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Department of Chemistry



**The health and Safety of some Workers in Specific Work Places
in Al-Dywaniah city**

Research submitted to

The Council of the Faculty of Science -University of Qadisiyah

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By

Mohammed Nasser Khudeir Al-dalfi

Supervised by

Dr. Zeina Mohammed Kadam

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بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

﴿أَمَّنْ هُوَ قَانِتٌ آنَاءَ اللَّيْلِ سَاجِدًا وَقَائِمًا يَحْذَرُ الْآخِرَةَ وَيَرْجُو رَحْمَةً
رَّبِّهِ ۗ قُلْ هَلْ يَسْتَوِي الَّذِينَ يَعْلَمُونَ وَالَّذِينَ لَا يَعْلَمُونَ ۗ إِنَّمَا يَتَذَكَّرُ أُولُو
الْأَلْبَابِ﴾

صدق الله العظيم

سوره الزمره
الآية ٩

الاهداء

بسم الله الرحمن الرحيم

﴿قل أعملوا فسيرى الله عملكم ورسوله والمؤمنون﴾ صدق الله العظيم

إلهي لا يطيب الليل إلا بشكرك ولا يطيب النهار إلا بطاعتك .. ولا تطيب اللحظات إلا بذكرك
ولا تطيب الآخرة إلا بعفوك .. ولا تطيب الجنة إلا بروئيتك
* الله جل جلاله *

إلى من بلغ الرسالة وأدى الأمانة .. ونصح الأمة .. إلى نبي الرحمة ونور العالمين..
* سيدنا محمد صلى الله عليه وسلم *

إلى من يسعد قلبي بلقياها ... إلى روضة الحب التي تنبت أزكى الأزهار... إلى من علمتني
وعانت الصعاب لأصل إلى ما أنا فيه وعندما تكسوني الهموم أسبح في بحر حنانها ليخفف من
ألامي... إلى معلمتي الأولى
* أمي قرة عيني *

إلى رمز الرجولة والتضحية... إلى من دفعني إلى العلم وبه ازداد افتخار إلى من علمني النجاح
والصبر...
* أبي نبض قلبي *

إلى أستاذي وقدوتي... إلى من كان سنداً و عطاءً ومازالت روحه معي
* الدكتور عباس جواد الشباني رحمك الله وأسكنك فسيح جناته *

إلى من هم اقرب أليّ من روحي إلى من شاركني حزن الأم وبهم استمد عزتي وإصراري
* أخواني وأخواتي *

إلى من أنسني في دراستي وشاركني همومي تذكراً وتقديراً
* أصدقائي *

إلى هذه الصرح العلمي الفتى والجبار
جامعة القادسية كلية العلوم قسم الكيمياء

شكر وتقدير

الحمدُ لله رب العالمين، والصلاة والسلام على أشرف الخلق والمرسلين نبينا محمد صلى الله عليه وسلم وعلى آله الطيبين الطاهرين.

أول الشكر وآخره أتقدم به إلى المنعم الباري عزَّ وجل (الله) سبحانه وتعالى، الذي أحاطني برعايته الإلهية العظيمة، ويسر لي كل عسير، وألهمني الصبر والقوة في شق طريقي نحو البحث العلمي.

وأتوجه بخالص شكري وتقديري وعظيم امتناني إلى أستاذتي ومشرفتي في البحث أ.م.د زينا محمد كاظم لما أبدأته من حسن رعاية ورعاية وروح علمية مخلصه، وما قدمته لي من توجيهات ونصائح سديدة وملاحظات قيّمة ومستمرة... فدعائي لها بالخير والعافية.

وأتوجه بالشكر الجزيل إلى جميع أستاذتي الأفاضل في قسم الكيمياء كلية العلوم جامعة القادسية اخصهم ب الذكر رئيس القسم أ.م.د مقداد أرحيم ومقرر القسم أ.م.د بسام الفرحاني

وإلى مَنْ تعجز كلماتي وتنحني هامتي لعظيم عطائهما، شمس حياتي التي لا تغيب، وسبيلي إلى الجنة، إلى من وصفتهم منذ صغري بالجبل في سموخه، وعظمتهم، وبالجمال في صبرهم وجلدهم، وكالندى في حنانهم الذي لا ينتهي، إليكم (أمي وأبي) أطل الله في عمركم في صحة وخير حال.

وإلى كل من شدوا أزري وشاطروني أمري لأكمل الخطوات لولاهم بعد الله سبحانه وتعالى لا عتذر القلم عن رسم الكلمات (أخواني) أطل الله أعماركم بالصحة والسعادة وسدد طريق الخير لخطاكم.

ويوجب علي الاعتراف بالفضل أن أشكر موظفي دائرة الصحة والسلامة المهنية على إسنادهم لي طوال مدة بحثي ومساعدتهم لي .

وأخيراً لا بد من كلمة شكر ومحبة وامتنان إلى كل من شدَّ من أزري، وكل من ساندني في عملي وأعطاني القدرة والإصرار في تحقيق هدفي حتى لو كان بكلمة تشجيع واحدة، وممن فأتني ذكر أسمائهم، جزاهم الله خير الجزاء



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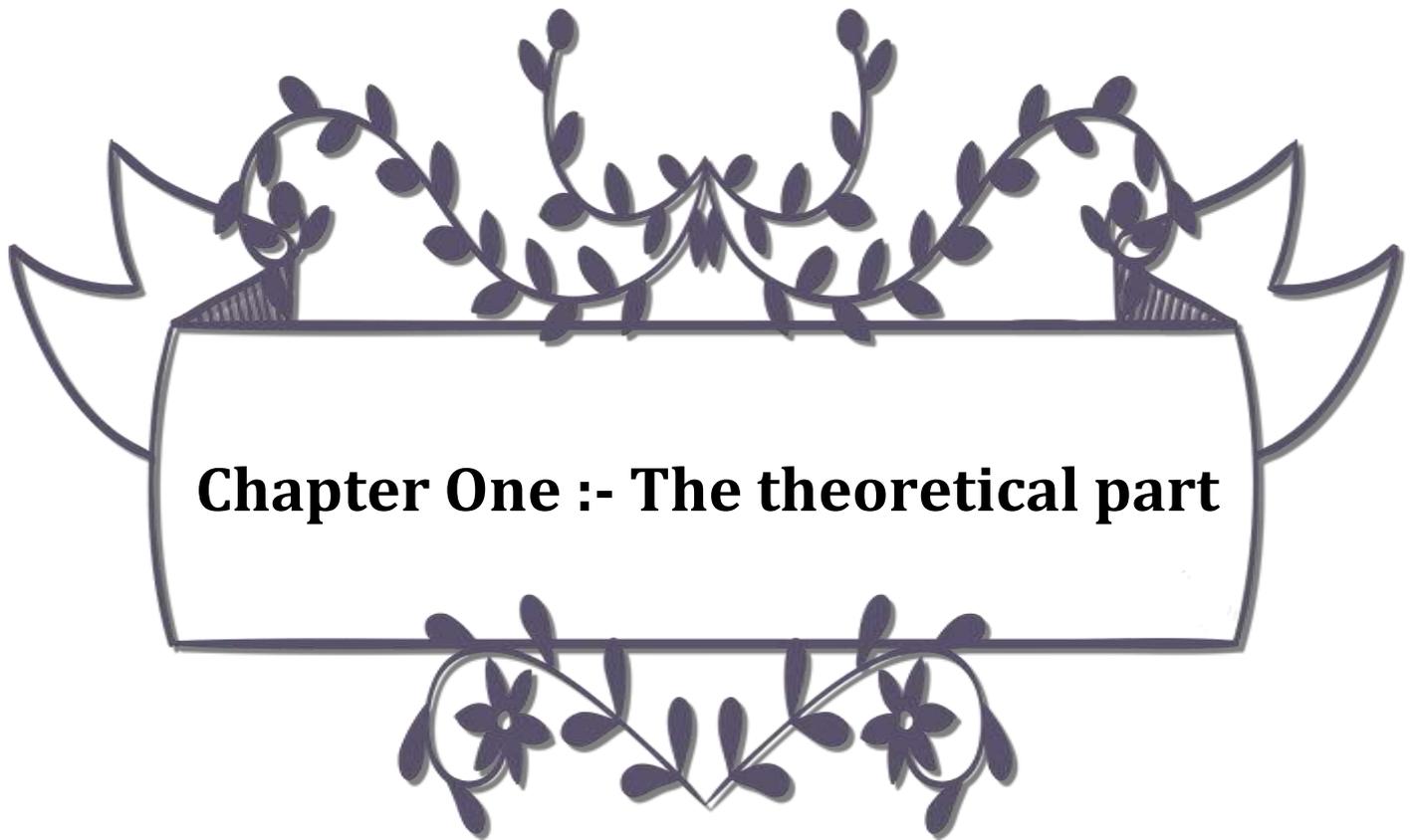




Summary

Safety in the workplace is a shared responsibility that falls on everyone, and under Local laws and international standards, the employer must provide all means and the procedures and precautions necessary to protect workers from the hazards of work and introduce them to them. Occupational safety and health is concerned with two main elements, the first of which is protection from Workplace hazards and, secondly, the health and welfare of workers Health threats arising from the nature of work in the short term or term Long range, providing safety requirements where they can be provided Trained and qualified cadres concerned with issues of occupational safety and health at the workplace Safety, is followed up by successive meetings of the specialized safety committees. In addition to the safety cadres, medical care is both preventive and therapeutic. The priorities that need to be provided, which are specialized medical staff working on provide preventive and curative medical services in the workplace and implement health programs including medical examinations for workers when they are used and periodic ones. A number of professional examinations to ascertain the efficiency of the worker to perform his work. The definition of occupational hazards and training on the right ways to avoid them and procedures Sound to perform the work and provide the necessary tools and equipment to be applied by the most important means Which are necessary for the protection of workers, where workers and employers participate in their implementation, success and observance examples of these are training on best work procedures and implementation of plans, Especially for emergencies and fraternity, and the provision of first aid kits Fire fighting systems.





Chapter One :- The theoretical part



1.1. Introduction

Poisonous and occupational health contribute to the development of the national economy where work is considered and its environment is a major determinant of health, unsafe working conditions may lead to Many health risks are reflected negatively on productivity, healthy workers Contribute effectively to improving and increasing production quality, and may affect working conditions. Non-health negatively affects the worker's health and thus negatively affects productivity. A toxic science and occupational health is defined as a science that is concerned with the preservation of toxicity and human health through the provision of safe working environments free of pathogens or Occupational injuries or diseases, in other words the set of procedures, rules and regulations within a legislative framework aimed at preserving the human from the risk of injury and preservation on the property of damage and loss.

....[1]

Occupational Safety and Health aims to:

1. Maintain and promote the health of workers through the prevention of accidents and occupational diseases Try to control them, and eliminate harmful factors, risks and occupational conditions Healthy and toxic at work.
2. Develop and promote safe work and healthy work environments and thus enhance productivity and improved.
3. Promote the physical, psychological and social health of workers and provide the necessary support for conservation on their professional and social capacities and development.

Occupational health and safety is one of the most important means of economic and social development. It is described as a system that reduces costs by investing in various areas of toxicity and occupational health on the material and human levels. It is an urgent necessity involving all concerned parties, including governments, employers, workers and communities in general.

This research reviews the most important risks to the worker in the workplace, the most important requirements and good practices to reduce these risks in these sites, in addition to some laws in professional safety, the safety officer's responsibilities, and some analysis conducted by the worker.

....[2]



١,٢. Starting and developing occupational health and safety

The relationship of work to human health and safety dates back to the beginning of creation when man exercised the profession of hunting as the first profession imposed by life for his food or its failure since that time knew that his departure for fishing would be exposed to the risk of death by his prey. Also in the wars that arose between individuals and tribes where the individual learns how to take measures that reduce the probability of his death or injury during the match, shields came, for example, as a death protection equipment. Over the years the man discovered mines and there is no one who accepts the work because it is difficult and may lead to death, which prompted the governments then to put prisoners and slaves in such acts in exchange for giving them freedom and used Canary birds in the mines to ensure the presence of toxic gases In the era of the Romans and the Greeks They have knowledge of what can be done by occupational diseases, which is called the first preventive phenomenon of work hazards known in history in the second century in the era of the Romans and the Greeks when he described (Palmini) a kind of mask worn by workers when exposed to gases and vapors rising. In prehistoric Europe, workers used the animal-excreted bladder to cover the mouth and nose when working inside mines for meat that is accused of the dangers of dust rising during work.[٣]

Know occupational health and safety- :

A. Health and safety specialists are defined as the hippocampal shield that protects active human resources.

B. Machinery and equipment.

C. Raw materials and manufactured, and the protection of workers from the risks of work and occupational injuries and diseases. Professional safety is the protection of the state economy. Three parties designated by the Occupational Health and Safety Order.

١ .State. ٢. Employer. ٣. Working.

The employer considers the health and safety of the profession to be almost economic, where when the funds are allocated to provide health and occupational safety must be reflected in the impact of increasing production, either by reducing the accident and work injuries or increase production or gain time by reducing the interruption of the worker or





take sick leave. The worker considers occupational health and safety to be more social than economic. He is afraid of death, disability, injury or illness due to work. The state looks at the health and safety of the profession in a balanced way to combine the employer's view with that of the worker, and the provision of health and safety requirements of the profession is one of the most important roles. Therefore, Decree No. ٥٥٢ of ٥/٢/١٩٨١ established the National Center for Health and Safety in the country in accordance with advanced methods and methods in order to protect and improve workers in economic establishments. Occupational health and safety requirements are assigned to two parties. Management. Inspection committees. The project owners have to ensure adequate working conditions that provide the workers with health and safety conditions. The inspection committees should follow up on this and hold the accountant accountable according to the law. Several laws have been issued, including Labor Law No. ٧١ of ١٩٨٧, Occupational Safety and Health Regulations No. ٢٢ of ١٧٨٧, Recipient of the Center's focal point from the Ministry of Environment to the Ministry of Labor and Social Affairs.

....[٤]

1,3. World Day for Safety and Health at Work

28 April 2018

Generation Safe & Healthy

This year, the World Day for Safety and Health at Work (Safe Day) and the World Day against Child Labour (WDACL) are coming together in a joint campaign to improve the safety and health of young workers and end child labour. The campaign aims to accelerate action to achieve Sustainable Development Goal (SDG) target 8.8 of safe and secure working environments for all workers by 2030, and SDG target 8.7 of ending all forms of child labour by 2025. Achieving these goals for the benefit of the next generation of the global workforce requires a concerted and integrated approach to eliminating child labour and promoting a culture of prevention on occupational safety health (OSH). The 0.4 billion young workers (15-24 years old) - which includes 37 million children in hazardous child labour - account for more than 10 per cent of the world's labour force and suffer up to a 40 per cent higher rate of non-fatal occupational injuries than adult workers older than 20. Many factors can increase youth vulnerability to OSH risks, such as their physical and psychological stage of development, lack of work experience and lack of training, limited awareness of work-related hazards and a lack of bargaining power that can lead young workers to accept dangerous tasks or jobs with poor working conditions. The 2018 Safe Day campaign highlights the critical importance of addressing these challenges and improving safety and health for young workers, not only to promote decent youth employment, but also to link these efforts to combat hazardous – and all other forms of - child labour[5]

1,3,1. History of 28 April

The annual World Day for Safety and Health at Work on 28 April promotes the prevention of occupational accidents and diseases globally. It is an awareness-raising campaign intended to focus international attention on the magnitude of the problem and on how promoting and creating a safety and health culture can help reduce the number of work-related deaths and injuries. The ILO celebrates the World Day for Safety and Health at Work on the 28 April to promote the prevention of occupational accidents and diseases globally. It is an awareness-raising campaign intended to focus international



attention on emerging trends in the field of occupational safety and health and on the magnitude of work-related injuries, diseases and fatalities worldwide. With the celebration of the World Day for Safety and Health at Work, the ILO promotes the creation of a global preventative safety and health culture involving ILO constituents and all key stakeholders in this field. In many parts of the world, national authorities, trade unions, employers' organizations and safety and health practitioners organize activities to celebrate this date. We invite you to join us in celebrating this significant day and share with us the activities you organize. The ٢٨ April is also the International Commemoration Day for Dead and Injured Workers organized worldwide by the trade union movement since ١٩٩٦. Its purpose is to honour the memory of victims of occupational accidents and diseases by organizing worldwide mobilizations and awareness campaigns on this date. In ٢٠٠٣, the ILO became involved in the April ٢٨ campaign upon request from the trade union movement. While we honour injured and fallen workers, we appreciate and celebrate that these injuries and fatalities can be prevented and reduced, recognizing it as both a day for commemoration and celebration. Since ٢٠٠٣, the ILO observes the World Day on Safety and Health at Work on April ٢٨ capitalizing on its traditional strengths of tripartism and social dialogue. ٢٨ April is seen as a day to raise international awareness on occupational safety and health among trade unions, employers' organizations and government representatives alike. The ILO acknowledges the shared responsibility of key stakeholders and encourages them to promote a preventive safety and health culture to fulfill their obligations and responsibilities for preventing deaths, injuries and diseases in the workplace, allowing workers to return safely to their homes at the end of the working day.[٦]



Figure ١: Number of casualties in Saudi Arabia ٢٠١٤

1, 2. Occupational Health and Safety Act

To provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

1, 2, 3. Some Important Definitions in this Study

In this Act, unless the context otherwise indicates

A. Approved inspection authority

Means an inspection authority approved by the chief inspector which provided that an inspection authority approved by the chief inspector with respect to any particular service shall be an approved inspection authority with respect to that service only.

B. Biological monitoring

Means a planned programme of periodic collection and analysis of body fluid, tissues, and excreta or exhaled air in order to detect and quantify the exposure to or absorption of any substance or organism by person.

C. Building

Includes: –

- (a) Any structure attached to the soil.
- (b) Any building or such structure or part thereof which is in the process of being erected.
- (c) Any prefabricated building or structure not attached to the soil.

D. Chief executive officer

In relation to a body corporate or an enterprise conducted by the State, means the person who is responsible for the overall management and control of the business of such body corporate or enterprise.

E. Chief inspector

Means the officer designated under section 24 as chief inspector, and includes any officer acting as chief inspector.



F. Council

Means the Advisory Council for Occupational Health and Safety established by section.

G. Danger

Means anything, which may cause injury or damage to persons or property.

H. Department

Means the Department of Manpower.

I. Employee

Means, subject to the provisions of sub-section (۲), any person who is employed by or works for an employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of any employer or any other person.

J. Employer

Means, subject to the provisions of sub-section (۲), any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him, but excludes a labour broker as defined in section ۱(۱) of the Labour Relations Act, ۱۹۵۶ (Act No. ۲۸ of ۱۹۵۶).

K. Employers' organization

Means an employers' organization as defined in section ۱ of the Labour Relations Act, ۱۹۵۶ (Act No. ۲۸ of ۱۹۵۶).

L. Employment or employed

Means employment or employed as an employee.

M. Explosives

Means any substance or article as listed in Class ۱: Explosives in South African Bureau of Standards Code of Practice for the Identification and Classification of Dangerous Substances and Goods, SABS ۰۲۲۸.

N. Hazard

Means a source of or exposure to danger.

O. Health and safety committee

Means a committee established under section ۱۹.

P. Health and safety equipment

Means any article or part thereof which is manufactured, provided or installed in the interest of the health or safety of any person

Q. Health and safety representative

Means a person designated in terms of section 14(1).

..... [V]

1, 4, 2. Special powers of inspectors

1, 4, 2, 1.

- A.** Whenever an employer performs an act or requires or permits an act to be performed or proposes to perform an act or to require or permit an act to be performed, which in the opinion of an inspector threatens or is likely to threaten the health or safety of any person, the inspector may in writing prohibit that employer from continuing or commencing with the performance of that act or from enquiring or permitting that act to be continued or commenced with, as the case may be.
- B.** Whenever a user of plant or machinery uses or proposes to use any plant or machinery, in a manner or in circumstances which in the opinion of an inspector threatens or is likely to threaten the health or safety of any person who works with such plant or machinery or who is or may come within the vicinity thereof, the inspector may in writing prohibit that user from continuing or commencing with the use of such plant or machinery or in that manner or those circumstances, as the case may be.
- C.** An inspector may in writing prohibit an employer from requiring or permitting an employee or any employee belonging to a category of employees specified in the prohibition to be exposed in the course of his employment for a longer period than a period specified in the prohibition, to any article, substance, organism or condition which in the opinion of an inspector threatens or is likely to threaten the health or safety of that employee or the employee belonging to that category or employees, as the case may be.



D. A prohibition imposed under paragraph (a), (b) or (c) may at any time be revoked by an inspector in writing if arrangements to the satisfaction of the inspector have been made to dispose of the treat, which gave rise to the imposition of the prohibition.

१,६,२,२. In order to enforce a prohibition imposed under sub-section (१) (a) or (b), an inspector may block, bar, barricade or fence off that part of the workplace, plant or machinery to which the prohibition applies, and no person shall interfere with or remove such blocking, bar, barricade or fence.

१,६,२,३. Whenever an inspector is of the opinion that the health or safety of any person at a workplace or in the course of his employment or in connection with the use of plant or machinery is threatened on account of the refusal or failure of an employer or user, as the case may be, to take reasonable steps in the interest of such person's health or safety, the inspector may in writing direct that employer or user to take such steps as are specified in the direction within a specified period.

१,६,२,६. Whenever an inspector is of the opinion that an employer or a user has failed to comply with a provision of a regulation applicable to him, the inspector may in writing direct that employer or user to take within a period specified in the direction such steps as in the inspector's opinion are necessary to comply with the said provision, and are specified in the direction.

१,६,२,७. A period contemplated in sub-section (३) or (६) may at any time be extended by an inspector by notice in writing to the person concerned.

१,६,२,८. An employer shall forthwith bring the contents of a prohibition, direction or notice under this section to the attention of the health and safety representatives and employees concerned.

.....[^]



١,٥. Safety Officer Responsibilities

١,٥,١.Common Responsibilities

The following responsibilities apply to all ICS personnel:

- a. Receive assignment, notification, reporting location, reporting time, and travel instructions from your home agency.
- b. Upon arrival at the incident, check in at designated check-in locations. Check-in locations may be found at Incident Command Post, Base or Camps, Staging Areas, Helibases, Division Supervisors (for direct line assignments).
- c. Agency representatives from assisting or cooperating agencies report to Liaison Officer at the Command Post after checking in.
- d. All radio communications to Incident Communications Center would be addressed: "(Incident Name) Communications".
- e. Use clear text and ICS terminology (no codes) in all radio transmissions.
- f. Receive briefing from immediate supervisor.
- g. Acquire work materials.
- h. Organize, assign, and brief subordinates.
- i. Complete forms and reports required of the assigned position and send material through supervisor to Documentation Unit.
- j. Ensure continuity using in/out briefings.
- k. Respond to demobilization orders.
- l. Brief subordinates regarding demobilization.

..... [٩]

١,٥,٢.Specific Responsibilities

The Safety Officer is responsible for monitoring and assessing hazardous and unsafe situations and developing measures to assure personnel safety.

The Safety Officer will correct unsafe acts or conditions through the regular line of authority, although the Safety Officer may exercise emergency authority to prevent or stop unsafe acts when immediate action is required.

- The Safety Officer maintains awareness of active and developing situations.
 - The Safety Officer ensures the Site Safety and Health Plan is prepared and implemented.
 - The Safety Officer ensures there are safety messages in each Incident Action Plan.
- [٩.A]

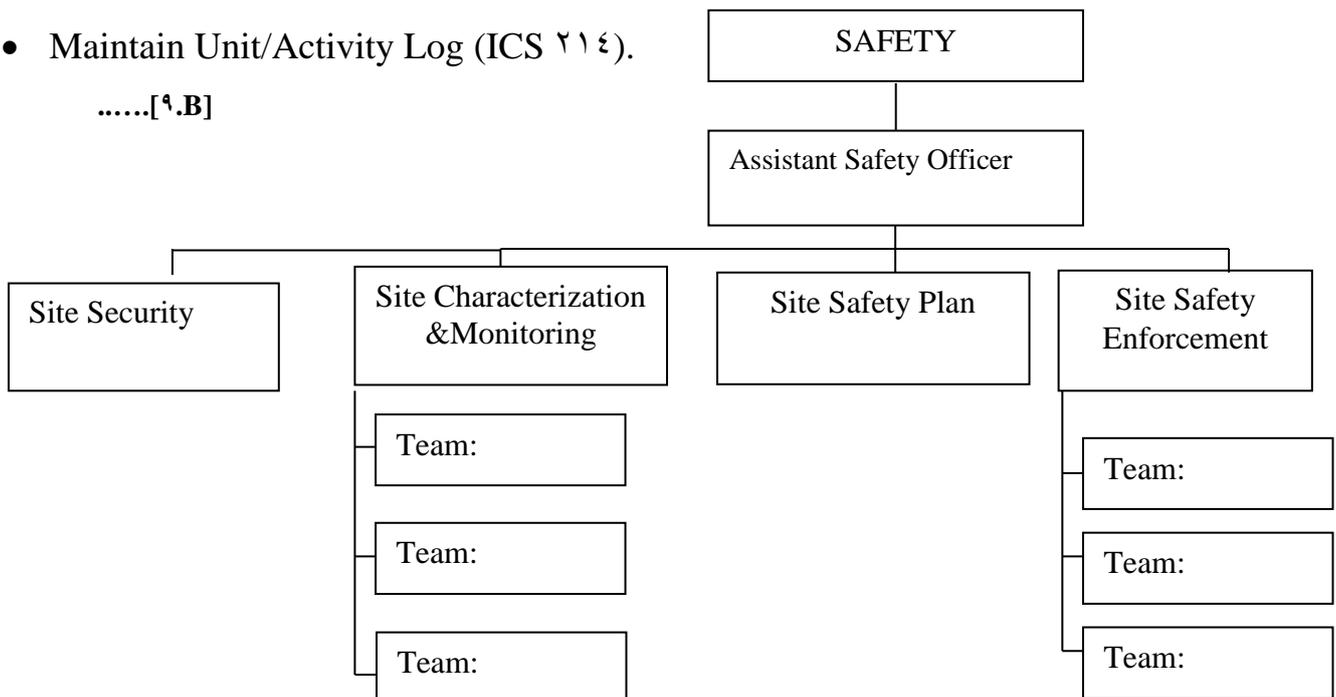
١,٥,٣.Only one Safety Officer

Will be assigned for each incident, including incidents operating under Unified Command and multi-jurisdiction incidents. The Safety Officer may have assistants, as necessary, and the assistants may represent assisting agencies or jurisdictions.

- During initial response, document the hazard analysis process, hazard identification, exposure assessment and controls.
- Participate in planning meetings to identify any health and safety concerns inherent in the operations daily work plan.
- Review the Incident Action Plan for safety implications.
- Exercise emergency authority to prevent or stop unsafe acts.
- Investigate accidents that have occurred within incident areas.
- Ensure preparation and implementation of Site Safety and Health Plan (SSHP)
- Assign assistants and manage the incident safety organization.
- Review and approve the Medical Plan (ICS ٢٠٦).

- Maintain Unit/Activity Log (ICS ٢١٤).

.....[٩.B]





1,5,4. Functions of The Safety Staff

1,5,4,1. Site Safety Officer Assistant:

Provide assistance to the Safety Officer. Ensure all Safety functions continue when the Safety Officer is attending meetings.

Site Characterization and Monitoring:

a. Initial on scene hazard assessment of the incident.

Deploy on scene immediately and report to Safety Officer

b. Conduct air monitoring and sampling of spilled oil on scene.

c. Provide continuous air monitoring if necessary.

d. Ensure workers are safely monitored by use of passive dosimeters.

e. Provide heat or cold stress monitoring, using WBGT or other measuring device.

f. Provide on scene fatigue monitoring for work-rest regimen recommendations.

..... [11.A]

1,5,5. Site Safety Plan

a. Draft initial emergency response site safety plan. Ensure copies are distributed as soon as possible to staging areas and field personnel.

b. Receive reports from Site Safety Enforcement Assistant and incorporate changes into the site safety plan.

c. Ensure site safety plan is completed in time to be incorporated into Incident Action Plan.

d. Provide safety messages for ICS form 204, prior to the planning meeting. If site safety plan is completed, consider inserting: "All personnel shall review site safety plan prior to commencement of operations."

e. Review Medical Plan 206 and forward to the Safety Officer for signature.

f. Review Incident Action Plan. Ensure plan provisions complies with 29 CFR 1910.120. Review HAZWOPER Compliance Checklist to ensure requirements met

..... [11.B]



١,٥,٦. Site Safety Enforcement:

- a. Enforce site safety plan on scene.
- b. Use site safety enforcement log and ensure completion in time for updating new site safety plan for next operational period.
- c. Terminate all imminently dangerous operations immediately. For other non-time critical safety, hazards contact the Safety Officer for termination guidance.
- d. Attend morning field safety briefings at Staging Areas and assembly points to ensure site safety plan was covered.
- e. Keep workers, supervisors and the Safety Officer informed often.

.....[١٢]

١,٦. Risk Management

Risk management is a process of measuring and evaluating risks and developing strategies for managing them. These strategies include risk transfer, avoidance and mitigation Negative and accepting some or all of their consequences. It can also be defined as administrative activity Aims to control risk and reduce it to acceptable levels, and more accurately, it is the process of identifying, measuring, controlling and reducing the risks facing the institution.

١,٦,١. Objectives of risk management

- a. Protection of workers from occupational hazards.
- b. Develop special procedures for risk prevention.
- c. Workplace analysis to identify sources of risk.
- d. Evaluate, develop and renew safety procedures in force.
- e. Occupational risk analysis and safety procedures.
- f. Classification and classification of hazardous areas and the development of procedures and guidance in the field Occupational Safety and Health.

١,٦,٢. Risk management steps

- A. **Risk identification:** the process of finding and identifying risk factors / situations / products that can be Contribute to the provocation of an accident and / or occupational disease, as well as groups of exposed workers for these potential risks.
- B. **Risk assessment and analysis (priority setting):** Risk assessment is an assessment process And assess all the amounts associated with all risks identified, and the amount depends
Severity on both:
 - Severity of damage (consequences)
 - The possibility of occurrence

C. Methods of risk control (solutions and possible actions in order)

- ١ . Remove
- ٢ . Replacement
- ٣ . Insulation
- ٤ . Technical and engineering designs
- ٥ . Administrative controls



٦. Personal protective equipment

.....[١٠, A]

١, ٦, ٣. There are also risks to workers

The professional factors affecting the workers in the environment are divided into several groups:

A. Physical factors and risks:

Such as heat that leads to heat stress, and noise that may have been long been lost on obesity, light, and radiation that may lead to some cancers, vibrations that may trigger To problems in blood ischemia of exposed areas in the body such as hand or to Chronic pain in the back area

B. Chemical Hazards:

It produces inhalation of chemicals in the form of vapors, toxic gases, dust, pesticides, solvents, or from skin contact to food Chemical contaminants are in the air Either in the form of solids such as dust, fumes and fibers (asbestos), or in the form of gases and vapors and neck damage to various diseases of allergies, asthma and some cancers such as lung cancer and surrounding membrane.

C. Biological hazards:

The result of the entry of various microbes to the human body of viruses, bacteria, parasites and others. Professionals exposed to this type of risk. They understand the workers in the shop, the farms, and health field. Diseases vary Depending on the type of disease; there is inflammation Hepatic, helper and environment.

D. Mechanical hazards and accidents and work injuries:

Machines and the equipment for the fire signal system, Transportation, Nature Building, Cleanliness of the building.

E. Psychological and social status:

Stress, work in pay shifts, human relations, social and family support.

١, ٦, ٤. There are works exposed to the worker including:-

١. Training in factories (spinning, weaving, wool, mechanical and manual)
٢. Al-Awn in (sewing workshops, Rifa'a and Dushma)
٣. Cloaking in tanning and manufacturing of leather and leather garments and shoes
Leather bags [Legal]
٤. Cannery in the production and bottling plants of juices and soft drinks
٥. Workers in slaughterhouses, slaughterhouses, meat-processing plants and workshops
٦. Alfion in food products (biscuits, pastries, pastries, etc.)
٧. Help in bakeries and ovens
٨. Eyes in the silot and mills
٩. Dying in laundry and ironing shops and furnishings (laundry)
١٠. Aids in hairdressing shops (men's and women's)
١١. The dependents
١٢. Cleaning workers (in departments, municipalities or other working and private places)
١٣. Operating hotels and tourist facilities
١٤. Workers in swimming pools (savior)
١٥. Electric cars in the car and machine repair shops (Fitter, Haddad Sadr, electrician, turnah, lathe and frieze, budget and planks, oil change, battery charge,
١٦. Filling stations (cars and other)
١٧. Electric power generators
١٨. Dyes (wood, clothing, metal, car paint, buildings, etc.)
١٩. Building and construction aids (gravel, sand, plaster, bricks, burc, cement, construction workers, stone installation, ceramic, kashi, glass installation, erection and wiring of buildings, water and sewerage, Mold casting).

٢٠. Operators of water purification stations
٢١. Sewage works and water treatment plants
٢٢. Electricity worker (workers in the electricity departments for the maintenance and operation of stations and the installation and erection of electricity poles)
٢٣. Heat operation
٢٤. Block traffic
٢٥. Cannabis in offices (office staff)
٢٦. Employees in the offices and clubs of the Internet and Cafe Shop on computers
٢٧. Educational cadres of origin (teachers, teachers and professors)
٢٨. Al-Oun in the field of extraction of oil and natural gas (exploration, drilling, drilling)
٢٩. Workers in the field of petroleum products (refineries, gas filling, etc.)
٣٠. Workers in the asphalt and asphalt industry
٣١. Workers in the plastic industry (plastics and plastics production)
٣٢. Workers in Rubber Industries
٣٣. Mining and quarrying workers [mines, quarries, crushers (gravel, sand or stones)
٣٤. Workers in non-metallic mineral products (glass, cement, lime, etc.)
٣٥. Workers in Metal Metallic Industries (Plate, Wire Mesh, Rods, etc.)
٣٦. Metal Industry Workers [Cars, Tractors, Chillers, Furniture, Stairs, Tools and Tools]
٣٧. Workers in factories, workshops and manufacturing of various aluminum
٣٨. Workers in Al-Fafoun and copper factories
٣٩. ٣٩. The workers in the manufacture and formulation of jewelry (gold, silver, accessories etc)
٤٠. Workers in the wax industry
٤١. Elon in the field of refining tobacco and sugar industry
٤٢. Fillon in paper and cardboard industries
٤٣. Work in the manufacture of allied and timber and its products (labs and paper production)
٤٤. Workers in presses (old manual and modern electronic)
٤٥. Workers in Al-Suwair Photographic and Film Studios

٤٦. The workers in the chemical industries (soap, laundry, pastes, pharmaceutical industries, perfumes, etc.)
٤٧. Workers in agricultural activities (farming, harvesting, etc.)
٤٨. Lions in agricultural and agricultural offices (seeds, fertilizers, pesticides and insect killer)
٤٩. Cannabis in dental laboratories and dental clinics
٥٠. Prevention in patient analysis laboratories and nursing staff in hospitals, health centers and clinics



Figure ١,٢: Warning signs

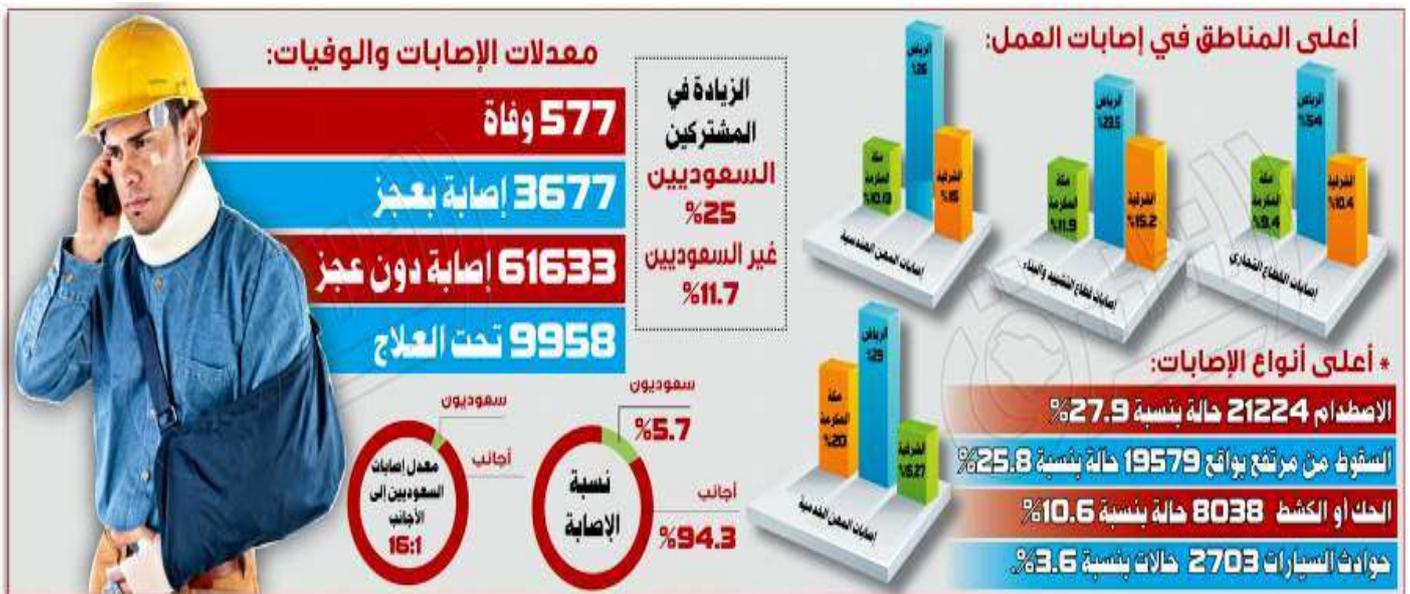


Figure ۱,۳: Highest areas of work injury

١,٦,٥.(١٧٧٠) work injuries throughout Iraq

In order to support the work plan of the National Center for Occupational Health and Safety and to develop the best available systems to serve the public interest and develop the government routine, the Director General of the National Center for Occupational Health and Safety, Ammar Abdul-Wahid Al-Sudani announced the monitoring and registration of work injuries through a program prepared specifically for this purpose by the Information Section In the center in coordination with the Ministry of Health / Statistics Department, and the results after sorting, analysis and input by type of injury to the sectors of work (public and private) in the provinces of Iraq, except Kurdistan Region, where the total casualties recorded during ٢٠١٧ (١٧٧٠) (٤٤٢) fall and slide (١٠٤) fall of items, (٤٢) chemicals and (٦٢) electric shock, in addition to (٤٢) fire injuries and (٤٢) ٣١) falls, pointing out that the highest percentage of injuries have been recorded in the province of Babylon by (٥٧٢) injuries of various types It is worth mentioning that the statement of rates of injuries and types are only a warning to the lack of working environments to safety conditions, not to mention the lack of awareness of the importance of availability to maintain health And the lives of its employees.

.....[١٣]

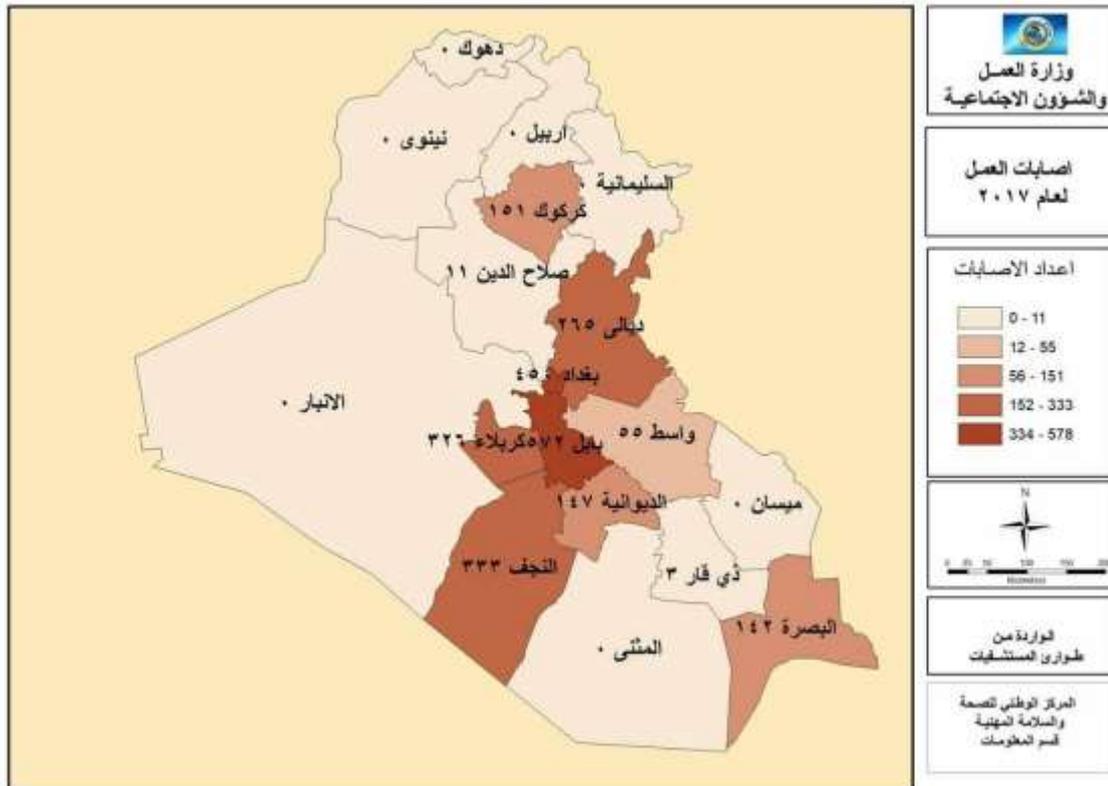


Figure ١,٣: Work Injuries in Iraq for ٢٠١٧

1.7. Environmental factors And their impact on health and safety

A. Heat and humidity:

Workers in some industries are exposed to large temperature changes, which makes them Prone to diseases such as: (popular flu and pulmonary infections), as well as persistent Exposure to high temperatures such as in mines and smelters

Bakeries, cooking, etc. leads to the inability of the body to get rid of heat Arising from excess. The workplace climate is convenient for workers when the ratio between air temperature Its moisture is suitable for the formation of a so-called comfortable climate, ie the climate in which it is not exposed The agent to any noticeable emotion, and in case of deviation of the temperature and humidity values The body and its organs are exposed to stress and negative health symptoms It is also done by the worker. The relationship between air temperature, air humidity and human comfort can be summarized and its efficiency in performing the work through the following table:

..... [١٢]

Table -١,١-The relationship between air temperature, air humidity and human comfort

Temperature (Celsius)	Relative Humidity (%)	Effects
٢١	٤٠	Complete comfort
	٧٥	Work hard
	٨٥	Feeling of stress
	٩١	Lack of rest and fatigue
٢٤	٧٥	Discomfort
	٨٠	Exhaustion
	١٠٠	The impossibility of doing difficult work
٣٠	٢٥	Work without fatigue
	٥٠	Work is possible
	٨٠	High body temperature

B. Noise (noise):

Measures should be taken to prevent or reduce noise to protect workers where they do not exceed .The intensity of the noise and the duration of exposure to the levels specified in the table below may be lead to health damage to the hearing, as well as to the preliminary examination of the identification.

The efficiency and level of hearing of the worker in the work that he is subjected to noise before use and that the medical examination is conducted periodically to determine the efficiency and level of hearing at work.

..... [١٤]

Table -١,٢-The level of noise intensity and the duration of exposure to permissible noise

Level of noise intensity / decibel	Duration of exposure to permissible noise (The number of hours)
٨٠	١٦
٨٥	٨
٩٠	٤
٩٥	٢
١٠٠	١
١٠٥	١/٢
١١٠	١/٤
١١٥	١/٨

C. Lighting:

Lighting in the workplace is one of the factors that has an impact on the vision of workers

and their ability to carry out work in terms of weakness or strength (intensity of dazzling) or poor distribution,

This causes eyestrain and persistent fatigue.

Adequate and adequate lighting must be provided for the type of work being done

Natural or industrial lighting and taking care of it:

1. The distribution of windows, skylights and natural light openings shall allow the distribution of light Regular distribution of workplaces and clean glass inside and outside Continuous and not be blocked by any obstacle.
2. The power of the lighting shall not be less than the working level (at a horizontal surface that exceeds one meter from the ground) (About 20 lumens / feet 2), so that only the lanes and roads can be strong Less than (10 lumens / feet 2) on the ground.
3. Natural and industrial sources of light shall include homogenous lighting, shall take the means Suitable to avoid diffuse glare, and reflected light.
4. Try to avoid the large disparity in the distribution of light in adjacent places.

..... [10.B]



Figure 1.4: Good lighting

D. Radiation and its types:

Radiation is a type of energy that can be found in the workplace such as:

Radiography and devices that contain rays are needed in the operation process (where Which can cause many health risks in case of overdose.

Radiation can be divided into two main types:

1. Ionizing Radiation Such

as X-rays, gamma rays, cosmic rays and beta and alpha particles.

2. Non-Ionizing Radiation

Such as: electromagnetic radiation, mainly radio waves, television and waves Radar and microwave wavelengths and microwaves Infrared and ultraviolet light.



Figure 1.9: Non-Ionizing Radiatio

The effects of exposure to radiation vary depending on the amount of the dose reaching the body and type

These rays, including:

- Damage and opacity in the lens of the eye.
- Severe infections of hands and fingers.
- Corrosion in nails, bones and joints.
- Infection with red and white blood cells, and may lead to malfunction of marrow activity Bones in the production of white blood cells to the extent that is considered a cancer of blood.

Radiation risk prevention methods:

- Periodic medical examination of workers exposed to these radiation.
- Storage, transport and operation of radioactive materials under special safety rules.
- Raising awareness and training of workers on radiation hazards and prevention mechanisms.

..... [10, A]

1.8. Young people and new workers

Statistics collected by insurers and submitted to Work Cover show that young workers between the ages of 16 and 20 are being hurt on the job every day. Young workers generally lack experience and are generally unfamiliar with workplace procedures.

For young workers, employers must provide information and training about work hazards and safe work practices that give consideration to young people's age and experience.

Workers greatest at risk in the workplace include:

- Young workers - people under the age of 20
- New workers including people who are:
 - entering the workforce for the first time
 - employed for less than 12 months
 - re-entering the workplace
 - transferring to a new job
- Male employees



1.8.1. Young workers at risk

Young workers and new employees often have a greater chance of being injured at work.

A variety of factors may contribute to this higher risk factor:

- lack of experience
- eagerness to please
- lack of training in Occupational Health and Safety
- lack of supervision In NSW in 2000/2001
- 13 workers under the age of 20 were killed in the workplace. All of these workers were male. This represented 9% of all fatalities. Of these, seven were killed by vehicle accident
- Approximately 4,000 workers under the age of 20 were injured.

Some of these injuries were minor, allowing rapid return to work. Others were major and more incapacitating. Some of the young people will never be able to go to work again!

..... [14]



၂,၈,၃. **Why are young workers greater at risk?**

a. One of the contributors to accidents and injury of young people in the workplace is inexperience.

Young workers are not always aware of the range of physical, environmental, chemical and biological hazards in their new working environment.

b. Their knowledge of health and safety rights and responsibilities will often be inadequate.

c. They may be afraid to address the issue with their employer.

Adequate information, training and supervision of health and safety must be provided to all new workers.

The Occupational Health and Safety Regulation ၃၀၀၂ clearly states that “in determining the nature and extent of necessary supervision, the employer must have regard to the competence, experience and age of each employee”. (Clause ၂၄(၃))

Each employer has a duty of care to provide a safe workplace for all their employees. This includes risk management and training. Young workers must be trained to do their work in a safe manner from the first day of employment. The Occupational Health and Safety Act clearly states that employers must “provide such information, instruction, training and supervision as may be necessary to ensure the employees’ health and safety at work.” (Division ၂(၈d))

..... [၂၄]



1.9. Managing workplace health and safety

Health and safety laws in NSW require employers to have in place a means to:

- identify all hazards in their workplace
- assess the risks arising from those hazards
- implement measures to eliminate or control those risks
- provide instruction, training and supervision for employees
- Consult with employees on matters, which affect their health, safety and welfare.

Consultation is a key feature of risk management since involving the people who do the work in identifying hazards and how to control risks is the most effective way to manage workplace health and safety. This also allows employers to meet their legal requirements on consultation under the Occupational Health and Safety Act 1983.

The Occupational Health and Safety Regulation 1985 sets out procedures to be followed in establishing and maintaining consultation with employees as well as for resolving matters that may present a risk to health and safety. The regulation also states the requirement for the employer to provide training for OHS committee members and OHS representatives.

..... [10.A]

Consultation is required:

- whenever risks to health and safety are being examined or reviewed
- when decisions are being made about measures taken to eliminate or control risks
- when introducing or altering any procedures for identifying and monitoring workplace risks
- whenever changes that may affect health and safety are proposed to the workplace, the system of work, or the plant and substances used for work
- Whenever decisions are made about consultation arrangements.

Consultation can take place through an OHS committee, an OHS representative or using other arrangements that have been agreed upon by the employer and the employees.





Employers need policies and procedures in place to make sure that potential hazards and the health and safety of people in the workplace are addressed. An occupational health and safety management system is a documented, coordinated plan to make sure hazards and associated risks in the workplace are managed.

The six steps in creating an OHS management system are:

- Determine who is responsible for health and safety
- Plan to work safely
- Involve employees in the process
- Develop procedures
- Train people in the procedures
- Monitor, review and improve the system.



..... [١٥.B]

١,١٠. Laws that protect workplace health and safety

The Occupational Health and Safety Act ٢٠٠٠

- be aware of the rights and responsibilities of both employers and employees
- understand the role of an Occupational Health and Safety Committee
- gain an understanding of the Occupational Health and Safety Act ٢٠٠٠
- Access and navigate through the Occupational Health and Safety Act ٢٠٠٠.

..... [١٦]

1.11. The Legal Framework

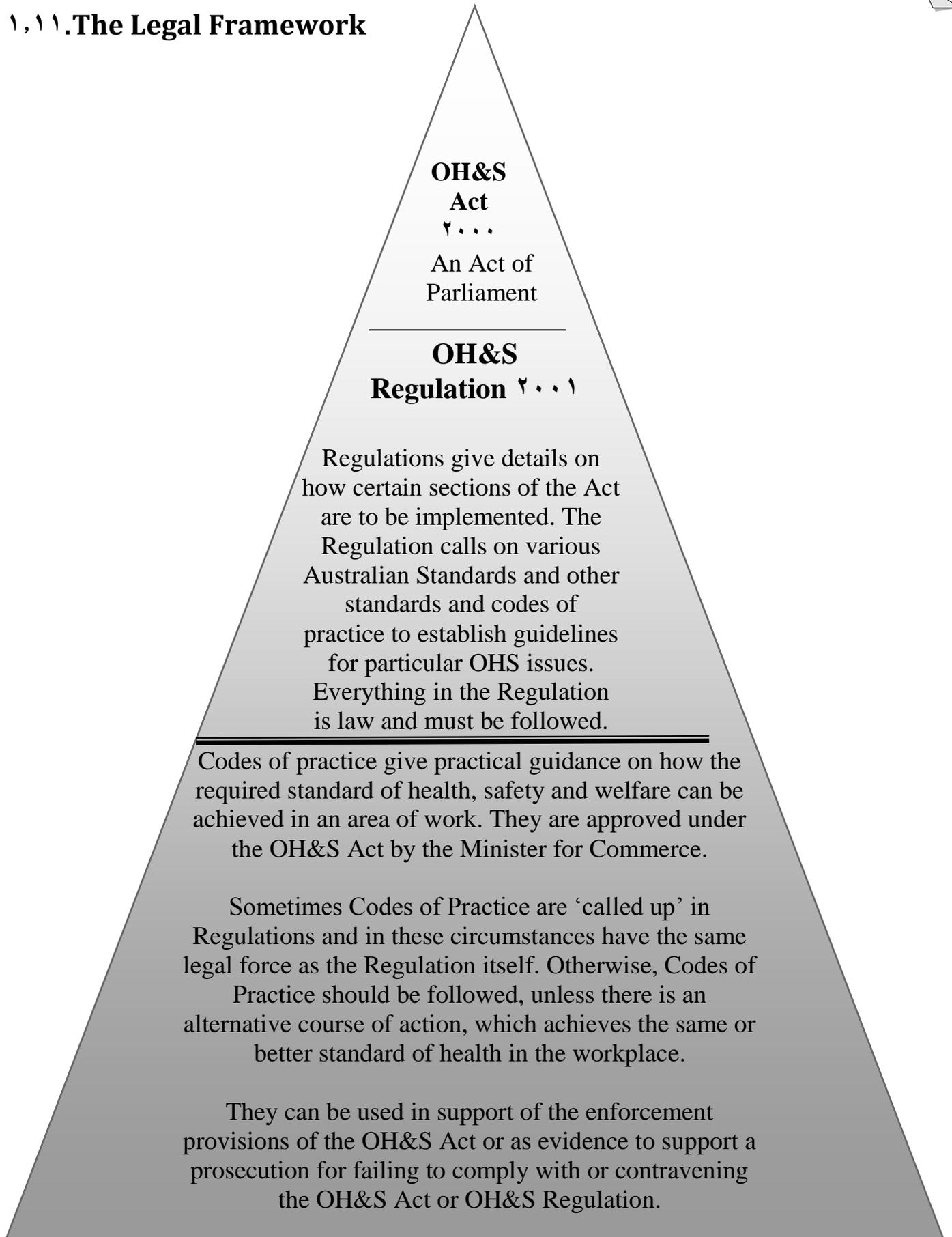


Figure 1.6: The Legal Framework

..... [16]



The objective of the study

Aim

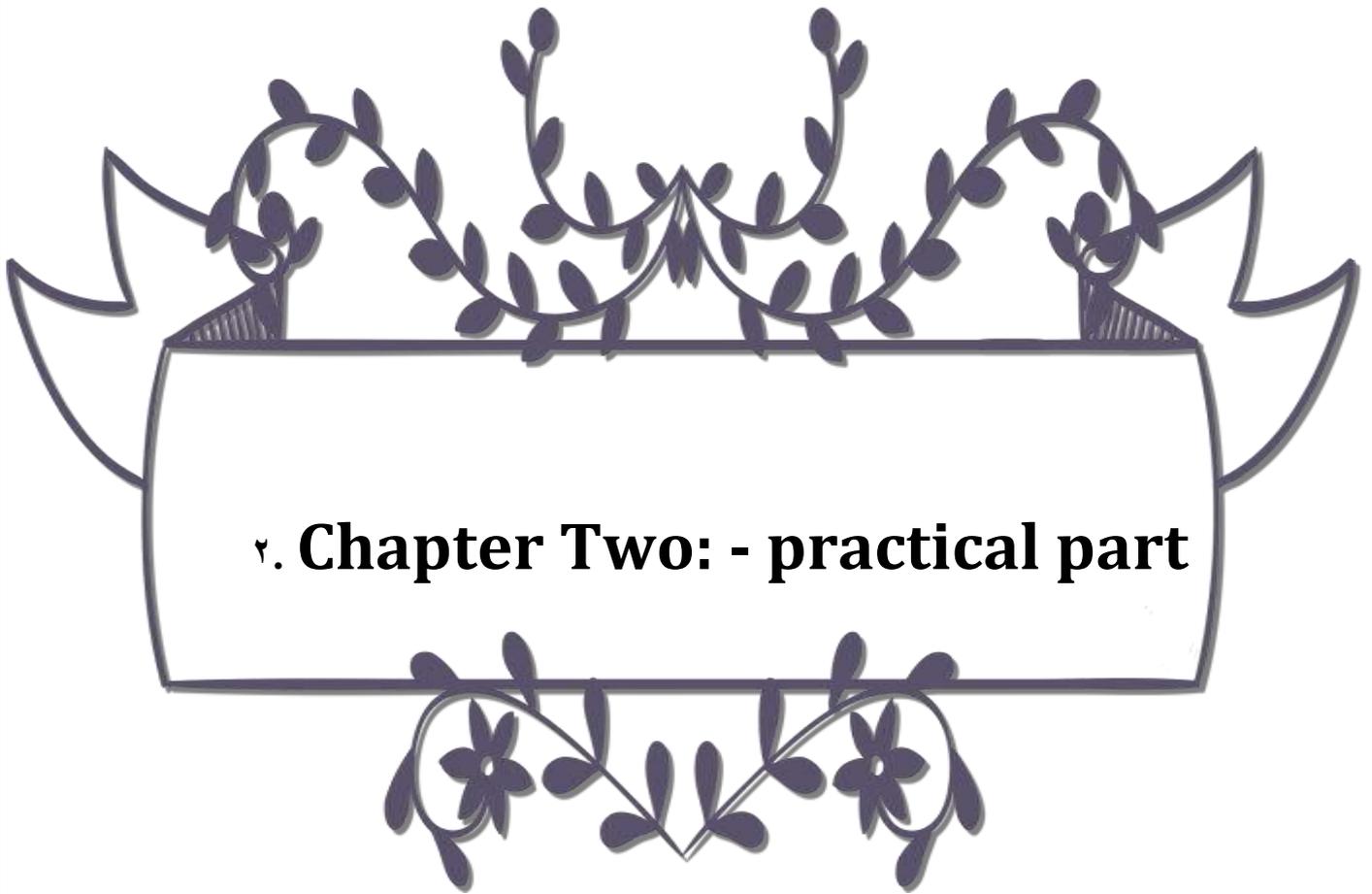
The aim of this unit is to provide students with an overview of the NSW legislation that protect workplace health and safety, and how it impacts on the management of health and safety in the workplace.

Outcomes

On completion of this unit of work, students will be able to:

- understand and list the main parts of the Occupational Health and Safety (OHS) legislation in NSW
- understand and explain to whom the OHS legislation applies
- understand and explain the roles and responsibilities of employers in regards to occupational health and safety
- understand and explain the roles and responsibilities of the employees and others in regards to occupational health and safety
- understand the role of WorkCover inspectors
- understand the need for OHS management systems in the workplace

Topic	Content	Related Activities
Introduction to OHS	<ul style="list-style-type: none"> • Why is OHS important? • Young workers • Cost of workplace injuries 	<ul style="list-style-type: none"> • Activity 1: The cost of workplace injuries • Activity 2: The cost of workplace accidents – a scenario • Activity 3: Find a word • Safety First or Expect the Worst – Activities 4, 5, 6, 7
The Legal Framework	<ul style="list-style-type: none"> • Occupational Health and Safety Act 2000 • The Occupational Health and Safety Regulation 2001 • Codes of practice 	<ul style="list-style-type: none"> • Activity 4: The OHS Act 2000 (Worksheet 1) • Activity 5: Overview questions
Roles and responsibilities	<ul style="list-style-type: none"> • Employer responsibilities • Employee responsibilities The role of other parties 	<ul style="list-style-type: none"> • Activity 6: The OHS Act 2000 (Worksheet 2, 3, 4, 5) • Activity 7: Roles and responsibilities in the workplace
Enforcement of OHS laws	<ul style="list-style-type: none"> • Role of WorkCover inspectors • Penalties 	
Managing occupational health and safety	<ul style="list-style-type: none"> • Steps in the development of an OHS management system 	



۲. Chapter Two: - practical part



Some PCV, WBC, ESR, Hb, and B. group tests were conducted on some works in Eastern Diwanayah, North Diwanayah Diesel, Oil Products and Oil Products Distribution Company. The values are recorded in each test table. As detailed below

٢,١. Test PCV

٢,١,١. What is PCV?

Hematocrit test is performed on a sample of blood to measure the level of Packed Cell Volume in the blood. It is performed to detect Polycythemia Vera

Also known as

PCV Test, Packed Cell Volume Automated Blood, Aematocrit Test, HCT Test, Hematocrit, Packed Cell Volume

٢,١,٢. Preparation for PCV

No special preparation is needed for PCV. Inform your doctor if you are on any medications or have any underlying medical conditions or allergies before undergoing PCV. Your doctor depending on your condition will give specific instructions.

٢,١,٣. Procedure for PCV

PCV is done using Automated method on a Blood sample.

٢,١,٤. Price for PCV

Average price range of the test is between Rs. ١٣ to Rs. ٦٥٠ depending on the factors of city, quality and availability.

٢,١,٥. Normal values for PCV

The normal result for PCV for Packed Cell Volume is ٤٠,٧-٥٠,٣% for Male gender and for All age groups, ٣٦,١ to ٤٤,٣% for Female gender and for All age groups.

٢,١,٦. Procedure

١. The capillary tubes are numbered
٢. Put the tubes artificial clay and cotton from one hand to prevent the exit from the other
٣. Place the tubes in the centrifuge for ٥ minutes
٤. and then extract the tubes from the centrifugal device
٥. is placed at the beginning of the pyramid on ١٠٠ and the end of the tube on zero and be the line of the path located in the device on the line between the blood and the pyramid and this line shows the proportion of his blood

..... [١٧]

Table -٢,١- Test results PCV Some workers

مكان العمل	b.grop	PCV	التاريخ	الاسم الثلاثي	ت
المنتجات النفطية	B+	٣٢	٣١-كانون الثاني	علي محمد طاهر	١
منتجات نفطية	O-	٣٤	١٧-كانون الأول	زينب محمد	٢
ديزلات شرق الديوانيه	O-	٣٦	٢٠-كانون الأول	غيدا فيصل مراد	٣
ديزلات شرق الديوانيه	O-	٣٨	٢٠-كانون الأول	ولاء علي دخيل	٤
محطة ديزلات شرق الديوانيه	A+	٣٨	٢٧-كانون الأول	محمد حمزة لفته	٥
ديزلات شرق الديوانيه	O-	٤٠	٢٠-كانون الأول	زينب صويلح سرحان	٦
كهرباء شرق الديوانيه	O-	٤٠	٢٨-كانون الثاني	علي قحطان جواد	٧
ديزلات شرق الديوانيه	O-	٤٢	٢٠-كانون الأول	وفاء شاكر ميزان	٨
ديزلات شرق الديوانيه	O-	٤٢	٢٠-كانون الأول	احمد علي مشكور	٩
محطة ديزلات شرق الديوانيه	A+	٤٣	٢٧-كانون الأول	نبيل كشاوي فرحان	١٠
ديزلات شرق الديوانيه	A+	٤٤	٢٠-كانون الأول	بيداء رزاق جبار	١١
محطة ديزلات شرق الديوانيه	A+	٤٤	٢٧-كانون الأول	امجد فيصل حسين	١٢
المنتجات النفطية	O+	٤٥	٣١-كانون الثاني	رياض عبد علي	١٣
ديزل شمال الديوانيه الكهرباء	O+	٤٦	٠٦-كانون الأول	احمد ناظم نجيب	١٤
منتجات نفطية	O-	٤٨	١٧-كانون الأول	الاء عبود	١٥
محطة ديزلات شرق الديوانيه	A+	٤٨	٢٧-كانون الأول	نصير فاضل هاتف	١٦



Figure ٢.١: Centrifuge

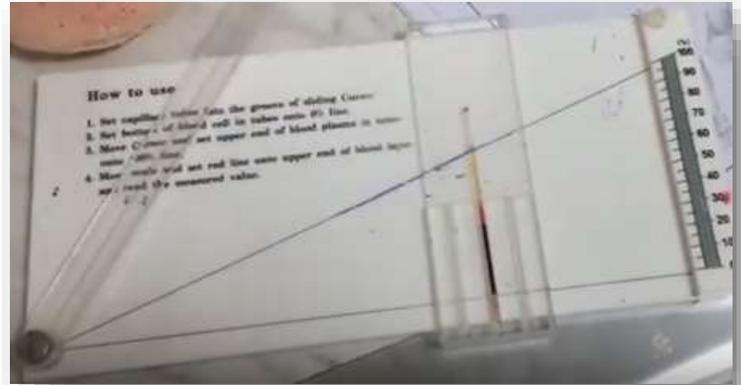


Figure ٢.٢: Ruler for measuring PCV

٢,٢. Test Hb

٢,٢,١. What is Hb?

Haemoglobin test is performed on a sample of blood to measure the level of Haemoglobin in the blood. It is performed to confirm or detect Anemia and also after the treatment or during the treatment of Anemia.

Also known as

Hb Test, Hb Level Automated Blood, Hemoglobin Test, Haemoglobin, Hb Level

٢,٢,٢. Preparation for Hb

No special preparation is needed for Hb. Inform your doctor if you are on any medications or have any underlying medical conditions or allergies before undergoing Hb. Your doctor depending on your condition will give specific instructions.

٢,٢,٣. Procedure for Hb

Hb is done using Automated method on a Blood sample.

٢,٢,٤. Normal values for Hb

The normal result for Hb for Haemoglobin is ١٣,٨-١٧,٢ gm/dl for Male gender and for. All age groups, ١٢,٥-١٥,١g/dl for Female gender and for All age groups.

٢,٢,٥. Procedure

The Test P.C.V ratio is divided by ٣

..... [١٧]



Table ٢,٢- Test results Hb Some workers

مكان العمل	b.grop	Hb	التاريخ	الاسم الثلاثي	ت
محطة ديزلات شرق الديوانيه	O-	١٠,٦	٢٧-كانون الأول	جهاد طعمة حسين	١
منتجات نفطية	O-	١١,٣	١٧-كانون الأول	زينب محمد	٢
ديزل شمال الديوانيه الكهرباء	B-	١٢,٦	٠٦-كانون الأول	غيث نجاح جواد	٣
ديزل شمال الديوانيه الكهرباء	O+	١٣,٣	٠٦-كانون الأول	حيدر فاضل علي	٤
منتجات نفطية	O-	١٣,٣	١٧-كانون الأول	عفاف عطية	٥
ديزل شمال الديوانيه الكهرباء	O+	١٤	٠٦-كانون الأول	فلاح حسن محسن	٦
ديزل شرق الديوانيه	O-	١٤	٢٠-كانون الأول	زينب صويلح سرحان	٧
ديزل شمال الديوانيه الكهرباء	B+	١٤,٦	٠٦-كانون الأول	عمار فاهم نغيش	٨
ديزل شمال الديوانيه	O+	١٥	١٢-كانون الأول	حسنين نجاح كليف	٩
ديزل شرق الديوانيه	O-	١٥	٢٠-كانون الأول	وفاء شاكر ميزان	١٠
ديزل شمال الديوانيه الكهرباء	O+	١٥,٣	٠٦-كانون الأول	احمد ناظم نجيب	١١
منتجات نفطية	O-	١٥,٦	١٣-كانون الأول	علي كاظم عبيد	١٢
منتجات نفطية	O-	١٦	١٣-كانون الأول	حيدر عكموش هاشم	١٣
منتجات نفطية	O-	١٦	١٧-كانون الأول	الاء عيود	١٤
ديزل شمال الديوانيه الكهرباء	O+	١٦,٦	٠٦-كانون الأول	سالم عباس محمد	١٥
ديزل شرق الديوانيه	A+	١٦,٦	٢٠-كانون الأول	بيداء رزاق جبار	١٦



Figure ٢,٣: Shakier



Figure ٢,٤: Micro centrifuge



۲,۳. Test Erythrocyte Sedimentation Rate (ESR)

۲,۳,۱. What is an Erythrocyte Sedimentation Rate (ESR)?

An erythrocyte sedimentation rate (ESR) is a type of blood test that measures how quickly erythrocytes (red blood cells) settle at the bottom of a test tube that contains a blood sample. Normally, red blood cells settle relatively slowly. A faster-than-normal rate may indicate inflammation in the body. Inflammation is part of your immune response system. It can be a reaction to an infection or injury. Inflammation may also be a sign of a chronic disease, an immune disorder, or other medical condition. Other names: ESR, SED rate sedimentation rate; Westergren sedimentation rate.

۲,۳,۲. Preparation for ESR Westergren

No special preparation is needed for ESR Westergren. Inform your doctor if you are on any medications or have any underlying medical conditions or allergies before undergoing ESR Westergren. Your doctor depending on your condition will give specific instructions.

۲,۳,۳. Procedure for ESR Westergren

ESR Westergren is done using Westergren method on a Blood sample.

۲,۳,۴. Price for ESR Westergren

Average price range of the test is between Rs. ۰۰ to Rs. ۴۷۰ depending on the factors of city, quality and availability

۲,۳,۵. Normal values for ESR Westergren

The normal result for ESR Westergren for ESR is ۰-۲۲ mm/hr for Male gender and for. All age groups, ۰-۲۹ mm/hr for Female gender and for All age groups

۲,۳,۶. What is it used for?

An ESR test can help determine if you have a condition that causes inflammation. These include arthritis, vasculitis, or inflammatory bowel disease. An ESR may also be used to monitor an existing condition



٢,٣,٧. Why do I need an ESR?

Your health care provider may order an ESR if you have symptoms of an inflammatory disorder. These include:

١. Headaches
٢. Fever
٣. Weight loss
٤. Joint stiffness
٥. Neck or shoulder pain
٦. Loss of appetite
٧. Anemia

٢,٣,٨. What happens during an ESR?

A health care professional will take a blood sample from a vein in your arm, using a small needle. After the needle is inserted, a small amount of blood will be collected into a test tube or vial. You may feel a little sting when the needle goes in or out. This usually takes less than five minutes.

Standard method of test work ESR Methods Westergren method Powder has a special ٣٠٠ mm longitudinal pipette and is rated from zero to ٧٠٠ mm.

١. The blood sample is placed in a special tube and nitrate.
٢. Enter stability in the case of the tube containing the blood sample with pressure on the procession until the blood level reaches zero and the pipette is placed vertically by a special holder.
٣. Record the sedimentation rate after one hour of placing the pipette in the tube.

٢,٣,٩. Procedure

Standard method of test work ESR Methods Westergren method Powder has a special ٣٠٠ mm longitudinal pipette and is rated from zero to ٧٠٠ mm.

١. The blood sample is placed in a special tube and nitrate.
٢. Enter stability in the case of the tube containing the blood sample with pressure on the procession until the blood level reaches zero and the pipette is placed vertically by a special holder.
٣. Record the sedimentation rate after one hour of placing the pipette in the tube.

..... [١^]



Table - ٢,٣- Test results ESR Some workers

مكان العمل	b.grop	ESR	التاريخ	الاسم الثلاثي	ت
ديزل شمال الديوانيه الكهرباء	O+	٢	٠٦-كانون الأول	عبد الرزاق هاتف نور	١
ديزل شمال الديوانيه الكهرباء	B-	٣	٠٦-كانون الأول	مصطفى صالح مهدي	٢
ديزلات شرق الديوانيه	A+	٤	٢٠-كانون الأول	بيداء رزاق جبار	٣
محطة ديزلات شرق الديوانيه	O-	٤	٢٧-كانون الأول	جهاد طعمة حسين	٤
كهرباء شرق الديوانيه	O+	٥	٢٨-كانون الثاني	رسول عبد ميثم	٥
كهرباء شرق الديوانيه	O-	٦	٢٨-كانون الثاني	صفاء صباح كاظم	٦
كهرباء شرق الديوانيه	O+	٧	٢٨-كانون الثاني	احمد كاظم عبد الحسين	٧
ديزل شمال الديوانيه الكهرباء	O+	٨	٠٦-كانون الأول	مازن محمد فاضل	٨
ديزل شمال الديوانيه الكهرباء	O+	٩	٠٦-كانون الأول	سجاد رحيم عبد الله	٩
منتجات نفطية	O+	١٠	١٣-كانون الأول	حيدر عزيز سلمان	١٠
ديزلات شرق الديوانيه	O-	١١	٢٠-كانون الأول	زينب صويلح سرحان	١١
كهرباء شرق الديوانيه	O-	١١	٢٨-كانون الثاني	توفيق حسين محمد	١٢
ديزل شمال الديوانيه الكهرباء	B-	١٢	٠٦-كانون الأول	غيث نجاح جواد	١٣
ديزلات شرق الديوانيه	O-	١٢	٢٠-كانون الأول	وفاء شاكر ميزان	١٤
منتجات نفطية	O+	١٣	١٣-كانون الأول	شاكر جبار عبد الكريم	١٥
منتجات نفطية	O-	١٤	١٧-كانون الأول	حميد خسبر كاظم	١٦

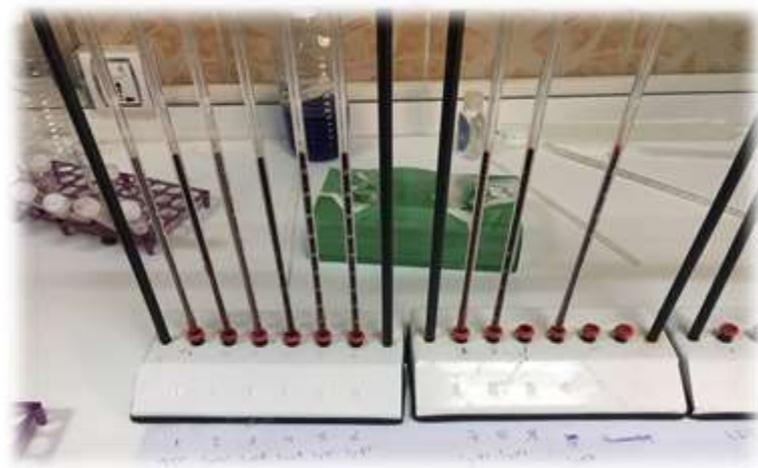


Figure ٢.٥: ESR Rack

2, 4. Test White blood cells

2, 4, 1. What is White blood cells?

White blood cells, also called leukocytes, are part of the blood. They are important for the immune system in the body, helping to prevent transmission by attacking bacteria, viruses and bacteria that invade the body.

White blood cells form in the bone marrow and spread across the bloodstream.

2, 4, 2. Types of white blood cells

Three types of white blood cells are known as granules, namely, neutral cells, acid cells and basal cells. Non-granular cells are the only two cells, lymphocytes of the T, B and C lymphocytes. The granular and granular name is used to infer cytoplasm content, Chemical as part of the immune response.

2, 4, 3. Reduce and increase white blood cells

Leukopenia is a medical term used to describe the number of white blood cells as low, due to exposure to certain conditions that accompany or cause certain diseases such as HIV, autoimmune disorders, bone marrow disorders, lymphoma, acute infections, liver disease, spleen and others.

The increase in the number of white blood cells is another term used to describe the number of white blood cells as high, due to exposure to some conditions that accompany or cause some diseases such as anemia, bone marrow tumors, leukemia, arthritis and intestines, tissue damage, asthma and others.

2, 4, 4. Normal values of white blood cells

The normal range of white blood cells is between 4,000 to 10,000 (MCL). The normal range of neutral cells is between 200 - 700 cells / microliters. Acid cells are between 2 - 50 cells / microliters, basal cells between 2 - 10 cells / Microliter, and lymphocytes between 100-300 cells / microliters, and finally the only cells are 2 - 100 cells / microliters.

2, 4, 5. Procedure

Whole blood is diluted 1 in 20 in an acid reagent which haemolyzes the red cells (not the nucleus of nucleated red cells which is called reticulocyte), leaving the white cells to be counted. White cells are counted microscopically using an Improved Neubauer ruled counting chamber (haemocytometer) and the number of WBCs per litre of blood calculated. Note: When after examining a stained blood film, many nucleated red cells are present (more than 10%), the WBC count should be corrected (see end of Test Method).

..... [19]

Table - ٢,٥- Test results WBC Some workers

مكان العمل	b.grop	WBC	التاريخ	الاسم الثلاثي	ت
ديزل شمال الديوانيه	+O	٥٠٠٠	١٢-كانون الأول	فالح حسنين سلمان	١
كهرباء شرق الديوانيه	-O	٥٤٠٠	٢٨-كانون الثاني	توفيق حسين محمد	٢
ديزل شمال الديوانيه الكهرباء	+B	٦٤٠٠	٠٦-كانون الأول	عمار فاهم نغيش	٣
كهرباء شرق الديوانيه	-O	٦٦٠٠	٢٨-كانون الثاني	صفاء صباح كاظم	٤
منتجات نفطية	-O	٨٢٠٠	١٧-كانون الأول	احمد كاظم حميد	٥
ديزل شمال الديوانيه	+O	٨٤٠٠	١٢-كانون الأول	احمد فوزي عبد	٦
محطة ديزلات شرق الديوانيه	-O	٩٤٠٠	٢٧-كانون الأول	جهاد طعمة حسين	٧
منتجات نفطية	-O	٩٦٠٠	١٣-كانون الأول	حيدر عكموش هاشم	٨
منتجات نفطية	+O	٩٨٠٠	١٣-كانون الأول	عادل هادي كوثر	٩
ديزل شمال الديوانيه	+O	١٠٠٠٠	١٢-كانون الأول	سلام جبير عبد	١٠
ديزل شمال الديوانيه الكهرباء	+O	١٠٢٠٠	٠٦-كانون الأول	سالم عباس محمد	١١
ديزل شمال الديوانيه الكهرباء	-B	١٠٤٠٠	٠٦-كانون الأول	مصطفى صالح مهدي	١٢
المنتجات النفطية	+B	١٠٦٠٠	٣١-كانون الثاني	علي محمد طاهر	١٣
منتجات نفطية	+O	١٠٨٠٠	٠٦-كانون الأول	محمود محمد حسين	١٤
شركه توزيع المنتجات النفطيه	-O	١١٠٠٠	٣١-كانون الثاني	شاكر محمود عمران	١٥
ديزل شمال الديوانيه الكهرباء	+O	١١٠٠٠	٠٦-كانون الأول	حيدر حسن عبد	١٦
ديزلات شرق الديوانيه	+A	١١٦٠٠	٢٠-كانون الأول	حسين رشيد وحيد	١٧
ديزلات شرق الديوانيه	-O	١١٨٠٠	٢٠-كانون الأول	زينب صويلح سرحان	١٨
ديزلات شرق الديوانيه	+A	١٢٠٠٠	٢٠-كانون الأول	مخلص محمد جاسم	١٩
كهرباء شرق الديوانيه	-O	١٢٢٠٠	٢٨-كانون الثاني	وسام حسون ضايح	٢٠
ديزلات شرق الديوانيه	-O	١٢٦٠٠	٢٠-كانون الأول	ولاء علي دخيل	٢١
ديزلات شرق الديوانيه	-O	١٣٠٠٠	٢٠-كانون الأول	غيدا فيصل مراد	٢٢





2,0. Test of Smoking

2,0,1. What are the problems caused by smoking?

Smoking causes not only health problems for you, but also for others around you.

A. Harm yourself

- Smoking leads to addiction. Cigarette tobacco contains nicotine, the addictive drug. This makes quitting smoking difficult (but not impossible).
- More than 430,000 deaths occur in the United States each year as a result of smoking-related illnesses. This is because smoking significantly increases the risk of heart attack, stroke, chronic lung disease, lung cancer and many other cancers.
- Smoking may be the most preventable cause of respiratory illness in the United States of America.

B. Harm to others

- Smoking causes harm not only to the smoker, but also to family members, co-workers, and others who are inhaling cigarette smoke. This is called passive smoking.
- Passive smoking is associated with 30,000 cases of bronchitis and pneumonia each year in children 18 months of age or younger.
- Passive smoking, which reaches children through their parents' cigarettes, increases the chances of developing middle ear problems and the possibility of coughing and shortness of breath, as well as worsening the asthma status of those infected with them. In addition, it increases the likelihood of sudden death of the infant.
- Secondhand smoke causes cancer, research has shown that the risk of lung cancer in non-smokers living with smokers is 24% higher compared to non-smokers who do not live with a smoker.
- Passive smoking increases the risk of stroke and heart disease.
- The possibility of an adolescent son becoming a smoker is twice as high if his parents are smokers compared to a smoker who does not smoke his parents.
- The pregnant woman's smoking increases her chances of having children with very few weights.

2,0,2. Smoking and cancer

- Smoking causes about 87% of lung cancer deaths.
- Smoking causes cancer of the throat, mouth, throat, esophagus and bladder, and also helps in the development of cancer of the pancreas, cervix, kidneys and stomach.
- Smoking is associated with the development of some types of blood cancers.





٢,٥,٣. Other effects of smoking

a. Eyes and look:

- Studies have shown that the incidence of blindness is more than two to three times between smokers and former smokers.
- The risk of blindness remains high for those who quit smoking even those who have left it for more than ١٥ years.
- Cases of blue water in the eye are related to smoking.

b. Mouth and throat:

- Smoking irritates the eyes, nose, throat and gums, and respond to these tissues to become thicker, as the nature of the cells, which eventually lead to the infection of cancers of the mouth, throat and esophagus.
- Periodontal disease and tooth loss are common among smokers.
- Smoking permanently damages the larynx tissue. This effect is observed in the coarse sound of chronic smokers.
- Stop smoking reduces the incidence of throat cancer.

c. Urogenital system:

- Smoking causes bladder and kidney cancer to be considered the most powerful cause of bladder cancer.
- The rate of infection of the previous smoker bladder cancer in half during the first few years of his departure for smoking, but the risk of cancer remains high for decades.

d. Musculoskeletal system:

- Smoking is associated with osteoporosis in women and disc disease in both sexes.
- Osteoporosis leads to fractures, leading to disabilities, especially in older women.

e. Skin:

- Smoking causes the appearance of facial wrinkles early, due to the constriction of capillaries in the face, which leads to reduced access of oxygen and food to the cells of the face.
- These symptoms may appear only after a few years of smoking (٥ years) and are usually permanent symptoms do not disappear only expensive and dangerous surgery.

f. Other effects:

- Hair: Change the smell and color of hair.
- Nose: weakens the sense of smell.
- Teeth: The color of the teeth changes, and the plaque is formed. In addition, teeth may fall and inflamed gums.

٢,٥,٤. Passive smoking

Passive smoking is a mixture of smoke that results from the burning of a cigarette, pipe or cigar and the smoke that comes out with the exhalation of the lungs of the smoker.



Passive smoking contains more than ۲۰۰ toxic or carcinogenic chemicals. Exposure to this type of smoking is called involuntary smoking or passive smoking.

۲, ۵, ۴, ۱. Risks of passive smoking:

- Passive smoking causes about ۳,۰۰۰ deaths every year due to lung cancer.
- Passive smoking causes irritation in the eyes, nose and throat.
- Passive smoking may cause irritation of the lungs, leading to coughing, large sputum and discomfort in the chest.

۲, ۵, ۴, ۲. Passive smoking hurts children in particular:

- Children exposed to secondhand smoke are more likely than other children to develop pneumonia, bronchitis and other lung diseases.
- Children exposed to secondhand smoke have more ear infections than other children.
- Children exposed to secondhand smoke are more likely to have asthma.
- Children with asthma are more likely to have asthma if they are exposed to secondhand smoke.

۲, ۵, ۴, ۳. How to protect yourself and your family from secondhand smoke?

- Do not smoke in your home.
- Ask others (especially babysitters or those who take care of your children) not to smoke at home.
- Make sure that the nursery, school, restaurant and places where you spend your time are free from smoking.
- Ask smokers to go outside when they want to smoke.
- If you have to smoke inside the house, allocate a room so that the windows are open, or use the fans to expel the smoke out.
- Help people trying to quit smoking.
- Never smoke around children, they are more sensitive to the dangers of passive smoking.
- If you are a smoker, try to smoke only in the open and away from your family.

۲, ۵, ۴, ۴. How to protect yourself and your family from passive smoking outside the home?

- Tell families, friends, and the people you work with that you are reluctant to smoke next to you.
- Do not smoke inside the car and do not allow anyone to smoke inside, especially if the windows are closed.
- Sit in non-smoking places in restaurants.
- Make sure your nursery, school and school activities are free from smoking.
- Ask your employer to set aside smoking places so you do not have to be exposed to passive smoking.



2.6. Gender differences

Statistical data suggests that gender appears to be a significant factor in the incidence of workplace injury.

In 2000/2001 male injuries comprised 70.5% of all workplace injuries. This includes occupational diseases. (Source: Statistical Bulletin 2000/2001, WorkCover)

The statistics below show a constant trend for male injuries to be significantly greater than those for females. However there has been a steady increase in the number of injuries for females. This may partly be explained by an increase in the female workforce.

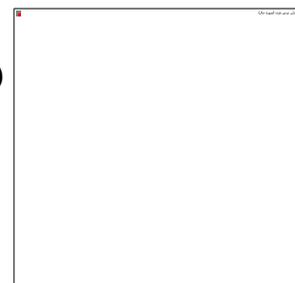
Table -2.5-: Number of workplace injuries, 1991/92 – 2000/2001

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
Male	3000 86	27607 6	29678 0	31671 1	31648 3	32631 8	31692 0	30620 0	28679 8	28647 7
Female	807 7	8349	9620	10689 3	11616 2	12633 6	12600 7	11603 9	10673 3	11601 8
Total	3807 93	36056 6	40298 7	42360 4	43264 5	45264 4	44292 7	42223 9	39352 1	40248 5
% Male Injuries	79%	77%	76%	74%	74%	72%	73%	72%	73%	71%

(Statistical Bulletin 2000/2001, Work Cover NSW

and Statistical Bulletin Work cover NSW Statistical Bulletin 1998/99)

.....[14]





٢,٧. Results and discussion :

The study showed that the PCV test has little effect on some of the worlds and the ESR and Hb tests are not affected by workers working in the eastern Diwaniyah deserts and oil products. The WBC test was observed as an increase in the number of white blood cells. When a person has a high white blood cell count This means that the body fights a type of infection, which can be due to infection with bacteria, fungi, parasites or viruses. This is due to the worker's lack of professional safety controls and may include other causes such as inflammation, when seeing redness and swelling And pain in any part of the Body, such as rheumatoid arthritis, physical stress affects. As well as the high number of white blood cells. The number of patients with high white blood cells was ١٢ out of ٢٢

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