire.

1. **Flash Point and Method Used:** Lowest temperature at which a liquid will give off enough flammable vapors to ignite. Since flash points vary according to how they are obtained, the method used must be listed. Chemicals with lower flash points present a greater flammability hazard.

2. **Flammable Limits:** Range of concentrations over which a flammable vapor mixed with air will flash or explode if an ignition source is present. Range extends between lower explosive limit (LEL) and upper explosive limit (UEL) and is expressed in percentage of volume of vapor or gas in air (0 – 100%).

   Chemicals with a broad flammable range (i.e., range between the LEL and the UEL) and/or a flammable range in the lower percentages, present a greater flammability hazard.

3. **Extinguishing Media:** Fire-fighting material for use on substance that is burning, Firefighting material should be indicated by its generic name (e.g. water, foam, dry chemical, etc.).

III. Waste management is the **collection, transport, processing** or disposal, managing and monitoring of **waste** materials. The term usually relates to materials produced by human activity, and the process is generally undertaken to reduce their effect on **health,** the **environment** or **aesthetics.**

Waste management is a distinct practice from resource recovery which focuses on delaying the rate of consumption of natural resources. The management of wastes treats all materials as a single class, whether solid, liquid, gaseous or radioactive substances, and tried to reduce the harmful environmental impacts of each through different methods.

Waste management practices differ for developed and developing nations, for urban and rural areas, and for residential and industrial producers. Management for nonhazardous waste. hazardous waste residential and institutional waste in metropolitan areas is usually the responsibility of local government authorities, while management for non-hazardous commercial and industrial waste is usually the responsibility of the generator.

PHILIPPINE CLEAN AIR ACT OF 1999

(Refer to Appendix 1 for elaboration)

The Philippine Clean Air Act of 1999 under its —Declaration of Principles" stated that the State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.

Declaration of Policies. The State shall pursue a policy of balancing development and environmental protection. To achieve this end, the framework for sustainable development shall be pursued.

Recognition of Rights. Pursuant to the above-declared principles, the following rights of citizens are hereby sought to be recognized and the State shall seek to guarantee their enjoyment. **Definitions.** - As used in this Act:

a) **"Air pollutant"** means any matter found in the atmosphere other than oxygen, nitrogen, water vapor, carbon dioxide, and the inert gases in their natural or normal concentrations, that is detrimental to health or the environment, which includes, but not limited to smoke, dust, soot, cinders, fly ash, solid particles of any kind, gases, fumes, chemical mists, steam and radioactive substances;

b) **“Air pollution”** means any alteration of the physical, chemical and biological properties of the atmospheric air, or any discharge thereto of any liquid, gaseous or solid substances that will or is likely to create or to render the air resources of the country harmful, detrimental, or injurious to public health, safety or welfare or which will adversely affect their utilization for domestic, commercial, industrial, agricultural, recreational, or other legitimate purposes;

c) **“Ambient air quality guideline values”** means the concentration of air over specified periods classified as short-term and long-term which are intended to serve as goals or objectives for the protection of health and/or public welfare. These values shall be used for air quality management purposes such as determining time trends, evaluating stages of deterioration or enhancement of the air quality, and in general, used as basis for taking positive action in preventing, controlling, or abating air pollution;

d) **“Ambient air quality”** means the general amount of pollution present in a broad area; and refers to the atmosphere’s average purity as distinguished from discharge measurements taken at the source of pollution;

e) **“Certificate of Conformity”** means a certificate issued by the Department of Environment and Natural Resources to a vehicle manufacturer / assembler or importer certifying that a particular new vehicle or vehicle type meets the requirements provided under this Act and its rules and regulations;

f) **“Department”** means the Department of Environment and Natural Resources;

g) **“Eco-profile”** means the geographic-based instrument for planners and decision makers which present an evaluation of the environment quality and carrying capacity of an area. It is the result of the integration of primary data and information on natural resources and anthropogenic activities on the land which were evaluated by various environmental risk assessment and forecasting methodologies that enable the Department to anticipate the type of development control necessary in the planning area.

h) **“Emission”** means any air contaminant, pollutant, gas stream or unwanted sound from a known source which is passed into the atmosphere;

i) **“Greenhouse gases”** means those gases that can potentially or can reasonably be expected to induce global warming, which include carbon dioxide, oxides of nitrogen, chlorofluorocarbons, and the like;

j) **“Hazardous substances”** means those substances which present either: (1) short-term acute hazards such as acute toxicity by ingestion, inhalation, or skin absorption, corrosivity or other skin or eye contact hazard or the risk of fire explosion; or (2) long-term toxicity upon repeated exposure, carcinogecity (which in some cases result in acute exposure but with a long latent period), resistance to detoxification process such as biodegradation, the potential to pollute underground or surface waters;

k) **“Infectious waste”** means that portion of medical waste that could transmit an infectious disease;

l) **“Medical waste”** means the materials generated as a result of patient diagnosis, treatment, or immunization of human beings or animals;

m) **“Mobile source”** means any vehicle propelled by or through combustion of carbon-based or other fuel, constructed and operated principally for the conveyance of persons or the transportation of property goods;

n) **“Motor vehicle”** means any vehicle propelled by a gasoline or diesel engine or by any means other than human or animal power, constructed and operated principally for the conveyance of persons or the transportation of property or goods in a public highway or street open to public use;

o) **“Municipal waste”** means the waste materials generated from communities within a specific locality;

p) **"New vehicle”** means a vehicle constructed entirely from new parts that has never been sold or registered with the DOTC or with the appropriate agency or authority, and operated on the highways of the Philippines, any foreign state or country;

q) **“Octane Rating or the Anti-Knock Index(AKI)”** means the rating of the antiknock characteristics of a grade or type of automotive gasoline as determined by dividing by two (2) the sum of the Research Octane Number (RON), plus the Motor Octane Number (MON); the octane requirement, with respect to automotive gasoline for use in a motor vehicle or a class thereof, whether imported, manufactured, or assembled by a manufacturer, shall refer to the minimum octane rating of such automotive gasoline which such manufacturer recommends for the efficient operation of such motor vehicle, or a substantial portion of such class, without knocking;

r) **“Ozone Depleting Substances (ODS)”** means those substances that significantly deplete or otherwise modify the ozone layer in a manner that is likely to result in adverse effects of human health and the environment such as, but not limited to, chlorofluorocarbons, halons and the like;

s) **Persistent Organic Pollutants (POPs)"** means the organic compounds that persist in the environment, bioaccumulate through the food web, and pose a risk of causing adverse effects to human health and the environment. These compounds resist photolytic, chemical and biological degradation, which shall include but not be limited to dioxin, furan, Polychlorinated Biphenyls (PCBs), organochlorine pesticides, such as aldrin, dieldrin, DDT, hex chlorobenzene, lindane, toxaphere and chlordane;

t) **"Poisonous and toxic fumes"** means any emissions and fumes which are beyond internationally - accepted standards, including but not limited to the World Health Organization (WHO) guideline values;

u) **"Pollution control device"** means any device or apparatus used to prevent, control or abate the pollution of air caused by emissions from identified pollution sources at levels within the air pollution control standards established by the Department;

v) **“Pollution control technology”** means the pollution control devices, production process, fuel combustion processes or other means that effectively prevent or reduce emissions or effluent;

w) **“Standard of performance"** means a standard for emissions of air pollutant which reflects the degree of emission limitation achievable through the application of the best system of emission reduction, taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirement which the Department determines, and adequately demonstrates; and

x) “Stationary source” means any building or immobile structure, facility or installation which emits or may emit any air pollutant.

HAZARD CONTROL

All workplace hazards (chemical, physical, etc.) can be controlled by a variety of methods. The goal of controlling hazards is to **prevent workers from being exposed to occupational hazards**. Some methods of hazard control are more efficient than others, but a combination of methods usually provides a safer workplace than relying on only one method. Some methods of control are cheaper than others but may not provide the most effective way to reduce exposures.

To control **hazard**s in your workplace you need to ***identify*** and ***understand*** those hazards. Your first priority should always be to eliminate the hazards. If the hazards can't be eliminated, try finding safer ways to carry out those tasks by substituting less harmful substances or changing the work environment through engineering controls. Also consider changing how work activities are organized and performed. For example, reduce the time workers are exposed to a hazard by rotating them to another task.

A. Controlling workplace hazards

Once a hazard has been identified and the risk assessed, control measures should be put into place. A simple list of control measures can be utilized - the hierarchy of control.

1. Identify the Hazard

Identify the source of the problem

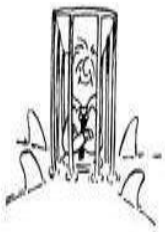
2. Assess the Risk

Risk assessment is the process where you:

- Identify hazards,
- Analyze or evaluate the risk associated with that hazard.
- Determine appropriate ways to eliminate or control the hazard

3. Eliminate the Hazard or Risk

Elimination of a specific hazard or hazardous work process, or preventing it from entering the workplace, is the most effective method of control. Eliminating a hazard means removing it completely.



4. Engineering Control may mean changing a piece of machinery (for example, using proper machine guards) or a work process to reduce exposure to a hazard.

5. Administrative Controls

Working a limited number of hours in a hazardous area is an example of an administrative control for example, job rotation.

6. Substitution is one measure of replacing one hazardous agent or work process with a less dangerous one. It is important to consider worker health and safety when work processes are still in the planning stages.

Provide Personal Protective Equipment

Personal Protective Equipment (PPE) includes ear and eye protection, respirators, and protective clothing.