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|  | **BASIC HEALTH AND SAFETY**  **INDUCTION**  **“KARATAU CONSULTING” LLP** | Document No: Revision 3.2 | HSE – Safety Induction - 001 |
| Revision Date:  February 2013 | Revision No 1.0 |

#### basic HEalth and safety induction

#### “KARATAU CONSULTING” llp

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# INTRODUCTION

As it is clearly stated in labor legislation, compliance with HSE requirements is considered to be a principal responsibility of workers and employees. In this regard, everyone needs to be acquainted oneself with requirements in order that work might be safe and non-hazardous. For this purpose, all new employees apart from their education, work experience by profession or position have to pass through safety induction.

Safety induction is conducted by HSE specialist or by employee been imposed these duties by order of employer (or authorized person).

Safety induction is conducted in HSE room or in specially prepared premise with use of modern technical & visual aids (posters, full-scale exhibit items, dummies, models, cinema films, slide films, video films, etc).

At the commencement of employment every newcomer has to get acquainted with:

* General information on enterprise;
* Main principles of legislation on labor protection.
* Labor agreement;
* Working hours and rest time, internal order;
* Responsibility for violation of labor discipline;
* Organization of work on labor protection;
* Department state supervision for status of labor protection.
* General rules of behavior within territory of premises and facilities;
* Main hazardous and operational occupational factors typical for production;
* Basic requirements on prevention of electrical injuries;
* Basic requirements on production sanitary and personal hygiene;
* Personal protective equipment. Order and procedure of PPE issuing, PPE wear life;
* Circumstances and causes of separate fatalities, accidents, fires happened in company and industries due to violation of HSE requirements;
* Procedure of investigations and accident recording and other injuries to health of employees associated with labor activity;
* Fire safety. Ways and means of fire prevention, explosions and breakdowns;
* First aid.

# GENERAL INFORMATION ON ENTERPRISE

“KaraTau Consulting” LLP acts on the basis of RK Civil Code, dated December 27, 2011, Law “On Limited or Additional Liability Partnership”.

# BASIC TERMS, DEFINITIONS AND CONCEPTS IN THE SPHERE OF HSE

# 

Key terms, concepts and definitions in the sphere of labor protection (Article 1 of Labor Code of the RoK dated Amy 15, 2007 # 252-III) are as follows:

Basic concepts used in Labor Code:

1. *Special clothing* — wear, footwear, headgear, gloves and other items designed to protect a person from harmful and (or) hazardous operational factors;
2. *Heavy works* — kinds of employee’s activity associated with lifting or carrying weights by hand, or other physical works at rate of energy more than 250 kkal/hour;
3. *Shift working* — work in two or three or four working shift within 24 hours;
4. *Leave* — release of employee from work for a defined period with a view to ensuring employee with annual uninterrupted rest or social goal, with job (position) protection and in cases specified by present Code, being on average wage paid leave;
5. *Labor* — human activity aimed to creation of material, spiritual and other values indispensable to life and satisfaction of wants of a human being & society;
6. *Payment for labor* — system of relations connected with ensuring by employer of compulsive payment to be made to employee for the labor as consisted with present Code and other regulatory legal acts of the RoK, and also with agreements, labor, Collective Employment Agreement and employer’s statements;
7. *Labor hygiene* — complex of sanitation-and-epidemiological measures and means on health maintenance of employees, preventive care of harmful interference of working environment and process;
8. *Working conditions* — terms of payment, labor norming, work and rest schedule, procedure of professions (positions) combining, extension of service zones, performing duties of temporary absent employee, occupational safety & health, technical, life-and-work conditions, and others upon consultation between the parties on working conditions;
9. *Authorized state body on labor* — state body of the RoK, bringing a state policy into action in the sphere of labor relations in accordance with the law of the RoK;
10. *Territorial subdivisions of authorized state body on labor* — structural subdivisions of authorized body on labor, exercising power within bounds of appropriate administrative-territorial unit in the sphere of labor relations in accordance with the law of the RoK;
11. *Employment relations* — relations between employer and employee arising for purpose of rights and obligations, provided by labor legislation of the RoK, labor, collective agreements;
12. *Labor safety* — protection of employees, assured by set of actions excluding impact of harmful and (or) hazardous operational factors to employees in the course of labor activity;
13. *Safe labor conditions* — conformity of labor process and working environment to requirements of occupational health & safety in the context of employment duties;
14. *Occupational health & safety monitoring* — monitoring system for situation on occupational health & safety in industries, and also assessment and forecast of occupational safety & health conditions;
15. *Normative standards in the area of occupational safety & health* — ergonomic, sanitation-and –epidemiological, psychophysiological and other requirements, ensuring normal working conditions;
16. *Employment duties* — obligations of employer and employee conditional by regulatory legal acts of the RoK, employer’s statement, labor and collective agreements;
17. *Labor discipline* — proper execution of obligations to be made by employer and employees, established by regulatory legal acts of the RoK, and also by agreements, labor, collective agreements, statements of employer, foundation documents;
18. *Labor order* — procedure of relations regulation on labor management between employer and employees;
19. *Labor protection* — safety system on health & survival of employees in the course of labor activity, inclusive legal, social-economic, organizational-and-technical, sanitation-and-epidemiological, medical and preventive, rehabilitation and other actions and means;
20. *Safe working conditions* — working conditions created by employer whereby there is no impact of harmful and (or) dangerous factors to employee or when level of impact does not exceed safety standards;
21. *Labor agreement* — agreement in writing employer and employee whereby, employee is obliged to execute personally a defined job (employment function), observe a rule of labor order, and employer is obliged to provide an employee with work, working conditions and to pay salary to employee in due time & to the full extent as per conditional employment function, specified by present Code, laws and other regulatory legal acts of the RoK, collective agreement, employer’s statement;
22. *Salary* — compensation for labor depending on employee qualification, complexity, quantity and conditions of work in progress, and also payment of compensatory and incentive sort;
23. *Personal protective equipment* — equipment designed to protect equipment an employee from impact of harmful and (or) hazardous operational factors, including special wear;
24. *Employer* — a person or entity, an employee is in labor relationship with;
25. *Employer’s statements* — orders, decrees, instructions, provisions, rules of labor order to be issued by employer;
26. *Workplace* — place of permanent or temporary location of employee while executing of employment duties by him in the course of labor activities;
27. *Working hours* — time during which an employee executes employment duties in accordance with employer’s statements and conditions of terms & conditions of employment agreement, and also other time periods which are classified as working hours as per present Code;
28. *Harmful (specifically harmful) working conditions* — working conditions whereby impact of certain operational factors is leading to performance decrement or disease of employee or negative effect of health of its descendant;
29. *Harmful production factor — operational factor which impact to employee could lead to disease or performance decrement and (or) negative effect to the health of descendants;*
30. *Occupational disease* — chronic or acute disease caused by impact of harmful production factors to employee in connection with accomplishment of employment (job) duties to be made by employee;
31. *Safety standards* — qualitative and quantitative indicators, characterizing production conditions, characterizing operational and working process in terms of provision of organizational, technical, sanitary-epidemiological, biological and other standards, rules , procedures and criteria aimed to life and health conservancy of employees in the course of their labor activity;
32. *Hazardous working conditions* — working conditions whereby influence of certain operational or non-correctable natural factors is leading to injury, occupational disease, sudden health deterioration or toxication of employee in case of nonobservance of safety rules, in consequence of which temporal or durable disablement, occupational disease or death takes place;
33. *Hazardous production factor* — production factor which impact to employee could lead to temporal or durable disablement (professional accident or occupational disease) or death;
34. *Employee* — physical person who has an employment relationship with employer and directly executing a work as per employment agreement;
35. *Job-related accident* — impact of harmful and (or) hazardous production factor to employee in the course of performing labor (employment) duties or tasks of employer in consequence of which, industrial injury, sudden health deterioration of toxication of employee takes place getting him in temporal or durable disablement, occupational disease or death;
36. *Production equipment* — machines, devices, installations, equipment, apparatus, instruments and other techniques essential for labor, production;
37. *Job-related injury* — injury to health of employee, received in the course of executing employment duties led to disablement;
38. *Operational need* — execution of work with aim of preventing or responding to natural disaster, break-down or immediate elimination of its consequences, for accident prevention, down time, death or waste od property and in other exceptional cases, and also for replacement of absentee;
39. *Acceptance of operational premises by labor conditions* — activity on operational premises, workshops, locations, workplaces for purposes of statusing safety, harmfulness, heaviness, tensity of performable works, labor hygiene and evaluating conformity of industrial environment conditions to occupational safety & health standards;
40. *Production sanitation* — system of sanitary-hygienic organizational arrangements and technical equipment, preventing or reducing impact of harmful occupational factors to employees;
41. *Compensatory payments* — monetary payments associated with special mode of work and working conditions, job loss, reimbursement to employees connected with performance of employment or other duties provided for by the laws of the RoK;
42. *Disciplinary sanction* — measure of disciplinary influence to employee applied by employer for committing an offence;
43. *Rest time* is time when employees are free from their duties and which they can use in their own discretion;
44. Group protective equipment is technical facilities used for protection of two or more employees from hazardous production factors exposure.
45. *Business trip means* sending an employee as per the Employer’s instructions for unspecified period of time to a place beyond permanent work place for fulfilling his job responsibilities, as well as sending him to another location for training, qualification upgrade or additional training.

# General behavior rules in the territory of organization

Company employees are obliged:

* Follow safety and fire safety standards, rules, instructions and internal work regulations.
* Correctly use personal and collective protection equipment.
* Immediately inform the Line Manager about any accidents occurred at work, industrial disease signs endangering the Employees’ life and health.
* It is prohibited to use alcoholic drinks, as well as to start work in a state of alcoholic or drug intoxication. Smoking is permitted only in special places for smoking.
* Inform the manager in case of injuries and diseases occurred at work and beyond the work places and go to the medical facility.
* In case of accident it is important to assist the injured person with first aid in accordance with pre-medical care instructions and call for medical services. Before the investigation starts, try to keep the same atmosphere as it was before the accident, in case it doesn’t create a danger to life and health of other people and doesn’t lead to another accident.
* If the equipment and tools are discovered to be out of service it is important to inform the Line Manager. It is prohibited to use bad tools and equipment
* *During the working process it is necessary to meet the following requirements:*
* Walk only on allowed passages, cross-bridges and platforms;
* Don’t sit and lean against the foreign items and fencing;
* Don’t climb and run down the staircases and cross-bridges;
* Don’t touch power cables and cables of electrical units;
* Don’t rectify troubles in lighting and power networks, as well as in starters;
* Pay attention to safety signs and alarms, and observe the requirements; Prohibitory safety sign with a note: “Don’t power on, people working!” shall be removed only by the person who has put it. It is prohibited to turn on the equipment if there is prohibitory safety sign on the control panel.
* Observe the following requirements while moving within the area:
* Walk on footpaths and pavements;
* Cross vehicle roads at allocated places;
* Make sure that there is no moving vehicle, when you go out of the building.

***Safety requirements in the office***

1. All personnel need to be familiarized with fire safety rules. Be aware of fire extinguishers location and how to use them, and also need to know evacuation routes and exits of building during fire or other emergency situations
2. All personnel need to be familiarized with the methods of first aid dressing (predoctor care), know the locations of first aid kits and how to use them.
3. The Passages and corridors in the facilities need to be free and it is prohibited to encumber
4. Smoking is permitted only in places allocated for smoking.
5. It is prohibited to use open fire and heaters with open spirals
6. It is necessary to have nice appearance, have comfortable clothes and boots.
7. You should keep handrails with your free hand going up and down the staircases and do not run on staircases
8. Avoid collision and be careful:
   * when you open the office doors
   * when you are bringing hot tea, coffee and other hot drinks
9. It is prohibited to move inside the premises by running or reading
10. It is prohibited to move bulky items which obstruct the visibility
11. Use only working elevator, if the elevator is out of service inform Infrastructure Director
12. Be careful when using cutting and piercing objects (scissors, paper knife, sharp ground pencils and etc.)
13. Immediately inform about failures of any electrical equipment and never try to repair failures by yourself
14. Inform about all equipment and furniture which needs to be repaired.

***Maintenance of Order***

* Always keep office premises, equipment and building clean.
* Do not encumber the work sites
* It is necessary to maintain cleanliness, removing wastes, spilled oil and water.
* Keep clean all toilet rooms including toilet sink, follow hygienic rules
* The food should not be kept in working rooms.
* All wastes and waste bins need to be clearly marked indicating the waste type
* Waste bins need to be always empty and the wastes to be daily removed.

***General Safety Requirements in business trips***

*Every employee is obliged*:

* To pass safety induction at work place during the business trip, or fulfill the requirements established in the company
* Follow the internal work regulations and discipline or fulfill the requirements established in company
* Know harmful and hazardous industrial characteristics which comes into contact during the work process, follow safety rules
* Keep clean the office and territory
* Fulfill safety, fire and health instructions
* In case of need perform responsibilities on emergency response plan and fire extinguishing plan;
* Know how to use primary firefighting equipment, their role and operating principles
* If it is required, know the use of personal protective equipment
* Be able to give first aid

***General Safety requirements in the Company territory***

* It is allowable to walk in the territory of the Company only on pavements and footpaths, and if they are not available walk on the roadside or from the left side of the road towards the moving traffic.
* Cross pipelines only at cross-bridges
* Cross railway and vehicle roads only at allocated places, make sure that there is no moving train and vehicle.
* Bypass standing vehicle from behind
* It is prohibited to get on a vehicle, which is not equipped for transporting people

The hazardous works are conducted with work permit. The works at heights, in gas hazardous places, hot works, excavation works and works in the high-voltage switchgear area are related to hazardous works. The standard work permit should indicate the responsible people, action plans, necessity and possibility of safe operations. For the hazardous works, the briefings should be conducted and operations personnel should be provided with PPE. The personnel need to be familiarized with content of the work permit.

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# occupational sanitation and personal HYGIENE Basic requirements

Employees are obliged to follow the requirements of occupational sanitation and personal hygiene specified by the current legislation and other enactments.

Every employee must use personal or collective protective equipment against the unfavorable exposure of working environment factors and potential occupational hazards

Employee is obliged to keep machines, equipment, tools and other assigned techniques in working order and maintain it appropriately. The employee is obliged to use the assigned equipment only for its intended purpose. It is prohibited to use equipment and tools for personal purposes.

**It is prohibited:**

* smoke in the areas prohibited for smoking as per the safety and occupational sanitation requirements;
* Leave personal and special clothing in the places not intended for its keeping;
* Bring or drink alcoholic drinks at work place, come to the office in state of alcoholic and drug intoxication.
* Employees should wash hands before eating.

Employees exposure to hazardous production factors should not exceed hygienic standards established by the relevant GOST, sanitary rules and standards, as well as acting hygienic criteria for estimation of working environment hazardous factors, severity and intensity of the working process.

Maximum allowable limit of hazardous factors is threshold value of the hazardous production factors which upon daily scheduled exposure during the entire professional life shall not cause

work performance degradation and diseases in further life, and also shall not adversely affect the reproductive functions.

Premises and work places shall be provided with artificial lighting sufficient for safe operations, personnel stay and moving, and satisfying the existing legislative acts requirements.

Production, utility and sanitary premises should be equipped with general exhaust and supply ventilation and heating system.

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# Personal Protective Equipment. PROCEDURE AND STANDARDS OF PPE DISTRIBUTION, SERVICE LIFE

Employees involved in production with harmful and hazardous work conditions, as well as in operations related to contamination or performed in specific temperature conditions, shall be provided with overalls, safety boots and other PPE at the expense of the Employer as per the established norms. The personal protective equipment should be used in all cases of hazardous exposure to human body or when there is a hazard to be injured by direct contact, absorption or inhaling the hazardous substances

Personal Protective Equipment (PPE) is equipment and clothing which is worn in order to protect human body from corrosive, toxic, hot, cold or wet substances when it is not possible to avoid such exposure by other methods and in cases when practically impossible to use other types of protection.

Protective head equipment – hard hat – to protect head from falling objects, spilling hot or hazardous liquids and also electrical shocks.

Eye and face protection is required to be worn in cases when the employees are exposed to a risk of injury from outgoing particles, processed materials or hot and corrosive materials

Hearing protection is required to be worn for some types of works conducted at high noise level, like in the fields, construction sites, during work with the equipment, and also on helicopter flights

Hand protection – the Employees should wear protection gloves when the hands are exposed to hydrocarbon, hazardous substances, sharp objects, rough hot or very cold objects.

Appropriate body protection must be worn to protect the body from acidic, corrosive, oily, dirty, or dusty materials.

Employees should wear safety boots during the works where potential hazard to get foot injury from falling and rolling objects is present. Areas and work types which require wearing the safety boots shall be determined by the manager or supervisor of the facility.

Rules of providing employees with protective clothing, boots and other PPE shall apply to employees of all the companies irrespective of ownership and legal incorporation forms, major, and job position which are specified in typical standards of PPE provision

Typical standards of PPE provision shall stipulate allotment of PPE to employees irrespective of industry to which workshops, areas and work types are related, also irrespective of ownership and legal incorporation forms.

In some cases due to specific features of the industry, Employer can agree with State Inspector on occupational safety to replace one type of personal protective equipment with another specified by typical standards providing full protection from harmful and hazardous production factors.

In cases when personal protective equipment as safety belt, insulating overshoes and gloves, dielectric rubber carpet, safety goggles and shields, respirator, safety mask, helmet, inner helmet, mosquito head net, hard hat, shoulder piece, elbow pieces, self-rescue device, antiphons, safety plugs, anti-noise helmets, light filters, vibro-protective gloves and others are not indicated in typical industry standards, Employer may provide Employees with PPE on the basis of work place certification and job category indicating PPE service life or as PPE on demand, and may be included in collective agreements, and expenses on provision of these personal protective devices shall be included in production costs.

The Employer is obliged to replace the safety clothing and boots which went out of service prior to expiration term due to reasons beyond Employee’s control.

In case of PPE loss or damage in storage places due to reasons beyond the control of Employees, the Employer should provide personal protective equipment in good working order.

The employees must use the personal protective equipment with care, and inform the Employer in due time about necessity to dry clean, wash, dry, repair, degas, deactivate, disinfect, and dust the special clothing, boots and other types of personal protective equipment.

The wearing period starts from the actual date of PPE provision to Employees. The period of warm special clothing and boots wearing include the time of its storage in warm season

While providing such protective equipment as respirators, gas masks, self-rescue devices, safety belts, mosquito head net, helmets etc. the Employer should provide the basic induction course as for instructions for use, checking the equipment serviceability and some exercises how to use it.

The Employer shall ensure periodical tests of PPE (respirators, gas masks, self-rescue devices, safety belts, helmets and etc.) and timely change of filters, glasses and other parts of PPE. After checking, the PPE should be marked (stamped, tagged) indicating the dates of the following tests.

# Circumstances and causes of typical accidents and fires occurred in similar companies due to violation of safety requirements

The main reasons of industrial injuries are Employees’ lack of training, knowledge, control (insufficient control) on observing the safety requirements, use of defective equipment, tools, and protective equipment. The most typical reasons are: depreciation of equipment, use of low technology, and also machines and equipment with design deficiencies which are the sources of increased danger; absence of safety service; Employers and Employees do not know the safety legislation, poor work, industrial, and technology discipline.

Traffic incidents include:

* On the way to and from works in company vehicle;
* Public transport
* Personal vehicle

As before, significant part of the incidents happen to Employees, who appear at work in alcoholic intoxication state.

# Fire safety. fire, explosion and accident prevention means

Fire Safety is security of employees, their belongings, and property from the fire.

The standards, construction norms, regulations, technological design standards, industrial and regional fire prevention rules and other normative documents, approved in the established order and governed by fire safety regulations should be followed along with fire safety and fire prevention rules in RK.

The fire safety is to be provided on each location site of Company and fire safety instructions are to be developed for each fire and explosions hazardous sites.

All Employees are admitted to the work only after passing the fire safety briefing and in case of work specification change, an additional training on fire fighting and prevention shall be conducted.

Rules on application of open fire, vehicle movement, smoking permission and temporary hot works within the company area shall be established by general-facility instructions and fire safety measures.

*Hazards, which can cause fire accidents*

* flame;
* environmental temperature raise
* toxic combustion and thermal destruction
* smoke
* low oxygen concentration

*Secondary signs of fire hazards:*

* fragments, parts of broken equipment, constructions;
* radioactive and toxic substances out of broken equipment and structures;
* electric current;
* explosion hazards;
* fire extinguishing agents;

All employees should know about probable effects of primary and secondary fire hazard factors, safety measures and prevention of these factors.

**Employees are obliged:**

* follow fire and safety requirements, control and maintain fire prevention conditions;
* Carry out precautionary measures using gas appliances, chemical specialties, works with inflammable and flammable liquids and other fire-hazardous materials and equipment
* In case of fire, immediately inform fire brigade
* Combustible wastes and garbage need to be collected in containers or boxes on allocated areas, and then removed.

***General fire safety requirements and fire regulations for electrical units operation***

It is prohibited to:

* encumber the passages, corridors, galleries, elevator lobbies, staircases landing, stairways, hatchways by furniture, boxes, equipment, different materials and finished products, and also put obstacles to the fire exit doors
* put dryers of any design, hangers for clothes, wardrobes and storages (including temporarily use) furniture accessories into the wind porch
* fixate the self-closing doors of staircase landing, corridors, halls and tambour in open position (in case the automation devices are not used as working in fire condition) and also take them out:
* finish with flammable materials walls and ceilings and stair steps
* use carpets and carpet roll made of combustible synthetic materials

*While using the electric installations it is prohibited*

* use electric appliances in case the operating conditions are not in line with the instructions attached to the appliance
* use defective electric appliances which can cause fire
* use wires and cables with defective or lost isolation protective properties
* use faulty outlets, cutout, and other wiring accessories
* wrap the electric lamps in papers, cloth, and other combustible materials and also use them uncapped (dissector);
* use electric kettles and other electric heaters;
* use electric heaters in fire hazardous facilities
* leave connected electric heaters, TV sets, radio and etc. unattended
* use non typical (homemade) electric heaters and other homemade protecting equipment against the overcharge and short circuits
* use electric lamps with electric bulbs without safety ceiling light
* lay transit electric wiring and cable lines through storages and also through fire and explosion dangerous zones.

At the end of the work the personal computers and other office equipment have to be switched off with exception of equipment running day and night due to technology need.

The portable electric lamps have to be made of flexible electric wiring and equipped by bell glasses, protected by lamp guards and provided with hanger rods.

**Employees’ responsibilities and actions during fire:**

The fire procedure actions are stated in accordance with preventive firefighting regulations of Republic of Kazakhstan.

In case of fire or fire warning (fumigation, burnt odor, temperature increase) every employee is obliged:

* immediately inform the fire brigade according to phone number **101** (it is important to inform address, flash point, and last name) and responsible person for fire safety
* take possible actions on evacuation of people, firefighting and safety of material value

Chairman of Company, other officer and also people responsible for fire safety arrived to the site of the fire are obliged:

* duplicate the fire flash information to fire brigade and notify the line management, dispatcher, and Project responsible duty
* in case of dangerous to the life of people immediately organize their rescue using all the strength
* check the connection of automatic fire protection system (informing people about fire, fire extinguishing, smoke protection)
* if necessary to switch off the electric power (excluding the fire protection system), stop the operation of transporters, aggregates, devices, cut off the primary, gas, steam and water communications, stop the ventilation system in emergency and adjacent facilities.
* Stop any works in the building (in case it is acceptable as per industrial process technology) besides the works connected with actions on the fire extinguishing
* Keep all employees who do not participate in the fire extinguishing outside of dangerous zone
* Have an overall charge on fire extinguishing (taken into account the project specific features) before the arrival of fire brigade
* Provide the Employees’ compliance with safety regulations participating in fire extinguishing
* Organize the evacuation and safety of material value simultaneously with the fire extinguishing
* Organize the meeting with the fire brigade and render assistance to choose the shortest way to access the seat of fire.

The Chairman of Company, other officer and people responsible for fire safety arrived to the site of the fire need to provide the relevant information to the Head of fire extinguishing about constructive and technologic features of this object, neighboring buildings and constructions, quantity and flammable characteristics of stored and applied materials, products and other information necessary for the successful fire extinguishing and warning of its development.

For each fire or fire hazard, committee shall be established for clarification of the situation which contributed to arising and development of fire or its potential hazard.

**Classification of firefighting primary means**

*Fire preventive boards of firefighting primary means*

The fire preventive boards are destined to keep the hand held portable fire extinguisher, unpowered firefighting implements and tool at the defined place applying them during the fire extinguishing in the storage facilities and construction sites

The fire extinguishing equipment and firefighting supplies should be firmly fixed on the boards so that one could easily and quickly take them out without special tools.

*Fire extinguishers*

Depending on the type of loaded fire extinguishing agents, the fire extinguishers are divided into the following:

* put out the burning of solid combustibles (A class fire)
* put out the burning of liquid combustibles (B class fire)
* put out the burning of gas combustibles (C class fire)
* put out the burning of metals and metallic agents (D class fire)
* put out the burning of current carrying electrical installations (E class fire)

The fire extinguishers used to put out the hot spot in the initiative stage and also for fire protection of insignificant facilities, vehicles and devices.

The fire extinguishers: handheld and transportable

The hand held portable extinguishers have volume loading up to 10 liters.

The transportable fire extinguishers which loading volume higher than 10ltr. are installed on the special wheels

The fire extinguishers also vary in the design and type of used fire extinguishing agent. According to the used agent the fire extinguishers are:

- water

- foam (chemical, chemic air foamy)

- gas (CO2, halon, brome halon)

- powder

The fire extinguishers are to be stored at the environmental temperature not lower than 5°С, with the exception of gas and powder fire extinguishers which are operative at the negative temperature.

When it becomes cold and also for the fall winter period the powder fire extinguishers should be transferred to the heated space and a note with its new indication is put on the place of permanent installation.

The fire extinguishers are not allowed to locate near to the heating units and also in the open places to sun rays and atmospheric precipitates

*Gas fire extinguishers*

Incombustible gases shall be used as fire extinguishing agent in gas (CO2, halon, brome halon) fire extinguishers

CO2 extinguishers are designed for extinguishing different substances and materials, as well as electrical units energized cables and wires up to 10kW (10000W).

CO2 fire extinguisher charge is under high pressure, therefore its cylinder is equipped with cooling membrane, gas filling is allowed up to 75%.

It is prohibited to use CO2 fire extinguishers without the bursting disk.

In order to use the portable CO2 fire extinguisher it is necessary:

* using the transport handle, take out and put the fire extinguisher to the burning place
* direct the faucet to the heat source and open the launcher (faucet or lever)

The launcher allows to interrupt CO2. While working with CO2 extinguishers it is prohibited to keep the faucet with naked hand as carbon dioxide on the way out has the snow like mass with temperature minus 800 С

It is ought to bear in mind that the carbon dioxide in large quantities causes the poisoning, therefore after the use of CO2 extinguishers the small rooms need to be kept sweep.

It is not allowed to locate extinguishers near the heating devices where the temperature is more than 50°С and avoid the direct sun rays on balloons.

CO2 extinguishers with lever type launcher УН-52 are to be checked no less than once per year, and extinguishers with valve device need to be checked once per quarter by weighing.

As for the quenching efficiency the halon fire extinguishers exceed the CO2 extinguishers as they need less weight composition and capacity. The filling of these extinguishers is toxic; therefore to put out a fire in the closed rooms with the dimensions less 50 м3 are ought to be through doorway or venting holes. After extinguishing a fire the premises need be carefully aired.

Due to the insignificant overall dimensions these extinguishers are used to put out fire in vehicles, vessels and other transfer mechanisms.

In order to put into operation the halon extinguishers and its other types, they need to be kept by handle and carried to the seat of the fire pressing the button or launcher and open the bursting disk and direct the stream to the fire.

The testing and examination of gas extinguishers are to be conducted in accordance with testing certificate of manufacturer and current Rules for Design and Safe Operation of Pressure Vessels

*Powder fire extinguishers*

Powder fire extinguishers (PFE) are used to put out fire of solid, fluid and gaseous substances (depending on trade mark of used extinguishing powder) and also current carrying electric installations up to 1 KV (1000 V)

In order to put into operations the portable dry chemical fire extinguishers are need to:

* carry the fire extinguishers to the site of fire
* pull out the key
* press on the lever and direct the powder stream to the fire

In order to cut the powder stream the lever should be pulled out. It can have repeated use and interrupted operations. While using the fire extinguisher it should be hold vertically and shall not be turned

The transportable fire extinguishers ОП-50 and ОП-100 have transport wagon, operating and starting balloons and hose of powder delivery to the fire zone.

In order to bring the extinguisher into action it is necessary to perform the following:

* wheel the extinguisher without sharp roll over at the distance of 5-10 m to fire site and put strictly in vertical position
* take and lay the hose of powder delivery without any bends and twisting
* pluck the seal and turn the lever of locking head to the full
* opening the exhaust valve and direct the powder flow to fire site by crablike motions to cover the most part of flame by powder cloud.

It is allowed to have multiple opening and closing of exhaust valve during the fighting a fire. After fighting a fire the pressure in the extinguisher should be reduced by opening the exhaust valve. It is prohibited to take the pressurized extinguisher to pieces.

*Internal fireplugs*

Fire cocks are equipped by fire hoses and nozzles, and kept in secure cabinet. There is note with Fire cocks, index number and fire brigade telephone number on the door of secure cabinet.

Fire hoses have to be kept dry, good rolled, and connected to the cocks and nozzles.

Once a year the hoses need to be rolled back changing the places of folds.

The efficiency of fire cocks are to be checked no less than once per 6 months by running the water the results of inspection are registered in special registration book.

The internal fire cocks are filled with pressure fire hose with diameter 51 mm and length from 15 till 20 m and also by nozzles.

The secure cabinets can be built in the wall. It is allowed to install handheld fire extinguishers in secure cabinets.

The fire ax, hooks, and other inventories are served to open the construction or separate the flaming substances.

**Responsibility:**

Violation (non-fulfillment, inappropriate performance or avoidance of performance) safety requirements carry the criminal, administrative, disciplinary or other liability in accordance with the current legislation of RK.

# FIRST AID

All employees should know the first aid rendering rules as the properly and timely provided pre-doctor care is the considerable importance for the injured person. Inappropriate or unskilled first aid treatment can cause complications or even conducive to physical disability and in some cases (trauma with much blood loss, electrical shock, skin burns) it goes to the death of injured person at the place of traumatizing.

Never think that the person has died if he is not breathing, or hasn’t heartbeats or pulse and refuse from first aid treatment. Only a doctor has right to issue the medical certification of death and decide an issue on reanimation actions. Some cases are known (particularly with electric trauma) when the injured person was in state of apparent death, however the correct and persistent actions on reanimation have saved him life. In accident cases it is necessary to give first aid treatment and depending on the state of injured person call medical help using the phone number – 03 and inform your Manager.

***First aid for wounded people***

Wound is the injury of skin coverings (skin, mucous coat).The wounds, where only the skin and mucous coat are injured referred to flesh wound. If the injury covers deeper body tissues (muscles, chorda, bones and etc) these wounds are considered to be deep wound. The wounds connected with cavity (thoracic cage, stomach, head and etc) are called penetrating wounds.

Depending on character of injured objects the wounds are distinguished as incised, slash, chopped, contused, flap, degloving, bruising, and others.

The first aid treatment with wounds include the control bleeding, close the wound with sterile dressing and the frame or some other available material is put on the wounds with major zone of injury or bone fractures

Arterial bleeding identifies with the rhythmic red blood ejection. The most dangerous bleeding is from main artery (carotid, femoral, brachial and etc)

Phleborrhagia is characterized by slow dark red bleeding. The capillaceous bleeding generally occurs when it is scratches and flesh wounds. Bleeding control is one of the main vital actions. Before to put a dressing it is necessary to bare the injury area. The clothes need to be taken off or cut (better at the seams), remove the blood from the skin around the injury and to put a tincture of iodine on the edges. You should not sponge the wound with any liquids as it will inevitably lead to the germs extension to the deeper lying parts. Only the considerable infection with the land parts, tree stumps and other objects or substances which can be removed cautiously

One of the basic rules of correct bandaging is protection against the injection of that part which is exposed to the wound. One cannot touch that side of bandage and also move it along the body of injured person as there will be no sterility in the bandage.

Firstly it is necessary to remove the pain. It is necessary to put person in faintness in the way that level of his head is lower than legs (in order to supply blood to the head), undo a collar, belt, have fresh air in. The face and breast are to be sprayed by water, the liquid ammonia cotton need to be put to nose. As soon as the injured person regains senses he should be given valerian.

When you bandaging the injured person, the last should have a seat because if he sees the insignificant injuries under the influence of nervous excitement, sudden pain, and blood the injured person can have transient loss of consciousness which is called as faintness.One of the main ways to put a correct bandage is the protection from the pollution of that part which is near the wound. You cannot touch the bandage as also move it along the body of injured person as the sterility is lost.

Having the penetrating wound in stomach, the inward parts of body can come out from the wound. One cannot set them into the abdominal cavity. Such wound needs to be closed with sterile bulky dressing and bandage the belly, but not very tightly in order not compress the inward parts. It is preferably to put bulky dressing ring on abdominal wall around the fallen inward parts of body, because it will save them from compression.

Penetrating wound in breast the injury should be closed as soon as possible. Several sheets of bulky dressing, thick layer of cotton wool are put on the wound and closed by drawsheet, waxed paper with rubberized cover of first aid dressing package or use something other which is not air permeable material and after than tightly bandage the breast.

***Bleeding control***

The best way of temporary hemostasis is the compressing bandage which is effective in phleborrhagia, capillaceous, and mixed bleeding and even in arterial bleeding out of vessels.

Before put compressing bandage the wound need to be closed with sterile bulky dressing and through this put a pressure on injured tissues using one or two hands during 5-10 minutes. The stress by compressing will control the reduce of bleeding out of the wound. After the bleeding control in this way or significant reduce the injured place is tightly bandaged.

The arresting bleeding tourniquet is used in arterial bleeding out of great vessel – arteries. Applying a tourniquet always keeps the threat of necrosis of isolating part, thrombosis progression, neuritides, after the removal of bandage to the mortiferous intoxication (poisoning). Inappropriate applying a tourniquet will intensify the bleeding.

The tourniquet is put in close vicinity to the injury on soft textile layer or clothes. The excessive compressing of clothes by tourniquet leads to the rapid pain in the area of tourniquet and bring more suffering than these injuries. The area of applying a tourniquet should be in view and a note with time of applying always should be made. The duration of compressing the extremities by tourniquet – 2 hours and by cooling of extremities (up to 15° С) this period can be increased to 3-4 hours.

By hemorrhage out of head wound, the temporal artery needs to be pressed on the part of wound. This artery is in 1-1.5 sm in front of auricle.

***First aid when somebody is injured***

The injury can be occurred when somebody has been fallen or has blunt object trauma. There is bullation on the place of injury and as consequence of rupture of small blood vessels. The touching of injured place is always painful. The rubber bladder is put on the injured place (plastic pocket) with ice, snow or cold water. Using the cold during 15-20 minutes the tight bandage is put on the place of injury. Then again put ice bag on the bandage and keep it 1-1.5 hour. When it is the brain bruise there are vomitive symptoms and the injured person can lose the consciousness and showing the brain concussion. In this case the injured person to be laid down and put ice bag on his head. In order not to get vomit mass into the respiratory passages and the injured person is not asphyxiated, his head need to be turned to the side and clean mouth with finger swathed in bandages.

Though, the loss of consciousness for the short period the injured person should not have a seat or stand till the doctor examines him.

By explosions resulted by humming, sudden blow of wind blast there is the general damage of the whole organism and called blast injury. All people exposed to blast injury necessarily to bed down and depending on their condition render the assistance.

Usually the lower limbs are turned to be pressed when the buildings are destroyed or fallen. By this the major sub-dermal crush injury and histotripsy the skin is remained to be entire. As soon as the limbs are released the tourniquet is put above the pressured place in order to anticipate the toxicant resorption into the blood. The injured person needs to be immobilized and send to medical center.

The injured person with symptoms of brain concussion needs to have physical and psychological peace, be put with elevated head, undo a collar, cool forehead with wet tower.

**Fractures First aid**

Having the fracture the injured person has strong pain which is acutely strengthened at attempt to change the position. The fractures are divided into open and close.

The Close fracture occurs when the bone is broken but the skin on the place of fracture is not disturbed.

The Open fracture occurs when the fracture site has wound and splinters are stuck out of this wound.

Giving the first aid to the injured person who has fractures it is necessary to provide immobility of fracture site that reduces the pain and prevents the further parallagma of broken bones.

When there is an open limbs fracture the fracture site need to be released (cutting the sleeve) control the bleeding and close the injury with bandage and put frame. When there is close fracture the fracture site should not be released from the clothes.

If there is a suspicion of spinal fracture it is necessary to avoid the turning and re laying of the injured person. It is necessary to transport the injured person on the stretches and underlay planking or some other steady material. If such covering is not possible to make it out then the injured person need to be put down on stomach to the stretches.

If there is the sprain of joints the bandage needs to be put, as it gives the immobility of injured joint. The injured person with symptoms of spinal fracture are transferred with extreme care from the site of accident and put on hard stretches (shed), trying not to change the trunk position. It is not possible to elevate people with the spinal injury keeping by their legs or hands. The rollers are put under the neck and back.

Micro trauma first aid

It is necessary to swab the micro trauma – splinters, scratches, injections, small slits with iodine and close it with clean bandage (bactericidal plaster). Otherwise the infection can come into the undressed wound, which usually complicates the process and brings the disablement.

***First Aid for burn injury***

Skin burns – tissue damage, affected by actions of high temperature (flame, steam and etc) or sharp chemical agents (acids, alkali, phenol and etc) The burnings are divided into:

1st level – the angriness and tenderness on the burning place

2nd level - the bullas on the burning place

3rd level - skin necrosis

4th level – not only the skin burning, but also tendon, muscles, bones

The burns with size of 1/3 body surface are dangerous for the life

In case the injured person has the flame of clothes on him firstly the first aid is to put out the flamed clothes by showering him water and in case there is no water to wrap him by cloth. As soon as the fire is extinguished, the clothes need to be taken off.

The stacked parts are should not be peeled but cut around and leave on that place.

It is absolutely prohibited to cut the bulls on the injured person. If there is the major burning it is better to wrap the injured into the clean cloth. The dry sterile bandage is put on burning site. Before this the injured parts are need to be released from objects which can constrict the tissues (watch, rings)

The separate injured parts need to be rubbed by spirit, cologne

The burnings parts of strong acids (azotic, sulfuric, and hydrochloric) are thoroughly washed with water.

After this the injured place is washed by solution with 5% of potassium permanganate or 10% of cooking soda (one teaspoon for one glass of water). After the washing the injured parts to be covered with cloth sodden with mixing of vegetable oil and earthy water in equal proportions.

When the acid or vapor hit into the eye or into the mouth it is necessary to wash or rinse eye and mouth with 5% of cooking soda solution, and when the acid is in respiratory passages then it is important to breathe by sprayed solution of 5% cooking soda.

In case of burning by caustic alkali (caustic soda, calk) the injured place need to be thoroughly washed by water. Then wash with diluted solution of acetic acid (3-6%) or boric acid solution (one tea spoon for 1 glass of water)

After the washing the injured place need to be covered by gauze, saturated with 5% of acetic acid solution.

When caustic alkali or vapor hit the eyes the washing need to be done with 2% of boric acid solution

If the injuries are connected with the glass and simultaneous exposure of acid or caustic alkali it is necessary to be sure that the wound doesn’t have glass fragments and then wash it with adequate solution, swab the edges with iodine and stanch the wound.

**First Aid with electric traumas**

The first aid action with electric traumas has to be fast shutdown of that installation part the injured person has the connection.

In case it is not possible to disconnect the installation it is necessary to take actions to separate the injured person from the conductive parts. The electrician gloves need to be worn in order to isolate hands, if there are no such gloves let down the sleeves on the hands or take dry cloth.

If possible during the separation of the injured person one ought to work with one hand. If it gets difficult to separate the injured person from conductive parts it ought to wear the electrician gloves and cut the cable by ax keeping the dry wood handle or other tools with isolated handles. Each wire needs to be split and cut separately.

In order to identify the condition of the injured person it is necessary:

* to lay down the injured person on his back on solid surface
* check if the injured person has the breath (it is identified by breast lifting)
* check if the injured person has the pulse
* find out the condition of pupil (narrow or mydriatic). The mydriatic pupil shows the cerebral blood supply deterioration.

In all electric trauma cases it is important to inform health unit regardless of the injured person condition.

If the injured person is in the consciousness, but before was in faint, he ought to lay down in comfortable position and before doctor comes to give him rest always see after him.

If the injured person is in state of insensibility but has saved stabile breath and pulse he should have a bed, undo clothes, fresh air and have the smell of ammonium spirit and providing him rest call a doctor.

If the injured person has not breath and pulse the artificial respiration and heart massage need to be made immediately.

**First aid with gas poisoning**

The poisoning of organism through the respiratory passages (inhalation of toxic vapor, gases, dust, fog, it is necessary to stop the further entrance of toxics into organism, take out the injured person from dusty atmosphere to the warm, ventilated and clean room or outside to have fresh air in. Put the hampered clothes off (undo a collar, belt) Put off the clothes which is polluted by toxic substances, as such clothes is additional poisoning source (inhalation of evolved vapors, poison absorbing through the skin).

Artificial Lung Ventilation (artificial respiration)

Before to start the artificial respiration it is necessary:

Promptly put the hammered clothes off (undo a collar, belt and untie)

Clean the mouth and nasopharynx and get foreign objects (wing the bandage round your finger) throw the head back, open the mouth widely and move forward lower jaw.

By artificial respiration method «mouth to mouth» the care provider takes a deep breath and with the force blow the air into the mouth of injured person, and the last has passive breath. Then the care provider takes a new deep breath and injured person give a breath out. It is necessary to make first 5-10 blowing very quickly (during 20-30 seconds) and then at the rate of 12-15 blowing in one minute until the breathing of the injured person are became spontaneous.

In case of abdominal distention (air in stomach) it is necessary to press by hand on top half of stomach, not stopping the artificial lung ventilation.

In case the injured person has the maxillofacial trauma or masticatory spasm the artificial lung ventilation is made through nose.

The use of other methods of artificial lung ventilation based on chest compression, raising and laying on hands are less effective.

*Chest compressions*

If the injured person does not have pulse (the heart depression or even asystole) it is necessary to make the closed-chest cardiac massage simultaneously with the artificial lung ventilation.

The closed-chest cardiac massage is made by rhythmic pressings on the mobile part of breastbone. The pressure on the sternum is made by two hands: The heel of the hand is put in the middle of breast bone and another hand is placed above. Bear in mind that with overexertion there maybe breast fractured ribs, depression of heart, liver, rarely spleen and other bodies.

If there is one care provider then having made (3-4) pressings on the breastbone, he interrupts the massage and blows air in through the mouth or nose into the lungs of injured person, then makes pressings on the breast bone and again blow air in.

**Explosive injuries**

Explosive injuries in the industry are occurred as the result of sudden explosion. The air shock wave defeats in form of volume or one sided blow, sharply changing the proportion of intra-cavitary, tissue, intercellular structures at the account of great drops in pressure, entailing primary faults – breakages, deflection, followed by lymph hemorrhage in all tissues.

According to the type of trauma the injured person should be rendered first aid. The first aid kit is packed in order to give timely effective and pre-doctor aid.