**Safe Work Requirement**

Risk Notification Procedure

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| Introduction This part of the manual provides a demonstration that the risks associated with the Well Operations have been identified; this will be the hand manual for all the workers will work in ECDC rigs.  The oil production, transport, the handling of equipment and the use of methods， causes that original risks to the workers. The following risk management manual generally includes kinds of hazards we will encounter while we work in the rigs. This manual has as main objective, give acknowledge of:  The factors or working medias that can give origin to the chemical, physical, biological, ergonomic and psychosocial risks, as well as, the consequences to the health that these can originate due to an inadequate manipulation of the working medias, the omission or inappropriate use of the protection equipment or lack of pursuit of the working procedures.  The general recommendations that the worker should take to minimize or eliminate the risks and this way prevent the occurrence and occupational illnesses.  No worker can be exposed to the action of physical agents, ergonomic conditions, and psychosocial risks, chemical and biological agents or of any other nature, without being noticed by written and for any other suitable media of the nature of the same, damages that could cause to the health and injures in the principles of its prevention.  It is each worker's obligation to know, take preventive measures, as well as notify to the immediate supervision, the present risks in their working place.  ECDC hopes that this manual fulfills the objectives for which it was designed and provides the consultation material for the knowledge of the risks present in the working place and this way controls them.  The aspects here included, try to embrace all the possible conditions of risks that the worker can find in his working place, however, if the worker considers that the enunciated in this manual is not clearly understandable, it is his duty to let his supervisor's know who will have the job to explain or to clarify that outlined by the worker. General Aspects     RISK For the purpose of this notification it is understood by risks "The possibility of occurrence of unwanted events, as consequence of conditions potentially dangerous created by the people /or by different factors or agents."  The unwanted events that are derived of the risks, can be represented by work accidents, injuries, professional diseases/or fatigue conditions, uneasiness, etc.; the dangerous conditions at the same time, by unsafe acts, unsafe conditions in the working environment or a combination of these.  The unsafe acts are behaviours for action and default that take the violation of procedures, norms, regulations or safe practices established. As well as an unsafe act can be any behaviour that the individual considers by previous knowledge, institution or simple common sense that it is inadequate or risky. Among other unsafe acts, we have:   1. Activate or operate protection equipments without their proper knowledge and previous authorization. 2. Not use the personal protective equipment (PPE) required for the type of activity that they carry out. 3. Use faulty equipment or instruments. 4. Use the hands instead of the manual tools required to feed, repair, adjust, etc. 5. Distract, bother, joke or scare the other workers. 6. Carry out an occupation or labour work presenting injures or physical conditions that could be difficult to execute of the work.   The unsafe conditions, by its part, are those physical factors or circumstances of the working environment that can facilitate the occurrence of accidents. Among others are unsafe conditions:   1. Machineries, faulty or improperly protected equipments (lacks of kept, isolation or others). 2. Faulty PPE. 3. Lack of order, cleaning and hygiene. 4. Inadequate working conditions (excessive noise, inadequate illumination and/or ventilation). 5. Dangerous environment conditions. 6. Exposure to radio-active sources.  GENERAL NORMS It is known that the risks are not given in isolated way. The different works that are carried out can generate a group of risks. Some of these activities are: works in restricted areas, cold and hot, noise areas, with radio-active, electric sources, working at height, entrance to the confined spaces, use of stairways, scaffolds, ladders, the movement of equipment and materials and others. The way in which you can contribute to minimize or eliminate the risks that are generated in the working environment are accepting the safety and existent industrial hygiene regulation, as well as the norms and procedures for the realization of the different works, specifically:   1. Making the functions related with their work always looking after their safety and of the other partners. 2. Identifying the risks of their working and avoiding the unnecessary exposure to these risks. 3. Reporting any unsafe condition that detects or any situation that represents a risk for their health in their opinion or for their partners, which should not solve by his own before beginning a work, as well as avoiding to make unsafe acts as much as they can. 4. Verifying that in those places where it is required, the working permits be received, which are certified that evidence that the working place and the involved team have been previously prepared and inspected so that the work is executed under safe conditions. Also, completing the indications that each line of the working permits specifies. 5. Checking the facilities and equipments before beginning the works and maintaining them in good condition. 6. Using and keeping under good conditions the personal protective equipment. 7. Keeping the order, cleaning and hygiene.   RISK CLASSIFICATION    CHEMICAL RISKS **Sulphide Hydrogen (H2S)**  It is colourless with scent of rotten eggs. It can be found in different proportions in oils, reason which is found in most of the industry processes: wells of petroleum-gas, drainage systems, and disulfide plants. It is a flammable and poisonous gas.  For being a corrosive acid, attacks the metals (iron) and generates ferrous sulphide (pyre), which lights when it is dry to environment temperature. This compound constitutes one of the most dangers of fire in the petroleum industry and also can generate the contact among sulphide dioxide (SO2) and iron.   1. Not use their olfaction to detect concentrations of hydrogen sulphide (H2S). 2. Use or to request the detecting equipment of the same.  PHYSICAL RISKS The machines and facilities operated by you and the factors or physical strengths such as pressure, electricity, temperature, noise, vibration, ionizing radiations or not ionizing, can give origin to the accidents or cause illnesses, when the cautions of the case are not completed or when a mechanical failure is presented. Also we will suffer from the weather.   1. **Falls**   The slides or falls at any level can happen from tanks, scaffolds, stairways, pipes, rig floor and heavy vehicles, etc.  Will take in considering the following aspects to avoid the falls, which are able to originate injures such as hits, bruises, fractures, etc.   1. Use footwear with anti-slip soles, when raise or lower steps, tanks, stairways, etc. in areas where the surface is slippery or where it is required. 2. Avoid running, specially avoid near corners, in stairways or corridors and jump from elevated parts as for example from platforms. 3. Concerning order and cleanliness in working areas: 4. It is convenient that they are free of oil or any other substance. 5. Maintain decongested areas. The tools and equipments not well placed in the working places constitute unsafe conditions. 6. **working at height:** 7. Use scaffolds, appropriate stairways or ladders correctly instead of barrels, drums, boxes or other objects that can represent a danger. The absence of handrails and rails, the lack of supports and pins, the inadequate suspension and in general the bad condition of the stairways and scaffolds are conditions that should be avoided. 8. Use the required instruments for the realization of this type of work such as safety belt, gloves, carry tools with service rope. 9. Check all elements on Monkey board, mast, roof, and cargoes on rig move vehicles, etc. Avoid drops. 10. **Hits and Imprisonment**   They happen frequently when using emery incorrectly, tools, lifting load equipments, transport of materials operations, when going by areas where they are carried out works heights or near suspended loads. The cautions to follow to avoid that happens this type of accidents are the following:   1. Stay away from cables, ropes, wires or other strings that are subjected to tension, as well as suspended loads and of those places where works are executed in heights. 2. In moving machines: 3. It is not convenient to carry out repairs or maintenance works. 4. Maintain conveniently preserved all the moveable parts, before being put in service. Always verify this condition. Have the possibility that the dressing clothes are loose, gloves, rings, watches, bracelets or long hair, are caught by pieces that are in movement. 5. Avoid that the nails stand out of the drawers, barrels, scaffolds, charts, platforms, etc. Take out or bend them immediately. 6. In handling and pipe movement or connections the sharp borders and threads can cause injure on the fingers. Avoid putting the fingers in the extreme of the pipes. It is convenient to use gloves for this type of work. 7. Make sure with guides or by other ways the pipes, cylinders or carboys during their transport and storage so that they don't stagger or roll. Avoid mounting these materials, since they could slip and cause accidents. 8. Keep the tools and working equipments in an orderly way. Avoid placing them in corridors, stairways, platforms or elevated places from which can fall on workers. 9. For works in heights it is convenient to use wrench of closed type, instead of wrench of open type, since there is less danger that a wrench of this type disengages and can cause injures. It is recommended to hold the tools with a rope. 10. Use the personnel protective equipment, such as: 11. The safety helmet, in all those areas of the company that require it, as for example exposed areas of fallen objects, where suspended loads exist, corridors where there are pipes at the height of a person or where they can have possible collisions. Protection for the eyes in the crumbling works, rock dive or concrete, in the use of emery, portable tools, drills and milling machines, when intersects or bends rod and in any other work where there can come off particles. 12. Safety shoes in those operations where objects can fall on the worker's feet, as for example in the load areas, where additionally it becomes necessary the use of gloves. 13. In the operations of material ,equipment transport:   Have the caution of not being located between the load and any object where can be caught.  Respect the maximum charge foreseen of the equipments, since an overload can originate the detachment of one of its parts, reach it and cause serious injures.   1. Avoid hitting the objects that can give place to the detachment of particles, for example the chisel of a pneumatic tool with a hammer. This operation should be carried out with the required personnel protective equipment. 2. When cutting a material there is the possibility that the separate section falls on top or over someone that is close. 3. Be cautious when getting near to closed or jambs doors. 4. In the offices it is convenient to maintain the drawers of the desks and files closed while they are not used. 5. **Car Accidents**   The traffic of heavy or light vehicles and pedestrians in streets, sidewalks or process areas can give origin to accidents such as:   1. Collision between vehicles. 2. Vehicle Crashes pedestrians with steady objects.   These are able to cause serious physical injuries, even the death.   1. Some dangerous conditions that should be avoided are:    * Aboard or lower off from a vehicle while it is in movement.    * Transport passengers in the rear platform of pick-ups.    * Exceed the number of the capacity of the seats of the vehicle.    * Park in places where danger exists that the workers interfere with the traffic when lowering or ascending the vehicles.    * Take people in the forklifts and transport materials so high that they impede the visibility.    * The driver use radio communication systems while the vehicle is trafficking. 2. To try to avoid the derivative accidents of the traffic it is recommended to continue as cautions:   When walking, use the suitable route for such end (for example the sidewalks), if they don't exist, locate and walk in the circulation route where is in front of the normal flow of vehicles.   1. Authorized people to drive the vehicles of ECDC should fulfil the safety norms, traffic laws. Avoid transporting people that don't work in the company, unless it is to fulfil an assigned mission. 2. Concerning the speed when driving, it is recommended: 3. Manage inside the areas to the admitted speed. 4. Regulate the speed when it rains or bad weather, when the surface is slippery or irregular. 5. Inspect the vehicles before using them and everyone in the car should wear the safety belt while driving. 6. When managing equipments to transport materials, verify that the trajectory to follow is free of obstacles. 7. It is forbidden to drive using equipments or phone connected devices to receiving apparatuses or sound reproducers. It is likewise forbidden to drive using electronic and communication apparatuses (cellular telephones) when they distract the driver's attention and limit the manoeuvre of the vehicle. 8. The safety in the conduction is its first responsibility. Leave the road and park aside when receiving or before making out a call. 9. **Electricity**   The injuries or accidents produced by the exposure of electric charges can come from the electric facilities and the static electricity. The sparks coming from the electricity constitute an ignition source capable of generating fires.   1. Electric Facilities   The lack of adoption of adequate cautions in the use of the electricity creates situations that can originate body injuries or damages to the property. When an equipment or driver is energized and makes contact with it or comes closer another energized element, a current pass can take place for the body that depending on its magnitude and able to cause burns or death. The burns can also be originated by the electric arches among energized elements.  The workers should always be alert to the possibility of contacting energized electric equipments. Some cautions, which go directed to avoid the contact with or among energized bodies are:  Verify the electric tools before using them, the condition of their plugs and drivers. Likewise verify the isolation of the cables of electric extension.  The strings and humid ropes are conductors, therefore, to avoid using them in the handling of energized circuits of high tension.  Only personnel properly authorized can put into operation the electric equipments, operate them or repair them. Avoid to close a switch unless it is authorized to do it, have full knowledge of the circuit and know why the switch is open. In the works of machine repairing activated by electric energy, see if the respective electric switches have been marked or disconnected.   1. To Avoid: 2. Should have special care to avoid electric discharges when required to work in the rain or wet floor. 3. The electricians and other personal that can have direct contact with the electric current should use personnel protective of non conductor material, gloves or boots. 4. All the equipments should have integrity of connections to groundings. 5. Static Electricity   Generally accumulates in the transmission bands, in the flow of hydrocarbons, air and other gases through hoses, ducts and pipes. It is also able to generate when using wool, silk and rayon cloths. To try to avoid the generation of sparks due to the static electricity it is convenient to take the following aspects:   1. Use cotton tows. 2. Connect to grounding all the trucks, tanks, and tankers when the charge and discharge operations of substances are carried out. 3. To Avoid: 4. The agitation of hydrocarbons when the existence of a flammable vapour space is known, equally it is convenient to reduce the filling speed and flow of the liquids. 5. Introduce in the tanks during the pumping or the recirculation of substances, metallic or conductor devices, such as measuring tapes, recipients for samples, thermometers, etc. if such objects are not previously grounded. 6. **Radio-active Sources**   The radio-active sources and their inadequate manipulation result risky for the human being due that the exposure is not always perceived by sensorial or sensitive ways, this means that you can be receiving a series of radiation and have not noticed this situation. The knowledge of the radio-active sources and their correct manipulation contribute to avoid adverse effects that can be derived from the exposure of these.  There are two types of radio-active sources:   1. **Not ionizing.** Which are able to produce heating in the skin and in lingering exposures, burns and problems in the eyes. They also constitute an ignition source that contributes to fires.   The most common sources are capable to emit this radiation type, these are the following:   |  |  | | --- | --- | | **LOW FREQUENCY** | **RADIO TRANSMISSIONS** | | INFRARED | Hot bodies such as ovens, engines, pipes or flames. | | ULTRAVIOLET | Welding arches  Lamps: fluorescent of neon or hydrogen  Sunbeams | | MICROWAVES | Microwave ovens, used in laboratories. |   It is recommended to follow the following cautions:   1. To protect the view from the radiations, use glasses with filtering eyeglasses and a mask or a protective helmet with filtering finders, if you are working with a torch or if the welding with electric arch, respectively. 2. Be alert to the temperature indicator of the process in which he is working, to be able to determine an increase out from the normal. 3. Verify the thermal isolations of pipes, etc. 4. When working in presence of ovens, boilers, engines or other bodies that emit the infrared radiation, carry out the work only the necessary time, using gloves, boots and clothes against heat. 5. Where the danger exists of exposure to the gleam of the arch, provide protector bulkheads around it. 6. **Ionizing.** Are able to originate bigger injures. Some effects are dermatitis, burns, eye problems, leukaemia and others.   This type of radiation emits specifically the X-rays and gamma.   |  |  | | --- | --- | | **TYPE** | **APPLICATION** | | X -RAYS | In medical service: x-ray equipment. | | GAMMA RAYS | Industrial x-rays.  Chemical instruments such as sulphur analyzers and specific gravity. |   To control the danger due to the exposure of this type of radio-active sources, it is convenient to follow the aspects:   1. Follow the norms for the works of industrial x-ray and handling of equipments and instruments that contain radioactive elements, particle originators, as well as those analysis and diagnostic apparatuses, originators of X-Rays used in the industry. 2. Use the appropriate and required protection equipment for each type of work. 3. Delimit the access to the area and put the danger signs corresponding to "Radiation Zone." Stay far from these areas if you don't have direct relation in the handling of radioactive sources. 4. The terrestrial or aquatic transport of radioactive sources should be done through special conditioned media for such end, following the corresponding norms to this activity. 5. ECDC Logging service should follow up related regulations, procedures, law. 6. **Noise**   The noise coming from the operation of machines and facilities can get to originate the hearing loss. Doesn't have to produce annoyance or distraction to cause damage, since could suffer a gradual hearing decrease without having knowledge of it, this means, the hearing loss is not only originated by intense noises, also for lingering exposures to noises that apparently are not.  To try to control the noise it is recommended:   1. Verify the operation of those. 2. Mufflers and other noise aisles. 3. Use hearing protection. 4. Install safety signs in noisy areas. 5. Respect and obey the allusive signs to this and other risks. 6. **Vibration**   The vibration generated by the movement of machines and mechanical tools, can cause malfunctions in the muscular or circulatory system and affect the efficiency of the work because can cause uneasiness and interruption in the concentration.   1. **Temperature**   Can originate serious burns to the contact with:     |  |  | | --- | --- | | **AGENT** | **EXAMPLE** | | 1. Substances that are in extreme temperature (high or low) | At high temperature: vapour, hydrocarbons, liquid sulphur, asphalt and drilling mud. At low temperature: liquefied gases and refrigerated. | | 2. Hot surfaces | Pipes, pumps, engines, etc. | | 3. Fire | The flame of the ovens. | | 4. Hot elements | Scum, sparks and chips, as those removed in the welding works. |   To try to minimize this risk we should follow the aspects: To Avoid:  1. Work with moist clothes of oil, since a spark can be fatal. If the clothes are impregnated with oil, or some chemical substance you should change and wash with water and soap the affected part of the body. 2. Touch any pipe or metallic structure of equipments, unless has the certainty that this is not hot. 3. Use gloves, boots, coverall and apron against heat, when you are in areas where the possibility of exposure to liquids or hot lines exists. It is also recommended, to use and verify the insulating thermal, in order to avoid the direct contact. 4. It is necessary to be careful when filling the radiator of the vehicles when the engine is overheated, because the vapour jet that hurtles when removing the cover can cause serious burns. Wait until it has cooled down. 5. Use steam for cleaning in special cases. Apply it in places and with equipments designed for such end. 6. Stay away from the place where a sudden, strong and continuous noise takes place, it can be a steam escape, which has the particularity of being invisible. 7. **Weather**   Everyone knows you can’t change the weather. Hundred years of scientific research has proven that you cannot forecast the weather beyond a few days with enough accuracy to support. Heavy rains, high environment temperature, sand storms, heavy wind will affect our operations. We should highlight it and make proper decision in our operations.   1. **High-pressure Systems**   The incorrect manipulation or the undue use of the systems of high pressure such as cylinders, pipes, etc. can give place, among other things to the leak of substances contained in these systems or the rupture of a hose or pipe, which at the same time, can produce impacts or lashes able to originate serious injures, suffocation or fires and/or explosions in case of flammable substances. The correct manipulation, use and storage of the systems of high pressure are elements that should be controlled to minimize the risks that can be derived of the systems to high pressure.  The recommendations that should be followed are   1. Avoid using compressed air to remove cuttings or chips of the machines, since the pressure of the air can give place to these to fly or form projectiles. Use a hook or brush for this operation. 2. When the valves or lines are put to pressure tests, the workers should remain far away. 3. Check the source supply before connecting air tools. Make sure that this source supplies air and not another type of gas. 4. Avoid using compressed air for:   Take out oil or another substance from the drums or barrels, since they don't support pressures and can explode. They can also originate an explosion.  Clean the clothes that is being used or to dry off the body. You should not point the air hoses toward a worker and neither their own body.   1. When changing or moving pneumatic tools, the air supply will have to be closed; the air should not be closed bending or stepping the air hose. 2. The gauges should be in good condition constantly used. 3. Avoid the fall or violent crash of the high pressure cylinders. As well as, drag them to move them from one place to another, or mobilize other materials on top of them. 4. If you doubt on the content of a cylinder, don't use it and notify to the supervisor. 5. Keep the protection capsules of the valves of the cylinders in their place.   A hit on a valve without protecting can give place to the exit of high pressure gas. Avoid lifting the cylinders by the protector cover, that the valves remain open when the gas is not being used or apply pressure abruptly to the gauge.   1. **Suffocation**   **Suffocated by suffocation**: can happen if remain in spaces where there is not enough concentration of oxygen in the air of the atmosphere, such as confined spaces, for example: tanks, To avoid risk, the norms and cautions should be followed to enter in confined spaces.   1. **Fire and/or explosion**   The escapes or spills of liquids and/or flammable gases, the presence of explosive powders, the inadequate manipulation or the undue use of elements or machineries that constitute possible ignition sources, can give place to fires and/or explosions, which represent one of the biggest dangers in the petroleum industry. The possibility that happen a fire is bigger in those places where it can have flammable substances and/or fuels as they are the restricted areas or the confined spaces (recipients, such as ovens, boilers, steam drums, storage tanks of raw, toast and other). It is important that they take the due cautions for the work in the confined spaces.  The entrance in the same or any near area to these is limited until the results of the gas test have carried out, indicate that there doesn't exist explosion risk, toxic gases or an inadequate concentration of oxygen.  Some recommendations for the control of the causes that can give origin to fires and/or explosions, as well as other general aspects, are shown below:   1. Gases, dusts and flammable liquids and/or fuels. 2. Accept the instructions according to the classification of the dangerous areas according to the pre-established codes (class, division, group). 3. The waste, rags and impregnated clothes of oil or flammable material should be in metallic recipients with cover, far from the working place and they should be discarded as fast as possible to the places designated for it. 4. Disconnect the internal combustion equipment when flammable or fuel gas escapes happen and assist them or report them immediately.   **Air or Oxygen**  The fact that the substances or flammable products form explosive mixtures with the air, makes that the manipulation of the oxygen in the industry should be carried out with bigger care.  **Ignition Source**  It is important the knowledge of those elements or factors that can constitute ignition sources. Some of them are shown below:   1. **Sparks produced by the Electricity** 2. Use the equipments and electric tools appropriately. 3. Be alert of the sparks that can be produced by the static electricity. 4. **Lighted Cigarettes**   Use matches, lighters or other devices that produce sparks, in the places where storing, handling and using flammable liquids, is absolutely forbidden.   1. **Overheat of Equipments and Radiations emitted by Hot Surfaces.**   Follow the norms to work with radio-active sources not ionizing and be alert of overheat of pipes, machineries and general processes, which can be avoid by the lubrication of the equipments.     1. **Hot Works**   The hot works are operations in which the generated heat is of enough intensity and magnitude to cause the ignition of any liquid or flammable gas. Some examples are constituted by burning with torch, emery, clean with jet sand, cut concrete, to rivet in hot and similar operations.  When carried out a hot work should make sure that all the lines of the format of the permission have been filled correctly for a properly authorized employee for such end. Should among other things:   1. Verify the operation of the gas detectors. . 2. When detected a smaller fire in their works place, give the alert voice and to try to turn off using the nearest extinguisher. Do not try to turn off a fire of great magnitude. When detected a fire in another area, warn the personnel of the area and the firemen, to turn off any combustion equipment (welding machine, etc.) in their work place retire from that site and wait for instructions. 3. The personnel that interfere in the works of fire extinguish should keep the self-contained breathing protection equipment by hand as per reality. 4. **Extinguish Equipments**   Know the location of extinguishers, blankets against fire and emergency stations in the work areas. The fire extinguish equipment should stay in the place that has been designated and free of obstacles.   1. **Cellular telephones**   **Areas with Potentially Explosive Atmospheres**  When you are in a restricted area where exist or can exist potentially explosive atmospheres, SHUTDOWN the telephone and obey all the posters and instructions in this matter. A spark in this type of place could cause an explosion or a fire of serious consequences.  Often, the places with potentially explosives atmospheres are clearly indicated, these include:   1. Gas Plants. 2. Tanks Patios. 3. Gasoline Stations. 4. Under covered areas in ships. 5. Places for storage or transfer of fuel or chemical products. 6. Proximities of vehicles propelled by gas (GLP, GNV). 7. Areas where the air contains chemical products or determined particles such as cereals dust or pulverized metal; and any other place where it is usually ordered to turn off the engines of the vehicles. 8. Areas where Explosive are used or stored. 9. Exploration Operations.   To avoid interferences in the operations with explosives **SHUTDOWN** the cellular telephone in these areas and in all those areas where there are posters that indicate" Turn off emitter/transmitter apparatuses of radio signs."  Should count on that a detonator outside of their protection can explode by effects of radio waves coming from portable transmitter/receptor equipment.   1. Drilling and Well Rehabilitation Operations.   During the operations of gun perforator, uncoil and handle of explosives in general, should not use apparatuses emitter/transmitter radio signs, since they could generate enough electric in the cable to activate the explosive. ERGONOMIC RISKS The inadequate adaptation of the man to the systems or working media, constitute ergonomic factors able to originate a decrease in the labour yield and such reactions as fatigue, lumbago, cramps, etc.  **Some of these factors are:**     Inadequate illumination The inadequate or faulty illumination can end up originating visual fatigue, decrease in the labour yield and such accidents as fallen. To try to avoid these effects, it is convenient to be attentive that the light sources irradiate enough light. When these are faulty it is recommended to change for others in good condition or report this condition as soon as possible, so that they take the necessary measures. It is important also the cleaning of the fluorescent tubes. Inadequate ventilation The insufficient ventilation in the labour environment can originate annoyance and diminish in the yield of the work, as well as end up affecting his health, either because is not enough to dissipate the heat originated by the high temperature of the work place or because is not able to conduce an aeration that allows to evacuate the vapours, smoke and bad scents that hinder the breathing. Incorrect posture or Muscular Effort When inadequate postures are adopted and are carried out corporal movements or physical efforts that exceed our capacity during the execution of the tasks, can end up originating lumbagos, cramps, spasms, etc. To try to avoid that happen these injures it is recommended:  Avoid lifting heavy loads that exceed their capacity without help.   1. Use the required tools, mechanical, electric or pneumatic equipments, to lift heavy objects. Avoid using their body to hold or stop something. If necessary request help. 2. Take the rests that are granted. 3. Fulfil the norms to lift objects. The basic rule consists on lifting them bending the knees and maintaining straight the back. 4. Instead of throwing materials or objects, load them or pass them. It is not convenient to grab objects in the air, pull or push objects that demand too much effort. 5. When remaining sat down use a back-up, to adopt the position that allows the back maintain straight and try not to remain in a single position for a long time.  Inadequate Source Sign The inadequate colours, the splendours and the visual representation in places where the situation is too brilliant, dark, or if it is out of the reach of the view, are factors that can end up originating visual fatigue or distortion of the information. It is necessary to be attentive to verify that the working place allows see what is needed without necessity of having to carry out excessive efforts of the view easily.  When working with computers or long time paper work it is convenient to take short pauses when feeling visual or corporal fatigue. Inadequate Space or Working Media The inadequate manipulation of the tools and inappropriate working places can originate fatigue, pains, etc. Should take in consideration the following aspects to control the derivative risks of these factors:   1. It is convenient that the instruments are within their reach and placed so that avoids repetitive or inadequate movements. During their manipulation try not to bend the wrists, since this way will carry out less effort. If it becomes necessary to push a button or throw of a lever in repeated form, it is preferable to use the thumb than any of the middle fingers. 2. It is necessary that the working space is enough for the movements of the body and to allow easiness in the use of the machines.  BIOLOGICAL RISKS The biological risks are associated to infectious agents (bacteria’s, virus, fungi, parasites, etc.) that can deteriorate the health and human being, causing him effects like allergies, infections, poisoning, dermatitis and other, for direct infection or by media sources or vectors such as:     Water The ingestion of polluted water can mainly happen for lack of hygiene or inadequate transport. The quality control of water is carried out by bacteriological tests, the use of aqueducts, nets to supply and sanitarily recipients capable. To avoid consuming water coming from rivers, or wells without knowing their sanitary quality. The water recipients should remain clean and stored in places that don't permit contamination. Animals Animals like mice, bees, dogs, cats, snakes, spiders, scorpions or others should be far from the workspaces to avoid the contact with the same and possible bites or stings. It is recommended to keep clean and orderly working places, to avoid the excessive overgrowth of grass cutting it and getting dirty the waters, be attentive to the presence of animals in the area and when they are detected to warn to the specialized personnel so that they proceed to their eradication. Susceptible materials to the Decomposition, Bad Scents or Waste Having contact with these or inhale them represents a risk for the health. In and of itself it is recommended:   1. Empty the waste daily in recipients (trash cans) with cover and plastic bags in their interior. 2. In areas where working with foods or susceptible materials to the decomposition and bad scents, it will be gathered with protection equipment as it is required. 3. Use the materials or disposable equipments as less number of times as possible.  General recommendations Condition such as allergies, wounds facilitate or increase the possibility of contagious. The wounds are susceptible to be infected; this is why they should be assisted quickly or request medical assistance, as well as the infect-contagious illnesses (hepatitis and other) to object of to undergo early treatment and to control their propagation.  Hygiene is an important prevention factor. Should avoid habits like:   1. Ingest foods without washing the hands. 2. Bite the fingernails. 3. Eat, drink, heat or refrigerate the foods in places not designated for such end inside the work place. Recommended to heat the foods only in the kitchens, not over hot pipes, process ovens or places where welding electrodes are stored and refrigerate them in refrigerators and not in the water thermos or on refrigerating systems. 4. In places like laboratories and clinics there is infection possibility. Follow the recommendations that are given to carry out their work; label the samples, suck with the goatee instead of the mouth and avoid placing foods in the refrigerators of re-actives or laboratory samples.  PSYCHO-SOCIAL RISKS Factors like certain characteristics of the persons and social environmental events can among other things originate conditions of fatigue, tires, and decrease in the yield of the work or not motivation. Some of these factor whose occurrence should be avoided by all the media, are presented below:      Inadequate or Addictive habits For example:   1. Work in state of intoxication. 2. Sleep in labour hours. 3. Carry out hand games, lotteries or any other type in labour hours. 4. Smoke in prohibited areas. 5. Omit the use of personal protection equipment, not accomplish the norms and working procedures.  Inadequate attitudes Should always work following the norms, procedures and other instructions, paying attention, with common sense and caution.  Always remember that the correct attitude is an important factor for the realization of safe works. Lack of Training or knowledge of the tasks You should know your work and the correct method of making it. If you have doubts, consult before carrying out it. Inadequate Interpersonal Relations and Supervision Failures These factors can give place that the worker makes failures or originate conditions during the execution of the works. This is why:  The relation between you and your supervisor or with the other workers should be the most pleasant as possible, respecting the instructions that are received and contributing good ideas for the improvement of the quality of the work.  The supervisor should look after the correct execution of the safety rules and other working procedures, coordinating appropriately and using as a tool a good motivation approach toward the workers. GLOSSARY **SUFFOCATION:** Impossibility or privation of the breathing due to the inadequate path of the air to the lungs and oxygen to the blood**.** It contemplates:  **Suffocated by Suffocation:** When the person is covered or in presence of some material that impedes the breathing or renovation of air.  **DERMATITIS:** Inflammation and eruption of the skin or of the tissue that is under it, which can happen by quick contact to a high concentration or for long exposure to a low concentration of irritating agents.  **DERMATOSIS:** Occupational Illness of the skin for the routine handling of the equipments.  **CONFINED SPACE:** Closed volume by walls or other obstructions, with relatively small openings that it is difficult to avoid the danger of the internal polluted air.It includes tanks, reactors, distillation towers, big pipes and sewers, cisterns tanks, deep ditches, boilers, jack-up compartment and tankers.  **LUMBAGO:** Muscles inflammation in the lower part of the back that can be produced among other things, by unnecessary or inadequate hard work, carried out in manipulation of tools and lifting boxes, machines or other loads that are extremely heavy rising.  **HEARING LOSS:** Deteriorate of the hearing capacity**.** The hearing loss can be: Temporarily: as consequence of an exposure to high noises during some hours. Permanent: by exposure of excessive noises during long periods.  **BURNS:** Injures produced in the organism (skin, breathing and digestive vias) by the effect of extreme temperatures or by the action of chemical substances.  **RECIPIENT:** Includes ovens, boilers, storage tanks, drums, towers, barrels, pipelines, jack-up compartment, pump cars, separators or closed places, pits or sewers or other recipients as condenser box, compressors, etc.,that can contain gases or flammable toxic vapors and/or environments deficient of oxygen.  **PRESERVE:** Any media to avoid in an effective form that the personnel enter in contact with machinery movement pieces or equipment that could cause physical injures.  **SHOCK:** it is a condition that results of a damage suffered by the organism, able to cause confusion and loss of the knowledge.Their first manifestations are sickness, paleness and coldness of the skin, excessive transpiration; quick pulse and decrease of the blood pressure. It frequently happens on severe burn |