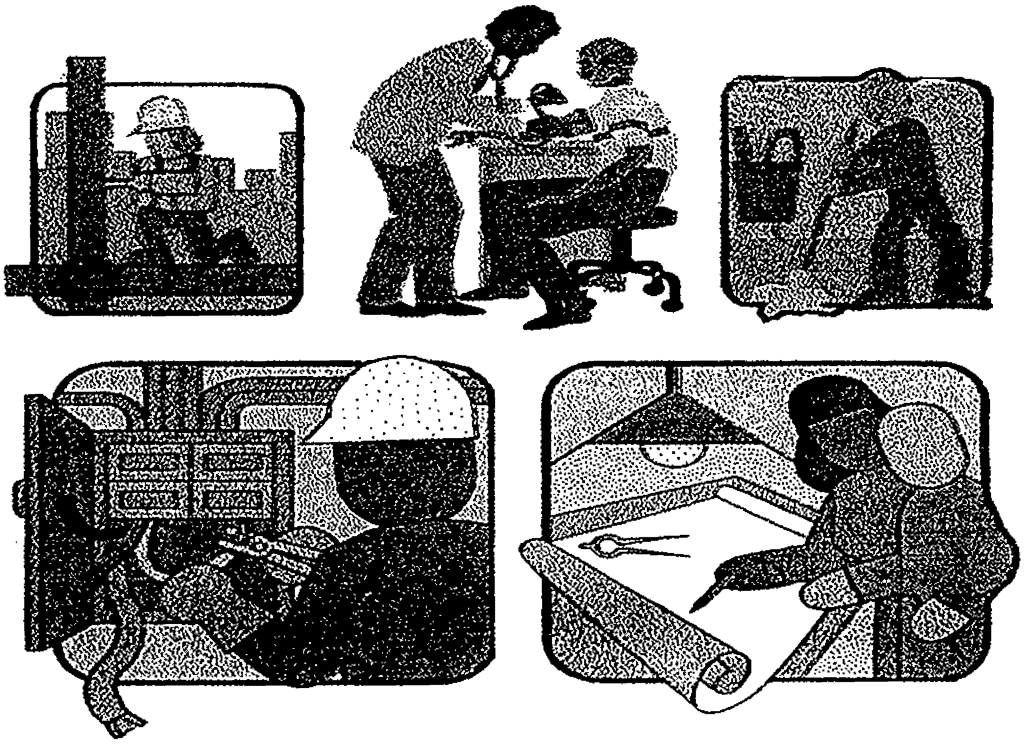
Implementing Rules and Regulations On Chapter VII



INDUSTRIAL HYGIENE OF THE SANITATION CODE OF THE PHILIPPINES AMENDING ADMINISTRATIVE ORDER NO. 111 S. 1991

DEPARTMENT OF HEALTH
MANILA

TABLE OF CONTENTS

FOREWORD

The pursuit of economic growth by the government through an accelerated industrial development, saw the emergence and proliferation of various types and sizes of industries all over the country. This has tremendously improved the economy and increased employment opportunities. However, advances in technology in terms of the introduction of new chemicals, processes and techniques interlinked with development, brought forth the inevitable risks to life and limb resulting from increased exposure of workers to occupational health hazards, injuries and work-related illnesses.

In the light of this reality, the response of government is to assume a proactive stance to ensure that the fundamental task of safeguarding and promoting the well-being of the Filipino workers is not compromised nor relegated to the background.

In 1991, fifteen (15) years after the promulgation of PD 856, otherwise known as the Sanitation Code of the Philippine, the Implementing Rules and Regulations (IRR) for Chapter VII – Industrial Hygiene of the Code was formulated to give full force to the implementation of the provisions of said chapter.

The onset of globalization brings to the fore, the need to update and amend the existing IRR if we are to respond to the challenges confronting our workers as they constantly adjust to the demands of the time and the changes taking place in their work environment.

This amended version of the IRR is the collective effort of our partners from the various sectors of society, representing the different government agencies, NGOs, professional organizations, the academe, industry/management and labor sector.

It is hoped that enforcement of this IRR will translate into concrete action our aspiration to provide the nation's valuable human resources with a healthier and safer work environment conducive to higher productivity and efficiency.

ALBERTO G. ROMUALDEZ, JR., M.D.,M.P.H.
Secretary of Health

IMPLEMENTING RULES AND REGULATIONS (IRR) ON CHAPTER VII (INDUSTRIAL HYGIENE) OF THE SANITATION CODE OF THE PHILIPPINES, P.D. 856 AMENDING ADMINISTRATIVE ORDER NO. 111 S. 1991

IMPLEMENTING RULES AND REGULATIONS (IRR) ON CHAPTER VII (INDUSTRIAL HYGIENE) OF THE SANITATION OF THE PHILIPPINES

Pursuant to Section 4 of P.D. 856, The Code on Sanitation of the Philippines, the following Rules and Regulations on Chapter VII (Industrial Hygiene) of the Code are hereby issued for the guidance and strict compliance by all concerned.

RULE I
DEFINITION OF TERMS

Section 1. Definition of Terms

A. Annual Examination – regular physical examination done once a year.

B. ANSI – refers to American National Standard Institute.

C. Company's Health and Safety Committee – the composition of which shall be in accordance with the prescribed rules and regulations of the Labor Code of the Philippines and its implementing Rules and Regulations.

D. Company's Medical Staff – includes company Physicians, Nurses, Dentists, and First-Aiders with adequate training on occupational health and safety.

   a. Full time – a service rendered for 8 hours/day; 48 hours/week.

   b. Part time – a service rendered for at least 4 hours/day, 12 to 24 hours/week as the case may be.

E. Department – the Department of Health

F. Effluent – wastewater discharged into the environment resulting from process of industry, manufacturing, trade or business from the development, processing or recovery of any natural resources which may cause or tend to cause pollution, or contribute to the pollution.

G. Emergency Clinic – means an enclosed area, room or building located within the premises of the establishment and equipped with the necessary medical facilities and supplies, where workers maybe brought for examination and treatment of their injuries or illnesses in case of emergency, where more elaborate instruments and equipment (such as examining bed, oxygen tank) are made available for the workers and where the services of a more competent medical staff are provided, who may handle or treat a few simple cases of injuries or illnesses needing short-term confinement, or may refer such cases to hospitals.

H. Emergency Treatment Room - means an enclosed area or room equipped with the necessary medical facilities and supplies, and located within the premises of the industrial establishment where workers maybe brought for examination and treatment of their injuries or illness in cases of emergency.

I. Ergonomics – refers to the joint application of certain biological sciences and engineering techniques so as to ensure the optimum mutual adaptation of man and work.

J. First-Aider – means any person trained and duly certified or qualified to administer first-aid by the Philippine National Red Cross (PNRC) or by any organization accredited by the same.

K. First-Aid Treatment – means adequate, immediate and necessary medical and/or dental attendance or remedy given in case of injury or sudden illness suffered by the workers, irrespective of whether or not such illness/injury is occupational in nature, before more extensive medical and/or dental treatment can be secured. It does not include following treatment for an injury or illness.

L. Foot Candle – a unit of illuminance on a surface that is everywhere one foot from a uniform source of light of one candle and equal to one lumen per square foot. One foot candle = 10.75 lux.

M. Glare – refers to excessive luminance in the field of vision which disturbs the adaptation process of the retina produced by excessive light stimuli.

N. Hazard – risk or danger to one's health or life.

O. Hazardous workplace – refers to an establishment where any or all of the following conditions exist:

1) where the nature of work exposes the workers to dangerous environmental elements, contaminants or work conditions including ionizing radiation, chemicals, fire, flammable substances, noxious components and the like;

2) where the workers are engaged in construction work, logging, fire fighting, mining, quarrying, blasting, stevedoring, dock work, deep sea fishing/diving and mechanized farming;

3) where the workers are engaged in the manufacture or handling of explosives and other pyrotechnic products;

4) where the workers used or are exposed to power driven or explosive powder actuated tools and equipment; and

5) where the workers are exposed to biological agents such as bacteria, fungi, viruses, protozoas, nematodes and other parasites.

P. Industrial Establishment – refers to establishment which is either engaged in the manufacture, sale and distribution of goods or processing of raw materials into end products.

Q. Industrial Hygiene – the science and art devoted to the anticipation, recognition and control of those environmental factors or stresses, arising in or from the workplace which cause sickness, impairs health and inefficiency among workers as well as the surrounding communities.

R. Large Scale Industries – establishments employing two hundred (200) workers or more.

S. Local Health Authority – the Governor, City or Municipal Mayor.

T. Local Health Officer – appointed employee of local government unit concerned who is a licensed medical physician. He is in charge of formulation and implementation of health policies, plans, programs, and projects of the people in the LGU concerned.

U. Material Safety Data Sheet (MSDS) – the document that describes the identity of a substance which includes the following: product and company information; composition information on ingredients; hazards identification; first-aid measures; fire fighting measures; accidental release; handling and storage; exposure controls and personal protection; physical and chemical properties; stability and reactivity; toxicological information; ecological information; disposal considerations; transport and regulatory information.

V. Medium-scale Industries – establishments employing fifty one (51) to one hundred ninety nine (199) workers.

W. Non-hazardous workplace – refers to establishment where none of the condition (s) under hazardous workplace exists in the principal activity of the establishment.

X. Occupational Health Personnel – refers to the qualified first-aider, nurse, dentist, or physician, whose service/services have been engaged by the employer in order to provide occupational health services in the establishment/undertaking.

Y. Occupational Health Practitioner – refers to a physician, nurse, engineer, dentist or chemist and other qualified health professional duly licensed to practice his/her professions in the Philippines and possessing all of the additional qualifications required by the Department.

Z. Occupational Health Services – are services entrusted with essentially preventive functions and responsible for advising the employers, the workers, and their representatives, in the establishment/undertaking of the following:

1. the requirements for establishing and maintaining a safe and healthy working environment which will facilitate optimal physical and mental health in relation to work; and

2. the adaptation of work to the capabilities of workers in the light of their state of physical and mental health.

i. Outfall – the outlet of a drain or sewer.

ii. Pre-employment examination – physical examination conducted before an applicant is accepted or hired for employment.

iii. Sanitary Permit – a permit issued by the Local Health Officer after compliance with the prescribed sanitary and environmental/occupational health requirements.

iv. Secretary – the Secretary of Health

v. Separation examination – physical examination conducted prior to the resignation or termination of the workers.

vi. Septic tank – a water-tight receptacle which receives the discharge of a plumbing system or part thereof and designed to accomplish the partial removal and digestion of suspended solid matter in the sewerage through a period of detention.

vii. Sewer – the pipe line conveying sewage from the building to the septic tank or to any point of discharge.

viii. Sewerage system – means pipeline or conduits, pumping station, force mains constructed drainage ditches, and all other constructions, devices and appurtenances used for collecting or conducting sewage and industrial wastes or other wastes to a point of treatment discharge or ultimate disposal.

ix. Shall – is construed to mean mandatory.

x. Small-scale industries – establishments employing fifty (50) workers or less.

xi. Special Examinations:

1. ECG (electrocardiogram) – special examination done to determine cardiac abnormalities.

2. EEG (electroencephalogram) – special examination done to determine brain wave abnormalities.

3. Lung Function Test – special examination performed to determine pulmonary functions and abnormalities.

4. Audiometric Examination – special examination done to detect hearing abnormalities.

5. Optometric Examination – special examination done to determine the abnormalities of the eyes.

xii. Threshold Limit Values (TLVs) – refer to airborne concentration of substances that represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect.

xiii. Vermin – refers to a small group of animals such as mice, rats, and insects which are vectors of diseases.

1. Rats/Mice – refer to a small group of animals inhabiting human households and premises which are vectors of diseases.

2. Insect – refers to any of the several kinds of arthropods which include flies, mosquitoes, cockroaches, fleas, lice and bedbugs which are vectors of diseases.

xiv. Vermin and Insect Abatement Program – a control scheme to eradicate or reduce the vermin/insect population.

xv. Waterworks – the system of reservoirs, channels, mains, pumping and purifying equipment by which a water supply is obtained and distributed.

xvi. Workplace – means the office, premises or worksite, where the workers are habitually employed and shall include the office or place where the workers who have no fixed or definite worksite, regularly report for assignment in the course of their employment.

RULE II
RESPONSIBILITIES OF THE SECRETARY AND THE LOCAL GOVERNMENT UNIT

Section 1. Responsibilities of the Secretary

A. The Secretary shall have the following powers and functions:

1. Formulates policies, standards, guidelines and programs for the promotion and protection of workers' health.

2. Prescribes a list of Threshold Limit Values of atmospheric/environmental contaminants as a guide in appraising health hazards and evaluating control measures.

3. Reviews concentration values at regular intervals to amend or modify the list where indicated.

4. Develops standards regarding other concentrations of short intermittent duration capable of causing acute impairment to health.

5. Requires the control of other contaminants known or believed to be capable of causing impairment of health but not included in the list already issued by the Department.

6. Prescribes control measures to eliminate/minimize industrial contaminants and infectious diseases caused by processing or handling industrial products or waste.

7. Promulgates illumination standard values and orders their review at regular intervals to alter or amend values when indicated.

8. Promulgates measures to effectively and adequately control any possible radio-activity to which workers and the general public may be exposed.

9. Promulgates measures to reduce hazardous workplace noise levels.

10. Provides technical assistance to local government units for the implementation of Sanitation Code of the Philippines (PD 856) and its implementing rules and regulations.

11. Monitors and evaluates the implementation of PD 856 in coordination with the local government units.

12. Conducts surveys and researches.

13. Recommends the suspension/revocation/closure of an establishment to concerned agencies found violating any of the provisions of the Sanitation Code and its implementing rules and regulations.

14. Enforces the suspension/revocation/closure of an establishment under the following circumstances:

    a. when there is a serious threat to the health and safety of the workers and the community; and

    b. when the threat is national in scope.

Section 2. Responsibilities of the Local Government Unit

A. Local Health Authority

1. Provides for the mandatory appointment of a provincial, city or municipal health officer and who shall perform both the sanitary and public health functions.

2. Exercises jurisdiction over the enforcement of the Sanitation Code including its implementing rules and regulations in their localities subject to the standards set by the Department.

3. Issues licenses/business permits and suspends or revokes the same for any violations of the conditions upon which said licenses or permits had been issued, pursuant to existing laws or ordinances.

4. Enforces all laws, ordinances, rules and regulations relating to sanitation and public health.

5. Directs Local Health Officer to prepare and submit yearly reports to the Department.

B. Local Health Officer

1. Leads the sanitary and industrial hygiene inspection of all industrial establishments to determine their compliance with the sanitation code and its implementing rules and regulations.

2. Issues sanitary permit to all industrial establishments upon compliance with the prescribed requirements.

3. Recommends to Local Health Authority issuance of licenses/business permits and suspensions or revocation of the same for any violation of the condition upon which said licenses or permits had been issued, pursuant to existing laws and ordinances.

4. Coordinates with other government agencies relative to the implementation of this implementing rules and regulations.

5. Attends to complaints related to industrial hygiene and recommends appropriate measures for immediate compliance.

6. Refers/elevates to higher authority unsolved issues in relation to industrial hygiene.

7. Prepares and submits yearly reports to the Department,

RULE III
RESPONSIBILITIES OF EMPLOYER, EMPLOYEES AND HEALTH AND SAFETY COMMITTEE

Section 1. Responsibilities of the Employer

A. Provides, installs and maintains in good condition all control facilities and protective barriers for potential and actual hazards.

B. Informs all affected employees regarding the nature of the hazards and the reasons for the control measures and protective equipment as provided under Rule V Section 3 of this IRR.

C. Makes periodic testing for hearing capacity, visual acuity, and other health examinations as related to worker's exposure to potential or actual hazards in the workplace as enumerated in Rule V Section 2 of this IRR.

D. Provides control measures to reduce noise, dust, heat and other hazards as enumerated to Rules V Section 2 of this IRR.

E. Provides adequate and appropriate personal protective equipment free of charge, when considered necessary in accordance to Rule V Section 3 of this IRR.

F. Ensures strict compliance on the regular use and proper maintenance of Personal Protective Equipment (PPE).

G. Provides his employees occupational health services and facilities in accordance with the provision under Rule V Section 4 of this IRR.

H. Creates and supports the activities/programs of the company's health and safety committee.

I. Submits yearly reports required by the Department or the Local Health Authority. (NCDCS/OH/IH FORM III)

Section 2. Responsibilities of the Employees

A. Strictly observe and practice the use of personal protective equipment and other control measures in accordance with the provision of Rule V, Section 3, of this IRR.

B. Observe the proper use and maintenance of equipment provided to them by their employers.

C. Report potential health hazards present in the working environment to company's health and safety committee.

D. Cooperate in the conduct of health and safety programs and inspection.

E. All employees shall undergo the following health examinations:

1. Pre-employment Examination
2. Annual Periodic Examination
3. Return to Work Medical Examination
4. Transfer Examination
5. Separation Examination
6. Special Medical Examination (Optional)

Section 3. Responsibilities of the Company's Health and Safety Committee

A. Plans and develops health maintenance and accident prevention programs for the establishment.

B. Implements the health maintenance and accident prevention programs in accordance with the set government rules and regulations.

C. Conducts regular safety meetings (at least once a month).

D. Reviews reports of inspection, accident and illness investigations and implementation of program.

E. Submits progress reports to the manager/employer on a quarterly basis.

F. Provides necessary assistance to government inspecting authorities during the conduct of inspection.

G. Initiates and supervises health and safety trainings for employees.

H. Develops and maintains a disaster contingency plan and organizes such emergency service units as may be necessary to handle disaster situations pursuant to the emergency preparedness manual for establishment of the Office of Civil Defense.

I. Furnishes the Department or the Local Health Authority, copy of the Illness Investigation Reports.

RULE IV
APPLICATION, RENEWAL, ISSUANCE AND REVOCATION OF THE SANITARY PERMIT

Section 1. Prior to operation, all industrial establishments shall obtain a sanitary permit from the Local Health Authority or his duly authorized representative under the following conditions:

A. Application of Sanitary Permit

1. The application of sanitary permit for new establishment shall be filed at the city/municipal health office having jurisdiction over the establishment anytime before the actual operation.

2. A written application shall be required from the owner/manager of the establishment citing their intention and purpose for establishing such operation together with the duly accomplished registration form (NCDCS/OH/IH FORM I). All existing establishments prior to the approval of this IRR, shall also be required to submit registration form for record purposes.

3. The City/Municipal Health Office verifies the validity of the application and if found in order, schedule the establishment for inspection.

B. Renewal of Sanitary Permit

1. The renewal of sanitary permit shall be filed and done on or before the 20th day of January of the current year.

2. Late renewals shall be subjected to penalties.

C. Issuance of Sanitary Permit

1. Before the issuance, the City/Municipal Health Team composed of municipal/city health officer, sanitary engineer and or sanitation inspector conducts the actual inspection of establishment as scheduled using the prescribed inspection report form. (NCDCS/OH/IH FORM II)

2. After inspection, a written report shall be made and duly signed by the team members. If the results are favorable, CHO/MHO issues the sanitary permit. If not, a sanitary order shall be issued to that effect.

3. No sanitary permit either new or renewal shall be issued without the requisite of inspection.

4. Inspection and evaluation of the establishment shall be conducted at least once a year, to ensure the compliance with the requirements of this IRR.

D. Revocation of Sanitary Permit

1. After prior notice and hearing, the local health officer, if satisfied that the terms of the two notices have not been complied with or that failure to comply therewith is not excusable, shall recommend to the Local Health Authority the revocation of the said permit, or;

2. After the second sanitary order on an extended grace period, a re-inspection was conducted and still the owner failed to comply with such order as reported by the sanitation inspector, the local health officer shall recommend the revocation of the sanitary permit without delay and shall inform other related agencies of the city or municipality of the revocation.

3. Lifting of suspension of permit maybe recommended whenever the owner of the establishment satisfactorily corrected the defects.

4. The establishment owner may file a motion for reconsideration to the local health authority if he is not satisfied with the action of the city or municipal health officer.

5. The local health authority may file court proceedings against any establishment continuously operating after the revocation of the said permit.

Section 2. Fees

A. Corresponding fees shall be paid upon application or renewal of the sanitary permit according to the City/Municipal Ordinance promulgated.

B. Fees payable resulting from penalties shall be such amount as existing law prescribed and or as set through City or Municipal Ordinances.

RULE V
REQUIREMENTS IN THE OPERATION OF INDUSTRIAL ESTABLISHMENTS

Section 1. Sanitary Facilities

A. Water Supply. Adequate potable water supply shall be provided to all employees.

1. An adequate potable water supply approved as to source and distribution by the Department shall be provided in all places of employment.

2. Standard drinking water facilities readily accessible to all employees and approved type of drinking water facilities shall be provided to all employees in the ratio of one (1) facility for every fifty (50) employees. (See Table 1a of the Appendix)

3. Where a local or city waterworks system exists, the industrial establishment shall utilize water from the system or from its own water supply that complies with the IRR of Chapter II (Water Supply) of PD 856 and the prescribed water quality standards of the Philippine National Standard for Drinking Water (PNSDW), 1993.

B. Sewerage System – Sewage works and treatment plants shall comply with the following requirements:

1. All establishments covered by the system shall be connected to the sewer in areas where a sewerage system is available.

2. Completely treated effluent if conforming to the quality standards prescribed by Environmental Management Bureau-Department of Environment and Natural Resources (EMB-DENR) may be discharged into a body of water.

3. Storm water shall be discharged to a storm sewer; only sanitary sewage shall be discharged to a sewerage system; but this should not prevent the installation of a combined system.

4. Properly designed grease traps shall be installed in establishments where the sewage carries a large amount of grease as determined and approved by EMB-DENR.

C. Septic Tank – Where a public sewerage system is not available, sewer outfalls from industrial establishments shall be discharged into a septic tank to be constructed in accordance with the following minimum requirements:

1. It shall be generally rectangular in shape. When a number of compartments are used, the first compartment shall have the capacity from one half (1/2) to two thirds (2/3) of the total volume of the tank and shall be water-tight.

2. It shall be built of concrete, either pre-cast or poured-in-place. Bricks and concrete blocks may be used provided it conforms with Rule V , Section 1c (1) of this IRR.

3. It shall not be constructed under any building and within 25 meters from any source of water supply.

D. Disposal of Septic Tank Effluent – The effluent from septic tank shall be discharged into a subsurface soil, absorption field where applicable or shall be treated with some type of purification device. The treated effluent may be discharged into a stream or body of water if it conforms to the quality standards prescribed by the (EMB-DENR).

E. Disposal of Industrial Wastes – The following requirements shall be complied with:

1. All toxic and hazardous wastes including nuclear wastes incident to the operation of the industrial plant shall be collected, stored or disposed of in a manner that will prevent health hazards, nuisance and pollution in accordance with the guidelines set by DENR-DAO 29 (RA 6969).

2. All industrial establishments discharging toxic wastes shall submit a copy of the method of treatment approved and certified by the EMB-DENR to the Department or its duly authorized representatives.

F. Compliance with Threshold Limit Values for Hazards – The air quality within the workplace shall be in accordance with the Threshold Limit Values for Hazards as adopted by the Department from the American Conference of Governmental Industrial Hygienists – Threshold Limit Values (ACGIH-TLVs).

G. Abatement Program for Vermin Control – An abatement program for the control of rats and insects shall be maintained.

1. A vermin abatement program shall be maintained in places by their owners, operators or administrators.

2. The procedure and frequency of vermin abatement program shall be determined and approved by the Municipal Health Officer/City Health Officer.

H. Facilities Required. The following facilities shall be installed in all industrial establishments. (See Table 1b-1d of the Appendix).

1. Adequate and suitable toilet and bath facilities for both male and female employees at the following ratio:

a. Where the number of female employees exceeds one hundred (100), one (1) toilet for every twenty (20) female employees up to the first one hundred (100) and one (1) for every thirty (30) thereafter.

b. Where the number of male employees exceeds one hundred (100) one (1) toilet for every twenty five (25) males up to the first one hundred (100) and one (1) more for every forty (40) thereafter

c. Where the number of males employed exceeds five hundred (500), it is sufficient to provide one (1) toilet for every sixty (60) males.

d. In addition, male workers shall be provided with sufficient urinals in the same ratio with toilet bowl in accordance with Rule V Section 1 H (1) b and c of this IRR.

2. Adequate restrooms and mess halls shall be provided for the employees at the following ratio:

a. Where ten (10) or more workers are employed at any one time, at least one (1) restroom for each sex for their exclusive use shall be provided.

b. Where less than ten (10) workers are employed and a restroom is not available, an equivalent space shall be provided which can be properly screened and made suitable for such use.

3. Dining facilities/mess halls shall be provided where there are ten (10) or more workers in an establishment. The recommended space requirement for four (4) workers is 10.80 sq.m., and for each additional employee, the minimum addition shall be at 0.90 sq.m.

4. A separate bathing/washing facility for each sex shall be provided in the ratio of one bathing/washing facility for every twenty five (25) employees up to the first one hundred (100) and one more for every forty (40) thereafter.

I. The following minimum standards shall be strictly observed:

1. Every toilet shall be provided with enclosure, partitioned off so as to provide/ensure privacy and shall have a proper door and fastenings, so doors shall be tight-fitting and self-closing.

2. In cases where persons of both sexes are employed, toilet and bath facilities for each sex shall be situated or partitioned so that the interior will not be visible even when the door of any facility is open from any place where persons of the other sex have to work or pass.

3. If toilet and bath facilities for one sex adjoin those for the other sex, the approaches shall be separate and toilet and bath facilities for each sex shall be properly indicated. Partition shall be made of concrete or other similar permanent materials.

4. Toilet and bath facilities shall be so arranged so as to be conveniently accessible to the workers at all times while they are at the establishment and shall be kept clean and in orderly condition.

5. Every toilet and bath facility shall be sufficiently ventilated and well lighted and shall not be joined with any workroom, kitchen or dining room, except through the open air or through an intervening ventilated space.

6. Urinals shall be so placed or screened so as not to be visible from other parts of the factory where employees work or pass.

7. Restrooms and mess halls shall be so arranged so as to be conveniently accessible to the workers and shall be kept clean and orderly at all times.

8. The minimum space provided for a rest room for ten (10) workers shall be six (6.0) sq.m., and for each additional employee, the minimum addition shall be at least point two (0.2) sq.m.

9. Bathing/washing facilities shall include a supply of clean running, hot and cold or warm water; soap; clean towels; or other suitable means of cleaning or drying.

10. Adequate hand-washing facilities shall be so provided within or adjacent to toilet facilities.

11. Mechanical washing facilities for working clothes shall be provided to prevent contaminated clothes to be brought home. Working clothes shall be washed and/or dried between shifts on any job where the process is such that washing or drying is needed or a change of clothes shall be supplied to ensure that dry clothes are available upon return to work.

J. Workrooms and Work Equipment. All places of employment and all workrooms, including machinery and equipment shall be kept clean and sanitary.

1. All places of employment, passageways, storerooms, service rooms, machinery, equipment and supplies shall be kept in a clean/sanitary condition with all the unnecessary dusts, spillage and debris removed at regular intervals, frequent enough to maintain good housekeeping.

2. Where wet process is used, reasonable drainage shall be maintained, dry standing areas (platforms/false floors, mats, etc.) shall be provided.

3. Sweeping and cleaning shall be strictly done in such a manner so as to avoid dispersal of air contaminants/dust particles into the work environment.

K. Location and Siting. The location and siting of industrial establishments shall be in compliance with existing policies, zoning laws, and ordinances.

1. No industrial establishments shall be allowed to be constructed in a non-industrial zone as prescribed by the City/Municipal or Provincial Planning and Development Office.

2. Highly toxic and hazardous processes/operations shall be segregated/separated from non-hazardous establishments.

3. In the case of old establishments, which were not covered by existing provisions of the zoning law, periodic environmental and occupational health monitoring are necessary.

Section 2. Environmental Control

A. Physical Hazards

1. Noise

1.1 Where noise levels are above the TLVs, one or more of the following control measure/s shall be adopted:

a. Engineering Control

a.1 Substitution with quieter moving parts of machines, materials or processes.
a.2 Proper upkeep and regular maintenance of machinery.
a.3 Total or partial enclosure of noise producing equipment.
a.4 Utilization of anti-vibration mountings.
a.5 Treatment of the area with sound absorbing materials to decrease reverberation.
a.6 Increase the distance or construct barriers between the work area and the noise source.
a.7 Construct sound insulated remote control booths.

b. Administrative

b.1 Change of job schedules.
b.2 Rotation of workers
b.3 When noise exposure cannot be controlled adequately by environmental changes, the use of hearing protection by workers is necessary.

1.2 Permissible Noise Exposure Limits (See Table 2a & 2b of the Appendix)

2. Vibration

2.1 The response of the vibrating surface shall be reduced by any of the following means:

a. Interface damping (Friction)
b. Application of layer of material with high internal losses over the surface of the vibrating element.
c. Designing the critical elements as "sandwich" structures.

3. Heat and Cold Stress

3.1 The adoption of the following control measures will enable workers to maintain a deep body temperature of 38°C and below:

a. Decrease in the number of hours of physical work of the task.
b. Modification of the number and duration of exposures.
c. Modification of the thermal environment.
d. Maintenance of normal thermal conditions of the rest areas.
e. Use of appropriate work clothing.

e.1 Use of thick clothing, gloves and shoes.
e.2 Use of aluminized reflective clothing.

3.2 Recommended Exposure Limit Values for work in a hot environment expressed as WBGT, °C (See Table 2c of the Appendix)

4. Illumination

4.1. All places where persons work or pass or may have to work or pass in emergencies, shall be provided during time of use with adequate natural lighting or artificial lighting or both, suitable for the operation and the special type of work performed.

a. Natural Lighting

a.1 Skylights and windows should be located and spaced so that daylight conditions are fairly uniform over the working area.

a.2 Where necessary, skylights and windows should be provided with means to avoid glare.

a.3 A regular system of cleaning skylights and windows should be established to ensure that they are kept clean at all times.

b. Artificial Lighting (Quality)

b.1 Artificial lighting shall be provided when daylight fails or for area where the daylight illumination is not sufficient.

b.2 The general lighting should be of uniform level, widely distributed to avoid harsh shadow or strong contrast and free from direct or reflected glare.

b.3 Where intense local lighting is necessary, a combination of general and supplementary lighting at the point of work may be provided.

b.4 Supplementary lighting shall be especially designed for the particular visual task and arranged or provided with shading or diffusing devices to prevent glare.

Artificial Lighting (Intensity) (See Table 2d of the Appendix)

c.1 Artificial lighting shall be adequate at the place of work for the operation or work performed.

c.2 A minimum of twenty (20) lux (2 foot candles) shall be provided for yards, roadways, and outside thorough fares.

c.3 A minimum of fifty (50) lux (5 foot candles) shall be provided:

c.3.1. Where discrimination of detail is not essential, such as handling coarse materials, coals or ashes, rough sorting or grinding of clay product;

c.3.2. For passageways, corridors, stairways warehouses, storerooms for rough and bulky materials.

c.4 A minimum of 100 lux (10 foot candles) shall be provided:

c.4.1. Where slight discrimination of detail is essential such as for the production of semi-finished iron and steel products, rough assembling, milling of grain, opening, picking and carding of cotton, or other primary operation in most of the industrial processes; and

c.4.2 For engine and boiler rooms, passenger and freight elevators, crating and boxing departments, receiving and shipping rooms, storerooms and stockrooms for medium and fine materials, locker rooms, toilets and washrooms.

c.5 A minimum of 200 lux (20 foot candles) shall be provided where moderate discrimination of details is essential, such as for medium assembling, rough bench and machine work, rough inspection of testing of products, sewing light-colored textile or leather products, canning and preserving, meat packing, planing of lumber and veneering.

c.6 A minimum of 300 lux (30 foot candles) shall be provided where close discrimination of details is essential such as for medium bench, and machine work, medium inspection, fine testing, flour grading, leather finishing and weaving cotton goods or light colored cloth/goods or for office desk work with intermittent reading and writing for filing and mail sorting.

c.7 A minimum of 500 to 1,000 lux (50 to 100 foot candles) shall be provided where discrimination of fine details is involved under conditions of a fair degree of contrasts for long assembling, fine bench and machine work, fine inspection, fine polishing and bevelling of glass, fine wood-working and weaving dark colored cloth/goods or for accounting, bookkeeping, drafting, stenographic work, typing or other prolonged close office desk work.

c.8 A minimum of 1,000 lux (100 foot candles) shall be provided where discrimination of extremely fine details is involved under conditions of poor contrast for long periods of time, such as for extra fine assembling instrument, jewelry and watch manufacturing, grading and sorting tobacco products, make-up and proof-reading in printing plants, and inspection of sewing dark-colored cloth products.

c.9 The provisions of paragraph c2 to c8 apply to lighting equipment under average operating conditions. Where conditions allow, it maybe necessary to provide initially an illumination of at least 25% more. In locations where dirt will collect rapidly, the initial level should be at least 50% above the recommended standards.

c.10 Any windowless room shall be provided with general lighting sufficient in intensity for the most exacting operation carried therein.

Note: 1 foot candle = 10.75 lux
For purposes of computation, use
1 foot candle = 10.0 lux

d. Emergency Lighting

d.1 Where large number of persons are employed in buildings more than one storey in height, emergency lighting shall be provided in all important stairways, exits, workplaces and passages.

d.2 Emergency systems shall be capable of producing and maintaining for at least one (1) hour a minimum intensity of 5 lux (0.5 foot candle) and shall have an energy source independent of the general lighting system installation.

d.3 Provisions shall be made for the automatic lighting of the emergency system immediately upon failure of the general lighting system.

5. Radiation

5.1 Provisions for ionizing and non-ionizing radiations shall follow the standards set by the Philippine Nuclear Research Institute (PNRI) and the Radiation Health Service (RHS) of the Department.

6. General Ventilation

6.1. Natural or artificial means shall be provided to insure a safe and healthy working atmosphere which is free from injurious amounts of toxic materials and reasonably free from offensive odors and dust throughout the establishments. The natural air supply in any workroom shall in no instance be less than 0.45 cubic meter per second per person. A ventilation rate of 0.90 cubic meter per second per person is desirable in workrooms in which the work is ardous.

6.2 All industrial establishments where recognized or established hazards exists, from dusts, fumes, mists, vapors, gases or other means of control is deemed not adequate by the health authorities, such contaminated air shall be diluted with a sufficient amount of clean air so that the concentration of the toxic materials shall be reduced below the maximum allowable concentration for such contaminants.

6.3 All equipment and processes that emit or create harmful dust, fumes, vapors, and gases in quantities that can injure the health of those exposed shall thereto be connected to an exhaust system or otherwise effectively controlled.

6.4 A complete exhaust system shall include an air suction device, hoods, ducts, fans objectors, separators and receptacles and all the other parts necessary for its proper installation, its inlet velocities shall be regulated at:

a. 0.61 meter/second for inlets between 2.44 to 3.66 meters above the floor.

b. 2.54 meter/second for inlets between 3.66 to 4.88 meters above the floor.

c. 5.08 meter/second for inlets more than 5.49 meters above the floor.

6.5 All exhaust system shall discharge to the outside atmosphere provided however, that air may be recirculated if it is passed through a suitable cleaning device and is safe and wholesome when reused. The amount of air recirculated in workrooms shall not exceed seventy five (75%) percent and in plants and dining rooms shall not exceed fifty (50%) percent.

6.6 The point of discharge of an exhaust system shall be so located so that the discharge materials shall not re-enter places of employment or habitation, nor create hazard to the public nor cause any general nuisance.

6.7 Air shall be provided and distributed in all workrooms as required in this implementing rules and regulations and outside air shall be provided to all workrooms at the rate of 0.48 cubic meter per minute per person, or one-half air change per hour whichever is greater.

6.8 Air circulated in workrooms shall be supplied through air inlets arranged, located and equipped so that workers are not subjected to air velocities exceeding 1.02 meter per second except under special circumstances specified in this IRR or approved by the Department.

7. Local Exhaust Ventilation

7.1 The air velocity and/or rate of air flow required through a hood, booth enclosure, other points of ventilation and through the pipes shall be maintained at all times whenever the machine or process for which the ventilation is applied is in operation or use.

7.2 The effectiveness of every local exhaust ventilation system shall be judged according to:

a. The ability of the hoods, booths or other openings to produce a movement of air toward the opening is sufficient to prevent the escape of the contaminant to the workroom beyond the maximum allowable concentration set-up by the Department.

b. The ability of the air flow and main ducts shall be sufficient to transport the contaminant through branch and main ducts without settling.

7.3 Piping shall be located so as to be accessible for inspection and maintenance.

7.4 Air flow equipment including hoods, pipes, fan motors and collectors shall be effectively grounded.

7.5 Two or more operations involving more than one substance shall not be permitted to be connected to the same exhaust system when a combination of such substances being removed may constitute fire hazard, an explosion hazard, or otherwise dangerous mixture.

7.6 Processes or operations using or generating flammable dust, gases, fumes, vapors, mists, fibers or other impurities shall be protected completely from all sources of ignition.

7.7 The capacity of an exhaust system shall be calculated on the basis of all hoods, booths, and enclosures connected to the system being open, except where the system is so interlocked that only a portion of it can be operated at a given time, in which case of the capacity shall be calculated on the basis that all of the hoods in the group requiring the greater volume rate of exhaust are open.

7.8 Exhaust system holding dust discharging to the outer air shall be provided with suitable air cleaning devices to remove air contaminants prior to the discharge to the outer air unless otherwise approved by the Department or meets the air quality standards as provided for by the air pollution rules and regulations of the EMB-DENR.

7.9 The discharge from any exhaust system shall be such that no air contaminants will enter any window, door or other opening of any work space in quantities sufficient to create health hazards to such space or create a nuisance to surrounding areas.

7.10 Collected materials shall be removed at intervals frequent enough to insure that the exhaust system shall meet the requirements of the Rule V, Section 2-6, of this IRR at all times.

7.11 Collected materials shall be disposed of in a manner which will not result in a health hazard.

7.12 Suitable air inlets shall be provided for replacement of fresh air.

B. Chemical Hazards

1. Substitution of toxic substances to non-toxic substances shall be applied in cases where it is possible and less hazardous processes shall be utilized whenever applicable.

2. Material Safety Data Sheet (MSDS) shall be provided by manufacturers/distributors/ suppliers and shall be made available to agencies/workers upon request.

3. Isolation/enclosure/interposing of a barrier between a hazard and those who might be affected by the hazard shall be applied.

4. Proper ventilation and lighting of the hazardous area/s shall be provided.

5. The number of workers exposed shall be reduced to a minimum.

6. Proper personal protective equipment shall be worn by workers.

7. Safety and health education of the workers shall be implemented.

C. Biological Agents

1. Proper personal protective equipment with special emphasis on gloves, masks, aprons, and water resistant shoes like rubber boots shall be worn by workers at all times.

2. Control measures shall be provided to eliminate or control the transmission of infectious diseases through processing or handling of industrial products or wastes.

D. Ergonomics

1. All work procedures shall be in such a manner that it will not produce undue stress to the musculo-skeletal system of workers.

   1.1 Provide instructional materials and orientation in proper sitting, standing and lying postures in the workplace.

   1.2 Workroom furnitures and equipment shall be designed to prevent stress on musculo-skeletal system of the workers.

   1.3 Male workers shall not be allowed to lift, carry or move any load more than 50 kg. and female workers over 25 kg. Weight over 50 kg. shall be handled or carried by more than one worker; by mechanical means; or with appropriate back support.

E. Monitoring

1. Measurement of the various hazards shall be done at regular intervals according to the guidelines set by the Department as well as by the Department of Labor and Employment.

2. Working environment measurement shall include temperature, humidity, pressure, illumination, ventilation, concentration of substances and noise.

3. The employer shall carry out the working environment measurement in indoor or other workplaces where hazardous work is performed and shall keep a record of such measurement which shall be made available to the enforcing authority.

4. The working environment measurement shall be performed periodically as may be necessary but not longer than annually.

5. The working environment measurement shall be performed by the medical and safety personnel who have taken adequate training and experience in working environment measurement.

6. In the event of inability to perform the working environment measurement, the employer shall commission the Department or the Department of Labor and Employment, to perform the measurement.

Section 3. Personal Protective Equipment

A. Personal protective equipment (PPE) shall be used whenever engineering and administrative control measures are not feasible or insufficient/inadequate as specified in Rule V, Section 2, of this IRR.

B. Personal protective equipment and/or protective barrier shall be provided whenever necessary by reason of the hazardous nature of the process or environment, chemical or radiological or other mechanical irritants or hazards capable of causing injury or impairment in the functions of any part of the body through absorption, inhalation or physical contact.

C. All personal protective equipment shall be of the Department's approved design and construction appropriate for the exposure and the work to be performed.

D. No person shall be subjected or exposed to hazardous environmental condition without protection.

E. List of personal protective equipment recommended for use and shall be fitted to each exposed worker whenever necessary. (See Table 5a and 5b of the Appendix)

1. Eye and Face Protection

1.1 Eye and face protective equipment shall conform with the following minimum requirements:

a. Provide adequate protection against the particular hazard for which they are designed or intended;

b. Be reasonably comfortable to use;

c. Fit smugly and shall not unduly interfere with the movements of the user;

d. Be durable, easily cleaned and capable of being disinfected;

e. Be kept clean and in good condition; and

f. Be of the approved type.

1.2 Whenever eye protection is needed, persons whose visions require the use of corrective lenses shall wear goggles or spectacles of any of the following types:

a. Spectacles which provide optical corrections;

b. Goggles that can be worn over corrective spectacles without disturbing the adjustment of the spectacles; or

c. Goggles that incorporate corrective lenses mounted behind the protective lenses.

1.3 Limitations and precautions indicated by the manufacturer shall be transmitted to the user and care shall be taken to ensure that such limitations and precautions are strictly followed and observed.

1.4 For purposes of design, construction, testing, use of eye and face protection, the American National Standards for Occupational Eye and Face Protection Equipment (ANSI z87.1 – 1968) is adopted.

2. Respiratory Protection

2.1 Appropriate respirators shall be furnished by the employers when such equipment are necessary to protect the health of the employees.

2.2 Respiratory Protective Program shall include the following:

a. Proper selection of respirators on the basis of the hazards to which the worker is exposed.

b. Sufficient instruction and training in the proper use and limitations of respirators.

c. When practicable, the assignment of respirators to individual workers for their exclusive use.

d. Regular cleaning and disinfecting of the respirators. Respirators issued for the exclusive use of one worker shall be cleaned after each day's use as often as necessary. Those used by two or more workers shall be thoroughly cleaned and disinfected after each use.

e. Appropriate examination and testing of the conditions of the work area in order to assure that the allowable degree of employee exposure is maintained and to determine the effectiveness of the control measures.

2.3 For purposes of proper selection, design, construction, testing and use of respirators, the latest recommendation of the American National Standards Practices for Respiratory Protection (ANSI z88.2 – 1059) or its equivalent is adopted.

2.4 Standard procedures shall be developed for the use of respirators. These should include all information and guidance necessary for their proper selection, use and care. Possible emergency uses of respirators should be anticipated and planned for.

2.5 Written procedures shall be prepared covering safe use of respirators in dangerous atmospheres that might be encountered in normal operations or in emergencies. All personnel shall be familiar with these procedures and the right respirators to use.

a. Workers in enclosed toxic or oxygen-deficient atmosphere shall be assisted in case of accident by at least one additional worker stationed in an area unaffected by the incident and provided with proper rescue equipment to assist the other (s) in case of emergency. Communication (visual, voice, or signal line) shall be maintained among the individuals present.

b. When self-contained breathing apparatus or hose masks with blower are used in atmospheres dangerous to life or health, standby men must be present with suitable rescue equipment.

c. Persons using air-line respirator in atmospheres hazardous to life or health shall be equipped with safety harnesses and safety lines for lifting or removing persons from hazardous atmospheres or other equivalent provisions for the rescue of person. A standby men equipped with appropriate rescue equipment must be present.

2.6 For the safe use of any respirator, the workers shall be properly instructed in its selection, use and maintenance.

2.7 A program for the maintenance and care of respirators shall be adopted to the type of plant, working conditions and hazards involved and shall include the following basic services:

a. inspection for defects including leak check;

b. cleaning and disinfecting; and

c. repair and storage

3. <u>Head Protection</u>

2.8 Appropriate Head Protection shall be furnished by the employer where such equipment are necessary to protect the safety of the employees.

a. Hard hats for the protection of workers from impact penetration from falling and flying objects, blows and from limited electric shock and burns shall be provided where there is reasonable probability of exposure to such hazards.

b. Hard hats shall be made of non-combustible or slow burning materials and when used in electrical environment shall be non-conductors of electricity.

c. The total weight of a complete hard hat should not be more than 0.45 kg. (16 ounces).

d. Hard hat shall have a brim all around to provide protection for the head, face and back of the neck.

e. Hard hat without brim and low crown may be allowed only in confined spaces.

f. The cradle and sweatband of hard hat shall be detachable and replaceable.

g. For work in excessive moisture, hard hat shall be made of waterproof material.

h. For the purpose of proper selection, design, construction, testing and use of head protectors, the American National Standards Safety Requirement for Industrial Head Protection (ANSI z59-1-1969) is adopted.

4. Hair Protection

4.1 All workers with long hair employed around machinery shall completely cover their hair with well-fitting caps or other equivalent protection. For better protection, workers shall be advised to have short hair.

4.2. Caps shall be made of materials not easily flammable and sufficiently durable to withstand regular laundering, disinfecting and cleaning.

5. Hand and Arm Protection

5.1 When selecting gloves, consideration should be given to the hazards to which the wearer may be exposed to and the ease and free movement of the fingers.

5.2 Gloves shall not be worn by workers operating drills, punch presses or other machinery in which the hand may be caught by moving parts.

5.3 Gloves, mittens, and leathers, or pads for workers handling sharp edged or abrasive objects shall be made of tough materials and where necessary provided with special reinforcement.

5.4 Gloves, mittens and sleeves for workers handling hot metals shall be made of suitable heat resisting materials.

5.5 Gloves and sleeves for electrical workers shall be made of rubber or other suitable materials conforming with the test requirements on dielectric strength.

5.6 Gauntlets for workers handling corrosive substances such as acids and caustics, shall be made of natural rubber, synthetic rubber or pliable plastic material resistant to corrosion.

5.7 Gauntlets for protecting workers against the action of toxic, irritating or infectious substances shall:

a. Cover the forearm as much as possible;
b. have a closed fit at the upper end; and
c. not have the slightest break.

Gloves torn during use shall be replaced immediately.

6. Hearing Protection

6.1 The systematic and correct use of ear protectors can prevent hearing loss and other noise-induced hearing impairment. Individual ear protectors include ear plugs, earmuffs and hearing protective helmets.

6.2 Mandatory use of hearing protectors are necessary when the sound level within a workplace exceed the 90 dBA for an 8 hour working period.

6.3 Numerous types of earplugs are made of fibrous materials impregnated with oils or consisting of wax-like mastic, rubber and other polymers, or of solid cores covered with soft materials. The different shapes and dimensions of external ear canals make it necessary for manufacturer to design various standard sizes.

6.4 Earmuffs are almost hemispheric cups made of light alloys or plastics, and filled with fibrous and porous materials. Absorbent to ensure a comfortable and tight fit around the ear they are provided with air or liquids with high internal function (glycerine, mineral oil).

6.5 Ear protectors of whatever type should ensure efficient noise attenuation of the noise penetrating into the external ear canal.

6.6 A distinction must be made between requirements of individual ear protectors against powerful noise occurring for short periods during the work shift, against noise with clearly defined low or high frequency spectra and against broad-band industrial noise to which workers are exposed during the entire shift.

6.7 Protection against powerful noise can only be achieved with highly efficient ear protectors, i.e. helmets which are made of rigid materials with built-in earmuffs tightly fitting to the head.

6.8 Earmuffs for low frequency noise must have large volume and relatively heavy muff shells, those for high frequency noise must be light with small shells filled with sound absorbent material, well fitting around ear with their sealing rims.

6.9 The attenuation specifications for ear protectors fall into the groups A, B and C for both earmuffs and earplugs. These specifications allow for existing types of ear protectors and should permit for wearing them in comfort for four (4) hours without interruption.

6.10 Earplugs for repeated use should be available in standard sizes to ensure good individual fit; their weight is not specified but should not exceed 10 g.

7. Safety Belts, Life Lines and Safety Nets

7.1 Workers working in unguarded surface above open pits or tanks, steep slopes, moving machinery and similar locations, or working from unguarded surfaces six (6) meters (20 ft.) or more above water or ground, temporary or permanent floor platform, scaffold construction or where otherwise exposed to the possibility of falls hazardous to life or limb, shall be secured by safety belts and lifelines. In situations where safety belts and lifelines in guarded platforms and scaffolds or temporary floors are not feasible, safety nets shall be provided and installed.

7.2 Window washers or cleaners working outside buildings six (6) meters (20 ft.) or more above the ground or other surfaces unless protected from falling by other means, shall use safety belts attached to suitable anchors.

7.3 Workers entering a sewer, flue, duct or other similarly confined places shall be provided and required to wear safety belts with life lines attached and held by another person stationed at the opening ready to respond to agreed signals.

7.4 Workers who are required to climb and work on top of poles six (6) meters or more shall use safety belts. On top of structures where there is no place to strap a safety belt, a messenger line shall be installed for strapping the safety belt or lifeline.

7.5 Requirements:

a. Safety belts shall be made of chromed tanned leather, linen or cotton webbing or other suitable materials at least 11.5 cm. (4 ½ in.) wide and 0.65 cm. (1/4 in.) thick and of sufficient strength to support a weight of 114 kg. (250 lbs.) without breaking.

b. Hardware used for safety belts should have a strength of approximately equal to the strength of the waist band. Buckles shall hold securely without slippage or other failure. This holding power should be achieved by only a single insertion of the strap through the buckle in the normal or usual way.

c. Belt anchors shall be made of metal machined from bar stock, forged or heat treated, capable of supporting a pull of 2730 kg. (6,000 lbs.) without fracture applied in the direction which the anchor must withstand should a man fall. All anchors and fastenings shall be provided with means to prevent turning, backing off or becoming loose. Anchor fittings with single thread section which is merely screwed into reinforcing plates shall not be used. Metals recommended for belt anchors are nickel, copper alloy and stainless steel.

d. Lifelines shall be made of good quality manila rope of at least 1.9 cm. (3/4 in.) diameter or equivalent material such as nylon rope of at least 1.27 cm. (1/2 in.) diameter and shall be of sufficient strength to support a weight of 1140 kg. (2500 lbs.) without breaking.

e. Safety nets shall not be less than 0.94 cm. (3/8 in.) diameter mesh ropes and not less than 1.90 cm. (3/4 in.) diameter border ropes (perimeter) made of manila rope or other materials that can absorb the impact of a falling body equally as nets fabricated from manila rope of the dimensions specified. The mesh shall be arranged not to exceed 15.25 cm. (6 in.) on centers positively and securely attached to avoid wear at each crossing point and at points of contact with the border.

f. Safety nets shall be equipped with adequately padded thimbler sockets or equivalent means of attachments. Supports and anchorages shall be of sufficient size and strength to catch any falling worker. The nets shall be attached to sufficient supports outside and beyond the area of possible fall and supported at sufficient heights to prevent sagging to any solid object beneath when cushioning the fall of a worker.

g. Safety belts, lifelines and safety nets shall be inspected before use and at least once each week thereafter. Defective belts, lines or nets shall be immediately discarded and replaced or repaired before reuse.

8. Use of Safety Shoes

8.1 Workers shall be provided with approved safety shoes and leg protection whenever necessary as determined by the nature of work.

Section 4. Occupational Health Services

A. Health Services shall be provided to all employees in accordance with the rules and regulations prescribed hereunder by the Department and Department of Labor and Employment.

B. Coverage:

1. This section shall apply to all industrial establishments including government-owned or controlled corporations.

2 The Dental Health Service of the Department shall be responsible for the development and enforcement of dental health standards.

C. Occupational Health Services:

1. Functions: Without prejudice to the responsibility of each employer for the health and safety of the workers in his employment, and with due regard to the necessity for the workers to participate in matters of occupational health and safety, occupational health services shall have the following functions as are adequate and appropriate to the occupational risks of the establishment/undertaking.

1.1 Identification and assessment of the risks from health hazards in the workplace;

1.2 Surveillance of the factors in the working environment and working practices which may affect the workers' health, including sanitary installations, canteens, and housing where these facilities are provided by the employer;

1.3 Advice on planning and organization of work, including the design of the workplace, on the choice, maintenance and condition of machinery and other equipment, and on substances used in work;

1.4 Participation in the development of programs/projects for the improvement of working practices as well as testing and evaluation for the possible health effects brought about by the new equipment;

1.5 Advice on occupational health, safety and hygiene, as well as on ergonomics and personal protective equipment;

1.6 Surveillance of workers' health in relation to work;

1.7 Promotion of the adaptation of work to the workers and vice versa;

1.8 Collaboration in providing information, training and education in the fields of occupational health, industrial hygiene, occupational medicine and ergonomics;

1.9 Organization of first-aid and emergency treatment; and

1.10 Participation in the evaluation and analysis of occupational diseases and accidents.

D. Organization and Preventive Services:

1. Occupational health services maybe organized by:

1.1 the establishment/undertaking;

1.2 government authorities or official services recognized by the Bureau of Working Conditions, DOLE and the Department;

1.3 social security institution;

1.4 any other bodies authorized by the Bureau of Working Condition, DOLE and the Department;

1.5 a combination of any of the above.

2. Occupational Health Services organized as a service for a single small-scale establishment shall have an occupational health practitioner as one of its personnel, who shall conduct the inspection of the workplace.

1.6 at least once every two (2) months for hazardous small-scale establishment employing 1-50 workers;

1.7 at least once every month for hazardous small-scale establishment employing 51-99 workers;

1.8 at least once every six (6) months for non-hazardous establishment employing 1-99 workers.

3. Occupational Health Services organized as a service for a single, non-hazardous medium-scale establishment employing 100 to 199 workers, shall have an occupational health practitioner as one of its personnel who shall conduct an inspection of the workplace at least once every three (3) months.

4. Occupational health services organized as a single, hazardous medium-scale establishment employing 100 to 199 workers shall have a part-time occupational health physicians as one of its personnel, who shall perform the duties of an occupational health physician as provided for under Rule V Section 4 G (1), of this IRR.

5. For hazardous and non-hazardous large-scale establishments employing 200 workers and more, occupational health services shall be organized as a service solely for a single establishment/undertaking, and shall have a part-time or full-time occupational health physician, in accordance with the provisions of Rule V Section 4 E as one of its personnel Such occupational health physician shall perform the duties of an occupational health physician as provided for under Rule V Section 4 G (1), of this IRR.

7. When an occupational health service is organized as a service common to a number of establishments/undertakings, the following regulations shall be followed:

7.1 for small-scale industries within contiguous area, the total number of establishments shall not exceed ten (10);

7.2 for medium-scale industries within contiguous area, the total number of establishments shall not exceed four (4).

E. **Emergency Health Services**

1. Medicines and Facilities

1.1 Every employer covered by this IRR shall keep in his workplace at least the minimum quantity of emergency and essential medicines, medical supplies and equipment and medical facilities listed in Table IIIa (Appendix) on medicines, supplies and facilities, for the use of the workers employed in the establishment/undertaking.

1.2 The medicines, medical supplies and facilities prescribed in Table IIIa may be substituted with other comparable medicines and/or facilities as prescribed by the occupational health physician of the workplace.

1.3 The medicines, medical supplies and facilities prescribed in Table IIIa shall be kept inside the treatment room/medical clinic required under Rule V Section 4 E (1) and shall be replaced with the same quantity immediately after use or consumption.

2. Medical and Dental Services: (See Table 3b of the Appendix for the required health personnel)

For hazardous workplaces:

2.1 Where the number of workers is from 1 to 50, the services of a full-time first-aider shall be provided, who may be one of the workers in the workplace and who has immediate access to the first-aid medicine prescribed in Rule V Section 4 E, of this IRR.

2.2 Where the number of workers is from 51 to 99, the services of a part-time occupational health nurse shall be provided, who shall stay in the premises of the workplace at least four (4) hours a day, six (6) times a week. Where there are more than one work shift in a day, the Nurse shall stay at the workplace during the shift which has the biggest number of workers. The services of a full-time first-aider including the maintenance of an emergency treatment room for workers shall also be provided.

2.3 Where the number of workers is from 100 to 199, the services of a part-time occupational health physician and a part-time dentist shall be provided, each of whom shall stay in the premises of the workplace at least four (4) hours a day, three (3) times a week, and each one working on alternate days with the other, where there are more than one work shift in a day, the physician and the dentist shall stay in the workplace during the shift which has the biggest number of workers. In addition, the services of a full-time occupational health nurse and a full-time first-aider shall be provided. An emergency treatment room shall be maintained in the place of employment.

2.4 Where the number of workers is from 200 to 600, the services of a part-time occupational health physician and a part-time dentist shall be provided, each of whom shall stay in the premises of the workplace at least four (4) hours a day, six (6) times a week, and each working in alternate periods with the other. Where there are more than one work shift in a day, the physician and the dentist shall stay at the workplace during the shift which has the biggest number of workers. The services of a full-time occupational health nurse and a full-time first-aider shall also be provided. An emergency medical clinic for workers shall be maintained in the place of employment.

2.5 Where the number of workers is from 601 to 2000, the services of a full-time occupational health physician shall be provided who shall stay in the premises of the workplace eight (8) hours a day, six (6) times a week in alternate periods with the other. The services of a full-time dentist shall also be provided. The physician and the dentist shall stay at the workplace during the shift which has the biggest number of workers. The services of a full-time occupational health nurse and a full-time first-aider shall be provided for every shift. An emergency medical and dental clinic for workers shall be maintained in the place of employment.

2.6 Where the number of workers is more that 2000, provisions shall be made for the services of a full-time occupational health physician and a full time dentist, each of whom shall stay in the premises of the workplace eight (8) hours a day, six (6) times a week during the work shift which has the biggest number of workers. In addition, provisions shall likewise be made for the services of one (1) part-time occupational health physician for each of the other work shifts who shall stay in the premises of the workplace at least four (4) hours a day, six (6) times a week. The services of a full-time occupational health nurse and a full-time first-aider shall also be provided for every work shift. An emergency hospital having a bed capacity of one (1) bed for every one hundred (100) workers and a dental clinic shall be maintained in the place of employment.

2.7 Every employer of industrial establishments having factories/plants using, manufacturing or formulating pesticides under toxicity categories I and II of the World Health Organization (WHO) toxicity classification standards shall provide the following:

a. a medical clinic within 100 meters of working areas in the formulating/ manufacturing plant;

b. the services of a competent full-time occupational health physician who shall stay in the medical clinic provided for above, at least eight (8) hours a day during the work shift which has the biggest number of workers;

c. a bathroom with showers and eye wash facilities within or beside the medical clinic; and

d. an examining table with capacity to allow trendelenburg position.

For Non-Hazardous Workplaces

2.8 Where the number of workers is from 1 to 99, the services of full-time first-aider shall be provided who maybe one of the workers in the workplace and who has immediate access to the first-aid medicines prescribed under Rule V Section 4 E, of this IRR. Where the number of workers is from 51 to 99, an emergency treatment room shall be provided.

2.9 Where the number of workers is from 100 to 199, the services of a part-time occupational health nurse shall be provided who shall stay in the premises of the workplace at least four (4) hours a day, six (6) times a week. Where there are more than one work shift in a day, the nurse shall stay in the workplace during the shift which has the biggest number of workers. The services of a full-time first-aider shall be provided. An emergency treatment room for workers shall be maintained in the place of employment.

2.10 Where the number of workers is from 200 to 600, the services of a part-time occupational health physician and a part-time dentist shall be provided, each of whom shall stay in the premises of the workplace at least four (4) hours a day, three (3) times a week, on alternate days with the other. Where there are more than one work shift in a day, the physician and the dentist shall stay in the workplace during the shift which has the biggest number of workers. In addition, the services of a full-time occupational health nurse and a full-time first-aider shall be provided. An emergency treatment room for workers shall be maintained in the place of employment.

2.11 Where the number of workers is from 601 to 2,000, the services of a part-time occupational health physician and a part-time dentist shall be provided, each of whom shall stay in the premises of the workplace at least four (4) hours, a day, six (6) times a week working in alternate periods with the other. Where there are more than one work shift in a day, the physician and the dentist shall stay in the workplace during the shift which has the biggest number of workers. The services of a full-time occupational health nurse and a full-time first-aider shall also be provided. An emergency clinic for the workers shall be maintained in the place of employment.

2.12 Where the number of workers is more than 2,000, the services of a full-time occupational health physician and a full-time dentist shall be provided each of whom shall stay in the premises of the workplace eight (8) hours a day, six (6) times a week during the work shift which has the biggest number of workers. In addition, the services of one (1) part-time occupational health physician for each of the other workshift shall be provided, who shall stay in the premises of the workplace at least four (4) a day, six (6) times a week. The services of a full-time occupational health nurse and full-time first-aider for every workshift shall also be provided. An emergency medical and dental clinic for workers shall be maintained in the place of employment.

For both hazardous and non-hazardous workplaces

2.13 Where there are more than one workshift in a day, additional services of a full-time first-aider for every work shift shall be provided.

2.14 Where only a treatment room is provided for the workers, in case of emergency, access to the nearest medical/dental clinic or to a medical/dental clinic located not more than 5 kilometers away from the workplace shall also be provided. Such access shall be in the form of providing the necessary transportation facilities and a written agreement with the medical/dental clinic to attend to such emergencies brought to them.

2.15 The physician/dentist required to stay in the workplace during the work shift having the biggest number of workers shall be subject to call at any time during the other shifts to attend to emergencies.

3. **Emergency Hospital**

3.1 An employer may not establish an emergency hospital or dental clinic in his workplace as required in this IRR provided there is a hospital and dental clinic which is located not more than five (5) kilometers away from the workplace, if situated in an urban area or which can be reached in twenty-five (25) minutes of travel, if situated in a rural area, and the employer has facilities readily available for transporting workers to the hospital or clinic in case of emergency. For purpose of this IRR, the employer shall enter into written contract with the hospital and dental clinic for the use of such hospital/clinic in the treatment of workers in case of emergency. However, this shall not excuse the employer from maintaining in his workplace an emergency treatment room for his workers.

4. **Contracts for Occupational Health Services:**

4.1 Contracts for occupational health practitioner services entered into by employer shall only be with occupational health practitioners and/or occupational health clinics accredited by the Bureau of Working Conditions, DOLE and the Department.

4.2 No occupational health practitioner, whether acting singly or as part of a group/association, shall enter into a contract for occupational health practitioner services with more than ten (10) establishments.

4.3 No part-time occupational health physician/nurse shall enter into contract for occupational health services with more than four (4) establishments.

4.4 When full-time occupational health physician/nurse who is also a qualified occupational health practitioner, has entered into a contract for occupational health services with one (1) establishment, he/she shall not engaged himself/herself, with or without a written contract, for the same services with any other establishment.

4.5 Under no circumstances shall an employer enter into a retainership contract for health services in place of the occupational health services provided for under Rule V, Section 4, of this IRR.

4.6 The employer shall furnish the Department and the local health authority concerned a copy of each of the contract for Occupational Health Services.

F. Training and Qualifications of Health Personnel

1. Qualifications

1.1 A first-aider must be able to read and write and must have completed a course in first-aid conducted by the Philippine National Red Cross (PNRC) or any organization accredited by the same.

1.2 A nurse must have passed the examination given by the Board of Examiners for Nurses and duly licensed to practice nursing in the Philippines with at least fifty (50) hours of Basic training in occupational nursing conducted by the Bureau of Working Condition or the regional office concerned, the College of Public Health of the University of the Philippines, or by any institution/organization accredited by the former.

1.3 A physician, whether part-time or full-time, must have passed the examination given by the Board of Examiners for Physicians, is licensed to practice medicine in the Philippines, and a graduate of the Basic Training Course in occupational health medicine conducted by the Bureau of Working Condition, DOLE, the College of Public Health of the University of the Philippines, or by any institution/organization duly accredited by the former.

1.4 A physician engaged by the employer of a hazardous establishment employing more than 2,000 workers, to be its full-time occupational health physician must have, in addition to the qualifications required under Rule V, Section 4 F 1.3 , of this IRR, a diploma or master's degree in occupational health or industrial health or its equivalent or completed a residency training program in occupational medicine, must be duly certified by the Bureau of Working Conditions, and must have registered with the DOLE, Regional Office.

1.5 A dentist, whether part-time or full-time, must have passed the examination given by the Board of Examiners for Dentists, is licensed to practice dentistry in the Philippines, and has completed a basic training course in occupational dentistry conducted by the Dental Health Service of the Department or any organization duly accredited by the same.

1.6 An occupational health practitioner, as defined under Rule I, Section I, of this IRR must have all of the following qualifications:

a. a graduate of an advanced training course in occupational health and safety conducted by the Bureau of Working Condition, DOLE, the College of Public Health of the University of the Philippines, or any institution/organization duly authorized/accredited or recognized by the former;

b. must have had at least five (5) years experience in the field of or practice of occupational health and safety;

c. must be duly certified/accredited by the Bureau of Working Condition, DOLE: and

d. must have registered with the DOLE-Regional Office concerned.

2. **Opportunity for Training**

2.1 Physicians, Dentists and Nurses who do not possess the special training qualifications provided for in Rule V, Section 4 F, of this IRR, shall within six (6) months from the date of employment, comply with this requirement.

2.2 All employers without the required trained first-aider on the date of this IRR shall, within six (6) months, have the required number of his workers undergo the prescribed training in first-aid.

3. **Refresher Training**

3.1 The occupational health personnel and the first-aiders of every establishments shall undergo a minimum of eight (8) hours refresher training course in their respective fields at least once a year.

G. **Duties of the Health Personnel**

1. **Duties of the Occupational Health Physician:**

1.1 Organizes, administers and maintains an occupational health service program integrating therein an occupational safety program;

1.2 Monitors the work environment for health hazards through periodic inspection of the workplace;

1.3 Prevents diseases or injuries in the workplace by establishing proper medical supervision over substances used, processes and work environment;

1.4 Conserves the health of the workers through periodic physical examinations, proper advice for placement and health education;

1.5 Provides medical and surgical care to restore health and earning capacity of injured workers;

1.6 Maintains and analyzes records of all medical cases and to prepare and submit to the employer annual medical reports as required by this IRR;

1.7 Conducts studies on occupational health within his means and resources;

1.8 Acts as adviser to management and labor on all health matters; and

1.9 Reports directly to top management in order to be effective.

2. **Duties of the Occupational Health Dentist**

2.1 Plans, organize and establish a comprehensive dental health program integrating occupational health, hygiene and safety to promote a high level oral health of the workers;

2.2 Conducts a complete and thorough oral examination of the workers in addition to the required pre-employment physical examination and certifies whether the workers is "orally fit or not";

2.3 Conducts oral examination of the workers during employment at least once a year in a non-hazardous workplace and periodic oral examination as may be deemed necessary upon the request of supervisors in work areas which are hazardous in nature;

2.4 Using x-ray and other diagnostic aids, conducts a complete thorough oral examination of workers in hazardous work areas who are leaving the company and certifies whether a workers is suffering or not from occupational diseases of the hard and soft tissues of the oral cavity;

2.5 Conducts oral examination of workers treated and recovered from contagious oral diseases to certify whether they are fit to return to work or not;

2.6 Reports to company physician and supervisors for immediate and appropriate action, cases of occupational oral diseases detected after oral examination during employment which cannot be attended to by the dental service;

2.7 Attends to emergency dental cases so that the worker can go back to work as soon as possible;

2.8 Provides prompt treatment and/or referrals of occupational and non-occupational oral diseases;

2.9 In hazardous work areas, it is the responsibility of the occupational dentist to recommend to management that worker shall be provided with suitable protective equipment/devices to protect them from occupational hazards;

2.10 Gives chairside instructions while treating the patients, explains and discusses with him his oral condition and recommends positive actions with emphasis on good and proper nutrition that the worker can take to improve his oral health;

2.11 Participates actively with other health personnel in the preparation of health education materials, as well as disseminating health information to the workers and thru them to members of their families;

2.12 Should be recommended and serves as member of the Health and Safety Committee including investigation of accidents and inspection of workplaces;

2.13 Coordinates with the supply officer of the industrial establishment in establishing a regular schedule in the procurement of needed equipment, dental materials and supplies;

2.14 Submits for the approval of the management through the Budget Officer, budget estimates to operate and maintain adequate standards of dental services for a period of at least one calendar or fiscal year;

2.15 Complies and maintains a complete record of oral examinations, treatments, and/or referrals done for each patient;

2.16 Submits periodic reports of accomplishments to the employer;

2.17 Submits dental reports to the employer and to the Department or the Local Health Authority;

2.18 Evaluates the occupational dental health service/program of the establishment annually and makes a report of such evaluation and recommendation to management;

2.19 Coordinates his activities with the activities of the other members of the health staff;

2.20 Performs such other duties that may be assigned by his employer.

2.21 Other Responsibilities:

The occupational health dentist should know the extent and magnitude of the oral problems of the workers. This information will provided him the basis for organizing, planning, implementing, monitoring and evaluating dental care programs; its effects and cost benefits as well as recommending budgetary requirements.

3. Duties of the Occupational Health Nurse

3.1 In the absence of a physician, organizes and administers a health service program integrating occupational hygiene and safety, otherwise, these activities of the nurse shall be in accordance with the physician;

3.2 Provides nursing care to injured or ill workers;

3.3 Participates in health maintenance examination. If a physician is not available, to perform work activities which are within the scope allowed by the nursing profession and if more extensive examinations are needed, to refer the same to a physician;

3.4 Participates in the maintenance of occupational health, hygiene and safety by giving suggestions in the improvement of working environment affecting the health and well-being of the workers; and

3.5 Maintains a reporting and recording system, and if a physician is not available, prepares and submits an annual report to the employer and the Department or the Local Health Authority as required by this IRR.

4. Duties of the First-Aider

4.1 Gives immediate temporary treatment in case of injury or illness, before the services of a physician becomes available. If the case needs a physician, the first aider shall immediately call or refer the injured to one;

4.2 Participates in the maintenance of occupational health, hygiene and safety programs, if a member of the health and safety committee; and

4.3 Maintains medical services and facilities.

5. Duties of the Occupational Health Practitioner

5.1 Advises the employers, the workers and their representatives in the workplace the necessary requirements in establishing and maintaining a healthy and safe working environment which will facilitate optimal physical and mental health for workers;

5.2 Conducts periodic inspection of the workplace as required under Rule V, Section 4 E, of this IRR;

5.3 Acts as adviser to the employer, workers and their representatives in matters concerning the organization, administration and maintenance of an occupational health program; and

5.4 Maintains a reporting and recording system and prepares and submits an annual medical report to the employer and to the Department or the Local Health Authority as required by this IRR.

H. Occupational Health Program

1. Aside from the responsibilities of the employer under Rule III, Section 1, of this IRR the employer shall organize and maintain an occupational health program to achieve the following objectives:

1.1 Assess the workers' physical, emotional and psychological assets as well as his liabilities in order to facilitate his proper placement and ensure the suitability of individuals according to their physical capacities, mental abilities and emotional make-up in work which they can perform with an acceptable degree of efficiency without endangering their own health and safety and that of their co-workers;

1.2 Protect employees against health hazards in their working environment in order to prevent occupational as well as non-occupational diseases;

1.3 Provision for first-aid, emergency services and treatment depending on the nature of the industry;

1.4 Assure adequate medical care of ill and injured workers;

1.5 Encourage personal health maintenance and physical fitness and proper nutrition practices; and

1.6 Provide guidance, information and services for the family planning programs.

2. The Health Program shall include the following activities:

2.1 Maintenance of a healthy work environment by requiring occupational health personnel to conduct regular appraisal of sanitary conditions, periodic inspection of premises, including all facilities therein, and evaluate the working environment in order to detect and appraise occupational health hazards and environmental conditions affecting comfort and job efficiency;

2.2 Health Examinations

a. Entrance or pre-employment
b. Periodic or Annual Examination
c. Special Examination
d. Transfer Examination
e. Separation Examination

2.3 Diagnosis and Treatment of all injuries and occupational and non-occupational diseases;

2.4 Immunization and family planning programs;

2.5 Accurate and complete records of each worker starting from his first examination or treatment, which must be under the exclusive custody and control of the occupational health personnel. Such records shall be made available to the worker or his duly authorized representative and shall not be used for discriminatory purpose or in any other manner prejudicial to his interest.

2.6 Health Education and Counselling in which the occupational health and safety personnel shall cooperate with the supervisors in imparting appropriate health and safety information to employees, such as health hazards and proper precautionary habits of cleanliness, orderliness, safe work practices, use and maintenance of approved personal protective equipment and the use of available health services and facilities; and

2.7 Nutrition program which shall be under the dietician and supervised by a physician if the latter is present.

I. Physical Examination

1. All workers, irrespective of age and sex, shall undergo physical examination:

1.1 before entering employment for the first time;

1.2 periodically, or at such intervals as may be necessary on account of the conditions or risks involved in the work;

1.3 when transferred or separated from employment; and

1.4 when injured or ill.

2. All examinations shall:

2.1 be complete and thorough

2.2 be rendered free of charge to the workers; and

2.3 include x-ray or special laboratory examinations when necessary due to the peculiar nature of the employment.

3. The results of these physical examinations shall be recorded carefully and legibly on appropriate forms by the health service personnel charged with such responsibility.

4. Records of physical examinations and all information obtained by the health personnel shall be considered strictly confidential.

5. Pre-employment/Pre-placement Physical Examinations

5.1 Pre-employment Physical Examination shall be conducted:

a. to determine the physical condition of the prospective employee at the time of hiring; and

b. to prevent the placement of a worker on a job where through some physical or mental defects, he may be dangerous to his fellow workers or to property.

5.2 Pre-employment physical examination shall:

a. be a general clinical examination including special laboratory examinations when necessary due to the peculiar nature of the worker's prospective employment;

b. include chest x-ray examinations. Under the following circumstances, x-ray examination shall be rendered free of charge:

- where the employer or establishment is required by these IRR to engage the services of an Occupational Health Physician and where there are x-ray facilities in the establishment;

- where the employer does not maintain such facilities, x-ray examinations shall be conducted by the government clinics or hospitals; the occupational health physician and private clinics or hospitals when applicants are referred to them.

c. in all other instances, the applicant shall pay the cost of the examination.

5.3 At the completion of the examination, the applicant shall be rated as follows:

a. Class A – Physically fit for any work

b. Class B – Physically under-developed or with corrective defects, (error of refraction, dental caries, defective hearing and other similar defects) but otherwise fit to work.

c. Class C – Employable but owing to certain impairments or conditions (heart disease, hypertension, anatomical defects) requires special placement or limited duty in a specified or selected assignment requiring follow-up treatment/periodic evaluation.

d. Class D – Unfit or unsafe for any type of employment (active PTB, advanced heart disease with threatened failure, malignant hypertension and other similar illnesses).

6. **Periodic/Annual Medical Examinations**

6.1 Shall be as complete and as thorough as the pre-employment examinations and include general clinical examinations.

6.2 Shall include all special examinations and/or investigations deemed necessary for the diagnosis of these diseases which will be free of charge in case the workers are exposed to occupational health hazards.

6.3 Shall include, whenever feasible, a chest x-ray examination at least once a year which shall be rendered free of charge to the workers.

6.4 Shall be as frequent as the nature of employment may warrant taking into consideration the special hazards involved and their relative importance.

6.5 Shall include regular biochemical monitoring which shall be conducted free of charge for workers exposed to toxic substances/pesticides classified under toxicity categories I & II of the World Health Organization (WHO) toxicity classification standards.

6.6 Shall have an interval of not longer than one year between two (2) consecutive periodic physical examinations.

7. In occupation where there is a risk to the health of the worker either due to toxic substances they handle or of the environment in which they work, only persons who are pronounced medically fit shall be employed.

8. When occupational diseases have been detected in workers and continued employment might jeopardize their health, their employment shall be discontinued until after their complete or satisfactory recovery. If circumstances permit, such workers shall meanwhile be given some other job consistent with their state of health and which shall not impede or retard their recovery.

9. Transfer Examinations

9.1 Applicants examined for employment and accepted for specific work or job shall not be transferred to another work or job until they have been examined by the physician and certified that the transfer is medicallly advisable.

10. Other Special Examinations

10.1 Special examinations maybe required where there is undue exposure to health hazards, such as lead, mercury, hydrogen sulfide, sulfur dioxide, nitroglycol and other similar substances.

11. Return to Work Examinations

11.1 to detect if illness of the worker is still contagious;

11.2 to determine whether the worker is fit to return to work; and

11.3 after prolonged absence for health reasons, for the purpose of determining its possible occupational causes.

12. Separation from Employment Examination

12.1 to determine if the employee is suffering from any occupational diseases;

12.2 to determine whether he is suffering from any injury or illness which has not completely healed; and

12.3 to determine whether he has sustained an injury.

RULE VI
PENAL PROVISIONS

Section 1. Any person who shall violate, disobey, refuse, omit or neglect to comply with any of the provisions of these implementing rules and regulations shall be guilty of misdemeanor and upon conviction shall be punished by imprisonment for a period not exceeding six (6) months or by a fine not exceeding P1,000 or both.

Section 2. Any person who shall interfere with or hinder or oppose any officer, agent, or member of the Department or of the Bureaus, Offices, Services and Regional Offices under it, provincial, city or municipal health officers, sanitary engineers, and sanitation inspectors of the Local Government Units in the performance of his duty as provided for under these rules and regulations, or shall tear down, mutilate, deface or alter any placard, or notice affixed to the premises in the enforcement of these implementing rules and regulations shall be guilty of a misdemeanor and punishable upon conviction by imprisonment for a period not exceeding six (6) months or by a fine not exceeding P1,000 or both depending upon the discretion of the court.

Section 3. Any person, firm corporation or entity who shall operate an industrial establishment without the necessary sanitary permit shall be subjected to the same penal provision as specified in Rule VI, Sections 1 and 2, of this IRR.

RULE VII
SEPARABILITY AND REPEALING CLAUSES

Section 1. In the event that any rule, section, paragraph, sentence, clause or word of this IRR is declared invalid for any reason, the other provision thereof shall not be affected thereby.

Section 2. All pertinent rules and regulations which are inconsistent with the provisions of this IRR are hereby repealed or amended accordingly.

RULE VIII
DATE OF EFFECTIVITY

This implementing rules and regulations shall take effect after fifteen (15) days from the date of publication in the official gazette or a newspaper of general circulation.

Approved by:

ALBERTO G. ROMUALDEZ JR.,M.D.,MP.H.
Secretary of Health

Date of Publication: 7 January 1999
Philippine Daily Inquirer

APPENDICES

TABLE 1a – STANDARD DRINKING WATER (SDW) FACILITY*

NO. OF SDW FACILITY	NO. OF EMPLOYEES
1	1 - 50
2	51 - 100
3	101 – 150
4	151 – 200
5	201 – 250

Refers to faucet, fountain, dispenser or any other suitable means.

TABLE 1b – REQUIRED NUMBER OF TOILET BOWLS AND URINALS

NO. OF WORKERS	NO. OF TOILET BOWLS	NO. OF URINALS
Male		
1 - 25	1	1
26 - 50	2	2
51 - 75	3	3
76 - 100	4	4
101 – 140	5	5
141 – 180	6	6
181 – 220	7	7
221 – 260	8	8
261 – 300	9	9
301 – 340	10	10
341 – 380	11	11
381 – 420	12	12
421 – 460	13	13
461 – 500	14	14
501 – 560	15	15
561 – 620	16	16
621 – 680	17	17
681 – 740	18	18
741 – 800	19	19
Female		
1 - 20	1	
21 - 40	2	
41 - 60	3	
61 - 80	4	
81 - 100	5	
101 – 130	6	
131 – 160	7	
161 - 190	8	
191 - 220	9	
221 - 250	10	

TABLE 1c – RESTROOM AND DINING FACILITIES

FACILITY	RECOMMENDED SPACE	NO. OF EMPLOYEES
RESTROOM	6 sq. m.	10 or less
	6.2 sq. m.	11
	6.4 sq. m.	12
	6.6 sq. m.	13
	6.8 sq. m.	14
	7.0 sq. m.	15
	7.2 sq. m.	16
	7.4 sq. m.	17
	7.6 sq. m.	18
	7.8 sq. m.	19
	8.0 sq. m.	20
DINING/MESS HALL	10.80 sq. m..	4 or less
	11.70 sq. m.	5
	12.60 sq. m.	6
	13.50 sq. m.	7
	14.40 sq. m.	8
	15.30 sq. m.	9
	16.20 sq. m.	10

TABLE 1d – BATHING/WASHING FACILITY

NO. OF BATHING/WASHING FACILITY	NO. OF EMPLOYEES
1	1 - 25
2	26 - 50
3	51 - 75
4	76 - 100
5	101 - 140
6	141 - 180
7	181 - 220
8	221 - 260
9	261 - 300
10	301 - 340

TABLE 2a – PERMISSIBLE NOISE EXPOSURE LIMITS .

DURATION/DAY (HOURS)	SOUND LEVEL (dBA+)
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼	115*

\+ Sound Level in decibels are measured on a sound level meter, weighted network with slow meter response.

* No exposure is allowed to continuous intermittent in excess of 115 dBA

TABLE 2b – THRESHOLD LIMIT VALUES FOR IMPULSIVE OR IMPACT NOISE

SOUND LEVEL (dB*)	PERMITTED NO. OF IMPULSES OR IMPACTS/DAY
140	100
130	1,000
120	10,000

- Decibels peak sound pressure level: re 20 uPa.

TABLE 2c – RECOMMENDED EXPOSURE LIMIT VALUES FOR WORK IN A HOT ENVIRONMENT EXPRESSED AS WBGT, oC.

	W O R K L O A D		
WORK/REST REGIMEN	LIGHT	MEDIUM	HEAVY
Continuous Work	30.0	26.7	25.0
75% Work – 25% Rest/Hour	30.6	28.0	25.9
50% Work – 50% Rest/Hour	31.4	29.4	27.9
25% Work – 75% Rest/Hour	32.2	31.1	30.0

TABLE 2d: ILLUMINATION LEVELS

AREA OF OPERATION	MINIMUM LIGHTING LEVEL AND TASK LUX
Cutting Cloth Sewing Cloth Finish inspection Fine assembly Color grading Fine machining	2000 and above (200 foot candles
Inspection and assembly Clay enameling and glazing Electric motor insulating Coil winding and testing Chipping Grinding Fine core making Machine shop benchwork Transcribing handwriting Indexing references Accounting Pattern making Drafting	1000 (50 foot candles)
Welding Automotive frame assembly Chemical laboratory Foundry molding Metal pouring Sorting Core making Rubber extrusion and tire making Punch Press Shearing Stamping Spinning Woodworking Sizing Planing Rough Sanding Medium quality machine and benchwork First aid station	500 (50 foot candles)
Packaging Barrel Washing Turbine Clay molding and pressing Chemical furnace Tank Dryer Evaporator Extractor Cleaning and annealing furnace Plating Drop-forge shop Lunch Room Rest room Shower room	300 (30 foot candles)
General Construction plant and shops e.g. batching plants, screening plants, mechanical and electrical equipment rooms, carpenter shops, rigging lofts, and active storerooms, barracks or living quarters, tunnel and shaft heading during drilling, muckling and scalding	100 (10 foot candles)
Tunnels, shaft and general underground workareas, General construction areas concrete placement, excavation and waste areas, access ways, actove storage areas, loading platforms, refueling, and field maintenance areas, Indoors: warehouses, corridors, hallways and exitways.	50 (5 foot candles)

TABLE 2d(1) – EFFICACY RANGES AND COLOR RENDERING INDICES OF VARIOUS LAMPS

LAMP TYPE	EFFICACY RANGE (*) (LUMENS/WATT)	COLOUR RENDERING INDEX (CRI)
Incandescent Lamp (10-100w)	15 – 25	100
Flourescent Lamp (10-40w)	50 – 95	52 – 86
HP Mercury Flourescent (50-200w)	40 – 63	20 – 45
Metal Halide (up to 10,000w)	75 – 95	70
LP Sodium Lamp (20-200w)	100 – 180	--
HP Sodium Lamp (50-100w)	80 – 130	25

Note: (*) Values exclude power usage of ballasts

For purposes of computing (approx.) illumination levels (lux) in reference with power output, use the formula:

$$1\ (\text{lux}) = \frac{\text{Light source (number)} \times \text{Power Output (watts)} \times \text{Efficacy Range (lumens/watt)}}{\text{Total Area (m2)}}$$

Note: 1 (lux) = 1m/m2

TABLE 3a: TABLE OF MEDICINES, MEDICAL SUPPLIES, AND FACILITIES

A. FOR HAZARDOUS WORKPLACES

I. MEDICINES**	NUMBER OF WORKERS					
	1–50	51–99	10–199	200–600	601–2,000	2,001 & above
1. Topical Antiseptic, cc.	60	60	120	120	240	240
2. Antiseptic eyewash, cc.	120	120	120	240	240	240
3. Isopropyl Alcohol, cc.	240	240	240	500	500	500
4. Aromatic Spirit of Ammonia, cc.	30	30	30	30	60	60
5. Toothache drops, cc.	15	15	15	30	30	30
6. Hydrogen peroxide solution, cc.	120	120	240	240	360	480
7. Burn ointment, tube	1	1	1	1	1	1
8. Analgesic/Antipyretic, tablets	20	30	40	40	50	50
9. Anti–histaminic tablets	–	–	20	30	40	50
10. Antacid tablets	10	10	20	30	40	50
11. Anti–diarrhea tablets	10	10	20	30	40	50
12. Anti–spasmodic tablets	–	10	20	30	40	50
13. Antihypertensive tab.	1	10	20	30	40	50
14. Coronary vasodilator tablets	–	10	20	30	40	50
15. Anti–Asthma tab.	–	1	10	20	20	
16. Anti–hemorrhagic tablets	–	10	20	20	30	30
17. Glucose solution 5%, 500 cc. bottle	–	1	2	2	3	4
18. Anesthetic preparation, cc.	–	–	500	500	50	50

II. MEDICAL SUPPLIES AND EQUIPMENT***

	NUMBER OF WORKERS					
	1–50	51–99	10–199	200–600	601–2,000	2,001 & above
1. First aid pamphlet	1	1	1	1	1	1
2. First Aid box	1	1	1	1	1	1
3. Thermometer	1	1	1	2	2	2
4. Stethoscope	–	1	1	1	1	1
5. Spygmomanometer	–	1	1	1	1	1
6. Sterile gauze pads	5	5	10	10	20	20
7. Gauze bandage, roll	1	1	1	2/*	2/*	2/*
8. Adhesive tape, roll	1	1	1	1	1	1
9. Absorbent cotton	*	*	*	*	*	*
10. Bandage scissors	1	1	1	1	1	1
11. Triangular bandage	1	1	1	2	2	2
12. Safety pins	*	*	*	*	*	*
13. Tongue depressors wooden	100	100	100	100	100	100
14. Hot water bag	1	1	1	1	1	1
15. Ice bag	1	1	1	1	1	1
16. Disposable hypodermic syringes with needles 2.5 cc.	–	–	10	10	10	20
17. Rubber tourniquet	1	1	1	1	1	1
18. Venoclysis set (IV tubing, butterfly)	–	–	1	1	1	1
19. Minor surgical instruments	–	–	–	–	–	–
20. Forceps	*	*	*	*	*	*
21. Sterilizer	–	–	–	–	–	–
22. Water pail	1	1	1	1	1	1
23. Soap cake	*	*	*	*	*	*
24. Examination table	–	–	–	–	1	1
25. Linens	–	–	–	–	*	*
26. Bed	–	–	–	–	1	1
27. Stretcher	–	–	–	–	1	1
28. Cabinet for medicines and supplies	–	–	–	1	1	1

III. MEDICAL SUPPLIES

Number of Workers	Treatment Room	Emergency Clinic	Emergency/ Hospital/	Dental Clinic
1 – 50				
51 – 99	x			
100 – 199	x			
200 – 600		x		
601 – 2,000		xx		x
2,001 – above			x	x

* Adequate quantity upon the needs of the workers as determined by the health personnel of the establishment.

** Any medicine, supply or equipment prescribed in the table may be substitute with one of comparable effectiveness, and shall be replaced with the same quantity immediately after use or consumption.

B. ADDITIONAL REQUIREMENTS FOR FACTORIES/PLANTS USING OR PRODUCING PESTICIDES UNDER TOXICITY CATEGORIES I AND II OF THE WHO TOXICITY CLASSIFICATION STANDARDS

I. MEDICINES**	NUMBER OF WORKERS					
	1–50	51–99	10–199	200–600	601–2,000	2,001 & above
1. anti–convulsant ampule	2	2	2	2	3	4
2. antidote (as atropine sulfate, activated charcoal Fuller's earth, or the specific antidote for the chemicals/toxic substances used in the factory)	*	*	*	*	*	*

II. MEDICAL SUPPLIES AND EQUIPMENT***

	NUMBER OF WORKERS					
	1–50	51–99	10–199	200–600	601–2,000	2,001 & above
1. oxygen tank with regular mask and humidifier	1	1	1	2	2	2
2. ambu bag	1	1	1	2	2	2
3. endotracheal tube or orolaryngeal airway	1	1	1	1	2	2
4. laryngoscope	1	1	1	1	2	2
5. suction apparatus	1	1	1	1	2	2
6. NGT or orogastic hose	1	1	1	1	2	2
7. aseptosyringe	1	1	1	1	2	2
8. medicine kit	1	1	1	1	2	2

III. MEDICAL FACILITIES

Only for establishments employing 51 workers and more:
(1) Medical clinic within 100 meters in the factory/plant.
(2) Bathroom with shower and eyewash facilities within or beside the clinic
(3) Examining table with capacity to allow Trendelenberg position

C. FOR NON–HAZARDOUS WORKPLACES

I. MEDICINES**	NUMBER OF WORKERS					
	1–50	51–99	10–199	200–600	601–2,000	2,001 & above
1. Topical Antiseptic, cc.	60	60	60	120	240	240
2. Antiseptic eyewash, cc.	–	–	–	–	–	–
3. 70% Isopropyl Alcohol, cc.	240	240	240	240	500	500
4. Aromatic Spirit of Ammonia, cc.	30	30	30	30	30	30
5. Toothache drops, cc.	15	15	30	30	30	30
6. Hydrogen Peroxide solution, cc.	120	120	120	240	240	240
7. Burn ointment, tube	–	–	1	1	1	1
8. Analgesic/Anti–pyretic, tablets	10	10	10	20	30	40
9. Anti–histaminic tablets	–	–	10	20	30	40
10. Antacid tablets	10	10	10	20	30	40
11. Anti–diarrhea tablets	10	10	10	20	30	40
12. Anti–spasmodic tablets	–	–	10	20	30	40
13. Antihyperternsive tablets	–	–	10	20	30	40
14. Coronary vasodilator tablets	–	–	10	20	30	40
15. Anti–Asthma tablet	–	–	10	10	20	20
16. Anti–hemorrhagic tablets	–	–	10	10	20	20
17. Glucose solution 5%, 500 cc. bottle	–	–	–	–	–	–
18. Anesthetic preparation, cc.	–	–	–	–	–	–

II. MEDICAL SUPPLIES AND EQUIPMENT**

	NUMBER OF WORKERS					
	1–50	51–99	10–199	200–600	601–2,000	2,001 & above
1. First Aid pamphlet	1	1	1	1	1	1
2. First Aid box	1	1	1	1	1	1
3. Thermometer	1	1	1	1	1	1
4. Stethoscope	–	–	1	1	1	1
5. Sphygmomanometer	–	–	1	1	1	1
6. Sterile gauze pads	5	5	5	10	20	20
7. Guaze bandages, roll	1	1	1	1	2	2
8. Adhesive tape roll	1	1	1	1	1	1
9. Absorbent cotton	*	*	*	*	*	*
10. Bandage scissors	1	1	1	1	1	1
11. Trinagular bandage	–	1	1	1	1	1
12. Safety pins	–	*	*	*	*	*
13. Tongue depressors wooden	–	–	100	100	100	100
14. Hot water bag	1	1	1	1	1	1
15. Ice bag	1	1	1	1	1	1
16. Disposable hypodermic, syringes with needles 2.5 cc	–	–	10	10	10	20
17. Tubber tourniquet	1	1	1	1	1	1
18. Venoclysis set (IV tubing, butterfly)	–	1	1	2	2	2
19. Minor surgical isntruments	–	–	*	*	*	*
20. Forceps	–	*	*	*	*	*
21. Sterilizer	–	–	–	–	1	1
22. Waste Pail	1	1	1	1	*	*
23. Soap, cake	*	*	*	*	*	*
24. Examining table	–	–	–	1	1	1
25. Linens	–	–	–	*	*	*
26. Bed	–	–	–	1	1	1
27. Stretcher	–	–	–	1	1	1
28. Cabinet for medicines and supplies	–	–	1	1	1	1

III. MEDICAL FACILITIES

Number of Workers	Treatment Room	Emergency Clinic	Emergency/ Hospital/	Dental Clinic
1 – 50				
51 – 99	x			
100 – 199	x			
200 – 600	x			
601 – 2,000		x		
2,001 – above		x		x

TABLE 3b - REQUIRED HEALTH PERSONNEL

	ONE FULL-TIME O.H. PHYSICIAN	ONE PART-TIME O.H. PHYSICIAN	ONE FULL-TIME DENTIST	ONE PART-TIME DENTIST	ONE FULL-TIME O.H. NURSE	ONE PART-TIME O.H. NURSE	ONE FULL-TIME FIRST AIDER	REMARKS
HAZARDOUS: 1 - 50							X	
61 - 99						X	X	
100 - 199		X		X	X		X	
200 - 600		X		X	X		X	
601 - 2000	X		X		X		X	or 2 part-time OH physician in place of 1 full-time OH physician
2001 up	X	X	X				X	1 part-time OH physician each for the other workshift
NON-HAZARDOUS: 1 - 50							X	
100 - 199						X	X	
200 - 600		X		X	X		X	
601 - 2000		X		X	X		X	
2001 up	X	X	X		X		X	1 part-time OH physician each for the other workshift

TABLE 3c - Qualifications of Health Personnel

QUALIFICATIONS (Requirements)	HEALTH PERSONNEL					
	F-Aider	Nurse	Dentist	Physician	OH Physician	OH Practitioner
1. Completed Course in First Aid	X					
2. Passed Nurses Board Exam and licensed to practice Nursing in the Philippines		X				
3. Completed 50 hrs. of Basic Training in OH Nursing		X				
4. Passed Dentists Board Exam and licensed to practice dentistry in the Philippines			X			
5. Complete Basic Training in OH Dentistry			X			
6. Passed Physicians Board Exam and licensed to practice medicine in the Philippines				X	X	
7. Graduate of Basic Training Course in OH Medicine				X		
8. Diploma or Master's Degree in Occupational Health or Industrial Hygiene					X	
9. Residency Training in Occupational Medicine					X	
10. Graduate of Various Courses in Health and Sciences						X
11. Advance Training Course in Occupational Health and Safety						X
12. Five years experience/practice of Occupational Health and Safety						X

TABLE 4 -- TLV's for Chemical Substances in the Work Environment (Adopted by DOH from the American Conference of Governmental Industrial Hygienists -- 1995 Issue.)

	ADOPTED VALUES			
	TWA		STEL/CEILING (C)	
Substance [CAS #]	ppm	mg/m	ppm	mg/m
Acetaldehyde [75-07-0] (1993)	--	--	C 25,A3	C 45,A3
Acetic acid [64-19-7] (1976)	10	25	15	37
Acetic anhydride [108-24-7] (1993)	5	21	--	--
Acetone [67-64-1] (1982)	750	1780	1000	2380
Acetone cyanohydrin [75-86-5], as CN-Skin (1994)	--	--	C 4.7	C 5
Acetonitrile [75-05-8] (1976)	40	67	60	101
Acetophenone [98-86-2] (1993)	10	49	--	--
Acetylene [74-86-2] (1981)	-(c)	--	--	--
Acetylene dichloride, see 1,2-Dichloroethylene				
Acetylene tetrabromide [79-27-6] (1986)	1	14	--	--
Acetylsalicylic acid (Aspirin) [50-78-2] (1980)	--	5	--	--
Acrolein [107-02-8] (1976)	0.1	0.23	0.3	0.69
Acrylamide [79-06-1]-Skin (1987)	--	0.03,A2	--	--
Acrylic acid [79-10-7]-Skin (1990)	2	5.9	--	--
Acrylonitrile [107-13-1]-Skin (1984)	2,A2	4.3,A2	--	--
Adipic acid [124-04-9] (1993)	--	5	--	--
Adiponitrile [111-69-3]-Skin (1994)	2	8.8	--	--
Aldrin [309-00-2]-Skin (1986)	--	0.25	--	--
Allyl alcohol [107-18-6]-Skin (1976)	2	4.8	4	9.5
Allyl chloride [107-05-1] (1976)	1	3	2	6
Allyl glycidyl ether (AGE) [106-92-3] (1976)	5	23	10	47
Allyl propyl disulfide [2179-59-1] (1976)	2	12	3	18
Alumina, see Aluminum oxide				
Aluminum [7429-90-5]				
Metal dust (1986)	--	10	--	--
Pyro powders, as Al (1979)	--	5	--	--
Welding fumes, as Al (1979)	--	5	--	--
Soluble salts, as Al (1979)	--	2	--	--
Alkyls (NOC), as Al (1979)	--	2	--	--
Aluminum oxide [1344-28-1] (1986)	--	10	--	--
4-Aminodiphenyl [92-67-1]-SKin (1972)	--	A1	--	--
2-Aminoethanol, see Ethanolamine				
2-Aminopyridine [504-29-0] (1986)	0.5	1.9	--	--
3-Amino-1,2,4-triazole, see Amitrole				
Amitrole [61-82-5] (1986)	--	0.2	--	--
Ammonia [7664-41-7] (1976)	25	17	35	24
Ammonium chloride fume [12125-02-9] (1976)	--	10	--	20
Ammonium perfluorooctanoate [3825-26-1] -Skin (1994)	--	0.01,A3	--	--
Ammonium sulfamate [7773-06-0] (1986)	--	10	--	--
Amosite, see Asbestos				
n-Amyl acetate [628-63-7] (1987)	100	532	--	--
sec-Amyl acetate [626-38-0] (1987)	125	665	--	--
Aniline [62-53-3] and homologues -Skin (1986)	2	7.6	--	--
Anisidine [29191-52-4] (o-,p-isomers) -Skin (1977)	0.1	0.5	--	--
Antimony [7440-36-0] and compounds, as Sb (1980)	--	0.5	--	--

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Antimony trioxide [1309-64-4] handling				
and use, as Sb (1978)	–	0.5	–	–
Production (1980)	–	A2	–	–
ANTU [86-88-4] (1986)	–	0.3	–	–
Argon [7440-37-1] (1981)	-(c)	–	–	–
Arsenic, elemental [7440-38-2] and inorganic				
compounds (except Arsine) as As (1993)	–	0.01,A1	–	–
Arsine [7784-42-1] (1977)	0.05	0.16	–	–
Asbestos				
Amosite [12172-73-5] (1980)			(0.5 fiber/cc, A1)	
Chrysotile [12001-29-5] (1980)			(2 fibers/cc, A1)	
Crocidolite [12001-28-4] (1980)			(0.2 fiber/cc, A1)	
Other forms (1980)			(2 fibers/cc, A1)	
Asphalt (petroleum) fumes [8052-42-4] (1987)	–	5	–	–
Atrazine [1912-24-9] (1983)	–	5	–	–
Azinphos-methyl [86-50-0]-Skin (1986)	–	0.2	–	–
Barium [7440-39-3] soluble compounds				
as Ba (1977)	–	0.5	–	–
Barium sulfate [7727-43-7] (1986)	–	10(e)	–	–
Benomyl [17804-35-2] (1986)	0.84	10	–	–
Benz[a]anthracene [56-55-3] (1993)	A2	A2	–	–
Benzene [71-43-2] (1987)	(10,A2)	(32,A2)	–	–
Benzidine [92-87-5]-Skin (1982)	–	A1	–	–
Benzo[b]fluoranthene [205-99-2] (1992)	–	A2	–	–
p-Benzoquinone, see Quinone				
Benzoyl peroxide [94-36-0] (1977)	–	5	–	–
Benzo[a]pyrene [50-32-8] (1976)	–	A2	–	–
Benzyl chloride [100-44-7] (1977)	1	5.2	–	–
Beryllium [7440-41-7] and compounds,				
as Be (1979)	–	0.002,A2	–	–
Biphenyl [92-52-4] (1987)	0.2	1.3	–	–
Bismuth telluride, as Bi Te				
Undoped [1304-82-1] (1986)	–	10	–	–
Se-doped (1986)	–	5	–	–
Borates, tetra, sodium salts [1303-96-4]				
Anhydrous (1977)	–	1	–	–
Decahydrate (1977)	–	5	–	–
Pentahydrate (1977)	–	1	–	–
Boron oxide [1303-86-2] (1986)	–	10	–	–
Boron tribromide [10294-33-4] (1986)	–	–	C1	C10
Boron trifluoride [7637-07-2] (1977)	–	–	C1	C2.8
Bromacil [314-40-9] (1986)	–	10	–	–
Bromine [7726-95-6] (1994)	0.1	0.66	0.2	1.3
Bromine pentafluoride [7789-30-2] (1986)	0.1	0.72	–	–
Bromochloromethane, see Chlorobromomethane				
Bromoform [75-25-2]-Skin (1977)	0.5	5.2	–	–
1,3-Butadiene [106-99-0] (1994)	2,A2	4.4,A2	–	–
Butane [106-97-8] (1981)	800	1900	–	–
Butanethiol, see Butyl mercaptan				
n-Butanol [71-36-3]-Skin (1977)	–	–	C50	C152
sec-Butanol [78-92-2] (1990)	100	303	–	–
tert-Butanol [75-65-0] (1993)	(100)	(303)	–	–
2-Butanone, see Methyl ehtyl ketone (MEK)				
2-Butoxyethanol (EGBE)				
[111-76-2]-Skin (1987)	25	121	–	–

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Chloroacetyl chloride [79-04-9]-Skin (1991)	0.05	0.23	0.15	0.69
Chlorobenzene [108-90-7] (1991)	10	46	–	–
o-Chlorbenzylidene malononitrile [2698-41-1]-Skin (1983)	–	–	C0.05	C0.39
Chlorobromomethane [74-97-5] (1990)	200	1060	–	–
2-Chloro-1,3-butadiene, see B-Chloroprene				
Chlorodifluoromethane [75-45-6] (1990)	1000	3540	–	–
Chlorodiphenyl (42% chlorine) [53469-21-9] - Skin (1990)	–	1	–	–
Chlorodiphenyl (54% chlorine) [11097-69-1]-Skin (1990)	–	0.5	–	–
1-Chloro-2,3-epoxy propane, see Epichlorohydrin				
2-Chloroethanol, see Ethylene chlorohydrin				
Chloroethylene, see Vinyl chloride				
Chloroform [67-66-3] (1986)	10,A2	49,A2	–	–
bis(Chloromethyl) ether [542-88-1] (1981)	0.001,A1	0.0047,A1	–	–
Chloromethyl methyl ether [107-30-2] (1983)	A2	A2	–	–
1-Chloro-1-nitropropane [600-25-9] (1981)	2	10	–	–
Chloropentafluoroethane [76-15-3] (1981)	1000	6320	–	–
Chloropicrin [76-06-2] (1990)	0.1	0.67	–	–
B-Chloroprene [126-99-8]-Skin (1980)	10	36	–	–
2-Chloropropionic acid [598-78-7]-Skin (1991)	0.1	0.44	–	–
o-Chlorostyrene [2039-87-4] (1976)	50	283	75	425
o-Chlorotoluene [95-49-8] (1990)	50	259	–	–
2-Chloro-6-(trichloromethyl) pyridine, see Nitrapyrin				
Chlorpyrifos [2921-88-2]-Skin (1990)	–	0.2	–	–
Chromite ore processing (Chromate), as Cr (1976)	–	0.05,A1	–	–
Chromium, metal [7440-47-3], and inorganic compounds, as Cr				
Metal and Cr III compounds (1994)	--	0.5,A4	–	–
Water-soluble Cr VI compounds, NOC(d) (1994)	--	0.05,A1	–	–
Insoluble Cr VI compounds, NOC(d) (1994)	–	0.05,A1	–	–
Chromyl chloride [14977-61-81 (1982)	0.025	0.16	–	–
Chrysene [218-01-91] (1981)	A2	A2	–	–
Chrysotile, see asbestos				
Clopidol [2971-90-6] (1990)	--	10	--	-
Coal dust (1987)	–	2	–	–
Coal tar pitch volatiles [65996-93-2], as benzene solubles (1981)	–	0.2,A1	–	–
Cobalt, elemental [7440-48-4], and inorganic compopunds, as Co (1994)	--	0.02,A3	–	–
Cobalt carbonyl [10210-68-1], as Co (1983)	–	0.1	–	–
Cobalt hydrocarbonyl [10210-68-1], as Co (1983)	–	0.1	–	–
Copper [7440-500-8]				
Fume (1977)	–	0.2	–	–
Dusts & mists, as Cu (1986)	–	1	–	–
Cotton dust, raw (1986)	–	0.2(h)	–	–
Cresol [1319-77-3], all isomers-Skin (1977)	5	22	–	–
Cristobalite, see Silica-Crystalline				
Crocidolite, see Asbestos				
Crotonaldehyde [14170-30-3] (1987)	2	5.7	–	–
Crufomate [299-86-5] (1990)	--	5	--	--
Cumene [98-82-8]-Skin (1987)	50	246	–	--
Cyanamide [420-04-2] (1977)	–	2	–	--

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Cyanogen [460-19-5] (1977)	10	21	–	
Cyanogen chloride [506-77-4] (1980)			C0.3	C0.75
Cyclohexane [110-82-7] (1987)	300	1030	–	–
Cyclohexanol [108-93-0]-Skin (1977)	50	206	–	–
Cyclohexanone [108-94-1]-Skin (1987)	25	100	–	–
Cyclohexene [110-83-8] (1977)	300	1010	–	–
Cyclohexylamine [108-91-8] (1977)	10	41	–	–
Cyclonite [121-82-4]-Skin (1990)		1.5	–	–
Cyclopentadiene [542-92-7] (1987)	75	203	–	–
Cyclopentane [287-92-3] (1987)	60	1720	–	–
Cyhexatin [13121-70-5] (1986)	–	5	–	–
2,4-D [94-75-7] (1986)	–	10	–	–
DDT (Dichlorodiphenyltrichloroethane) *(50-29-3) (1986)*	–	1	–	–
Decaborane [17702-41-9]-Skin (1976)	0.05	0.25	0.15	0.75
Demeton [8065-48-3]-Skin (1986)	0.01	0.11	–	–
Diacetone alcohol [123-42-2] (1987)	50	238	–	–
1,2-Diaminoethane, see Ethylenediamine				
Diatomaceous earth, see Silica-Amorphous				
Diazinon [333-41-5]-Skin (1986)	–	0.1	–	–
Diazomethane [334-88-3] (1977)	0.2	0.34	–	–
Diborane [19287-45-7] (1977)	0.1	0.11	–	–
1,2-Dibromoethane, see Ethylene Dibromide	–			
2-N Dibutylaminoethanol [102-81-6]-Skin (1994)	0.5	3.5	–	–
Dibutyl phenyl phosphate [2528-36-1] -Skin (1990)	0.3	3.5	–	–
Dibutyl phosphate [107-66-4] (1976)	1	8.6	2	17
Dibutyl phathalate [84-74-2] (1987)	–	5	–	–
Dichloroacetylene [7572-29-4] (1970)	--	--	(C0.1)	(C0.39)
o-Dichlorobenzene [95-50-1] (1992)	25	150	50	301
p-Dichlorobenzene [106-46-7] (1993)	10,A3	60,A3	–	–
3,3-Dichlorobenzidine [91-94-1] -Skin (1976)	–	A2	–	–
1,4-Dichloro-2-butene	0.005,A2	0.025,A2	–	–
Dichlorodifluoromethane [75-71-8] (1986)	1000	4950	–	–
1,3-Dichloro-5,5-dimethyl hydantoin [118-52-5] (1976)	--	0.2	--	0.4
1,1 Dichloroethane [75-34-3] (1992)	100	405	--	–
1,2-Dichloroethane, see Ethylene Dichloride				
1,1-Dichloroethylene, see Vinylidene chloride				
1,2-Dichloroethylene [540-59-0] 91987)	200	793	–	–
Dichloroethyl ether [111-44-4]-Skin (1976)	5	29	10	58
Dichloroflouromethane [75-43-4] (1980)	10	42	–	–
Dichloromethane, see Methylene choloride				
1,1-Dichloro-1-nitroethane [594-72-9] (1986)	2	12	--	--
1,2-Dichlororropane, see Propyllene dichloride				
1,3-Dichloropropene [542-75-6]-Skin (1986)	1	4.5	--	--
2,2-Dicholoropropionic acid [75-99-0] (1980)	1	5.8	--	–
Dichlorotetraflouroethane [76-14-2] (1986)	1000	6990	--	--
Dichlorvos [62-73-7]-Skin (1986)	0.1	0.9	--	--
Dicrotophos [141-66-2]-Skin (1977)	–	0.25	--	--
Dicyclopentadiene [77-73-6] (1977)	5	27	--	--
Dicyclopentadienyl iron [102-54-5] (1986)	--	10	--	--
Dieldrin [60-57-1]-Skin (1986)	--	0.25	–	--
Diethanolamine [111-42-2]-Skin (1994)	0.46	2	--	–
Diethylamine [109-89-7]-Skin (1994)	5,A4	15,A4	15,A4	45,A4

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
2-Diethylaminoethanol [100-37-8] Skin (1994)	2	9.6	--	--
Diethylene triamine [111-40-0]-Skin (1977)	1	4.2	--	--
Diethyl ether, see Ethyl ether				
Di(2-ethylhexyl) phthalate, see Di-sec-octyl phthalate				
Diethyl ketone [96-22-00] (1981)	200	705	--	--
Diethyl phthalate [84-66-2] (1987)	--	5	--	--
Difluorodibromomethane.[75-61-6] (1986)	100	858	--	--
Diglycidyl ether (DGE) [2238-07-5] (1981)	0.1	0.53	--	--
Dihydroxybenzene, see Hydroquinone				
Disobutyl ketone [108-83-8] (1977)	25	145	--	--
Diisopropylamine [108-18-9]-Skin (1977)	5	21	--	--
Dimethoxymethane, see Methylal				
N,N-Dimethyl acetamide [127-19-5] -Skin (1986)	10	36	--	--
Dimethylamine [124-40-3] (1992)	5	9.2	15	27.6
Dimethylaminobenzene, see Xylidene				
Dimethylaniline [121-69-7] (N,N-Dimethylaniline)-Skin (1976)	5	25	10	50
Dimethylbenzene, see Xylene				
Dimethyl carbamoyl chloride [79-44-7] (1978)	A2	A2	--	--
Dimethyl-1,2-dibromo-2,2-dichloroethyl phosphate, see Naled				
Dimethylformamide [68-12-2]-Skin (1986)	10	30	--	--
2,6-Dimethyl-4-heptanone, see Diisobutyl ketone				
1,1-Dimethylhydrazine[154-14-7] (1976)	(0.5,A2)	(1.2,A2)	--	--
Dimethylnitrosoamine, see N-Nitrosodimethylamine				
Dimethylphthalate [131-11-3] (1986)	--	5	--	--
Dimethyl sulfate [77-78-1]-Skin (1977)	0.1,A2	0.52,A2	--	--
Dinitolmide [148-01-6] (1976)	--	5	--	--
Dinitrobenzene [528-29-0; 99-65-0; 100-25-4] (all isomers)-Skin (1986)	0.15	1	--	--
Dinitro-o-cresol [534-52-1]-Skin (1986)	--	0.2	--	--
3,5-Dinitro-o-toluamide, see Dinitolmide				
Dinitrotoluene [25321-14-6]-Skin (1992)	--	0.15,A2	--	--
Dioxane [123-91-1]-Skin (1986)	25	90	--	--
Dioxathion [78-34-2]-Skin (1977)	--	0.2	--	--
Diphenyl, see Biphenyl				
Diphenylamine [122-39-4] (1986)	--	10	--	--
Diphenylmethane diisocyanate, see Methylene bisphenyl isocyanate				
Dipropylene glycol methyl ether [34590-94-8]-Skin (1976)	100	606	150	909
Dipropyl ketone [123-19-3] (1981)	50	233	--	--
Diquat [2764-72-9]-Skin (1993)	--	0.5(i)	--	--
	--	0.1(f)	--	--
Di-sec-octyl phthalate [117-81-7] (1976)	--	5	--	10
Disulfiram [97-77-8] (1986)	--	2	--	--
Disulfoton [298-04-4]-SKin (1986)	--	0.1	--	--
2,6-Di-tert-butyl-p-cresol [128-37-0] (1987)	--	10	--	--
Diuron [330-54-1] (1977)	--	10	--	--
Divinyl benzene [1321-74-0] (1980)	10	53	--	--
Emery [1302-74-0] (1986)	--	10(e)	--	--

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Endosulfan [115-29-7]-SKin (1986)	–	0.1	–	–
Endrin [72-20-8]-SKin (1988)	–	0.1	–	–
Enflurane [13838-16-9] (1988)	75	566	–	–
Enzymes, see Subtilisins				
Epichlorohydrin [106-89-8]-Skin (1986)	(2)	(7.6)	–	–
EPN [2104-64-5]-Skin (1994)	–	0.1	–	–
1,2-Epoxypropane, see Propylene oxide				
2,3-Epoxy-1-propanol, see Glycidol				
Ethane [74-84-0] (1981)	-(c)	–	–	–
Ethanethiol, see Ethyl mercaptan				
Ethanol [64-17-5] (1977)	1000	1880	–	–
Ethanolamine [141-43-5] (1978)	3	7.5	6	15
Ethion [563-12-2]-Skin (1977)	–	0.4	–	–
2-Ethoxyethanol (EGEE) [110-80-5]-Skin (1984)	5	18	–	–
2-Ethoxyethyl acetate (EGEEA) [111-15-9]-Skin (1984)	5	27	–	–
Ethyl acetate [141-78-6] (1977)	400	1440	–	–
Ethyl acrylate [140-88-5] (1990)	5,A2	20,A2	15,A2	61,A2
Ethyl alcohol, see Ethanol				
Ethylamine [75-04-7]-Skin (1994)	5	9.2	15	27.6
Ethyl amyl ketone [541-85-5] (1977)	25	131	–	–
Ethyl benzene [100-41-4] (1976)	100	434	125	543
Ethyl bromide [74-96-4]-Skin (1992)	5,A2	22,A2	–	–
Ethyl butyl ketone [106-35-4] (1987)	50	234	–	–
Ethyl chloride [75-00-3] (1986)	(1000)	(2640)	–	–
Ethylene [74-85-1] (1981)	-(c)	–	–	–
Ethylene chlorohydrin [107-07-3] -Skin (1977)	–	–	C1	C33
Ethylenediamine [107-15-3]-Skin (1977)	10	25	–	–
Ethylene dibromide [106-93-4]-Skin (1982)	A2	A2	–	–
Ethylene dichloride [107-06-2] (1986)	10	40	–	–
Ethylene glycol [107-21-1] Vapor and mist (1981)	–	–	(C50)	(C127)
Ethylene glycol dinitrate [628-96-6]-Skin (1985)	0.05	0.31	–	–
Ethylene glycol methyl ether acetate, see 2-Methoxyethyl acetate				
Ethylene oxide [75-21-8] (1984)	1,A2	1.8,A2	–	–
Ethylenimine [151-56-4]-Skin (1977)	0.5	0.88	–	–
Ethyl ether [60-29-7] (1976)	400	1210	500	1520
Ethyl formate [109-94-4] (1987)	100	303	–	–
Ethylidene chloride, see 1,1-Dichloroethane				
Ethylidene norbornene [16219-75-3] (1977)	–	–	C5	C25
Ethyl mercaptan [75-08-1] (1986)	0.5	1.3	–	–
N-Ethylmorpholine [100-74-3]-Skin (1986)	5	24	–	–
Ethyl silicate [78-10-4] (1986)	10	85	–	–
Fenamiphos [22224-92-6]-Skin (1994)	–	0.1	–	–
Fensulfothion [115-90-2] (1977)	–	0.1	–	–
Fenthion [55-38-9]-Skin (1983)	–	0.2	–	–
Ferbam [14484-64-1] (1986)	–	10	–	–
Ferrovanadium dust [12604-58-9] (1983)	–	1	–	3
Fibrous glass dust (1978)	–	10	–	–
Fluorides, as F (1977)	–	2.5	–	–
Fluorine [7782-41-4] (1976)	1	1.6	2	3.1
Fluorotrichloromethane, see Trichlorofluoromethane				
Fonofos [944-22-9]-Skin (1977)	–	0.1	–	–

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Formaldehyde [50-00-0] (1992)	–	–	C0.3,A2	C0.37,A2
Formamide [75-12-7]-Skin (1988)	10	18	–	–
Formic acid [64-18-6] (1991)	5	9.4	10	19
Furfural [98-01-1]-SKin (1987)	2	7.9	–	–
Furfuryl alcohol [98-00-0]-Skin (1982)	10	40	15	60
Gasoline [8006-61-9] (1982)	300	890	500	1480
Germanium tetrahydride [7782-65-2] 91986)	0.2	0.63	–	–
Glass, fibrous or dust, see Fibrous glass dust				
Glutaraldehyde [111-30-8] (1979)	–	–	C0.2	C0.82
Glycerin mist [56-81-5] (1981)	–	10(i)	–	–
Glycidol [556-52-5] 91987)	25	76	–	–
Glycol monoether, see 2-Ethoxyethanol				
Grain dust (oat, wheat, barley) (1986)	–	4(i)	–	–
Graphite (all forms except graphite fibers) [7782-42-5] (1991)	–	2(i)	–	–
Gypsum, see Calcium sulfate				
Hafnium [7440-58-6] (1986)	–	0.5	–	–
Halothane [151-67-7] (1988)	50	404	–	–
Helium [7440-59-7] (1961)	-(c)	–	–	–
Heptachlor [76-44-8] and Heptachlor epoxide [1024-57-3]-Skin (1994)	–	0.05,A3	–	–
Heptane [142-82-5] (n-Heptane) (1976)	400	1640	500	2050
2-Heptanone, see Methyl n-amyl ketone				
3-Heptanone, see Ethyl butyl ketone				
Hexachlorobenzene [118-74-1]-Skin	–	0.025,A3	–	–
Hexachlorobutadiene [87-68-3]-Skin (1982)	0.02,A2	0.21,A2	–	–
Hexachlorocyclopentadine [77-47-4](1986)	0.01	0.11	–	–
Hexachloroethane [67-72-1]-Skin (1992)	1,A2	9.7,A2	–	–
Hexachloronaphthalene [1335-87-1] -Skin (1986)	–	0.2	–	–
Hexafluoroacetone [684-16-2]--Skin (1986)	0.1	0.68	–	–
Hexamethylene diisocyanate [822-06-0] (1988))	0.005	0.034	–	–
Hexamethyl phosphoramide [680-31-9]-Skin (1978)	A2	A2	–	–
1.6-Hexanediamine [124-09-4] (1992)	0.5	2.3	–	–
Hexane (n-Hexane) [110-54-3] (1982)	50	176	–	–
Other isomers (1982)	500	1760	1000	3500
2-Hexanone, see Methyl n-butyl ketone				
Hexone, see Methyl isobutyl ketone				
sec-hexyl acetate [108-84-9] (1977)	50	295	–	–
Hexylene glycol [107-41-5] (1977)	–		C25	C121
Hydrazine [302-01-2]-Skin (1977)	(0.1,A2)	(0.13,A2)	–	–
Hydrogen [1333-74-0] (1981)	-(c)	–	–	–
Hydrogenated terphenyls [61788-32-7] (1977)	0.5	4.9	–	–
Hydrogen bromide [10035-10-6] (1986)	–	–	C3	C9.9
Hydrogen chloride [17647-001-01] (1977)	–	–	C5	C7.5
Hydrogen cyanide and Cyanide salts as CN				
Hydrogen cyanide [74-90-8]--Skin (1994)	–	–	C4.7	C5
Calcium cyanide [592-01-8]--Skin (1994)	–	–	–	C5
Potassium cyanide [151-50-8]--Skin (1994)	–	–	–	C5
Sodium cyanide [143-33-9]-Skin (1994)	–	–	–	C5
Hydrogen fluoride [7664-39-3], as F (1986)			C3	C2.6
Hydrogen peroxide [7722-84-1](1986)	1	1.4	–	–
Hydrogen selenide [7783-07-5] as Se (1977)	0.05	0.16	–	–
Hydrogen sulfide [7783-06-4] (1976)	10	14	15	21
Hydroquinone [123-31-9] (1987)	–	2	–	–

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
4-Hydroxy-4-methyl-2-pentanone, see Diacetone alcohol				
2-Hydroxypropyl acrylate [999-61-1] -Skin (1988)	0.5	2.8	--	--
Indene [95-13-6] (1987)	10	48	--	--
Indium [7440-74-6] & compounds, as In (1986)	--	0.1	--	--
Iodine [7553-56-2] (1977)	--	--	C0.1	C1.0
Iodoform [75-47-6] (1986)	0.6	10	--	--
Iron oxide dust & fume (Fe2O3) [1309-37-1], as Fe (1986)	B2	5	--	--
Iron pentacarbonyl [13463-40-6], as Fe (1982)	0.1	0.23	0.2	0.45
Iron salts, soluble, as Fe (1986)	--	*1*	--	--
Isoamyl acetate [123-92-2] (1987)	100	532	--	--
Isoamyl alcohol [123-51-3] (1976)	*100*	*361*	*125*	*452*
Isobutyl acetate [110-19-0] (1990)	150	713	--	--
Isobutyl alcohol [78-83-1] (1987)	50	*152*	--	--
Isooctyl alcohol [26952-21-6]-Skin (1982)	50	266	--	--
Isophorone [78-59-1] (1977)	--	--	*(C5)*	*(C28)*
Isophorone diisocyanate [4098-71-9] (1988)	0.005	0.045	--	--
Isopropoxyethanol [109-59-1]-Skin (1987)	25	*106*	--	--
Isopropyl acetate [108-21-4] (1976)	250	1040	310	1290
Isopropyl alcohol [67-63-0] (1976)	400	*983*	500	1230
Isopropylamine [75-31-0] (1976)	5	12	10	24
N-Isopropylaniline [768-52-5]-Skin (1986)	2	11	--	--
Isopropyl ether [108-20-3] 91976	250	1040	310	1300
Isopropyl glicidyl ether (IGE) [4016-14-2] (1976)	50	238	75	356
Kaolin [1332-58-7] (1982)	--	2(j)	--	--
Ketene [463-51-4] (1976)	0.5	0.86	1.5	2.6
Lead [7439-92-1], inorganic dust & fumes, as Pb (1986)	--	(0.15)	--	--
Lead arsenate [7784-40-9], as Pb3(As04)2 (1985)	--	0.15	--	--
Lead chromate [7758-97-6], as Pb (1991)	--	0.05,A2	--	--
as Cr (1991)	--	0.012,A2	--	--
Limestone, see Calcium carbonate				
Lindane [58-89-9]-Skin (1986)	--	0.5	--	--
Lithium hydride [7580-67-8] (1977)	--	0.025	--	--
L.P.G. (Liquified petroleum gas) [68476-85-7] (1987)	1000	1800	--	--
Magnesite [546-93-0] (1986)	--	10(e)	--	--
Magnesium oxide fume [1309-48-4] (1977)	--	10	--	--
Malathion [121-75-5]-Skin (1977)	--	10	--	--
Maleic anhydride [108-31-6] (1977	0.25	1	--	--
Manganese [7439-95-5], as Mn				
Dust & compounds (1988)	--	(5)	--	--
Fume (1979)	--	(1)	--	(3)
Manganese cyclopentadienyl tricarbonyl [12079-65-1], as Mn-Skin (1986)	--	0.1	--	--
Marble, see Calcium carbonate				
Mercury [7439-97-6], as Hg - Skin				
Alkyl compounds (198)	--	0.01	--	0.03
Aryl compounds (1982)		0.1		
Inorganic forms including metallic mercury (1984)	--	0.025,A4	--	--

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Mesityl oxide [141-79-7] (1981)	15	60	25	100
Methacrylic acid [79-41-4] (1981)	20	70	--	--
Methane [74-82-8] (1981)	--(c)	--	--	--
Methanethiol, see Methyl mercaptan				
Methanol [67-56-1]-Skin (1976)	200	262	250	328
Methomyl [16752-77-5] (1977)		2.5	--	--
Methoxychlor [72-53-5] (1977)	--	10	--	--
2-Methoxyethanol (EGME) [109-86-4]-SKin (1984)	5	16	--	--
2-Methoxyethylacetate (EGMEA) [110-49-6]-Skin (1984)	5	24	--	--
4-Methoxyphenol [150-76-5] (1982)	--	5	--	--
Methyl acetate [79-20-9] (1976)	200	606	250	757
Methyl acetylene [74-99-7] (1990)	*1000*	*1640*	--	--
Methyl acetylene-propadiene mixture *(MAPP) (1976))*	*100*	*1640*	*1250*	2050
Methyl acrylate [96-33-3]-Skin (1977)	(10)	(35)	--	--
Methylacrylonitrile [126-98-7]- Skin (1986)	1	2.7	--	--
Methylal [109-87-5] (1987)	*1000*	*3110*	--	--
Methyl alcohol, see Methanol				
Methylamine [74-89-5] (1992)	5	6.4	15	19
Methyl amyl alcohol, see Mehtyl isobutyl carbinol				
Methyl n-amyl ketone [110-43-0] *(1987)*	50	233	--	--
N-Methyl aniline (100-61-8)-Skin (1986)	0.5	2.2	--	--
Methyl bromide [74-83-9]-Skin (1986)	5	19	--	--
Methyl-tert butyl ether [1634-04-4] (1994)	(40)	(144)	--	--
Methyl n-butyl ketone [591-78-6]- Skin (1981)	5	20	--	--
Methyl chloride [74-87-3]-Skin (1981)	50	103	100	207
Methyl chloroform [71-55-6] (1976)	350	1910	450	2460
Methyl 2-cyanoacrylate [137-05-3] (1976)	2	9.1	4	18
Methylcyclohexane [108-87-2] (1987)	400	1610	--	--
Methylcyclohexanol [25639-42-3] (1987)	50	234	--	--
o-Methylcyclohexanone [583-60-8] -Skin (1976)	50	229	75	344
2-Methylcyclopentadienyl manganese tricarbonyl [12108-13-3], as Mn-Skin (1986)	--	0.2	--	--
Methyl demeton [8022-00-2]-Skin (1986)	--	0.5	--	--
Methylene bisphenyl isocyanate (MDI) (101-68-8) (1988)	0.005	0.051	--	--
Methylene chloride (Dichloromethane) [75-09-2] (1988)	50,A2	174,A2	--	--
4,4'-Methylene bis (2-chloroaniline) [MOCA] [101-14-4]-Skin (1993)	0.01,A2	0.11,A2	--	--
Methylene bis(4-cyclo-hexylisocyanate) [5124-30-1] (1988)	0.005	0.054	--	--
4,4'-Methylene dianiline [101-77-9]-Skin (1986)	0.1,A2	0.81,A2	--	--
Methyl ethyl ketone (MEK) [78-93-3] (1976)	200	590	300	885
Methyl ethyl ketone peroxide [1338-23-4] (1977)	--	--	C0.2	C1.5
Methyl formate [107-31-3] (1976)	100	246	150	368
5-Methyl-3-heptanone, see Ethyl amyl ketone				
Methyl hydrazine [60-34-4]-Skin (1976)	--	--	(C0.2,A2)	(C0.38,A2)
Methyl iodide [74-88-4]-Skin (1986)	2,A2	12,A2	--	--
Methyl isoamyl ketone [110-12-3] (1982)	50	234	--	--

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Methyl isobutyl carbinol [108-11-2]-Skin (1976)	25	104	40	167
Methyl isobutyl ketone [108-10-1] (1981))	50	205	75	307
Methyl isocyanate [624-83-9]-Skin (1977)	0.02	0.047	--	--
Methyl isopropyl ketone [563-80-4] (1981)	200	705	--	--
Methyl mercaptan [[74-93-1] (1977)	0.5	0.98	--	--
Methyl methacrylate [80-62-6] (1987)	100	410	--	--
Methyl paration [298-00-0]-Skin (1986)	--	0.2	--	--
Methyl propyl ketone [107-87-9] (1976)	200	705	250	881
Methyl silicate [681-84-5] (1986)	1	6	--	--
Methyl styrene [98-83-9] (1981)	50	242	100	483
Metribuzin [21087-64-9] (1984)	--	5	--	--
Mevinphos [7786-34-7] (1976)	0.01	0.092	0.03	0.27
Mica [12001-26-2] (1986)	--	3(j)	--	--
Mineral wool fiber (1974)	--	10(e)	--	--
Molybdenum [7439-98-7], as Mo				
Soluble compounds (1986)	--	5	--	--
Insoluble compounds (1986)	--	10	--	--
Monochlorobenzene, see Chlorobenzene				
Monocrotophos [6923-22-4]-Skin (1977)	--	0.25	--	--
Morpholine [110-91-8]-Skin (1991)	20	71	--	--
Naled [300-76-5]-Skin (1986)	--	3	--	--
Naphthalene [91-20-3] (1976)	10	52	15	79
Naphthylamine [91-59-8] (1972)	--	A1	--	--
Neon [7440-01-9] (1981)	-(c)	--	--	--
Nickel [7440-02-0]				
Metal (1966)	--	(1)	--	--
Insoluble compounds, as Ni (1974)	--	(1)	--	--
Soluble compounds, as Ni (1976)	--	(0.1)	--	--
Nickel carbonyl [13463-39-3], as Ni (1977)	(0.05)	(0.12)	--	--
Nickel sulfide roasting, fume & dust, as Ni (1978)	--	(1,A1)	--	--
Nicotine [54-11-5]-Skin (1986)	--	0.5	--	--
Nitrapyrin [1929-82-4] (1982)	--	10	--	20
Nitric acid [7697-37-2] (1976)	2	5.2	4	10
Nitric oxide [10102-43-9] (1986)	25	31	--	--
p-Nitroaniline [100-01-6]-Skin (1982)	--	3	--	--
Nitrobenzene [98-95-3]-Skin (1986)	1	5	--	--
p-Nitrochlorobenzene [100-00-5]-Skin (1988)	0.1	0.64	--	--
4-Nitrodiphenyl [92-93-3]-Skin (1976)	--	A1	--	--
Nitroethane [79-24-3] (1986)	100	307	--	--
Nitrogen [7727-37-9] (1989)	-(c)	--	--	--
Nitrogen dioxide [10102-44-0] (1981)	3	5.6	5	9.4
Nitrogen trifluoride [7783-54-2] (1986)	10	29	--	--
Nitroglycerin (NG) [55-63-00]-Skin (1985)	0.05	0.46	--	--
Nitromethane [75-52-5] (1994)	20	50	--	--
1-Nitropropane [108-03-2] (1986)	25	91	--	--
2-Nitropropane [79-46-9] (1987)	10,A2	36,A2	--	--
N-Nitrosodimethylamine [62-75-9]-Skin (1972)		A2	--	--
Nitrotoluene [88-72-2; 99-08-1; 99-99-0]-Skin (1982)	2	11	--	--
Nitrotrichloromethane, see Chloropicrin				
Nitrous oxide [10024-97-2) (1989)	50	90	--	--
Nonane [111-84-2], all isomers (1976)	200	1050	--	--

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Nuisance particulates, see Particulates Not Otherwise Classified (PNOC)				
Octachloronaphthalene [2234-13-1] -Skin (1976)	--	0.1	--	0.3
Octane [111-65-9] (1976)	300	1400	375	1750
Oil Mist, mineral (1976)	--	5(k)	--	(10)
Osmium tetroxide [20816-12-0], as Os (1976)	0.0002	0.0016	0.0006	0.0047
Oxalic acid [144-62-7] (1976)	--	1	--	2
Oxygen difluoride [7783-41-7] (1986)	--	--	C0.05	C0.11
Ozone [10028-15-6] (1989)	(-)	(-)	(C0.1)	(C0.20)
Paraffin wax fume (8002-74-2) (1987)	--	2	--	--
Paraquat [4685-14-7], *total dust (1978)*	--	0.5	--	--
respirable fraction (1978)	--	0.1	--	--
Parathion (56-38-2)-Skin (1986)	--	0.1	--	--
Particulate polycyclic aromatic hydrocarbons *(PPAH), see Coal tar pitch volatiles*				
Particulates Not Otherwise Classified (PNOC) (1989)	--	10(e)	--	--
Pentaborane [19624-22-7] (1976)	0.005	0.013	0.015	0.039
Pentachloronaphthalene [1321-64-8] *-Skin (1986)*	--	0.5	--	--
Pentachloronitrobenzene [82-68-8] (1991)	--	0.5	--	--
Pentachlorophenol [87-86-5] -Skin (1986)	--	0.5	--	--
Pentaerythritol [115-77-5] (1986)	--	10	--	--
Pentane [109-66-0] (1976)	600	1770	750	2210
2-Pentanone, see Methyl propyl ketone				
Perchloroethylene (Tetrachloroethylene) [127-18-4] (1993)	25,A3	170,A3	100,A3	685,A3
Perchloromethyl mercaptan [594-42-3] (1977)	0.1	0.76	--	--
Perchloryl fluoride [7616-94-6] (1976)	3	13	6	25
Perfluoroisobutylene [382-21-8] (1992)	--	--	C0.01	C0.082
Precipitated silica, see Silica-Amorphous				
Perlite [93763-70-3] (1986)	--	10(e)	--	--
Petroleum distillates, see Gasoline; Stoddard sovent; VM&P naphtha				
Phenacil chloride, see Chloroacetophenone				
Phenol [108-95-2]-Skin (1987)	5	19	--	--
Phenothiazine [92-84-2]-Skin (1986)	--	5	--	--
N-Phenyl-beta-naphthylamine [135-88-6] (1979)	A2	A2	--	--
o-Phenylenediamine [95-54-5] (1991)	--	0.1,A2	--	--
m-Phenylenediamine [108-45-2] (1991)	--	0.1	--	--
p-Phenylenediamine [106-50-3] (1991)	--	0.1	--	--
Phenyl ether [1001-84-8], vapor 91976)	1	7	2	14
Phenylethylene, see Styrene, monomer				
Phenyl glycidil ether (PGE) [122-60-1]-Skin (19940	0.1,A3	0.6,A3	--	--
Phenylhydrazine [100-63-0]-Skin (1991)	0.1,A2	0.44,A2	--	--
Phenyl mercaptan [108-98-5] (19780	0.5	2.3	--	--
Phenylphosphine [638-21-1] (19770	--	--	C0.05	C0.23
Phorate [298-02-2]-Skin (1976)	--	0.05	--	0.2
Phosdrin, see Mevinphos				
Phosgene [75-44-5] (1978)	0.1	0.4	--	--

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Phosphine [7803-51-2] (1976)	0.3	0.42	1	1.4
Phosphoric acid [7664-38-2] (1976)	–	1	–	3
Phosphorus (yellow) [7723-14-0] (1986)	0.02	0.1	–	–
Phosphorus oxychloride [10024-87-3] (1990)	0.1	0.63	–	–
Phosphorus pentachloride [10026-13-8] (1980)	0.1	0.85	–	–
Phosphorus pentasulfide [1314-80-3] (1976)	–	*1*	–	3
Phosphorus trichloride [7719-12-2] (1982)	0.2	1.1	0.5	2.8
Phthalic anhydride [85-44-9] (1987)	*1*	*6.1*	–	–
m-Phthalodinitrile [626-17-5] (1977)	–	5	–	–
Picloram (1918-02-1] (1990)	–	*10*	–	–
Picric acid [88-89-1] (1990)	–	0.1	–	–
Pindone [83-26-1] (1987)	–	*0.1*	–	–
Piperazine dihydrochloride [142-64-3] (1982)	–	5	–	–
2-Pivalyl-1,3-indandione, see Pindone				
Plaster of Paris, see Calcium sulfate				
Platinum [7440-06-4]				
Metal (1961)	–	1	–	–
Soluble salts, as Pt (1970)	–	*0.002*	–	–
Polychlorobiphenyls, see Chlorodiphenyls				
Polytetrafluoroethylene decomposition products (1972)	–	B1	–	–
Portland cement [65997-15-1] (1986)	–	10(e)	–	–
Potassium hydroxide [1310-58-3] (1977)0	–	–	–	C2
Propane [74-98-6] (1981)	–(c)	–	–	–
Propane sultone [1120-71-4] (1977)	A2	A2	–	–
Propargyl alcohol [107-19-7]-Skin (1987)	1	2.3	–	–
Propiolactone [57-57-8] (1987)	0.5,A2	1.5,A2	–	–
Propionic acid [79-09-4] (1990)	10	30	–	–
Propoxur [114-26-1] (1987)	–	0.5	–	–
n-Propyl acetate [109-60-4] (1976)	200	835	250	1040
n-Propyl alcohol [71-23-8]-Skin (1976)	200	492	250	614
Propylene [115-07-1] (1976)	–(c)	–	–	–
Propylene dichloride [78-87-5] (1976)	75	347	110	508
Propylene glycol dinitrate [6423-43-4] -Skin (1985)	0.05	0.34	–	–
Propylene glycol monomethyl ether [107-98-2] (1976)	100	369	150	553
Propylene imine [75-55-8]-Skin (1983)	2,A2	4.7,A2	–	–
Propylene oxide [75-56-9] (1981)	20	48	–	–
n-Propyl nitrate [627-13-4] (1976)	25	107	40	172
Propyne, see Methyl acetylene				
Pyrethrum [8003-34-7] (1981)	–	5	–	–
Pyridine [110-86-1] (1987)	5	16	–	–
Pyrocatechol, see Cathecol				
Quartz, see Silica-Crystalline				
Quinone [106-51-4] (1987)	0.1	0.44	–	
RDX, see Cyclonite				
Resorcinol [108-46-3] (1976)	10	45	20	90
Rhodium [7440-16-6]				
Metal (1982)	–	1	–	–
Insoluble compounds, as Rh (1984)	–	1	–	–
Soluble compounds, as Rh (1984)	–	0.01	–	–
Ronnel [299-84-3] (1977)	–	10	–	–

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Rosin core solder thermal decomposition products, as resin acids - colophony [8050-09-7] (1993)		Sensitizer, reduce exposure to as low as possible		
Rotenone (commercial) [83-79-4] (1987)	--	5	--	--
Rouge (1986)	--	10(e)	--	
Rubber solvent (Naphtha) [8030-30-6] (1977)	400	1590	--	--
Selenium [7782-49-2] and compounds, as Se (1977)	--	0.2	--	--
Selenium hexafluoride [7783-79-1] as Se (1979)	0.05	0.16	--	--
Sesone [136-78-7] (1986)	--	10	--	--
Silane, see Silicon tetrahydride				
Silica-Amorphous				
Diatomaceous earth (uncalcined) [61790-53-2] (1986)	--	10(e)	--	--
Precipitated silica [112926-00-8] (1987)	--	10	--	--
Silica fume [69012-64-2] (1992)	--	2(j)	--	--
Silica fused [60676-86-0] (1992)	--	10	--	--
Silica-Crystalline				
Cristobalite [14464-46-1] (1986)	--	0.05(j)	--	--
Quartz [14808-60-7] (1986)	--	0.1(j)	--	--
Tridymite [15468-32-3] (1986)	--	0.05(j)	--	--
Tripoli [1317-95-9] (1985)	--	0.1(j) of contained respirable quartz	--	--
Silicon [7440-21-3] (1986)	--	10(e)	--	--
Silicon carbide [409-21-2] (1986)	--	10(e)	--	--
Silicon tetrahydride [7803-62-5] (1983)	5	6.6	--	--
Silver [7440-22-4]				
Metal (1981)	--	0.1	--	--
Soluble compounds, as Ag (1981)	--	0.01	--	--
Soapstone				
Respirable dust (1985)	--	3(j)	--	--
Inhalable dust (1985)	--	6(e)	--	--
Sodium azide [26628-22-8] (1977)				
as Sodium azide	--	--	--	C0.29
as Hydrazoic acid vapor	--	--	C0.11	--
Sodium bisulfite [7631-90-5] (1980)	--	5	--	--
Sodium 2,4-dichloro-phenoxyethyl sulfate, see Sesone				
Sodium fluoroacetate [62-74-8]-SKin (1984)	--	0.05	--	--
Sodium hydroxide [1310-73-2] (19770	--	--	--	C2
Sodium metabisulfite [7681-57-4] (1980)	--	5	--	--
Sodium perfluoroacetate, see Sodium fluoroacetate				
Starch [9005-25-8] (1986)	--	10	--	--
Stearates(l) (1988)	--	10	--	--
Stibine [7803-52-3] (1986)	0.1	0.51	--	--
Stoddard solvent [8052-41-3] (1987)	100	525	--	--
Strontium chromate [7789-06-2], as Cr (1992)	--	0.0005,A2	--	--
Styrene monomer [100-42-5]-Skin (1981)	50	213	100	426
Strychnine [52-24-9](1986)	--	0.15	--	--
Subtilisins [1395-21-7; 9014-01-1] (Proteolytic enzymes as 100% pure crystalline enzyme) (1977)	--	--		C0.00006
Sucrose [57-50-1] (1986)		10		--
Sulfometuron methyl [74222-97-2] (1994)	--	5,A4	--	--
Sulfotep [3689-24-5]-Skin (1986)	--	0.2	--	--

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Sulfur dioxide [7446-09-5] (1986)	2	5.2	5	13
Sulfur hexafluoride [2551-62-4] (1986)	1000	5970	--	--
Sulfuric acid [7664-93-9] (1989)	--	1	--	3
Sulfur monochloride [10025-67-9] (1986)	--	--	C1	C5.5
Sulfur pentafluoride [5714-22-7] (1986)	--	--	C0.01	C0.10
Sulfur tetrafluoride [7783-60-0] ((1986)	--		C0.1	C0.44
Sulfuryl fluoride [2699-79-8] (1976)	5	21	10	42
Sulprofos [35400-43-2] (1984)	--	1	--	--
Systox, see Demeton				
2,4,5-T [93-76-5] (1986)	--	10	--	--
Talc (containing no asbestos fibers) [14807-96-6] (1983)	--	2(j)	--	--
Talc (containing asbestos fibers) (1985)	Use asbestos TLV-TWA(n)			
Tantalum [7440-25-7], metal and oxide [1314-61-0] dusts, as Ta (1988)	--	5	--	--
TEDP, see Sulfotep				
Tellarium [13494-80-9] and compounds, as Te (1977)	--	0.1	--	--
Tellurium hexafluoride [7783-80-4], as Te (1977)	0.02	0.1	--	--
Temephos [3383-96-8] (1986)	--	10	--	--
Terephthalic acid [100-21-0] (1989)	--	10	--	--
TEPP [107-49-3]-Skin (1986)	0.004	0.047	--	--
Terphenyls [26140-60-3] (1980)	--	--	C0.53	C5
1,1,1,2-Tetrachloro-2,2-difluoroethane [76-11-9] (1986)	500	4170	--	--
1,1,2,2-tetrachloro-1,2-difluoroehtane [76-12-0] (1986)	500	4170	--	--
1,1,2,2-Tetrachloroethane [79-34-5]-Skin (1986)	1	6.9	--	--
Tetrachloroethylene, see Perchloroethylene				
Tetrachloromethane, see Carbon tetrachloride				
Tetrachloronaphthalene [1335-88-2] (1986)	--	2	--	--
Tetraethyl lead [78-00-2], as Pb-Skin (1986)	--	0.1(o)	--	--
Tetrahydrofuran [109-99-9] (1976)	200	590	250	737
Tetramethyl lead [75-74-1], as Pb - Skin (1986)	--	0.15(o)	--	--
Tetramethyl succinonitrile [3333-52-6] -Skin (1986)	0.5	2.8	--	--
Tetranitromethane [509-14-8] (1993)	0.005,A2	0.04,A2	--	--
Tetrasodium pyrophosphate [7722-88-5] (1980)	--	5	--	--
Tetryl [479-45-8] (1986)	--	1.5	--	--
Thallium, elemental [7440-28-0], and soluble compounds, as Tl-Skin (1977)	--	0.1	--	--
4,4'-Thiobis (6-tert-butyl-m-cresol) [96-69-5] (1986)	--	10	--	--
Thioglycolic acid [68-11-1]-Skin (1978)	1	3.8	--	--
Thionyl chloride [7719-09-7] (1986)	--	--	C1	C4.9
Thiram [137-26-8] (1990)	--	1	--	--
Tin [7440-31-5]				
Metal (1982)	--	2	--	--
Oxide & inorganic compounds, except SnH4, as Sn (1982)	--	2	--	--
Organic compounds, as Sn - Skin (1992)	--	0.1	--	0.2
Titanium dioxide [13463-67-7] (1986)	--	10	--	--
o-Tolidine [119-93-7]-Skin (1982)	A2	A2	--	--

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Toluene [108-88-3]-Skin (1992)	50	188	–	–
Toluene-2,4-diisocyanate (TDI) [584-84-9] (1983)	0.005	0.036	0.02	0.14
o-Toluidine [95-53-4]-Skin (1984)	2,A2	8.8,A2	–	–
m-Toluidine [108-44-1]-Skin (1986)	2	8.8	–	–
p-Toluidine [106-49-0]-Skin (1986)	2,A2	8.8,A2	–	–
Toluol, see Toluene				
Toxaphene, see Chlorinated camphene				
Tributyl phosphate [126-73-8] (1986)	0.2	2.2	–	–
Trichloroacetic acid [76-03-9] 91980)	1	6.7	–	–
1,2,4-Trichlorobenzene [120-82-1] (1978)	–	–	C5	C37
1,1,1-Trichloroethane, see Methyl chloroform				
1,1,2-Trichloroethane [79-00-5]-Skin (1986)	10	55	–	–
Trichloroethylene [79-01-6] (1993)	50,A5	269,A5	100,A5	537,A5
Trichlorofluoromethane [75-69-4] (1992)	–	–	C1000	C5620
Trichloromethane, see Chloroform				
Trichloronaphthalene [1321-65-9] -Skin (1986)	–	5	–	–
Trichloronitromethane, see Chloropicrin				
1,2,3-Trichloropropane [96-18-4] -Skin (1987)0	10	60	–	–
1,1,2-Trichloro-1,2,2-trifluoroethane [76-13-1] (1976)	1000	7670	1250	9590
Tricyclohexyltin hydroxide, see Cyhexatin				
Tridymite, see Silica-Crystalline				
Triethanolamine [102-71-6] (1993)	–	5	–	–
Triethylamine [121-44-8]-Skin (1994)	(1)	(4.1)	(5)	(20.7)
Trifluorobromomethane [75-63-8] (1986)	1000	6090	–	–
Trimellitic anhydride [552-30-7] (1993)	–	–	–	C0.04
Trimethylamine [75-50-3] (1992)	5	12	15	36
Trimethyl benzene [25551-13-7] (1987)	25	123	–	–
Trimethyl phosphite [121-45-9] (1986)	2	10	–	–
2,4,6-Trinitrophenol, see Picric acid				
2,4,6-Trinitrophenylmethylnitramine, see Tetryl				
2,4,6-Trinitrotoluene (TNT) [118-96-7]-Skin (1986)	–	0.5	–	–
Triorthocresyl phosphate [78-30-8] -Skin (1986)	–	0.1	–	–
Triphenyl amine [603-34-9] (1980)	–	5	–	–
Triphenyl phosphate [115-86-6] (1986)	–	3	–	–
Tripoli, see Silica-Crystalline				
Tungsten [7440-33-7], as W				
Insoluble compounds (1976)	–	5	–	10
Soluble compounds (1976)	–	1	–	3
Turpentine [8006-64-2] (1987)	100	556	–	–
Uranium (natural) [7440-61-1]				
Soluble and insoluble compounds, as U (1976)	–	0.2	–	0.6
n-Valeraldehyde [110-62-3] (1978)	50	176	–	–
Vanadium pentoxide [1314-62-1], as V2O5; respirable dust or fume (1982)	–	0.05	–	–
Vegetable oil mists(p) (1972)	–	10	–	–
Vinyl acetate [108-05-4] (1993)	10,A3	35,A3	15,A3	53,A3
Vinyl benzene, see Styrene				
Vinyl bromide [593-60-2] (1980)	5,A2	22,A2	–	–
Vinyl chloride [75-01-4] (1980)	5,A1	13,A1	–	–

Substance [CAS #]	ADOPTED VALUES TWA ppm	TWA mg/m	STEL/CEILING (C) ppm	STEL/CEILING (C) mg/m
Vinyl cyanide, see Acrylonitrile				
4-Vinyl cyclohexene [100-40-3] (1992)	0.1,A2	0.4,A2	--	--
Vinyl cyclohexene dioxide [106-87-6] -Skin (1977)	10,A2	57,A2	–	–
Vinylidene chloride [75-35-4] (1984)	5	20	20	79
Vinyl toluene [25013-15-4] (1981)	50	242	100	483
VM & P Naphtha [8032-32-4] (1987)	300	1370	–	–
Warfarin [81-81-2] (1987)	–	0.1	–	–
Welding fumes (NOC(d)) (1977)	–	5,B2	–	–
Wood dust (certain hard woods as beech & oak) (1981)	–	1	–	–
Soft wood (1981)	–	5	–	10
Xylene [1330-20-7; 95-47-6; 108-38-3; 106-42-3] (o-,m-,p-isomers) (1976)	100	434	150	651
m-Xylene , -diamine [1477-55-0] -Skin (1977)	–	–	–	C0.1
Xylidine (mixed isomers) [1300-73-8] -Skin (1990)	0.5,A2	2.5,A2	–	–
Yttrium [7440-65-5] metal & compounds, as Y (1988)	–	1	–	–
Zinc Chloride fume [7646-85-7] (1976)	–	1	–	2
Zinc chromates [13530-65-9; 11103-86-9; 37300-23-5], as Cr (1988)	–	0.01,A1	–	–
Zinc oxide [1314-13-2]				
Fume (1976)	–	5	–	10
Dust (1976)	–	10(e)	–	–
Zirconium [7440-67-7] and compounds, as Zr (1976)	–	5	–	10

TABLE 5a - TYPES AND USES OF PERSONAL PROTECTIVE EQUIPMENT

TYPE OF PPE	USES
I. RESPIRATORY PROTECTION	
* 1. AIR PURIFYING RESPIRATORS	
a. Particulate-filter respirator	Exposures from particulate matters such as dusts, mists and metal fumes
b. Chemical Cartridge Respirator	Exposures from gases and vapours
c. Combination of Chemical Cartridge Respirator and Particulate Filter Respirator	Exposures from both gaseous and particulates matters
d. Gas Mask	Exposures from particulates, gases and vapours in higher concentrations.
* Can be used only if the atmosphere contain sufficient oxygen to sustain life (I.e. at least 19.5% by volume.	
2. AIR-SUPPLIED RESPIRATORS	
a. Hose Mask with Blower	When continuous supplies of respirable air are needed and exposures to concentrations of dust, mist, vapour or gas not immediately dangerous to life or health. Can be used with a maximum hose length of about 50-90m depending on the type of blower and supply valves.
b. Hose Mask without Blower	The same uses with blower and can be used with a maximum hose length of about 22m.
c. Air-line Respirator	When regulated supplies of respirable air are needed and exposures to concentrations with dust, mist, vapour or gas not immediately dangerous to life or health. Can be used with a maximum hose length of up to 90m.
*3. SELF CONTAINED RESPIRATORS(SCBA)	
a. Demand-type self contained apparatus	All types of emergencies
b. Oxygen-generating self-contained apparatus	Confined spaces
c. Rebreathing-type-self-contained apparatus	Mine Rescue Operations
* Used to provides respiratory protection in any toxic gases, and oxygen deficiency conditions. These are the equipment of choice for emergency situations. It can be used at distances greater than 90m from source of fresh air.	

TYPE OF PPE	USES
II. EYE AND FACE PROTECTION	
1. EYE PROTECTION	
a. Spectacles-Metal or Plastic Frames with side shields	Protection from flying objects, glare, and injurious radiation
b. Plastic Eyeshield with side shields	Protection from flying objects
c. Flash Goggles with leather side shields	Protection against radiant heat and flying hot particles. They are suggested for wear under welding helmets and for furnace work, brazing, babbitting, and other work involving heat and glare.
d. Smelter's Goggles with cobalt blue lenses	Use by steel smelters and others whose work requires periodic inspection of metal heats.
e. Cup type goggles	Used when greater protection is required than can be provided by spectacles with side shields.
f. Standard Cup-type goggles	Designed to be worn by individuals who do not wear corrective spectacles.
g. Cover Cyp-type Goggles	Designed to fit over corrective spectacles.
h. Chippers Models	Provides protection from front or sides against flying objects.
i. Dust and Splash Models	Provide protection against flying objects from the front or sides
j. Welder's and Cutter's Models	Provide protection against glare, flying sparks and scale and injurious radiation.
k. Chemical Goggles	Provide protection from entry of liquid splashes and dusts.
l. Foundryman's Goggles	Provide protection against impact hazards normally encountered in foundries.
m. Gas-tight Goggles	Provide protection against dusts and mists.
2. FACE PROTECTION	
a. Welder's Helmets	Provides protection for the eyes, face, ears, and neck against intense radiant energy
b. Hand Shields	Used in some welding operations or for observing the welding process.
c. Face Shields	Provide protection to the face (I.e. the front part of the head, including forehead, eyes, cheeks, nose, mouth and chin) from flying particles and sprays of hazardous liquids and also provide anti-glare protection.
III. HEAD PROTECTION	
1. PROTECTIVE HAT-Type No. 1 (Hat, full brim)	
a. CLASS A (General Service)	Protection against impact and flying particles; limited dielectric strength (not exceeding 200 volts)
b. CLASS B (Utility Service)	Protection against impact and flying particles; high dielectric strength

TYPE OF PPE	USES
c. CLASS C (Special Service)	Limited protection against impact; no dielectric strength (particular reference is made to metallic protective hats and caps)
d. CLASS D (Fireman Service)	Protection against impact; limited dielectric strength (not exceeding 600 volts)
2. PROTECTIVE HAT - Type No. 2 (Cap, brimless, with peak) a. Available in all classes except Class D	
IV. HEARING PROTECTION 1. EAR PROTECTORS	
a. Plug or insert type	Use to lower noise level by as much as 10% of the original sound
b. Cup or muff type	Use to reduce the effects of excessive noise by as much as 15-20% of the original sound.
V. BODY AND LEG PROTECTION 1. BODY PROTECTION	
a. Aprons	Protection against heat, hot metal splashes, impact and cut hazards, splashing liquids or radiation hazards.
b. Cape Sleeves	Cover the back, shoulders and arms and extend over the upper chest.
c. Jackets	Used to protect the upper part of the body. They cover the shoulders and extends to the hips. Jackets made for flame and heat hazards are suitable for welding, particularly overhead welding, and for furnace or firefighting work. Other jackets intended for general laboratory or industrial use offer protection against chemical splashes, solvents, acids, alkalis, oils and greases.
d. Coats	Coats being knee or ankle length give legs as well as body protection.
e. Coveralls and Overalls	Coveralls and overalls cover the body except head, hands and feet. They also are made of materials designed to protect against heat, flame or chemical burns.
f. Night Hazard Clothing	Luminescent clothing is designed to reflect and is used by night time workers where there is a hazard from moving vehicles.
g. Firefighting Suits	Flame resistant suits are designed to completely protect firemen whil extinguishing fires and during rescue work around fires.

TYPE OF PPE	USES
h. Radiation Exposure Suits	Coveralls suits, made of plastic or paper, protect clothing against contamination from particulate matter.
i. Liquid Hazard Suit	Suits consisting of light weight jacket, overall pants, and hood, are used by maintenance men and repairmen when they are working around hazardous liquids.
VI. ARM AND HAND PROTECTION	
1. Gloves and mittens	Protection to the fingers, hands, and sometimes to the wrists and forearms
2. Hand Pads	Used to protect the palm of the hand against cuts and abrasions or against burns caused by direct contact with hot objects or against sparks, flame or heat.
3. Finger Cots	Protection to finger tips only and designed to protect against moisture, acids, alkalis, oil, grease, and solvents or against cuts.
4. Sleeves	Where protection to the arms are necessary, sleeves are worn in conjunction with gloves. Made in three lengths: cuff length for wrist and forearm, elbow length and shoulder length. Rubber sleeves are worn by electricians and linemen for protection against live conductors.
VII. FOOT PROTECTION	
1. Safety Shoes	For general wear, safety shoes should be well constructed with an impact resisting metal toecap. Protection toecap should support a static load of 2,500 pounds or 50 pounds dropped 18 inches.
2. Congress-Type Shoes	Required for places where molten metal may get into shoes. These shoes generally have wooden soles or are attached to wooden soled sandals.
3. Foot Guards	Should be capable of withstanding up to 200 pounds dropped 1 foot.
4. Metal Foot Guards	Use to protect not only the toes but also the instep.
5. Foot and Skin Guards	Where there is also a hazard to the skin, a combination foot and skin guard is available.
6. Wooden Soled Sandals	Used as protection against hot walking surfaces as in paving with hot asphalt.
7. Boots	Made of rubber with safety toecaps. Used to protect against wet surfaces and slipping hazard. Toecap should support a static load of 2500 pounds or 50 pounds dropped 18 inches.

TABLE 5b – PROTECTIVE CLOTHING MATERIALS (Coats, Overalls, Sleeves, Aprons, Leggings, Capes, Gloves and Hand Pads)

MATERIAL	PROTECTS AGAINST
LEATHER	Light Metal Splash Light Impact Actinic Rays Welding
ASBESTOS	Flame Radiant Heat
WOOL	Flame Acid Splash
TREATED DUCK	Abrasion Rubbing Splashes Flying materials Dirt, Oil Heat
RUBBER, RUBBERIZED FABRICS	Acids excess moisture Corrosive Dusts Skin penetrants

OH/IH FORM I
NCDCS/OH/IH FORM I

OFFICE OF THE CITY/MUNICIPAL HEALTH OFFICER

REGISTRATION FORM

DATE: _____

NAME OF ESTABLISHMENT: _____

ADDRESS: _____

NAME OF OWNER/MANAGER: _____

ADDRESS: _____

TELEPHONE NOS.: _____

TYPE OF INDUSTRY (NEDA CLASSIFICATION): _____

NUMBER OF EMPLOYEES:

MALE: _____

FEMALE: _____

TOTAL: _____

NUMBER OF SHIFTS: _____

PRODUCT/S: _____

_____

BRIEF DESCRIPTION OF THE PROCESS/OPERATION:

_____

_____

_____

_____

I hereby certify that the above-mentioned information is true and correct.

_____
Owner/Manager

NCDCS/OH/IH FORM II

OFFICE OF THE CITY/MUNICIPAL HEALTH OFFICER
City/Municipality of _____

INSPECTION REPORT FORM

COMPANY PROFILE

Name of Establishment : _____ Type of Industry_____
Address: _____ Zone: [ ] Ind'l [ ] Com'l [ ] Res'l
Years of Operation: _____ Classification: [ ] S [ ] M [ ] L
No. of shifts: [ ] 1 [ ] 2 [ ] 3

Number of Workers:

	Production		Non-Production		Total
Shifts	Male	Female	Male	Female	
1	___	___	___	___	_____
2	___	___	___	___	_____
3	___	___	___	___	_____

LEGAL REQUIREMENTS:

			DATE OF VALIDITY
DOH -	Sanitary Permit	[ ] Yes [ ] No	_____
	Health Certificate (for food estab.)	[ ] Yes [ ] No	_____
DOLE -	Electrical/Mechanical Permits	[ ] Yes [ ] No	_____
	Registration (medical)	[ ] Yes [ ] No	_____
DENR -	Environmental/ECC permits	[ ] Yes [ ] No	_____
LGU -	Business Permit/Permit to Operate	[ ] Yes [ ] No	_____
Others (Specify)		[ ] Yes [ ] No	_____

ENVIRONMENTAL:

Raw materials/Chemicals used:	By Products:	End/Final Products:
_____	_____	_____
_____	_____	_____
_____	_____	_____

Processes/Operation	No. of Exposed Workers	Hazards Involved	Engineering Control Measures Instituted	Approved Personal Protective Equipment used:
_____ _____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Sanitary Facilities:

	Number	
	Male	Female
Toilet Bowls	_____	_____
Sinks	_____	_____
Showers	_____	_____
Drinking Faucets	_____	
Urinals	_____	

Other Facilities:

	No	Yes	Area in sq.m.
Restrooms/Locker Rooms	___	___	_____
Canteen/Mess Hall	___	___	_____

Sewage System:
[ ] Company Owned
[ ] Publicly operated

Disposal of Toxic Wastes:
Treatment Plant Approved by: EMB-DENR
[ ] Yes [ ] No

Housekeeping:

1. Orderliness - well arranged/no obstruction	[ ] Yes	[ ] No
- Synchronized arrangement of machines and working tables	[ ] Yes	[ ] No
2. Cleanliness - absence of dust and dirt	[ ] Yes	[ ] No
- No wet area	[ ] Yes	[ ] No
3. Separate storage area		
- raw materials	[ ] Yes	[ ] No
- finished products	[ ] Yes	[ ] No
4. Maintenance of machines/equipment		
- maintenance schedule implemented	[ ] Yes	[ ] No
- person-in-charge identified	[ ] Yes	[ ] No

Vermin/Rodent Control Program Documented

[ ] Yes [ ] No

[ ] In-House

[ ] Contracted-out

HEALTH AND MEDICAL SERVICES:

Health Personnel:

	Number	
	Full Time	Part Time
Physician(s)	_____	_____
Dentist(s)	_____	_____
Nurse(s)	_____	_____
First Aider(s)	_____	_____

Health Facilities:

	Available	Not Available	
First Aid/Treatment Room	_____	_____	
Clinic	_____	_____	No. of beds _____
Dental Clinic	_____	_____	
Ambulance/Transport Facilities	_____	_____	
Hospital	_____	_____	No. of beds _____

[ ] Company owner [ ] written contract with private hospital/s

Medical Records/Files: [ ] available [ ] updated [ ] not available

Health Services/examinations conducted:

[ ] Pre-Employment

[ ] Annual/Periodic Examination

[ ] Routine Laboratory Examinations
(e.g. chest x-ray, Blood/urine/stool exams)

[ ] Special Examination
(e.g. Lung Function, ECG, cholinesterase audiometric exams)

[ ] Separation Examination

Other Health activities:

[ ] Job Orientation/on the Job Training

[ ] IEC/Safety Taining

[ ] Others, specify _____

INSPECTED/PREPARED BY:

_____
SANITARY INSPECTOR

NOTED BY:

_____
CITY/MUNICIPAL HEALTH OFFICER

NCDCS/OH/IH/FORM III

Republic of the Philippines
Department of Health
Non-Communicable Disease Control Service
OCCUPATIONAL HEALTH DIVISION

ANNUAL MEDICAL REPORT
January - December, _____

Name of Establishment: _____
Address: _____
Name of Owner/Manager: _____
Type of Industry: _____ Classification (Size): _____
Health and Medical Staff:
Name of OH Physician: _____
Address: _____
Name of OH Dentist: _____
Address: _____
Name of OH Nurse: _____
Address: _____

REPORT OF DISEASES:
Number of Consultations/Treatments for the following diseases:

	MALE	FEMALE	TOTAL NO. OF CASES
SKIN			
Allergy	_____	_____	_____
Dermatoses	_____	_____	_____
Infection as Folliculitis Abscess/Paronychia	_____	_____	_____
Others	_____	_____	_____
HEAD			
Headache	_____	_____	_____
Tension	_____	_____	_____
Others	_____	_____	_____
EYES			
Error of Refraction	_____	_____	_____
Bacteria/Viral Conjunctivitis	_____	_____	_____
Cataract	_____	_____	_____
Others			
MOUTH AND ENT			
Gingivitis	_____	_____	_____
Herpes Labiales/Nasalis	_____	_____	_____
Otitis Media/Externa	_____	_____	_____
Deafness	_____	_____	_____
Meniere's Syndrome/Vertigo	_____	_____	_____
Rhinitis/Colds	_____	_____	_____
Nasal Polyps	_____	_____	_____
Sinusitis	_____	_____	_____
Tonsillopharyngitis	_____	_____	_____
Laryngitis	_____	_____	_____
Others	_____	_____	_____

	MALE	FEMALE	TOTAL NO. OF CASES
RESPIRATORY			
Bronchitis			
Bronchial Asthma			
Pneumonia			
Tuberculosis			
Pneumoconiosis			
Others			
HEART AND BLOOD VESSEL			
Hypertension			
Hypotension			
Angina Pectoris			
Myocardial Infarction			
Vascular Disturbances in Extremeties due to continuous vibration			
Others			
GASTROINTESTINAL			
Gastroenteritis/Diarrhea			
Amoebiasis			
Gastritis/Hyperacidity			
Appendicitis			
Infectious Hepatitis			
Liver Cirrhosis			
Hepatic Abscess			
Cancer (Hepatic/Gastric)			
Ulcer			
Others			
GENITO URINARY			
Urinary Tract Infection			
Stones			
Cancer			
Others			
REPRODUCTIVE			
Dysmenorrhea			
Infection (Cervicitis)			
(Vaginitis)			
Abortion (Spontaneous)			
(Threatened)			
Hyperemesis Gravidarum			
Sexually Transmitted Diseases			
Uterine Tumors			
Cervical Polyp/Cancer			
Ovarian Cyst/Tumors			
Hernia (Inguinal)			
(Femoral)			
Others			

	MALE	FEMALE	TOTAL NO. OF CASES
NEUROMUSCULAR/SKELETAL/JOINTS			
Peripheral Neuritis			
Torticollis			
Arthritis			
Others			
LYMPHATICS AND CIRCULATORY			
Anemia			
Leukemia			
Cerebrovascular Accidents			
Lymphadenitis			
Lymphoma			
INFECTIOUS DISEASES			
Influenza			
Typhoid/Paratyphoid Fever			
Cholera			
Measles			
Mumps			
Tetanus			
Malaria			
Schistosomiasis			
Herpes Zoster			
Chicken Pox			
German Measles			
Rabies			
Others			
DISEASES DUE TO PHYSICAL ENVIRONMENT			
DISEASES DUE TO NOISE AND VIBRATION			
Deafness (Noise-Induced)			
White fingers disease			
Musculo-skeletal			
Fatigue			
DISEASES DUE TO TEMPERATURE AND HUMIDITY ABNORMALITIES			
HOT TEMPERATURE			
Heat Stroke			
Heat Cramps			
Dehydration			
Heat Exhaustion			
Others			
COLD TEMPERATURE			
Chilblain			
Frostbite			
Immersion Foot			
General Hypothermia			
Others			

	MALE	FEMALE	TOTAL NO OF CASES
DISEASES DUE TO PRESSURE ABNORMALITIES			
Decompression Sickness			
Air Embolism			
Bends Disease			
Barotrauma			
Hypoxia			
Altitude Sickness			
DISEASES DUE TO RADIATION			
Cataracts			
Keratitis			
Burns			
Radiation-Related Cancers			
TOTAL NUMBER			

Prepared and Submitted By:

_____

Company Physician

Noted by:

_____

Owner/Manager

NCDCS/OH/IH/FORM IV

Republic of the Philippines
Department of Health
Non-Communicable Disease Control Service
OCCUPATIONAL HEALTH DIVISION

ANNUAL INDUSTRIAL HYGIENE REPORT
For the Year _____

DATE: _____

CITY/MUNICIPALITY: _____ PROVINCE: _____ REGION:_____

TOTAL NO. OF INDUSTRIAL ESTABLISHMENT
Small-Scale (1-50 workers): _____ Total no. of Workers: _____ Male _____ Female_____
Medium Scale (51-199): _____ Total no. of Workers: _____ Male_____Female_____
Large Scale (200 and above): _____ Total No. of Workers: _____ Male_____ Female_____

TOTAL NO. OF INDUSTRIAL ESTABLISHMENT INSPECTED
Small Scale: _____
Medium Scale: _____
Large Scale: _____

TOTAL NO. OF INDUSTRIAL ESTABLISHMENT ISSUED:

SANITARY PERMIT	SANITARY ORDER
Small Scale: _____	Small Scale: _____
Medium Scale: _____	Medium Scale: _____
Large Scale: _____	Large Scale: _____

TOTAL NO. OF ESTABLISHMENT RECOMMENDED FOR CLOSURE
Small Scale: _____
Medium Scale: _____
Large Scale: _____

REPORT OF DISEASES (INDUSTRY-BASED)

	MALE	FEMALE	TOTAL NO. OF CASES
SKIN			
Allergy	_____	_____	_____
Dermatoses	_____	_____	_____
Infection as Folliculitis Abscess/Paronychia	_____	_____	_____
Others	_____	_____	_____
HEAD			
Headache	_____	_____	_____
Tension	_____	_____	_____
Others	_____	_____	_____
EYES			
Error of Refraction	_____	_____	_____
Bacteria/Viral Conjunctivitis	_____	_____	_____
Cataract	_____	_____	_____
Others			

	MALE	FEMALE	TOTAL NO. OF CASES
MOUTH AND ENT			
Gingivitis			
Herpes Labiales/Nasalis			
Otitis Media/Externa			
Deafness			
Meniere's Syndrome/Vertigo			
Rhinitis/Colds			
Nasal Polyps			
Sinusitis			
Tonsillopharyngitis			
Laryngitis			
Others			
RESPIRATORY			
Bronchitis			
Bronchial Asthma			
Pneumonia			
Tuberculosis			
Pneumoconiosis			
Others			
HEART AND BLOOD VESSEL			
Hypertension			
Hypotension			
Angina Pectoris			
Myocardial Infarction			
Vascular Disturbances in Extremeties due to continuous vibration			
Others			
GASTROINTESTINAL			
Gastroenteritis/Diarrhea			
Amoebiasis			
Gastritis/Hyperacidity			
Appendicitis			
Infectious Hepatitis			
Liver Cirrhosis			
Hepatic Abscess			
Cancer (Hepatic/Gastric)			
Ulcer			
Others			
GENITO URINARY			
Urinary Tract Infection			
Stones			
Cancer			
Others			

	MALE	FEMALE	TOTAL NO. OF CASES
REPRODUCTIVE			
Dysmenorrhea			
Infection (Cervicitis)			
(Vaginitis)			
Abortion (Spontaneous)			
(Threatened)			
Hyperemesis Gravidarum			
Sexually Transmitted Diseases			
Uterine Tumors			
Cervical Polyp/Cancer			
Ovarian Cyst/Tumors			
Hernia (Inguinal)			
(Femoral)			
Others			
NEUROMUSCULAR/SKELETAL/JOINTS			
Peripheral Neuritis			
Torticollis			
Arthritis			
Others			
LYMPHATICS AND CIRCULATORY			
Anemia			
Leukemia			
Cerebrovascular Accidents			
Lymphadenitis			
Lymphoma			
INFECTIOUS DISEASES			
Influenza			
Typhoid/Paratyphoid Fever			
Cholera			
Measles			
Mumps			
Tetanus			
Malaria			
Schistosomiasis			
Herpes Zoster			
Chicken Pox			
German Measles			
Rabies			
Others			
DISEASES DUE TO PHYSICAL ENVIRONMENT			
DISEASES DUE TO NOISE AND VIBRATION			
Deafness (Noise-Induced)			
White fingers disease			
Musculo-skeletal			
Fatigue			

	MALE	FEMALE	TOTAL NO. OF CASES
DISEASES DUE TO TEMPERATURE AND HUMIDITY ABNORMALITIES			
HOT TEMPERATURE			
Heat Stroke			
Heat Cramps			
Dehydration			
Heat Exhaustion			
Others			
COLD TEMPERATURE			
Chilblain			
Frostbite			
Immersion Foot			
General Hypothermia			
Others			
DISEASES DUE TO PRESSURE ABNORMALITIES			
Decompression Sickness			
Air Embolism			
Bends Disease			
Barotrauma			
Hypoxia			
Altitude Sickness			
DISEASES DUE TO RADIATION			
Cataracts			
Keratitis			
Burns			
Radiation-Related Cancers			
TOTAL NUMBER			

Prepared and Submitted By:

_____

City/Municipal Health Officer